AUDIO HOME RECORDING ACT OF 1991

HEARING

BEFORE THE

SUBCOMMITTEE ON INTELLECTUAL PROPERTY AND JUDICIAL ADMINISTRATION

OF THE

COMMITTEE ON THE JUDICIARY HOUSE OF REPRESENTATIVES

ONE HUNDRED SECOND CONGRESS

SECOND SESSION

ON

H.R. 3204

AUDIO HOME RECORDING ACT OF 1991

FEBRUARY 19, 1992

Serial No. 114

F/W 102 H.R. 3204

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AUDIO HOME RECORDING ACT OF 1991

WEDNESDAY, FEBRUARY 19, 1992

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON INTELLECTUAL PROPERTY
AND JUDICIAL ADMINISTRATION,
COMMITTEE ON THE JUDICIARY,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:37 a.m., in room 2237, Rayburn House Office Building, Hon. William J. Hughes (chairman of the subcommittee) presiding.

Present: Representatives William J. Hughes, John Conyers, Jr., Patricia Schroeder, Carlos J. Moorhead, and Howard Coble.

Also present: Hayden W. Gregory, counsel; Elizabeth Fine, assistant counsel; Phyllis Henderson, staff assistant; and Thomas E. Mooney, minority counsel.

OPENING STATEMENT OF CHAIRMAN HUGHES

Mr. HUGHES. The Chair has received a request to cover this hearing in whole or in part by television broadcast, radio broadcast, and still photography, or by any of such methods of coverage.

In accordance with committee rule 5(a), permission will be granted unless there is an objection. Is there objection?

[No response.]

Mr. HUGHES. Hearing none, permission is granted.

Good morning. Today, the subcommittee is pleased to consider H.R. 3204, the Audio Home Recording Act. I joined Chairman Brooks in introducing H.R. 3204 last August. Since then our ranking Republican member, Carlos Moorhead of California, and 8 other members of this subcommittee have joined the ranks of what are now 57 cosponsors of the bill. The Senate is considering similar legislation under the leadership of Senator DeConcini in the other body.

The Audio Home Recording Act represents a dramatic compromise reached between the recording and music industries, the consumer electronics industry and consumers themselves. The agreement will encourage the development and introduction of advanced consumer products and will at the same time assure that the copyrights on creative works are properly protected.

This legislation attempts to solve the problem of home taping of recorded music, a problem that is already of concern to the recording industry. The American recording industry estimates that it loses close to a billion dollars in revenues each year to home recording. The dispute over home taping of recorded music, however, took on a new dimension 5 or 6 years ago with the introduction of

the digital audio tape, or DAT. DAT as well as other new digital technologies will enable perfect copies to be made from digital recordings. Consequently, the problem of home taping is a matter of much greater exigency to the music industry.

At the urging of Congress, the music and record industries worked with the electronics industry to control home taping as we enter the digital age. They produced what was called the Athens agreement. H.R. 4069, which incorporated the Athens agreement, was introduced in the 101st Congress as a technological solution to the home taping problem. Music producers, authors and performers whose products would still to a limited extent be taped at home opposed the legislation because it did not provide them with any compensation. Ultimately, this disagreement short circuited the legislation.

I might add that this original agreement was not well received by this committee. Indeed, it was not received at all by this committee. Although my predecessor, Mr. Kastenmeier, and the chairman of the full committee, Mr. Brooks, were moving forces in encouraging the warring parties to propose a solution to the copyright problems they faced, the legislative solution proposed was specifically drafted to circumvent copyright-based jurisdiction.

Last year, the parties went back to the negotiating table and returned with a comprehensive agreement in hand. This agreement was incorporated into H.R. 3204, the Audio Home Recording Act of 1991. H.R. 3204 contains the following principal provisions.

First, it protects consumers and the electronic industry from copyright infringement suits when consumers tape digital or analog recordings for private, noncommercial use.

Second, the bill requires that all digital audio recorders incorporate a serial copy management system (SCMS). This SCMS system will prevent the making of second-generation copies of digital recordings. For example, the owner of a digital recorder could make one or more copies of the original recordings, but the SCMS system would prevent any of these first generation copies from being recopied.

Third, the bill establishes a royalty system to compensate authors, performers, record companies, and music publishers. The royalty, which is modest, will be part of the cost of acquiring digital recording equipment and blank tapes. The royalty will be collected by the Copyright Office and distributed by the Copyright Royalty Tribunal.

Finally, the bill sets forth remedies for violations of the royalty or SCMS provisions. We are very pleased that industries with very different commercial interests have worked together to develop the consensus proposal we are considering today. Now, we must scrutinize this proposal to the same extent we review any legislative proposal to determine if the legislation is in the overriding public interest, whether it fits within the policy of our copyright laws and is flexible enough to accommodate new technological developments.

To the extent necessary, we will incorporate any necessary changes in the legislation that will advance these public policy goals. The Audio Home Recording Act is indeed landmark legislation, and I look forward to receiving testimony this morning from a broad array of experts from around the country.

[The bill, H.R. 3204, follows:]

I

102D CONGRESS
1ST SESSION

H. R. 3204

To amend title 17, United States Code, to implement a royalty payment system and a serial copy management system for digital audio recording, to prohibit certain copyright infringement actions, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

AUGUST 2, 1991

Mr. BROOKS (for himself and Mr. HUGHES) introduced the following bill; which was referred jointly to the Committees on the Judiciary, Energy and Commerce, and Ways and Means

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A BILL

To amend title 17, United States Code, to implement a royalty payment system and a serial copy management system for digital audio recording, to prohibit certain copyright infringement actions, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Audio Home Recording Act of 1991".

SEC. 2. IMPORTATION, MANUFACTURE, AND DISTRIBUTION OF DIGITAL AUDIO RECORDING DEVICES AND MEDIA.

Title 17, United States Code, is amended by adding at the end the following:

"CHAPTER 10—DIGITAL AUDIO RECORDING DEVICES AND MEDIA

"SUBCHAPTER A—DEFINITIONS, PROHIBITION OF CERTAIN INFRINGEMENT ACTIONS, AND RULES OF CONSTRUCTION

"SUBCHAPTER B—ROYALTY PAYMENTS

"SUBCHAPTER C—THE SERIAL COPY MANAGEMENT SYSTEM

"SUBCHAPTER D—REMEDIES

"SUBCHAPTER A—DEFINITIONS, PROHIBITION OF CERTAIN INFRINGEMENT ACTIONS, AND RULES OF CONSTRUCTION

"§ 1001. DEFINITIONS

"As used in this chapter, the following terms and their variant forms mean the following:

"(1) A 'digital audio copied recording' is a reproduction in a digital recording format of a phonorecord, whether that reproduction is made directly from another phonorecord or indirectly from a transmission.

"(2) A 'digital audio interface device' is any machine or device, now known or later developed, whether or not included with or as part of some other machine or device, that supplies a digital audio signal through a nonprofessional interface, as the term 'nonprofessional interface' is used in the Digital Audio Interface Standard in part I of the technical reference document or as otherwise defined by the Secretary of Commerce under section 1022(b).

"(3) A 'digital audio recording device' is any machine or device, now known or later developed, whether or not included with or as part of some other machine or device, the recording function of which is designed or marketed for the primary purpose of, and that is capable of, making a digital audio copied recording for private use, except for—

"(A) professional model products, and

"(B) dictation machines, answering machines, and other audio recording equipment that is designed and marketed primarily for the

creation of sound recordings resulting from the fixation of nonmusical sounds.

"(4)(A) A 'digital audio recording medium' is any material object, now known or later developed, in a form commonly distributed for use by individuals (such as magnetic digital audio tape cassettes, optical discs, and magneto-optical discs), that is primarily marketed or most commonly used by consumers for the purpose of making digital audio copied recordings by use of a digital audio recording device.

"(B) Such term does not include any material object—

"(i) that embodies a sound recording at the time it is first distributed by the importer or manufacturer, unless the sound recording has been so embodied in order to evade the obligations of section 1011 of this title; or

"(ii) that is primarily marketed and most commonly used by consumers either for the purpose of making copies of motion pictures or other audiovisual works or for the purpose of making copies of nonmusical literary works, including, without limitation, computer programs or data bases.

"(5) 'Distribute' means to sell, resell, lease, or assign a product to consumers in the United States, or to sell, resell, lease, or assign a product in the United States for ultimate transfer to consumers in the United States.

"(6) An 'interested copyright party' is—

"(A) the owner of the exclusive right under section 106(1) of this title to reproduce a sound recording of a musical work that has been embodied in a phonorecord lawfully made under this title that has been distributed to the public;

"(B) the legal or beneficial owner of, or the person that controls, the right to reproduce in a phonorecord a musical work that has been embodied in a phonorecord lawfully made under this title that has been distributed to the public; or

"(C) any association or other organization—

"(i) representing persons specified in subparagraph (A) or (B), or

"(ii) engaged in licensing rights in musical works to music users on behalf of writers and publishers.

"(7) An 'interested manufacturing party' is any person that imports or manufactures any digital audio recording device or digital audio recording medium in the United States, or any association of such persons.

"(8) 'Manufacture' includes the production or assembly of a product in the United States.

"(9) A 'music publisher' is a person that is authorized to license the reproduction of a particular musical work in a sound recording.

"(10)(A) A 'professional model product' is an audio recording device—

"(i) that is capable of sending a digital audio interface signal in which the channel status block flag is set as a 'professional' interface, in accordance with the standards and specifications set forth in the technical reference document or established under an order issued by the Secretary of Commerce under section 1022(b);

"(ii) that is clearly, prominently, and permanently marked with the letter 'P' or the word 'professional' on the outside of its packaging, and in all advertising, promotional, and descriptive literature, with respect to the device, that

is available or provided to persons other than the manufacturer or importer, its employees, or its agents; and

"(iii) that is designed, manufactured, marketed, and intended for use by recording professionals in the ordinary course of a lawful business.

"(B) In determining whether an audio recording device meets the requirements of subparagraph (A)(iii), factors to be considered shall include—

"(i) whether it has features used by recording professionals in the course of a lawful business, including features such as—

"(I) a data collection and reporting system of error codes during recording and playback;

"(II) a record and reproduce format providing 'read after write' and 'read after read';

"(III) a time code reader and generator conforming to the standards set by the Society of Motion Picture and Television Engineers for such readers and generators; and

"(IV) a professional input/output interface, both digital and analog, conforming to standards set by audio engineering organizations for connectors, signaling formats, levels, and impedances;

"(ii) the nature of the promotional materials used to market the audio recording device;

"(iii) the media used for the dissemination of the promotional materials, including the intended audience;

"(iv) the distribution channels and retail outlets through which the device is disseminated;

"(v) the manufacturer's or importer's price for the device as compared to the manufacturer's or importer's price for digital audio recording devices implementing the Serial Copy Management System;

"(vi) the relative quantity of the device manufactured or imported as compared to the size of the manufacturer's or importer's market for professional model products;

"(vii) the occupations of the purchasers of the device; and

"(viii) the uses to which the device is put.

"(11) The 'Register' is the Register of Copyrights.

"(12) The 'Serial Copy Management System' means the system for regulating serial copying by digital audio recording devices that is set forth in the technical reference document or in an order of the Secretary of Commerce under section 1022(b), or that conforms to the requirements of section 1021(a)(1)(C).

"(13) The 'technical reference document' is the document entitled 'Technical Reference Document for Audio Home Recording Act of 1991,' as such document appears in the report of the Committee on the Judiciary to the House of Representatives reporting favorably the bill which upon enactment made the amendment adding this chapter.

"(14)(A) The 'transfer price' of a digital audio recording device or a digital audio recording medium is—

"(i) in the case of an imported product, the actual entered value at United States Customs (exclusive of any freight, insurance, and applicable duty), and

"(ii) in the case of a domestic product, the manufacturer's transfer price (FOB the manu-

facturer, and exclusive of any direct sales taxes or excise taxes incurred in connection with the sale).

"(B) Where the transferor and transferee are related entities or within a single entity, the transfer price shall not be less than a reasonable arms-length price under the principles of the regulations adopted pursuant to section 482 of the Internal Revenue Code of 1986, or any successor provision to such section 482.

"(15) A 'transmission' is any audio or audiovisual transmission, now known or later developed, whether by a broadcast station, cable system, multipoint distribution service, subscription service, direct broadcast satellite, or other form of analog or digital communication.

"(16) The 'Tribunal' is the Copyright Royalty Tribunal.

"(17) A 'writer' is the composer or lyricist of a particular musical work.

"(18) The terms 'analog format', 'copyright status', 'category code', 'generation status', and 'source material', mean those terms as they are used in the technical reference document.

"§ 1002. Prohibition on certain infringement actions

"(a) CERTAIN ACTIONS PROHIBITED.—

"(1) GENERALLY.—No action may be brought under this title, or under section 337 of the Tariff Act of 1930, alleging infringement of copyright based on the manufacture, importation, or distribution of a digital audio recording device or a digital audio recording medium, or an analog audio recording device or analog audio recording medium, or the use of such a device or medium for making phonorecords. However, this subsection does not apply with respect to any claim against a person for infringement by virtue of the making of one or more copies or phonorecords for direct or indirect commercial advantage.

"(2) EXAMPLE.—For purposes of this section, the copying of a phonorecord by a consumer for private, noncommercial use is not for direct or indirect commercial advantage, and is therefore not actionable.

"(b) EFFECT OF THIS SECTION.—Nothing in this section shall be construed to create or expand a cause of action for copyright infringement except to the extent such a cause of action otherwise exists under other chapters of this title or under section 337 of the Tariff Act of 1930,

or to limit any defenses that may be available to such causes of action.

"§ 1003. Effect on other rights and remedies with respect to private home copying or otherwise

"Except as expressly provided in this chapter with respect to audio recording devices and media, neither the enactment of this chapter nor anything contained in this chapter shall be construed to expand, limit, or otherwise affect the rights of any person with respect to private home copying of copyrighted works, or to expand, limit, create, or otherwise affect any other right or remedy that may be held by or available to any person under chapters 1 through 9 of this title.

"SUBCHAPTER B—ROYALTY PAYMENTS

"§ 1011. Obligation to make royalty payments

"(a) PROHIBITION ON IMPORTATION AND MANUFACTURE.—No person shall import into and distribute in the United States, or manufacture and distribute in the United States, any digital audio recording device or digital audio recording medium unless such person—

"(1) records the notice specified by this section and subsequently deposits the statements of account and applicable royalty payments for such device or

medium specified by this section and section 1012 of this title, or

"(2) complies with the applicable notice, statement of account, and payment obligations under a negotiated arrangement authorized pursuant to section 1016 of this title.

"(b) FILING OF NOTICE.—

"(1) GENERALLY.—The importer or manufacturer of any digital audio recording device or digital audio recording medium, within a product category or utilizing a technology with respect to which such manufacturer or importer has not previously filed a notice under this subsection, shall file a notice with the Register, no later than 45 days after the commencement of the first distribution in the United States of such device or medium, in such form as the Register shall prescribe by regulation.

"(2) CONTENTS.—Such notice shall—

"(A) set forth the manufacturer's or importer's identity and address,

"(B) identify such product category and technology, and

"(C) identify any trade or business names, trademarks, or like indicia of origin that the importer or manufacturer uses or intends to use

in connection with the importation, manufacture, or distribution of such device or medium in the United States.

"(c) FILING OF QUARTERLY STATEMENTS OF ACCOUNT.—

"(1) GENERALLY.—Any importer or manufacturer that distributed during a given quarter any digital audio recording device or digital audio recording medium that it manufactured or imported shall file with the Register, in such form as the Register shall prescribe by regulation, a quarterly statement of account specifying, by product category, technology, and model, the number and transfer price of all digital audio recording devices and digital audio recording media that it distributed during such quarter.

"(2) TIMING, CERTIFICATION, AND ROYALTY PAYMENTS.—Such statement shall—

"(A) be filed no later than 45 days after the close of the period covered by the statement;

"(B) be certified as accurate by an authorized officer or principal of the importer or manufacturer;

"(C) be accompanied by the total royalty payment due for such period pursuant to section 1012 of this title.

"(3) PERIOD COVERED.—The quarterly statements of account may be filed on either a calendar or fiscal year basis, at the election of the manufacturer or importer.

"(d) FILING OF ANNUAL STATEMENTS OF ACCOUNT.—

"(1) GENERALLY.—Any importer or manufacturer that distributed during a given calendar or fiscal year (as applicable) any digital audio recording device or digital audio recording medium that it manufactured or imported shall also file with the Register a cumulative annual statement of account, in such form as the Register shall prescribe by regulation.

"(2) TIMING AND CERTIFICATION.—Such statement shall be filed no later than 60 days after the close of such calendar or fiscal year, and shall be certified as accurate by an authorized officer or principal of the importer or manufacturer.

"(3) INDEPENDENT REVIEW AND CERTIFICATION.—The annual statement of account shall be reviewed and, pursuant to generally accepted auditing

standards, certified by an independent certified public accountant selected by the manufacturer or importer as fairly presenting the information contained therein, on a consistent basis and in accordance with the requirements of this chapter.

"(4) RECONCILIATION OF ROYALTY PAYMENT.—The cumulative annual statement of account shall be accompanied by any royalty payment due under section 1012 of this title that was not previously paid under subsection (c) of this section.

"(e) VERIFICATION.—

"(1) GENERALLY.—

"(A) The Register shall, after consulting with interested copyright parties and interested manufacturing parties, prescribe regulations specifying procedures for the verification of statements of account filed pursuant to this section.

"(B) Such regulations shall permit interested copyright parties to select independent certified public accountants to conduct audits in order to verify the accuracy of the information contained in the statements of account filed by manufacturers and importers.

"(C) Such regulations shall also—

"(i) specify the scope of such independent audits; and

"(ii) establish a procedure by which interested copyright parties will coordinate the engagement of such independent certified public accountants, in order to ensure that no manufacturer or importer is audited more than once per year.

"(D) All such independent audits shall be conducted at reasonable times, with reasonable advance notice, and shall be no broader in scope than is reasonably necessary to carry out the purposes of this subsection in accordance with generally accepted auditing standards.

"(2) INDEPENDENT CERTIFICATION.—The results of all such independent audits shall be certified as fairly presenting the information contained therein, on a consistent basis and in accordance with the requirements of this chapter and generally accepted auditing standards, by the certified public accountant responsible for the audit. The certification and results shall be filed with the Register.

"(3) ACCESS TO DOCUMENTS IN EVENT OF DISPUTE.—In the event of a dispute concerning the amount of the royalty payment due from a manufac-

turer or importer resulting from a verification audit conducted under this section—

"(A) any interested manufacturing party audited pursuant to this subsection, and its authorized representatives, shall be entitled to have access to all documents upon which the audit results under this subsection were based; and

"(B) any representative of an interested copyright party that has been approved by the Register under subsection (h)(2) of this section shall be entitled to have access to all documents upon which the audit results under subsection (d) of this section were based, subject to the limitations of subsection (h)(2) of this section.

"(f) COSTS OF VERIFICATION.—

"(1) The costs of all verification audits that are conducted pursuant to subsection (e) of this section shall be borne by interested copyright parties, except that, in the case of a verification audit of a manufacturer or importer that leads ultimately to recovery of an annual royalty underpayment of 5 percent or more of the annual payment made, the importer or manufacturer shall provide reimbursement for the reasonable costs of such audit.

"(2) Except as may otherwise be agreed by interested copyright parties, the costs of a verification audit conducted pursuant to subsection (e) of this section shall be borne by the party engaging the certified public accountant. Any recovery of royalty underpayments as a result of the audit shall be used first to provide reimbursement for the reasonable costs of such audit to the extent such costs have not otherwise been reimbursed by the manufacturer or importer pursuant to this subsection. Any remaining recovery shall be deposited with the Register pursuant to section 1013 of this title, or as may otherwise be provided by a negotiated arrangement authorized under section 1016 of this title, for distribution to interested copyright parties as though such funds were royalty payments made pursuant to this section.

"(g) INDEPENDENCE OF ACCOUNTANTS.—Each certified public accountant used by interested copyright parties or interested manufacturing parties pursuant to this section shall be in good standing and shall not be financially dependent upon interested copyright parties or interested manufacturing parties, respectively. The Register may, upon petition by any interested copyright party or interested manufacturing party, prevent the use of a par-

ticular certified public accountant on the ground that such accountant does not meet the requirements of this subsection.

"(h) CONFIDENTIALITY.—

"(1) GENERALLY.—The quarterly and annual statements of account filed pursuant to subsections (c) and (d) of this section, and information disclosed or generated during verification audits conducted pursuant to subsection (e) of this section, shall be presumed to contain confidential trade secret information within the meaning of section 1905 of title 18 of the United States Code. Except as provided in paragraphs (2), (3), and (4) of this subsection, neither the Register nor any member, officer, or employee of the Copyright Office or the Tribunal, may—

"(A) publicly disclose audit information furnished under this section or information contained in quarterly or annual statements of account, except that aggregate information that does not disclose, directly or indirectly, company-specific information may be made available to the public;

"(B) use such information for any purpose other than to carry out responsibilities under this chapter; or

"(C) permit anyone (other than members, officers, and employees of the Copyright Office and the Tribunal who require such information in the performance of duties under this chapter) to examine such information.

"(2) PROCEDURES FOR ACCESS TO BE PRESCRIBED BY REGISTER.—(A) The Register, after consulting with interested manufacturing parties and interested copyright parties, shall prescribe procedures for disclosing, in confidence, to representatives of interested copyright parties and representatives of interested manufacturing parties information contained in quarterly and annual statements of account and information generated as a result of verification audits.

"(B) Such procedures shall provide that only those representatives of interested copyright parties and interested manufacturing parties who have been approved by the Register shall have access to such information, and that all such representatives shall be required to sign a certification limiting the use of the information to—

"(i) verification functions under this section, and

"(ii) any enforcement actions that may result from such verification procedures.

"(3) ACCESS BY AUDITED MANUFACTURER.—Any interested manufacturing party that is audited pursuant to subsection (e) of this section, and its authorized representatives, shall be entitled to have access to all documents filed with the Register as a result of such audit.

"(4) ACCESS BY CONGRESS.—Nothing in this section shall authorize the withholding of information from the Congress.

"§ 1012. Royalty payments

"(a) DIGITAL AUDIO RECORDING DEVICES.—

"(1) The royalty payment due under section 1011 of this title for each digital audio recording device imported into and distributed in the United States, or manufactured and distributed in the United States, shall be 2 percent of the transfer price. However, only the first person to manufacture and distribute or import and distribute such device shall be required to pay the royalty with respect to such device.

"(2) With respect to a digital audio recording device first distributed in combination with one or more devices, either as a physically integrated unit or as separate components, the royalty payment shall be calculated as follows:

"(A) If the digital audio recording device and such other devices are part of a physically integrated unit, the royalty payment shall be based on the transfer price of the unit, but shall be reduced by any royalty payment made on any digital audio recording device included within the unit that was not first distributed in combination with the unit.

"(B) If the digital audio recording device is not part of a physically integrated unit and substantially similar devices have been distributed separately at any time during the preceding 4 quarters, the royalty payment shall be based on the average transfer price of such devices during those 4 quarters.

"(C) If the digital audio recording device is not part of a physically integrated unit and substantially similar devices have not been distributed separately at any time during the preceding 4 quarters, the royalty payment shall be

based on a constructed price reflecting the proportional value of such device to the combination as a whole.

"(3) Notwithstanding paragraph (1) or (2) of this subsection, the amount of the royalty payment for each digital audio recording device or physically integrated unit containing a digital audio recording device shall not be less than $1 nor more than the royalty maximum. The royalty maximum shall be $8 per device, except that for a physically integrated unit containing more than one digital audio recording device, the royalty maximum for such unit shall be $12. During the 6th year after the effective date of this chapter, and no more than once each year thereafter, any interested copyright party may petition the Tribunal to increase the royalty maximum and, if more than 20 percent of the royalty payments are at the relevant royalty maximum, the Tribunal shall prospectively increase such royalty maximum with the goal of having no more than 10 percent of such payments at the new royalty maximum.

"(b) DIGITAL AUDIO RECORDING MEDIA.—The royalty payment due under section 1011 of this title for each digital audio recording medium imported into and distributed in the United States, or manufactured and distribut-

ed in the United States, shall be 3 percent of the transfer price. However, only the first person to manufacture and distribute or import and distribute such medium shall be required to pay the royalty with respect to such medium.

"(c) RETURNED OR EXPORTED MERCHANDISE.—

"(1) In calculating the amount of royalty payments due under subsections (a) and (b) of this section, manufacturers and importers may deduct the amount of any royalty payments already made on digital audio recording devices or media that are—

"(A) returned to the manufacturer or importer as unsold or defective merchandise; or

"(B) exported by the manufacturer or importer or a related person.

"(2) Any such credit shall be taken during the period when such devices or media are returned or exported, and the basis for any such credit shall be set forth in the statement of account for such period filed under section 1011(c) of this title.

"(3) Any such credit that is not fully used during such period may be carried forward to subsequent periods. If any returned or exported merchandise for which a credit has been taken is subsequently distributed, a royalty payment shall be made as specified under subsection (a) or (b) of this section,

based on the transfer price applicable to such distribution.

"§ 1013. Deposit of royalty payments and deduction of expenses

"The Register shall receive all royalty payments deposited under this chapter and, after deducting the reasonable costs incurred by the Copyright Office under this chapter, shall deposit the balance in the Treasury of the United States, in such manner as the Secretary of the Treasury directs. All funds held by the Secretary of the Treasury shall be invested in interest-bearing United States securities for later distribution with interest under section 1014, 1015, or 1016 of this title. The Register shall submit to the Copyright Royalty Tribunal, on a quarterly basis, such information as the Tribunal shall require to perform its functions under this chapter.

"§ 1014. Entitlement to royalty payments

"(a) INTERESTED COPYRIGHT PARTIES.—The royalty payments deposited pursuant to section 1013 of this title shall, in accordance with the procedures specified in section 1015 or 1016 of this title, be distributed to any interested copyright party—

"(1) whose musical work or sound recording has been—

"(A) embodied in phonorecords lawfully made under this title that have been distributed to the public, and

"(B) distributed to the public in the form of phonorecords or disseminated to the public in transmissions, during the period to which such payments pertain; and

"(2) who has filed a claim under section 1015 or 1016 of this title.

"(b) ALLOCATION OF ROYALTY PAYMENTS TO GROUPS.—The royalty payments shall be divided into two funds as follows:

"(1) THE SOUND RECORDINGS FUND.—66⅔ percent of the royalty payments shall be allocated to the Sound Recordings Fund. The American Federation of Musicians (or any successor entity) shall receive 2⅝ percent of the royalty payments allocated to the Sound Recordings Fund for the benefit of nonfeatured musicians who have performed on sound recordings distributed in the United States. The American Federation of Television and Radio Artists (or any successor entity) shall receive 1⅜ percent of the royalty payments allocated to the Sound Recordings Fund for the benefit of nonfeatured vocalists who have performed on sound recordings distributed

in the United States. The remaining royalty payments in the Sound Recordings Fund shall be distributed to claimants under subsection (a) of this section who are interested copyright parties under section 1001(a)(6)(i) of this title. Such claimants shall allocate such royalty payments, on a per sound recording basis, in the following manner: 40 percent to the recording artist or artists featured on such sound recordings (or the persons conveying rights in the artists' performances in the sound recordings), and 60 percent to the interested copyright parties.

"(2) THE MUSICAL WORKS FUND.—

"(A) 33⅓ percent of the royalty payments shall be allocated to the Musical Works Fund for distribution to interested copyright parties whose entitlement is based on legal or beneficial ownership or control of a copyright in a musical work.

"(B) Notwithstanding any contractual obligation to the contrary—

"(i) music publishers shall be entitled to 50 percent of the royalty payments allocated to the Musical Works Fund, and

"(ii) writers shall be entitled to the other 50 percent of the royalty payments allocated to the Musical Works Fund.

"(c) ALLOCATION OF ROYALTY PAYMENTS WITHIN GROUPS.—If all interested copyright parties within a group specified in subsection (b) of this section do not agree on a voluntary proposal for the distribution of the royalty payments within such group, the Tribunal shall, pursuant to the procedures specified in section 1015(c) of this title, allocate such royalty payments based on the extent to which, during the relevant period—

"(1) for the Sound Recordings Fund, each sound recording was distributed to the public in the form of phonorecords; and

"(2) for the Musical Works Fund, each musical work was distributed to the public in the form of phonorecords or disseminated to the public in transmissions.

"§ 1015. Procedures for distributing royalty payments

"(a) FILING OF CLAIMS AND NEGOTIATIONS.—

"(1) During the first 2 months of each calendar year after the calendar year in which this chapter takes effect, every interested copyright party that is entitled to royalty payments under section 1014 of this title shall file with the Tribunal a claim for pay-

ments collected during the preceding year in such form and manner as the Tribunal shall prescribe by regulation.

"(2) All interested copyright parties within each group specified in section 1014(b) of this title shall negotiate in good faith among themselves in an effort to agree to a voluntary proposal for the distribution of royalty payments. Notwithstanding any provision of the antitrust laws, for purposes of this section such interested copyright parties may agree among themselves to the proportionate division of royalty payments, may lump their claims together and file them jointly or as a single claim, or may designate a common agent to receive payment on their behalf; except that no agreement under this subsection may vary the division of royalties specified in section 1014(b) of this title.

"(b) DISTRIBUTION OF PAYMENTS IN THE ABSENCE OF A DISPUTE.—Within 30 days after the period established for the filing of claims under subsection (a) of this section, in each year after the year in which this section takes effect, the Tribunal shall determine whether there exists a controversy concerning the distribution of royalty payments under section 1014(c) of this title. If the Tribunal determines that no such controversy exists, it shall au-

thorize the distribution of the royalty payments as set forth in the agreements regarding the distribution of royalty payments entered into pursuant to subsection (a) of this section, after deducting its reasonable administrative costs under this section.

"(c) RESOLUTION OF DISPUTES.—If the Tribunal finds the existence of a controversy, it shall, pursuant to chapter 8 of this title, conduct a proceeding to determine the distribution of royalty payments. During the pendency of such a proceeding, the Tribunal shall withhold from distribution an amount sufficient to satisfy all claims with respect to which a controversy exists, but shall, to the extent feasible, authorize the distribution of any amounts that are not in controversy.

"§ 1016. Negotiated collection and distribution arrangements

"(a) SCOPE OF PERMISSIBLE NEGOTIATED ARRANGEMENTS.—

"(1) Notwithstanding sections 1011 through 1015 of this title, interested copyright parties and interested manufacturing parties may at any time negotiate among or between themselves an alternative system for the collection, distribution, or verification of royalty payments provided for in this chapter.

"(2) Such a negotiated arrangement may vary the collection, distribution, and verification procedures and requirements that would otherwise apply, including the time periods for payment and distribution of royalties, but shall not alter the royalty rates specified in section 1012(a)(1) or (b) of this title, the division of royalty payments specified in section 1014(b) of this title, or the notice requirement of section 1011(b) of this title.

"(3) Such a negotiated arrangement may also provide that specified types of disputes that cannot be resolved among the parties shall be resolved by binding arbitration or other agreed upon means of dispute resolution. Notwithstanding any provision of the antitrust laws, for purposes of this section interested manufacturing parties and interested copyright parties may agree among themselves as to the collection, allocation, distribution, and verification of royalty payments, and may designate common agents to negotiate and carry out such activities on their behalf.

"(b) IMPLEMENTATION OF A NEGOTIATED ARRANGEMENT.—(1)(A) No negotiated arrangement shall go into effect under this section until the Tribunal has deter-

mined, after full opportunity for comment, that the participants in the negotiated arrangement include—

"(i) at least two-thirds of all individual interested copyright parties that are entitled to receive royalty payments from the Sound Recordings Fund,

"(ii) at least two-thirds of all individual interested copyright parties that are entitled to receive royalty payments from the Musical Works Fund as music publishers, and

"(iii) at least two-thirds of all individual interested copyright parties that are entitled to receive royalty payments from the Musical Works Fund as writers.

"(B) For purposes of subparagraph (A) of this paragraph, the determination as to two-thirds participation shall be based on annual retail sales of phonorecords in which musical works or sound recordings of musical works are embodied. One or more organizations representing any of the types of individual interested copyright parties specified in the first sentence of this subsection shall be presumed to represent two-thirds of that type of interested copyright party if the membership of, or other participation in, such organization or organizations includes two-thirds of that type of interested copyright party based on

annual retail sales of phonorecords in which musical works or sound recordings of musical works are embodied.

"(2) Notwithstanding the existence of a negotiated arrangement that has gone into effect under this subsection—

"(A) any interested manufacturing party that is not a party to such negotiated arrangement may fully satisfy its obligations under this subchapter by complying with the procedures set forth in section 1011 of this title; and

"(B) the Tribunal shall ensure that alternative distribution procedures are available for any interested copyright party that is not a party to such negotiated arrangement.

"(c) MAINTENANCE OF JURISDICTION BY TRIBUNAL.—Where a negotiated arrangement has gone into effect under this section, the Tribunal shall maintain jurisdiction to hear and address any objections to the arrangement that may arise while it is in effect, and to ensure the availability of alternative procedures for any interested manufacturing party or interested copyright party that is not a participant in the negotiated arrangement.

"SUBCHAPTER C—THE SERIAL COPY MANAGEMENT SYSTEM

"§ 1021. Incorporation of the serial copy management system

"(a) PROHIBITION ON IMPORTATION, MANUFACTURE, AND DISTRIBUTION.—

"(1) No person shall import, manufacture, or distribute any digital audio recording device or any digital audio interface device that does not conform to the standards and specifications to implement the Serial Copy Management System that are—

"(A) set forth in the technical reference document;

"(B) set forth in an order by the Secretary of Commerce under section 1022 (b)(1), (2), or (3) of this title; or

"(C) in the case of a digital audio recording device other than a device defined in part II of the technical reference document or in an order issued by the Secretary pursuant to section 1022(b) of this title, established by the manufacturer (or, in the case of a proprietary technology, the proprietor of such technology) so as to achieve the same functional characteristics with respect to regulation of serial copy-

ing as, and to be compatible with the prevailing method for implementation of, the Serial Copy Management System set forth in the technical reference document or in any order of the Secretary issued under section 1022 of this title.

"(2) If the Secretary of Commerce approves standards and specifications under section 1022(b)(4) of this title, then no person shall import, manufacture, or distribute any digital audio recording device or any digital audio interface device that does not conform to such standards and specifications.

"(b) PROHIBITION ON CIRCUMVENTION OF THE SERIAL COPY MANAGEMENT SYSTEM.—No person shall import, manufacture, or distribute any device, or offer or perform any service, the primary purpose or effect of which is to avoid, bypass, remove, deactivate, or otherwise circumvent any program or circuit which implements, in whole or in part, the Serial Copy Management System in a digital audio recording device or a digital audio interface device.

"(c) ENCODING OF INFORMATION ON PHONORECORDS.—(1) No person shall encode a phonorecord of a sound recording with inaccurate information relating to the category code, copyright status, or generation status

of the source material so as improperly to affect the operation of the Serial Copy Management System.

"(2) Nothing in this subchapter requires any person engaged in the importation, manufacture, or assembly of phonorecords to encode any such phonorecord with respect to its copyright status.

"(d) INFORMATION ACCOMPANYING TRANSMISSIONS IN DIGITAL FORMAT.—Any person who transmits or otherwise communicates to the public any sound recording in digital format is not required under this subchapter to transmit or otherwise communicate the information relating to the copyright status of the sound recording. However, any such person who does transmit or otherwise communicate such copyright status information shall transmit or communicate such information accurately.

"§ 1022. Implementing the serial copy management system

"(a) PUBLICATION OF TECHNICAL REFERENCE DOCUMENT.—Within 10 days after the date of the enactment of this chapter, the Secretary of Commerce shall cause the technical reference document to be published in the Federal Register.

"(b) ORDERS OF SECRETARY OF COMMERCE.—The Secretary of Commerce, upon petition by an interested manufacturing party or an interested copyright party, and

after consultation with the Register, may, if the Secretary determines that to do so is in accordance with the purposes of this chapter, issue an order to implement the Serial Copy Management System set forth in the technical reference document as follows:

"(1) FUNCTIONALLY EQUIVALENT ALTERNATIVES.—The Secretary may issue an order for the purpose of permitting in commerce devices that do not conform to all of the standards and specifications set forth in the technical reference document, if the Secretary determines that such devices possess the same functional characteristics with respect to regulation of serial copying as, and are compatible with the prevailing method for implementation of, the Serial Copy Management System set forth in the technical reference document.

"(2) REVISED GENERAL STANDARDS.—The Secretary may issue an order for the purpose of permitting in commerce devices that do not conform to all of the standards and specifications set forth in the technical reference document, if the Secretary determines that—

"(A) the standards and specifications relating generally to digital audio recording devices and digital audio interface devices have

been or are being revised or otherwise amended or modified such that the standards and specifications set forth in the technical reference document are not or would no longer be applicable or appropriate; and

"(B) such devices conform to such new standards and specifications and possess the same functional characteristics with respect to regulation of serial copying as the Serial Copy Management System set forth in the technical reference document.

"(3) STANDARDS FOR NEW DEVICES.—The Secretary may issue an order for the purpose of—

"(A) establishing whether the standards and specifications established by a manufacturer or proprietor for digital audio recording devices other than devices defined in part II of the technical reference document or a prior order of the Secretary under paragraph (1) or (2) of this subsection comply with the requirements of subparagraph (C) of section 1021(a)(1) of this title; or

"(B) establishing alternative standards or specifications in order to ensure compliance with such requirements.

"(4) MATERIAL INPUT TO DIGITAL DEVICE THROUGH ANALOG CONVERTER.—

"(A) GENERALLY.—Except as provided in subparagraphs (B) through (D), the Secretary, after publication of notice in the Federal Register and reasonable opportunity for public comment, may issue an order for the purpose of approving standards and specifications for a technical method implementing in a digital audio recording device the same functional characteristics as the Serial Copy Management System so as to regulate the serial copying of source material input through an analog converter in a manner equivalent to source material input in the digital format.

"(B) COST LIMITATION.—The order may not impose a total cost burden on manufacturers of digital audio recording devices, for implementing the Serial Copy Management System and the technical method prescribed in such order, in excess of 125 percent of the cost of implementing the Serial Copy Management System before the issuance of such order.

"(C) CONSIDERATION OF OTHER OBJECTIONS.—The Secretary shall consider other rea-

soned objections from any interested manufacturing party or interested copyright party.

"(D) LIMITATION TO DIGITAL AUDIO DEVICES.—The order shall not affect the recording of any source material on analog recording equipment and the order shall not impose any restrictions or requirements that must be implemented in any device other than a digital audio recording device or digital audio interface device.

"SUBCHAPTER D—REMEDIES

"§ 1031. Civil remedies

"(a) CIVIL ACTIONS.—Any interested copyright party or interested manufacturing party that is or would be injured by a violation of section 1011 or 1021 of this title, or the Attorney General of the United States, may bring a civil action in an appropriate United States district court against any person for such violation.

"(b) POWERS OF THE COURT.—In an action brought under subsection (a) of this section, the court—

"(1) except as provided in subsection (h) of this section, may grant temporary and permanent injunctions on such terms as it deems reasonable to prevent or restrain such violation;

"(2) in the case of a violation of section 1011 (a) through (d) or 1021 of this title, shall award damages under subsection (d) of this section;

"(3) in its discretion may allow the recovery of full costs by or against any party other than the United States or an officer thereof;

"(4) in its discretion may award a reasonable attorney's fee to the prevailing party as part of the costs awarded under paragraph (3) if the court finds that the nonprevailing party has not proceeded in good faith; and

"(5) may grant such other equitable relief as it deems reasonable.

"(c) RECOVERY OF OVERDUE ROYALTY PAYMENTS.—In any case in which the court finds that a violation of section 1011 of this title involving nonpayment or underpayment of royalty payments has occurred, the violator shall be directed to pay, in addition to damages awarded under subsection (d) of this section, any such royalties due, plus interest calculated as provided under section 1961 of title 28, United States Code.

"(d) AWARD OF DAMAGES.—

"(1) SECTION 1011.—

"(A) DEVICE.—In the case of a violation of section 1011 (a) through (d) of this title in-

volving a digital audio recording device, the court shall award statutory damages in an amount between a nominal level and $100 per device, as the court considers just.

"(B) MEDIUM.—In the case of a violation of section 1011 (a) through (d) of this title involving a digital audio recording medium, the court shall award statutory damages in an amount between a nominal level and $4 per medium, as the court considers just.

"(2) SECTION 1021.—In any case in which the court finds that a violation of section 1021 of this title has occurred, the court shall award damages calculated, at the election of the complaining party at any time before final judgment is rendered, pursuant to subparagraph (A) or (B) of this paragraph, but in no event shall the judgment (excluding any award of actual damages to an interested manufacturing party) exceed a total of $1,000,000:

"(A) ACTUAL DAMAGES.—A complaining party may recover its actual damages suffered as a result of the violation and any profits of the violator that are attributable to the violation that are not taken into account in computing the actual damages. In determining the vio-

lator's profits, the complaining party is required to prove only the violator's gross revenue, and the violator is required to prove its deductible expenses and the elements of profit attributable to factors other than the violation.

"(B) STATUTORY DAMAGES.—

"(i) DEVICE.—A complaining party may recover an award of statutory damages for each violation of section 1021 (a) or (b) of this title in the sum of not less than $1,000 nor more than $10,000 per device involved in such violation or per device on which a service prohibited by section 1021(b) of this title has been performed, as the court considers just.

"(ii) PHONORECORD.—A complaining party may recover an award of statutory damages for each violation of section 1021(c) of this title in the sum of not less than $10 nor more than $100 per phonorecord involved in such violation, as the court considers just.

"(iii) TRANSMISSION.—A complaining party may recover an award of damages for each transmission or communication

that violates section 1021(d) of this title in the sum of not less than $10,000 nor more than $100,000, as the court considers just.

"(3) WILLFUL VIOLATIONS.—

"(A) In any case in which the court finds that a violation of section 1011 (a) through (d) of this title was committed willfully and for purposes of direct or indirect commercial advantage, the court shall increase statutory damages—

"(i) for a violation involving a digital audio recording device, to a sum of not less than $100 nor more than $500 per device; and

"(ii) for a violation involving a digital audio recording medium, to a sum of not less than $4 nor more than $15 per medium, as the court considers just.

"(B) In any case in which the court finds that a violation of section 1021 of this title was committed willfully and for purposes of direct or indirect commercial advantage, the court in its discretion may increase the award of damages by an additional amount of not more than $5,000,000, as the court considers just.

"(4) INNOCENT VIOLATIONS OF SECTION 1021.—The court in its discretion may reduce the total award of damages against a person violating section 1021 of this title to a sum of not less than $250 in any case in which the court finds that—

"(A) the violator was not aware and had no reason to believe that its acts constituted a violation of section 1021 of this title, or

"(B) in the case of a violation of section 1021(a) of this title involving a digital audio recording device, the violator believed in good faith that the device complied with section 1021(a)(1)(C) of this title, except that this subparagraph shall not apply to any damages awarded under subsection (d)(2)(A) of this section.

"(e) MULTIPLE ACTIONS.—

"(1) GENERALLY.—No more than one action shall be brought against any party and no more than one award of statutory damages under subsection (d) of this section shall be permitted—

"(A) for any violations of section 1011 of this title involving the same digital audio recording device or digital audio recording medium; or

"(B) for any violations of section 1021 of this title involving digital audio recording devices or digital audio recording media of the same model, except that this subparagraph shall not bar an action or an award of damages with respect to digital audio recording devices or digital audio recording media that are imported, manufactured, or distributed subsequent to a final judgment in a prior action.

"(2) NOTICE AND INTERVENTION.—Any complaining party who brings an action under this section shall serve a copy of the complaint upon the Register within 10 days after the complaining party's service of a summons upon a defendant. The Register shall cause a notice of such action to be published in the Federal Register within 10 days after receipt of such complaint. The court shall permit any other interested copyright party or interested manufacturing party entitled to bring the action under section 1031(a) of this title who moves to intervene within 30 days after the publication of such notice to intervene in the action.

"(3) AWARD.—

"(A) GENERALLY.—Except as provided in subparagraph (B), the court may award recov-

ery of actual damages for a violation of section 1021 of this title pursuant to subsection (d)(2)(A) of this section to each complaining party in an action who elects to recover actual damages.

"(B) LIMITATIONS.—

"(i) If more than one complaining party elects to recover actual damages pursuant to subsection (d)(2)(A) of this section, only a single award of the violator's profits shall be made, which shall be allocated as the court considers just.

"(ii) If any complaining interested copyright party or parties elect to recover statutory damages pursuant to subsection (d)(2) of this section in an action in which one or more other complaining interested copyright parties have elected to recover actual damages, the single award of statutory damages permitted pursuant to paragraph (1) of this subsection shall be reduced by the total amount of actual damages awarded to interested copyright parties pursuant to subsection (d)(2)(A) of this section.

"(f) PAYMENT OF OVERDUE ROYALTIES AND DAMAGES.—The court may allocate any award of damages under subsection (d) of this section between or among complaining parties as it considers just. Any award of damages that is allocated to an interested copyright party and any award of overdue royalties and interest under subsection (c) of this section shall be deposited with the Register pursuant to section 1013 of this title, or as may otherwise be provided pursuant to a negotiated arrangement authorized under section 1016 of this title, for distribution to interested copyright parties as though such funds were royalty payments made pursuant to section 1011 of this title.

"(g) IMPOUNDING OF ARTICLES.—At any time while an action under this section is pending, the court may order the impounding, on such terms as it deems reasonable, of any digital audio recording device, digital audio interface device, phonorecord, or device specified in section 1021(b) of this title that is in the custody or control of the alleged violator and that the court has reasonable cause to believe does not comply with, or was involved in a violation of, section 1021 of this title.

"(h) LIMITATIONS REGARDING PROFESSIONAL MODELS AND OTHER EXEMPT DEVICES.—Unless a court finds that the determination by a manufacturer or importer that

a device fits within the exemption of subparagraph (A) or (B) of section 1001(3) of this title was without a reasonable basis or not in good faith, the court shall not grant a temporary or preliminary injunction against the distribution of such device by the manufacturer or importer.

"(i) REMEDIAL MODIFICATION AND DESTRUCTION OF ARTICLES.—As part of a final judgment or decree finding a violation of section 1021 of this title, the court shall order the remedial modification, if possible, or the destruction of any digital audio recording device, digital audio interface device, phonorecord, or device specified in section 1021(b) of this title that—

"(1) does not comply with, or was involved in a violation of, section 1021 of this title, and

"(2) is in the custody or control of the violator or has been impounded under subsection (g) of this section.

"(j) DEFINITIONS.—For purposes of this section—

"(1) the term 'complaining party' means an interested copyright party, interested manufacturing party, or the Attorney General of the United States when one of these parties has initiated or intervened as a plaintiff in an action brought under this section; and

"(2) the term 'device' does not include a phonorecord.

"§ 1032. Binding arbitration

"(a) DISPUTES TO BE ARBITRATED.—Any dispute between an interested manufacturing party and an interested copyright party shall be resolved through binding arbitration, in accordance with the provisions of this section, if—

"(1) the parties mutually agree; or

"(2) before the date of first distribution in the United States of the product which is the subject of the dispute, an interested manufacturing party or an interested copyright party requests arbitration concerning whether such product is or is not a digital audio recording device, a digital audio recording medium, or a digital audio interface device, or concerning the basis on which royalty payments are to be made with respect to such product.

"(b) ARBITRAL PROCEDURES.—

"(1) REGULATIONS FOR COORDINATION OF ARBITRATION.—The Register shall, after consulting with interested copyright parties, prescribe regulations establishing a procedure by which interested copyright parties will coordinate decisions and representation concerning the arbitration of disputes. No

interested copyright party shall have the authority to request, agree to, or (except as an intervenor pursuant to subsection (c) of this section) enter into, binding arbitration unless that party shall have been authorized to do so pursuant to the regulations prescribed by the Register.

"(2) PANEL.—Except as otherwise agreed by the parties to a dispute that is to be submitted to binding arbitration under subsection (a) of this section, the dispute shall be heard by a panel of three arbitrators, with one arbitrator selected by each of the two sides to the dispute and the third arbitrator selected by mutual agreement of the first two arbitrators chosen.

"(3) DECISION.—The arbitral panel shall render its final decision concerning the dispute, in a written opinion explaining its reasoning, within 120 days after the date on which the selection of arbitrators has been concluded. The Register shall cause to be published in the Federal Register the written opinion of the arbitral panel within 10 days after receipt thereof.

"(4) TITLE 9 PROVISIONS TO GOVERN.—Except to the extent inconsistent with this section, any arbitration proceeding under this section shall be con-

ducted in the same manner, subject to the same limitations, carried out with the same powers (including the power to summon witnesses), and enforced in the courts of the United States as an arbitration proceeding under title 9, United States Code.

"(5) PRECEDENTS.—In rendering a final decision, the arbitral panel shall take into account any final decisions rendered in prior proceedings under this section that address identical or similar issues; and failure of the arbitral panel to take account of such prior decisions may be considered imperfect execution of arbitral powers under section 10(a)(4) of title 9, United States Code.

"(c) NOTICE AND RIGHT TO INTERVENE.—Any interested copyright party or interested manufacturing party that requests an arbitral proceeding under this section shall provide the Register with notice concerning the parties to the dispute and the nature of the dispute within 10 days after formally requesting arbitration under subsection (a) of this section. The Register shall cause a summary of such notice to be published in the Federal Register within 10 days after receipt of such notice. The arbitral panel shall permit any other interested copyright party or interested manufacturing party who moves to in-

tervene within 20 days after such publication to intervene in the action.

"(d) AUTHORITY OF ARBITRAL PANEL TO ORDER RELIEF.—

"(1) TO PROTECT PROPRIETARY INFORMATION.—The arbitral panel shall issue such orders as are appropriate to protect the proprietary technology and information of parties to the proceeding, including provision for injunctive relief in the event of a violation of such order.

"(2) TO TERMINATE PROCEEDING.—The arbitral panel shall terminate any proceeding that it has good cause to believe has been commenced in bad faith by a competitor in order to gain access to proprietary information. The panel shall also terminate any proceeding that it believes has been commenced before the technology or product at issue has been sufficiently developed or defined to permit an informed decision concerning the applicability of this chapter to such technology or product.

"(3) TO ORDER RELIEF.—In any case in which the arbitral panel finds, with respect to devices or media that were the subject of the dispute, that royalty payments have been or will be due under section 1011 of this title through the date of the arbitral de-

cision, the panel shall order the deposit of such royalty payments pursuant to section 1013 of this title, plus interest calculated as provided under section 1961 of title 28, United States Code. The arbitral panel shall not award monetary or injunctive relief, as provided in section 1031 of this title or otherwise, except as is expressly provided in this subsection.

"(e) EFFECT OF ARBITRATION PROCEEDING ON CIVIL ACTIONS AND REMEDIES.—Notwithstanding any provision of section 1031 of this title, no civil action may be brought or relief granted under section 1031 of this title against any party to an ongoing or completed arbitration proceeding under this section, with respect to devices or media that are the subject of such an arbitration proceeding. However, this subsection does not bar—

"(1) an action for injunctive relief at any time based on a violation of section 1021 of this title; or

"(2) an action or any relief with respect to those devices or media distributed by their importer or manufacturer following the conclusion of such arbitration proceeding, or, if so stipulated by the parties, prior to the commencement of such proceeding.

"(f) ARBITRAL COSTS.—Except as otherwise agreed by the parties to a dispute, the costs of an arbitral proceeding under this section shall be divided among the par-

ties in such fashion as is considered just by the arbitral panel at the conclusion of the proceeding. Each party to the dispute shall bear its own attorney fees unless the arbitral panel determines that a nonprevailing party has not proceeded in good faith and that, as a matter of discretion, it is appropriate to award reasonable attorney's fees to the prevailing party.".

SEC. 3. TECHNICAL AMENDMENTS.

(a) Functions of Register.—Chapter 8 of title 17, United States Code is amended—

(1) in section 801(b)—

(A) by striking "and" at the end of paragraph (2);

(B) by striking the period at the end of paragraph (3) and inserting "; and"; and

(C) by adding the following new paragraph at the end:

"(4) to distribute royalty payments deposited with the Register of Copyrights under section 1014, to determine, in cases where controversy exists, the distribution of such payments, and to carry out its other responsibilities under chapter 10"; and

(2) in section 804(d)—

(A) by inserting "or (4)" after "801(b)(3)"; and

(B) by striking "or 119" and inserting "119, 1015, or 1016".

(b) DEFINITIONS.—Section 101 of title 17, United States Code, is amended by striking "As used" and inserting "Except as otherwise provided in this title, as used".

(c) MASK WORKS.—Section 912 of title 17, United States Code, is amended—

(1) in subsection (a) by inserting "or 10" after "8"; and

(2) in subsection (b) by inserting "or 10" after "8".

SEC. 4. EFFECTIVE DATE.

This Act, and the amendments made by this Act, shall take effect on the date of the enactment of this Act or January 1, 1992, whichever date is later.

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Mr. HUGHES. The Chair recognizes the distinguished ranking Republican, Mr. Moorhead.

Mr. MOORHEAD. Well, thank you, Mr. Chairman.

I join the chairman in welcoming Ralph Oman, the Register of Copyrights, here again, who has helped us so much on legislation, and to certainly welcome Barry Manilow and all of the other key people that are here from the recording industry and adjacent fields.

I would also like to commend the major industries affected by this legislation for their hard work in bringing this compromise agreement to Congress. It has been a long time in coming, and you are to be commended for your efforts.

This legislation would clearly help the equipment manufacturers and the record and electronic industries, but it is also important that we help the copyright owners, without whom there would be no need for this legislation.

It is also important that this legislation be in the best interest of the public. From the birth of this country, copyright and patent law have been primarily designed not to serve the interests of the creators but to serve the overall public interest. It is our purpose here this morning to make sure that H.R. 3204 strikes the proper balance between the public interest on one hand and the proprietary rights of the creators on the other.

I am looking forward to this morning's witnesses in this hearing, and certainly thank all of you who have come to help.

Thank you, Mr. Chairman.

Mr. HUGHES. I thank the gentleman.

Does the gentlelady from Colorado have an opening statement?

Mrs. SCHROEDER. No. I am just delighted everybody worked so hard on this, Mr. Chairman, and I want to apologize because at 10 o'clock I have to go chair a hearing too. But I wanted to show my interest and show my thanks.

Mr. HUGHES. Thank you for joining us.

The gentleman from North Carolina.

Mr. COBLE. No opening statement, Mr. Chairman, just to extend a welcome to the panels, and I look forward to hearing them. I just received a call, so I may be like Mrs. Schroeder. I may have to go to another meeting. But thank you, Mr. Chairman.

Mr. HUGHES. Thank you.

Let me, if I might, just present our first witness. He is Mr. Ralph Oman, the Register of Copyrights and the Assistant Librarian for Copyright Services in the Library of Congress. Mr. Oman became Register in the fall of 1985. Prior to that he served as chief counsel for the Senate Subcommittee on Patents, Copyrights and Trademarks under the leadership of Senator Charles Mathias. Mr. Oman has done an excellent job of heading the Copyright Office, an entity of government critical to the creative community, the Congress, and to the public.

Mr. Oman is joined at the witness table by Ms. Dorothy Schrader, General Counsel of the Copyright Office, and I believe by——

Mr. OMAN. Charlotte Givens Douglas, the Principal Legal Adviser to the General Counsel.

Mr. HUGHES. Charlotte, we welcome you likewise.

Ralph, we have a copy of your written statement which, without objection, will be made a part of the record, and you may proceed as you see fit.

You look remarkably well, you and Dorothy, having just arrived from Europe. You must have just gotten off the plane.

Mr. OMAN. It has just been a matter of hours, but it is good to be here, Mr. Chairman.

Mr. HUGHES. We are delighted that you can join us.

STATEMENT OF RALPH OMAN, REGISTER OF COPYRIGHTS, LIBRARY OF CONGRESS, ACCOMPANIED BY DOROTHY SCHRADER, GENERAL COUNSEL, AND CHARLOTTE GIVENS DOUGLAS, PRINCIPAL LEGAL ADVISER TO THE GENERAL COUNSEL

Mr. OMAN. Let me add my voice to the chorus that we have heard this morning singing the praises of the audio hardware industry and the music industry for working out this compromise on the digital technology. This compromise is good news for everyone who enjoys music.

Congress has considered several broad home taping proposals during the last decade, but it never moved beyond the consideration stage. The debate heated up when the digital audio tape recorder hit the U.S. market in 1987.

At the heart of these discussions is the basic question of whether or not an author should be compensated for the unauthorized home taping of copyrighted music. This debate is not limited to the United States. Governments all over the world are studying the home taping issues, exactly who should pay what and to whom.

As you know, Mr. Chairman, and as you just mentioned, I have returned from the Committee of Experts meeting in Geneva on a possible protocol to the Berne Convention. The World Intellectual Property Organization proposed a provision that would permit private reproduction other than serial digital reproduction based on a payment provided by a levy on the equipment, blank tapes, or both. The provision would also ensure compliance with the Berne Convention respecting the principle of national treatment.

Work on that provision will continue in November and your action on the DAT bill, or the DART bill, will have an important bearing on the outcome of those deliberations in the WIPO. So far 17 countries have passed laws to compensate copyright owners for unauthorized private copying of their works. Only a few of these share the royalties with foreign composers and publishers and record companies.

But there is good news from Japan. Japan is the second largest recording market after the United States, and Japan has agreed to compensate U.S. authors in the new Japanese home taping legislation. That is a tremendous breakthrough and part of this growing consensus that we see around the world.

The proposed Audio Home Recording Act of 1991 implements two systems, which you have mentioned, Mr. Chairman, a technological solution and a royalty compensation solution, both limited to the digital technology. The bill would mandate the Serial Copy Management System (SCMS) and the SCMS circuitry permits the copying of multiple copies from original digital source material, but you

cannot make copies of these copies. For the first time Congress has explicitly authorized home taping, so it removes once and for all the threat of contributory infringement that has clouded the technology from the start. And that is the technological solution.

The royalty solution requires importers and manufacturers of the digital audio recorders and the blank tapes to pay a small royalty to the copyright owners.

The Audio Home Recording Act is a good bill. The Copyright Office supports it. The recording industry, the music industry, and the electronics industry all support the compromise, as do the performers. The big winner is the American consumer, who will see this wonderful new technology prosper and bring great listening enjoyment.

The legislation will have a positive impact on protection for American composers and copyright owners worldwide. Many of the countries that collect royalties distribute them to foreign authors only on the basis of reciprocity. American authors now out in the cold can look forward to the day when they can claim their fair share from royalties abroad.

With respect to SCMS, the proposal incorporates an existing technical standard but would be flexible enough to cover new standards as they are approved by the Secretary of Commerce. The basic elements of the technical requirements seem reasonable and workable. The bill achieves both the certainty of known standards and the flexibility of accommodating future developments.

The proposal seems sound, fair and workable. All creative and proprietary interests are accommodated, and consumers will have a much wider selection of materials in the digital format, and prices should fall. The record companies will sell more product. Everyone seems to benefit, and at last the American creators of the copyrighted music will share the profits from this extraordinary technology as well as the manufacturers of the equipment.

In many ways the bill will open the door to the bright future of recording technology. Without it, that technology will remain mostly a promise and potential.

This concludes my oral statement, Mr. Chairman, and I would be pleased to answer any questions now or in writing.

Mr. HUGHES. Thank you very much, Ralph.

[The prepared statement of Mr. Oman follows:]

Statement of Ralph Oman
Register of Copyrights and
Associate Librarian for Copyright Services
Before the Subcommittee on Intellectual Property
and Judicial Administration
House Committee on the Judiciary
102nd Congress, Second Session

February 19, 1992

Mr. Chairman and members of the Subcommittee, I am pleased to appear before this distinguished body. Thank you and your staff for the opportunity to appear here today and testify on H.R. 3204.

On July 11, 1991, representatives of the audio hardware and music industries announced their agreement to seek legislation clarifying rights of consumers, manufacturers, and copyright holders in light of advancements in digital technology. You and Representative Brooks introduced H.R. 3204, on August 2, 1991, a day after Senator DeConcini introduced in the Senate an identical bill. Both bills, known as the Audio Home Recording Act (AHRA), have wide support, with nearly one hundred cosponsors in both Houses of Congress.

The bill implements both a royalty payment system and a serial copy management system for digital audio recording. This legislation would require manufacturers and importers of digital audio recording equipment and those who distribute digital audio recorders and blank digital audio recording media to make special royalty payments. The payment would be two percent for digital audio recorders, based on the manufacturers' price of the equipment, and three percent for blank digital audio media. The legislation

also specifies payment caps and a floor. The fund would be administered by the Copyright Office and distributed to claimants by the Copyright Royalty Tribunal (CRT).

In addition to royalty provisions, the proposed legislation contains a provision applying to consumer protection for home copying, and a requirement to include the Serial Copy Management System (SCMS) in consumer digital audio recorders. Legal actions for copyright infringement based on private, non-commercial audio recording of either digital or analog product would be prohibited. The technical requirement regarding SCMS and the royalty provisions would apply to digital, not analog, audio recorders and blank digital audio recording media.[1] Video recording equipment and media would not be affected, nor would dictation machines, telephone answering machines, or professional model digital audio recording equipment.

The path to an audio home recording statute has been a long one with several roadblocks that seemed almost insurmountable until the interested parties removed the barriers as they did in the July compromise. Before analyzing the bill and giving the Copyright Office position on H.R. 3204 as introduced, I would like to briefly sum up the background leading to this legislation.

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[1] The definition of digital audio recording medium excludes a material object that is primarily marketed and most commonly used by consumers either for the purpose of making copies of motion pictures or other audiovisual works or for the purpose of making copies of nonmusical literary works, excluding, without limitation, computer programs or data bases. H.R. 3204 §1001(4(B)ii.

I. HISTORICAL BACKGROUND

For many years, composers, lyricists, and musicians have become increasingly uneasy over the threat that technological advancements pose to their income, especially the advancements that make copying of their work easier. The 1971 Sound Recording Act made sound recordings copyrightable under federal copyright law for the first time, effective February 15, 1972. The legislative history of the Act is often cited to support the position that Congress intended to leave home audiotaping unrestricted. The House Report stated:

> In approving the creation of a limited copyright in sound recordings it is the intention of the Committee that this limited copyright not grant any broader rights than are accorded to other copyright proprietors under the existing title 17. Specifically, it is not the intention of the Committee to restrain the home recording, from broadcasts or from tapes or records, of recorded performances, where the home recording is for private use and with no purpose of reproducing or otherwise capitalizing commercially on it. This practice is common and unrestrained today, and the record producers and performers would be in no different position from that of the owners of copyright in recorded musical compositions over the past 20 years. [2]

This language did not appear in either the Senate Report to the Sound Recording Act or the committee reports accompanying the 1976 omnibus revision of the copyright law. Both commentators and copyright proprietors

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[2] H.R. Rep. No. 487, House Committee on the Judiciary, 92nd Cong., 1st Sess. 7 (1971).

maintain that this omission was intentional and supports their position that private copying of audio tapes is not a fair use. [3]

The conflict between consumers and copyright proprietors over home taping intensified during the early eighties when the courts were considering whether or not the use of videocassette recorders to tape off the air infringed the copyright of the owner of the material being taped. The courts had a difficult time resolving this issue. In the complex "Betamax" litigation, [4] the copyright owners of motion pictures taped off the air alleged that the sale of the Betamax videocassette recorder constituted contributory copyright infringement by presenting the means to infringe. Plaintiffs asserted that Sony sold videocassette recorders (VCRs) with the knowledge that they would be used to make copies of copyrighted works. The district court ruled in favor of Sony and the other defendants; the appellate court reversed, but the Supreme Court ultimately ruled in favor of Sony, finding that such taping was a fair use. The Court based its decision on two grounds. First, section 107 of the Copyright Act was interpreted to permit taping for purposes of delayed viewing -- "time-shifting." Second, copyright owners had voluntarily broadcast these programs over the airwaves for home viewing.

The "Betamax" decision is limited as a precedent. It does not answer all of the questions posed by private copying. For example, it does not deal with copying for the purpose of building a videotape library, or

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[3] See Nimmer, Copyright Liability for Audio Home Recording: Dispelling the Betamax Myth, 68 Va.L.Rev. at 1509-1510.

[4] Universal City Studios, Inc. v. Sony Corp., 464 U.S. 417 (1984) rev'g 659 F.2d 963 (9th Cir. 1981), rev'g 480 F. Supp. 429 (C.D. Cal. 1979).

off-air taping of cable and pay television programming. "Betamax" answers even fewer questions respecting audio home taping because different assumptions prevail vis-a-vis videotaping and audiotaping. Individuals replay audiotapes more frequently than they do videotapes; they tape with the intention of retaining audiotapes and consequently amass large personal libraries of audiotapes. Most consumers use videotape as blank tape, recording over or erasing a program once it has been viewed.

After careful examination of the opinions and conclusions of the commentators and its own review of the legislative history, the Copyright Office concludes that there does not exist an exemption for home recordings in the current Copyright Act, nor is there conclusive evidence demonstrating that Congress intended home recording to be a sanctioned fair use under the current Act. Thus, the question of whether home taping is a fair use of the prerecorded works copied must be determined in accordance with section 107 of the Copyright Act.

While the Copyright Office acknowledges that there does exist some legislative history from the 1971 Sound Recording Act suggesting that home taping of sound recordings is permissive, the Office is not convinced that such history survived the general revision of the copyright laws in 1976. The Home Recording Rights Coalition (HRRC) has put forward two theories as to why the 1971 Sound Recording Act protects home taping activities: special exemption and fair use. [5] The special exemption position is based on the House Report to the Sound Recording Act, quoted above. The fair use argument

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[5] See HRRC comments submitted in response to the Copyright Office's Notice of Inquiry published in the Federal Register on October 24, 1990. 55 FR 42916 (1990).

is principally supported by a floor statement of Rep. Kastenmeier in which he noted that "unrestricted audio home taping prevailed then and was considered both presently and under the proposed law to be fair use."[6]

The Copyright Office is not persuaded by the argument that the 1971 House Report created a special exemption for home taping. The Office believes that had Congress wished to exculpate home taping from copyright liability, it would have expressly done so in the statute. Furthermore, the Office does not believe that the "Home Recordings" provision of the 1971 House Report was intended to either create or recognize a special exemption. The House Report noted that home taping was "common and unrestrained," and that copyright holders in sound recordings under the bill would be "in no different position from that of the owners of copyright in recorded musical compositions over the past 20 years." The Report intentionally equated the rights of copyright holders in sound recordings with those of the underlying musical works. Obviously, there was no recognized exemption for home taping of musical works in the 1909 Copyright Act -- only the provisions of the fair use doctrine. It, therefore, seems likely that the House Report was referring to home taping as a recognized fair use of a sound recording, but not as an activity specifically exempted from the protections of the copyright laws.

That the House Report was referring to home taping as a fair use, rather than an exempted activity, is further supported by the floor statement of Representative Kastenmeier. Kastenmeier called specific attention to the "Home Recordings" passage in the House Report, and stated that the practice

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6 117 Cong. Rec. 34,748-49 (1971).

of home taping "is considered both presently and under the proposed law to be fair use." Kastenmeier's statement and the House Report do not seem to be a pronouncement that home taping per se is fair use, but rather a recognition that, at the time of passage of the Sound Recording Act, home taping for private purposes could constitute a fair use of a copyrighted work.

Given the Copyright Office's view that the House Report and Kastenmeier statement were offered in 1971 as a recognition of then existing law as to the permissibility of home taping as fair use, it must be determined what significance, if any, the statements have on current copyright law. The Office notes several criticisms offered against the statements: namely, that the Senate did not join the House Report in 1971 and that the statements are confined to sound recordings only as an amendment of the 1909 Act. However, the most important issue is to what extent the statements survived, or have relevance, to the 1976 Copyright Act.

The HRRC argues that because the Congress made clear in the 1976 Act that it intended to continue the doctrine of fair use as developed under the 1909 Act, and because it declared home taping for private use to be a fair use in 1971, then home taping remains a fair use under the present law. This position, however, seems to attach undue importance to the 1971 Kastenmeier statement and House Report. As noted above, the Kastenmeier statement and House Report indicate a recognition of existing fair use law, not a legislative pronouncement as to what the law would be in the future. It is interesting to note that none of the parties to this proceeding, nor the legal commentators, offer evidence demonstrating how home copying of prerecorded works were treated by the courts under a fair use analysis prior

to 1971. Furthermore, although the House Report and Representative Kastenmeier stated that they were articulating the current law, they too offered no cases or support for their position. This is not surprising since there was no case dealing expressly with the issue of home taping of prerecorded works for personal use. Although home audio taping was "common and unrestrained," no copyright owners had pursued an infringement action. Arguably the House Report and the Kastenmeier statement can be seen as no more than an opinion as to how home taping should be treated under a fair use analysis, rather than a recognition of existing law.

Because the fair use status of home taping was not clearly established in the law at the time of the 1971 Sound Recording Act, the House Report and the Kastenmeier statement have diminished significance. Indeed, as Professor Nimmer candidly points out, "[t]he most one can fairly attribute to the House Report, then, is an opinion that home recording constitutes fair use." [7] We must put the language of the 1971 House Report in its legal context because fair use was solely a judicial doctrine in 1971, and the courts had not ruled on whether or not all home recording constituted fair use.

Even if one assumes that, with respect to sound recordings, Congress adopted the position in 1971 that home taping constituted fair use, the evidence suggests that such a position did not survive the general revision of the copyright law in 1976. First, while Congress adopted wholesale in 1976 many sections of the 1971 House Report on sound recordings, the passage regarding home recording was pointedly omitted. Obviously the

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7 Nimmer, supra note 3, at 1511.

legislators in 1976 were aware of the language, but chose deliberately not to incorporate it into the 1976 Committee Report. Second, while it is true that Congress stated in 1976 that it did not intend to "change, narrow or enlarge" the fair use doctrine "in any way," [8] the fair use status of home taping was undecided at the time of passage. This would explain why the 1976 House Report stated "[i]t is not intended to give [taping] any special status under the fair use provision or to sanction any reproduction beyond the normal and reasonable limits of fair use." [9]

Finally, Congress did not express any categorical findings as to the fair use status of home taping nor did it give any indication that fair use should be decided in a manner other than in accordance with the provisions of section 107. The 1976 House Report stressed that fair use determinations remain with the courts, not Congress, and must be done on a case-by-case basis: "Beyond a very broad statutory explanation of what fair use is and some of the criteria applicable to it, the courts must be free to adapt the doctrine to particular situations on a case-by-case basis." [10] Copying activities such as home taping are therefore never per se fair use, but must be evaluated according to the particular circumstances of the activity. [11] The Copyright Office, therefore, does not find any evidence suggesting that

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8 H.R. Rep. No. 1476, 94th Cong., 2d Sess. 65-66 (1976).

9 Id. at 66.

10 Id.

11 S. Rep. No. 473, 94th Cong., 2d Sess. 66 (1976). ("The committee does not intend to suggest, however, that off-the-air recording for convenience would under any circumstances, be considered fair use.")

Congress intended home taping to be broadly permitted as fair use under the current Copyright Act.

In summary, the Copyright Office views home audio taping as a practice consisting of varying activities for different purposes. Some reasons and activities may have legitimate claims to fair use, but a large amount of home taping is likely to have an impact on the market for pre-recorded copyrighted works that will negate a fair use defense. While individual acts of taping may cause infinitesimal amounts of harm, the collective impact may be significant. The copyright holder is often left without means of redress because the private nature of home taping makes the costs of identifying tapers great while the potential returns are too small to be worth pursuing in court. The Copyright Office therefore concludes that an upfront royalty and monitoring system is the best solution to guarantee that in a rapidly advancing technological era, copyright owners are properly compensated for the use of their works.

Although Congress considered home taping proposals frequently during the last decade, it did not enact a legislative solution. The parties seemed to have reached a working arrangement in regard to home video rentals and home video taping was resolved at least partially in the "Betamax" litigation. The question was never settled as to home audio taping.

The debate over home audio taping intensified in the furor over the introduction of the DAT recorder in the United States in 1987. Digital audio tape (DAT) was introduced with hopes for enormous success. But acceptance in the United States has been lukewarm. The recording industry was concerned about piracy since first generation DAT machines could reproduce an infinite

number of perfect copies. Writers and publishers advocated establishing royalty provisions to compensate copyright owners for unauthorized copying of their works. The recording industry urged the consumer electronics industry to fit equipment with special circuitry that would prevent unauthorized copying.

Since home taping royalty legislation was not enacted, representatives of copyright interests directed Congress's attention to technological solutions. Congress considered a number of hypothetical copy prevention systems including the CBS Copycode system. That system removed a narrow band of frequencies from the audio signal, making it possible to prevent unauthorized copying. Many questions were raised about the efficacy of the Copycode system, leading Congress to request the National Bureau of Standards (NBS) for a study. NBS tested this copy prevention system and found that it did not achieve its stated purpose.

The 1987 joint Senate and House Subcommittee hearings were held in Congress to address the problems posed by DAT. The Recording Industry Association of America (RIAA) was concerned that this new technology would enable a consumer to make a digital master as good as the record producer's own, make an unlimited number of perfect copies, and thus displace sales. The consumer electronics industry, represented by the Electronics Industry Association (EIA), was willing to adjust its DAT machines to prevent digital-to-digital copying but was unwilling to render the DAT recorder totally incapable of copying prerecorded digital recordings.

As a result, the Chairmen of the two respective Congressional subcommittees [12] asked the RIAA and the EIA to attempt to resolve the dispute among themselves. On July 28, 1989, these groups announced a worldwide software/hardware agreement to make joint recommendations to governments respecting DAT recorders. S. 2358 and H.R. 4096 incorporated that agreement. Those bills were notable for being the first agreement reached between the longtime opposing interested parties on this issue.

S. 2358 and H.R. 4096 would have implemented a Serial Copy Management System (SCMS) for digital audio tape recorders. The Serial Copy Management System proposed for the DAT recorder would allow perfect digital copies to be made from a compact disc, but would not allow further copies to be made from those copies. This system was endorsed by the recording industry and the consumer electronics industry, but not by songwriter and publisher groups.

I appeared before the Senate Subcommittee on Communications to testify on S. 2358, the Digital Audio Tape Recorder Act of 1990. That bill had two purposes: to provide U.S. consumers the opportunity to enjoy the technological advancement in sound recordings afforded by the use of digital audio tape (DAT) recorders and also to give the manufacturers of such recorders and producers of sound recordings a measure of protection.

Groups representing songwriters and music publishers opposed the agreement and the resulting legislation. The opposing groups were in favor of a royalty solution, one which was last considered in the 99th Congress,

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[12] The Senate Subcommittee on Patents, Copyrights, and Trademarks and the House Subcommittee on Courts, Intellectual Property, and the Administration of Justice.

following the Supreme Court's decision in the "Betamax" case. In fact, several songwriters filed suit against Sony Corp. seeking a declaration, inter alia, that unauthorized home audio taping on DAT recorders of copyrighted musical compositions is unlawful under the Copyright Act. Sammy Cahn v. Sony Corporation, 90 Civ. 4537 (S.D.N.Y. 1990). As a result of the July 1991 agreement, that suit has been settled and plaintiffs have sought dismissal.

This year's bill has a definite advantage over earlier bills proposing only a technological solution. H.R. 3204 implements a royalty that will not only alleviate some of the concerns of American musicians and composers but also the international copyright community.

II. SUMMARY OF THE AUDIO HOME RECORDING ACT

A. General provisions

The proposed Audio Home Recording Act (AHRA) of 1991, H.R. 3204, implements two systems -- a technological solution and a royalty-compensation solution -- in response to the copyright policy issues presented by digital audio recording technology.

The technological solution mandates that digital audio recorders must be engineered to implement the serial copy management system (SCMS) in order to be imported, manufactured, or distributed in the United States. SCMS circuitry programs digital recorders to read encoded information that permits the recorder to copy original digital source material, but prevents the recorder from copying material that is itself a copy.

The royalty solution places an obligation on importers and manufacturers who distribute digital audio recorders and media in the United States. The proposed royalty rate is two percent of the "transfer price" for recorders and three percent for media (blank tape, etc.). The rates are subject to a per unit cap of $8 and a per unit floor of $1 for recorders, unless the machine is dual port, for which the cap is $12. The royalty system operates as a statutory or compulsory license, administered by the Copyright Office (which collects the money and has a role in verification of audits) and the Copyright Royalty Tribunal (which adjusts the royalty caps on recorders and distributes the money to entitled claimants, in accordance with pre-set allocations among record companies, featured artists, music publishers, songwriters, and performers' unions).

The technical requirements and royalty obligation apply only to digital audio recording technology. Neither applies to any analog audio recording products, or to professional equipment, telephone answering machines, dictating machines, video recording product, or computer equipment. The AHRA also prohibits copyright infringement actions regarding either digital or analog recording products, unless copies are reproduced for direct or indirect commercial advantage. Copying by a consumer for private, noncommercial use is not actionable.

The Copyright Office can deduct its administrative costs from the royalties collected, before depositing the money in interest-bearing U.S. securities for later distribution with interest by the Copyright Royalty Tribunal. As an alternative to collection of royalties by the Copyright Office and distribution of royalties by the Tribunal, at least two-thirds of the claimants to the Sound Recordings Fund and Musical Works Fund may reach a negotiated collections-distribution agreement. The negotiated agreement can vary the statutory provisions for collection, distribution, and verification but cannot change the royalty rates or the percentage allocated to each group.

B. Sectional Analysis of H.R. 3204

H.R. 3204 is identical to S. 1623 as introduced except for the differences noted below and some other inconsequential differences not noted. Since introducing S. 1623, the Senate has amended its legislation to address some minor concerns. These amendments are also noted.

1. Basic Provisions

H.R. 3204, the "Audio Home Recording Act of 1991," would amend portions of Chapter 8 of title 17 U.S. Code, and add a new Chapter 10 of title 17.

The Act would reach both phonorecord taping, Mini Disc recording, and taping of digital broadcasts and other transmissions.[13] §1001(a)(1)(definitions section). "Digital audio recording devices" would not include professional model products and dictation machines, answering machines and other audio recording equipment designed and marketed primarily for fixation of nonmusical sounds. §1001(a)(3).

Similarly, the term "digital audio recording medium" would not include material objects embodying sound recordings (prerecorded phonorecords) unless they were sound recordings embodied to evade obligations of the Act, objects used to copy motion pictures, or other audiovisual works or nonmusical literary works (e.g. computer programs or databases).[14]

An "interested copyright party" would be 1) the owner of the exclusive right to reproduce a sound recording, 2) the legal or beneficial owner of such a right, or 3) an association or organization representing both classes of owners or engaged in licensing rights in musical works to music users on behalf of writers and publishers.

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[13] A "transmission" includes "any audio or audiovisual transmission, now known or later developed, whether by a broadcast station, cable system, multipoint distribution service, subscription service, direct broadcast satellite, or other form of analog or digital communication."

[14] In S. 1623, "audiogram" is the material object in which sounds are fixed. "Audiogram" replaces "phonorecords" throughout the bill.

An "interested manufacturing party" would be a person that imports or manufactures digital audio recordings devices or media in the United States, or an association of such persons or entities.

The bill would not limit, expand, create, or otherwise affect any right or remedy under the Copyright Act. §1002(b). Private home copying of copyrighted works by a consumer for noncommercial use would not constitute infringement. §1002(a).

2. Prohibition on Certain Infringement Actions

The Act would prohibit the institution of copyright infringement actions or actions under section 337 of the Tariff Act of 1930, based on manufacture, importation, or distribution of digital or analog audio recorders or blank audio media, or the use of those recorders or media for making phonorecords. While private consumer copying for noncommercial use would be specifically permitted (both analog and digital), the making of one or more reproductions for direct or indirect profit would be actionable. §1002(a).

3. Obligation to Make Royalty Payments

Importers and manufacturers distributing digital audio recorders and blank media in the United States would be required to file notices, submit Statements of Account, and pay a royalty. §1011(a). [15]

Within 45 days after first distribution, an importer or manufacturer would be required to file notice with the Register of Copyrights. §1011(b). After such filing, the distributor would submit to the Register,

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[15] In S. 1623, no notice is required for distributions occuring prior to the effective date of this chapter.

on a quarterly basis, royalty payments and Statements of Account specifying (by product category, technology utilized, and model) the number and transfer price of all recorders and blank media distributed during the quarter. §1011(c). Importers and manufacturers would also be required to file a cumulative annual Statement of Account, certified by an independent certified public accountant. §1011(d). [16]

Those entitled to receive royalty payments would have the right to verify Statements of Account once a year through an independent audit process. §1011(e)(1). All interested parties, in the event of a dispute, would have access to the documents on which the audit was based. §1011(e)(3). Copyright parties would pay for the audit, unless there was an annual royalty underpayment of 5 percent or more, in which case the importer or manufacturer would pay reasonable audit costs. §1011(f). Quarterly and annual Statements of Account and information from audits would be considered confidential trade secrets. §1011(h).

4. Calculation of Royalty Payments

The royalty payment for recorders would be 2%, and for blank media, 3% of the transfer price. The recorder royalty rate would be subject to a per unit cap of $8 and a per unit floor of $1. Machines having two or more recorders would have a $12 cap. The caps (but not the basic royalty rates) could be adjusted upwards after five years if 20% or more of the royalty payments were at the cap, but the floor would be fixed. Only the first person

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[16] In S. 1623, quarterly Statements must be filed no later than 45 days after the close of the period covered except for an initial period where partial Statements would be due. The fourth quarter Statement and annual Statement may be combined.

to manufacture and distribute, or import and distribute, devices or blank media would be required to pay the royalty. §1012. [17]

5. Deposit of Royalty Payments and Deduction of Expenses

As with the compulsory licenses in the Copyright Act, the Register of Copyrights would receive royalty payments and, after deducting expenses, deposit the balance in the U.S. Treasury. §1013.

6. Entitlement to Royalty Payments

Royalties would be distributed to persons whose musical work or sound recording had been distributed to the public in phonorecords or transmissions, and who filed a claim. §1014(a)(1)-(2).

7. Allocation of Royalty Payments to Groups

The royalty pool would be initially divided into a Sound Recordings Fund and a Musical Works Fund. The first fund would get 2/3 of the royalties; the second, 1/3 (divided equally between music publishers and songwriters). §1014(b)(1)-(2). Royalties would be distributed to music creators and copyright owners on the basis of record sales and airplay. §1014(c).

8. Procedures for Distributing Royalty Payments

During the first two months of each year, interested parties would file a claim for royalties with the Copyright Royalty Tribunal (CRT). Parties within groups could negotiate for a proportionate division of royalties. §1015(a).

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17 In S. 1623, royalty rate increases may not exceed the percentage increase of the Consumer Price Index.

Within thirty days after the claims period closed, the CRT would determine if there was a royalty controversy. If not, it could authorize distribution. §1015(b).

In the event of a controversy, the CRT would hold a proceeding to resolve any disputes. §1015(c).

9. Negotiated Collection and Distribution Arrangements

Copyright and manufacturing parties could negotiate an alternative system to that in the bill for collection, distribution and verification of royalties. These negotiations could not alter royalty rates, the division of royalty payments or the notice requirement. §1016(a).

A negotiated arrangement would have to be approved by the CRT, after a determination that at least 2/3 of each group of interested parties was represented. §1016(b). [18]

10. The Serial Copy Management System

No person could import, manufacture or distribute a digital audio recording or interface device not conforming with the Serial Copy Management System (SCMS). §1021(a). Nor could anyone circumvent or bypass the SCMS, §1021(b), or encode phonorecords with inaccurate information designed to improperly affect the operation of the SCMS. §1021(c).

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18 In S. 1623, the CRT would ensure that all interested parties not party to the arrangement would receive the payments they would be entitled to in the absence of such arrangement, and that there are enough funds to distribute to parties not party to the arrangement. The CRT may seek injunctive relief to secure compliance with this subsection.

No one would be required to transmit or otherwise communicate copyright status information, but if they did so it would have to be done accurately. §1021(d).

11. Implementing the Serial Copy Management System

Within ten days after enactment of the bill, the Secretary of Commerce would publish an SCMS technical reference document in the Federal Register. §1022(a). However, the Secretary could waive or provide alternative standards. §1022(b)(1)-(4). [19]

12. Remedies

Interested copyright or manufacturing parties, or the U.S. Attorney General, could bring an action for violation of the Act in federal district court. §1031(a).

Courts would be empowered to grant temporary or permanent injunctions, and award damages, costs against parties other than the United States, attorney's fees, and other equitable relief. §1031(b)(1)-(5).

Persons found not to have paid, or to have underpaid, royalties would pay damages and interest, in addition to the royalties. §1031(c).

13. Award of Damages

Statutory damages for failure to file a notice, to submit a Statement of Account, or to pay the prescribed royalty could be awarded up to $100 per device, and $4 per medium. §1031(d)(1)(A)-(B).

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19 In S. 1623, the technical reference document is included in the bill as section 5. Section 5 will be repealed upon publication of the document in the Federal Register.

For importation, distribution, or manufacture of a digital recorder or digital audio interface device without the SCMS system, damages could be awarded up to $1,000,000. §1031(d)(2).

For SCMS violations, parties could receive actual damages, §1031(d)(2)(A), or statutory damages of at least $1,000 and no more than $10,000 per device. §1031(d)(2)(B)(i). For improper encoding of phonorecords, parties could recover damages of at least $10 and no more than $100 per violation. §1031(d)(2)(B)(ii). For inaccurately transmitting information accompanying transmissions in digital format, parties could recover at least $10,000 and no more than $100,000. §1031(2)(B)(iii).

For willful violations of notice or Statement of Account filings, statutory damages could be increased to at least $100 and no more than $500 per device, and at least $4 and no more than $15 per recording medium. §1031(d)(3)(A).

There would be a $5,000,000 cap for willful SCMS violations, §1031(d)(3)(B), and a $250 floor for innocent violations. §1031(d)(4).

But, with a limited exception, only one action and one statutory damage award could be permitted against each party. §1031(e)(1).

A party bringing an action would have to serve a copy of the complaint upon the Register of Copyrights within ten days of service on the defendant. §1031(e)(2).

If actual damages were awarded, only a single award of a violator's profits would be made and allocated among parties. Also, statutory damages would be reduced by the amount of actual damages awarded. §1031(e)(3).

Awards of overdue royalties and damages would be deposited with the Register of Copyrights or as authorized by a negotiated arrangement. §1031(f).

A court could impound recording devices, audio interface devices, phonorecords, or other devices involved in an SCMS violation. §1031(g).

But the court could not grant injunctions against manufacturers or importers for the distribution of professional models and audio recording equipment falling outside the definition of digital audio recording device unless a court found that the manufacturer's or importer's exemption determination was unreasonable or in bad faith. §1031(h).

As part of a final judgment or decree, a court could order the remedial modification or destruction of articles involved in an SCMS violation. §1031(i).

A definitional section explicates the terms "complaining party" and "device." §1031(j).

14. Binding Arbitration

Interested manufacturing and copyright parties could agree to binding arbitration. §1032(a).

The Register of Copyrights would prescribe regulations, after consultation with interested copyright parties, coordinate decisions, and coordinate representation in dispute arbitration. §1032(b).

Unless otherwise agreed to by the parties, the dispute would be heard by a panel of three arbitrators -- one chosen by each of the parties, the third chosen by the other two arbitrators. §1032(b)(2).

The panel would render a final written decision within 120 days of arbitrator selection. The Register of Copyrights would publish the decision in the Federal Register within ten days of receipt. §1032(b)(3).

Arbitration proceedings would be consistent with title 9, §1032(b)(4), and other interested copyright and manufacturing parties could intervene in an arbitration proceeding. §1032(c).

The arbitration panel could protect proprietary technology and information. §1032(d)(1).

Panels could be terminated based on their determination that bad faith was involved in initiating the proceeding, or that the technology or product at issue was not sufficiently developed or defined to permit an informed decision about it. §1032(d)(2).

If it was determined that royalty payments would be due through the date of the arbitration decision, the panel could order their deposit. §1032(d)(3).

Subject to limited exceptions, arbitration proceedings would preclude civil actions and remedies. §1032(e).

Parties would bear their own arbitration costs and attorney's fees, except where it is determined that a non-prevailing party proceeded in bad faith; in that case the prevailing party could be awarded attorney's fees.

The Act would be effective on the date of enactment.

III. ECONOMICS OF HOME TAPING

There have been several reports on the economic consequences of home taping. Last year, the Copyright Office submitted to Congress its own report on copyright implications of digital audio transmissions. [20] Each of these studies consider whether or not copyright owners should be compensated for unauthorized taping of copyrighted materials, and if so, how.

A. The Brennan Analysis

Economic commentator Brennan proposes a royalty solution to the home taping problem. [21] Brennan reports that uncompensated home taping reduces demand for the product and therefore affects the prices that composers can charge for their works. In a market where unauthorized reproduction is impossible, the composer could charge a fee commensurate with the value the user places on the work. [22]

Brennan also notes that a royalty system is not without drawbacks. Unless specifically crafted to avoid such effects, those using digital audio tapes for noninfringing purposes will pay as if they were producing copyrighted music. If one attempts to place tapes in two categories and sell them on that basis -- at one price for speech and noncopyrighted material, for which no royalty would be paid, and another price for music -- individ-

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[20] The Register of Copyrights, Report On Copyright Implications of Digital Audio Transmission Services, October, 1991.

[21] Brennan, "An Economic Look at Taxing Home Audio Taping," Journal of Broadcasting & Electronic Media, Volume 32, Number, 1, Winter 1988, pp. 89-103.

[22] Brennan, 90.

uals and manufacturers would no doubt be able to circumvent the royalty by representing that a tape would be used for one purpose and using it for another. [23]

Moreover, royalty rates would remain constant regardless of different kinds of use. This does not take into account different consumers' habits: some tape for substitution purposes -- perhaps to give recordings to friends. Others duplicate for enhancement purposes--to make a tape for use in a different location -- the car, or a different configuration -- a Walkman, or to customize a tape by compiling selections of favorite songs from different albums. Even though a composer may want to charge additional fees for this enhanced value, it might be argued that the royalty should not be the same as it would be for overt substitution. [24]

On the one hand, the additional cost of making the music available to an additional person through home taping is zero -- the home taper supplies the labor and raw material. On the other, the copyright system rewards the composer with added revenue when additional persons receive copies of the author's work. Unauthorized taping therefore represents expected earnings lost, possibly affecting the long-run cost to the listening public, the beneficial owners of copyright, authors and creative artists, and the legal owners of copyright, publishers, and record companies. [25]

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23 Brennan, 92-93.

24 Brennan, 94-95.

25 Brennan, 96.

Brennan also asks "[I]f royalties are desirable, who should pay them?" Aside from charging them to the consumer, there appears to be no alternative. If there is less than full competition, record companies with excess profits might absorb the royalty costs. However, a seller who absorbs the cost of royalties without offsetting profits will incur losses, and may eventually have to withdraw from the market. [26]

"The purpose of royalties is to tighten the link between the value listeners place on copyrighted works and the returns to composers," according to Brennan, who goes on to acknowledge that, "It is as proper for consumers to pay for copyright music they value as it is for them to pay for other commodities they desire." [27]

B. Office of Technology Assessment Study: Effects of a Ban on Home Taping

The Office of Technology Assessment (OTA) studied copyright and home copying in the context of the status of the law both domestically and internationally, the policy alternatives available to Congress, and the economic effects of a hypothetical ban on audio home copying. In an attempt to place a price tag on the enjoyment of musical works OTA economists measured society's satisfaction. To do this, an economist, Mannering, used "compensating variations" to measure how much money a consumer would have to receive after a hypothetical ban on copying to be as satisfied as before the ban. Using a compensating variation of $1.62, Mannering concluded that the

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26 Brennan, 101.

27 Id.

consumer would have to be paid $16.20 to be as well off, in the short term, as before the ban took place.

From a copyright perspective, this data suggests that consumers might pay an additional fee for making near-perfect copies via DAT if not for all home taping. If consumers pay royalties on DAT hardware or software, such payments would constitute some degree of compensation for lost royalties that authors, composers, and creative artists would have earned had copies of their works been sold by record companies. Otherwise, it appears that creative professionals are simply subsidizing the general public. The copyright system should provide economic rewards for authors who contribute intellectual property for the benefit of society. The works are then added to the public domain when the term of copyright protection expires.

The OTA study projected the effect of a home taping ban on consumer welfare in the short term, that is, for about one year. For this period, the OTA examined the effects on three constituencies if home taping is banned. It found that 1) recording industry revenues would increase; 2) blank tape sales would decrease; and 3) consumer economic welfare would decrease. Although the OTA seems to treat all three parties as equally entitled to the benefits of copyright property, consideration of beneficial and legal copyright ownership strongly suggests that this is not the case.

The OTA admitted that choosing an appropriate balance of harm between consumers and copyright proprietors is a political decision, not a technical one, and one in which the public has a stake. If the public places any value on homemade tapes, the benefit of any financial reward in exchange

for that value should go to the persons who originated the property and who are responsible for contributing the value the public derives from it.

The OTA concluded that

> [A]lthough home taping may reduce the recording industry revenues, a ban on home audio taping would be even more harmful to consumers, and would result in an outright loss of benefits to society, at least in the short term [in the $2-3 billion range.] The longer term consequences of such a ban are less clear, and would depend on [a variety of factors.] [28]

C. The Copyright Office Study: Report on Copyright Implications of Digital Audio Transmission Services

On October 1, 1991, the Copyright Office submitted its report on the copyright implications of digital audio transmissions. [29]

In its Notice of Inquiry the Office posed two sets of questions about compensation for copying in the context of digital audio broadcast and cable technology.

1. Would a copyright owner have the practical ability to negotiate with the owners/operators of digital audio services for compensation of his/her works? If not, could representatives of copyright owners, such as performing rights organizations, accomplish this task?

2. Should a royalty be placed on recording materials, such as blank tapes, or on digital recording equipment itself, to be distributed

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28 U.S. Congress, Office of Technology Assessment, Copyright and Home Copying: Technology Challenges the Law, OTA-CIT-422, p. 207, (Washington, D.C.: U.S. Government Printing Office, October 1989).

29 This report was in response to a request for a study for the Chairman of this subcommittee, Senator Dennis DeConcini and the Chairman of the House Subcommittee, Representative William J. Hughes.

among copyright claimants? If so, who would be responsible for administering this process? [30]

The American Society of Composers, Authors and Publishers (ASCAP) supported imposition of a domestic royalty system that could also be implemented internationally. ASCAP volunteered its services in administering such a system. In specific reply to the first questions set out above, ASCAP claimed it is not feasible for individual copyright owners to negotiate with audio service providers to compensate them for losses due to home taping. It also asserted that the performing rights organizations have "the ability to undertake the licensing and distribution activities on behalf of the creators and copyright owners of the works rendered, if asked and authorized to do so." [31] In addition, ASCAP states that it is not the DAB service providers that will be making unauthorized copies of works, but rather, home tapers, whose activity cannot practically be monitored. "[I]n all fairness, it is the listeners who are ultimately profiting from the recording and who should, therefore, pay for it." [32]

ASCAP believes that the fairest solution for all parties would be payment of royalties on taping equipment and blank recording tape. It notes that such systems are already in effect in many other nations, and have been suggested for establishment in the coming years for members of the European

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[30] Question three and four in the Office's Notice of Inquiry. 55 Fed. Reg. 42,916, 42,917 (1990). Note: All comments were submitted to the Copyright Office before the agreement that the recording and electronics industries reached on July 11, 1991.

[31] ASCAP comments at 7.

[32] ASCAP comments at 8.

Community. Songwriters, performers, and music and sound recording rights owners would benefit from such a system. If approved by Congress, "existing music licensing groups could easily handle the collection and distribution of these royalties." [33]

Broadcast Music, Inc. (BMI) also stated that copyright owners or representative performing rights organizations do and will continue to have the practical ability to negotiate with digital audio services' owners or operators. BMI has already completed negotiations with two digital cable audio services for payment to its clients for transmissions of their works, and similar agreements could be made with digital broadcast service owners. [34] BMI suggested that royalties "to account for whatever home taping is likely to result from DAB transmissions could be imposed upon either blank tape or digital recording equipment manufacturers or sellers to be remitted to the Copyright Royalty Tribunal or other appropriate agency for distribution..." based on an "industry-negotiated formula for division among participants." [35] In its reply comments BMI stated that compensating artists by placing a royalty on blank tape and/or recording equipment would encourage and compensate artists without placing unfair burden upon consumers. [36]

In its comments the Copyright Coalition urged Congress to enact legislation to establish a home audio taping royalty system. A royalty

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33 ASCAP comments at 10.

34 BMI comments at 2.

35 Id.

36 BMI reply comments at 10.

system would not interfere with introduction of new recording technologies, nor would it unduly impede consumers' abilities to tape at home, according to the Coalition. Systems are in place internationally that seem to work, and could serve as models. If not a royalty, a compulsory license could be established to authorize the practice of home audio taping in exchange for a modest royalty on recorders and/or blank tapes. The license rate could be set by the Congress, or by the Copyright Royalty Tribunal [37] to ensure fairness to all interested parties. Administration of the system could be conducted by existing performing rights societies. The Coalition stressed that the mechanical Serial Code Management System (SCMS) alone, even if implemented, could not curb home copying from digital sources, but that SCMS may be effective as part of an overall compensation framework.

The Recording Industry Association of America (RIAA) did not propose any particular royalty system in its comments, but instead lobbied heavily for a performance right in sound recordings, saying that "performance royalties from the countless broadcasts of these recordings (referring to recordings that don't become "hits", but continue to get airplay) would provide deserved and needed income to . . . artists and musicians." [38] In general the AFL-CIO Department of Professional Employees, American Federation of Musicians, and American Federation of Television and Radio Artists supported RIAA's comments.

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37 Copyright Coalition comments at 19.

38 RIAA comments at 15.

Strother Communications, Inc. (SCI), a proponent of a terrestrial, over-the-air digital audio broadcasting system, supported the idea that performers and copyright owners should be fairly compensated for transmission of works by DAB operators. However, SCI maintained "that the existing mechanisms by which such compensation is determined and paid by radio stations will continue to be adequate for that purpose. Thus, in the case of recorded music programs, performers' and copyright owners' compensation can be handled under the auspices of ASCAP and other performing rights organizations, exactly as it is today." [39]

CD Radio, Inc., a developer of integrated satellite and terrestrial delivery of digital audio services, also claimed that copyright owners and their representatives can negotiate compensation for digital programming in the same manner as is done today for AM, FM and TV transmission. [40] The firm stated said that "royalties should not be placed on tapes or recording equipment if this discriminates against the development of digital audio radio." [41] General Instrument Corporation, a manufacturer and supplier of electronic products, systems and components, took a similar view regarding negotiations for compensation, commenting that it is too early to tell whether or not royalties on hardware or tape are needed.

The Home Recording Rights Coalition (HRRC) was opposed to the concept of imposing royalties on recording media or digital recording

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39 SCI comments at 2.

40 CD Radio comments at 3.

41 Id.

equipment. Briefly, in response to question three, the HRRC contended that as a practical matter, copyright owners or their representatives can negotiate with DAB owners and operators for compensation for DAB transmissions.

HRRC stated that royalties are not necessary. "Any royalty tax, whether collected through technical monitoring devices or through old-fashioned taxation, would be unwarranted and unfair and would impose costs on all consumers, whether they tape or not." [42] A cornerstone of their anti-royalty argument is the proposition that "digital media are no different from their analog counterparts in fact or as a matter of copyright law." [43] HRRC adds that performance royalties for commercial users, such as broadcasters, dance club operators, and restaurant operators, should certainly be considered before placing a royalty on private home taping activity. [44]

The New York Patent, Trademark and Copyright Law Association contended that placing a royalty on recording materials is not "an appropriate solution to the copyright infringement problem, if there is one," because "it imposes a tax on the purchasers or users of these devices (recording equipment) who do not violate copyright laws and that does not seem acceptable." [45]

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[42] Id.

[43] HRRC reply comments at 2 (emphasis omitted).

[44] Id. at 36-37.

[45] New York Patent, Trademark and Copyright Law Association, Inc. comments at 4.

The National School Boards Association (NSBA) does not support royalties on blank tapes. In fact, NSBA continued, "we, in education, will demand an exemption from this tax." [46]

CBS, Inc. took no particular view on any proposed royalty system, but instead merely noted that compensation arrangements can be made that "do not place requirements or restrictions on broadcasters" and would be "adequate to satisfy the concerns and needs of the recording industry, performers, and copyright holders." [47]

In its initial comments the National Association of Broadcasters (NAB) stated that current data about copying of musical works and its effects on copyright owners is contained in the Office of Technology Assessment's 1989 study, and does not support creating a new royalty applicable to broadcasters that use digital technology. These points were reiterated in NAB's reply comments. NAB's sentiments were generally supported by Cox Broadcasting as well as stations KKYY-FM, KDKB-FM, KEGL-FM, and KLSY-AM-FM.

Not all of the commentators addressed the royalty issues raised by the Copyright Office. Of those who did ASCAP, BMI, and the Copyright Coalition strongly supported placing a royalty on blank tape and/or equipment. The Home Recording Rights Coalition opposed such a solution just as strongly. The Recording Industry Association of America chose to discuss payments for performers instead of reiterating its past position on home taping royalties. Among those commentators falling in between were those who

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46 NSBA comment at 3.

47 CBS, Inc. comments at 6.

felt consideration of the topic was premature (General Instruments), those who felt any payments should be negotiated by the parties (CD Radio, Inc.; New York Patent, Trademark and Copyright Law Association), those who felt compensation could be handled by existing mechanisms (Strother Communications), and those who felt that their organization should be exempt from any such payment (NSBA, NAB.)

Uniformly, commentators advocating establishment of a royalty system in sound recordings pointed to the fact that many other nations have established such systems that could be used as models. In its initial comments the Copyright Coalition provided a report on home audio taping royalties, issued in January 1990 by the European Mechanical Rights Bureau. In addition, culture ministers from the European Community have discussed recommendations for protecting performers' and producers' rights in their works. [48]

Although the commentators who addressed the royalty issues did so from different perspectives, most of those who responded did feel that some kind of compensation was warranted. They simply did not agree on what that compensation should be.

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[48] Clark-Meads and Hennessey, EC Ministers Hear Copyright Concerns, Billboard (Dec. 1, 1990) at 64. A discussion of this material can be found in the next section.

IV. INTERNATIONAL DISCUSSIONS

A. Reaction to the SCMS Proposal

The European Economic Commission (EEC) did not find the 1989 Athens agreement regarding an SCMS technological solution to be a sufficient answer to the question of how to protect the holders of copyrights and neighboring rights from digital home copying. [49] Other technologies, such as recordable and erasable compact discs, loom on the horizon, and they now feel that it is necessary to develop technical systems which cover these aspects of digital recording.

Additionally, the question of how to remunerate rightsholders remains unresolved. The EEC does not believe that levies are the best solution for digital home copying, but recognizes the necessity of paying for the use of protected works. Accordingly, the Commission has concluded that the best solution is a technical system which not only limits copying, but also ensures direct payment by the consumer for each digital copy made -- for example, a credit card system. [50]

The International Federation of the Phonographic Industry has said that it will continue to lobby governments and governmental bodies for remuneration for private copying through a royalty on blank analog and digital tapes and/or recording equipment. [51]

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49 Letter from Commissioner Bangemann, Vice President, EEC, to Ian Thomas, IFPI Secretariat (November 2, 1989) ["Bangemann letter"].

50 Bangemann letter at 3.

51 Id.

As part of the Athens agreement, the European hardware industry undertook to accept any political decision about royalties on blank DAT tapes and equipment. Those signing the pact formally agreed to "accept the principle of royalties and ... not oppose efforts by the recording industry to secure legislation to implement such royalties." By contrast, Japanese firms would only acknowledge that the issue is important to recording interests. They consented to "explore the feasibility of a technical mechanism or alternative system for private copying remuneration in future digital recording devices, although such a discussion would not constitute acceptance by the hardware industry of the principle of royalties." [52]

B. Compensation for Home Taping Under Foreign Laws

The effect of unauthorized home taping on copyright proprietors has been discussed repeatedly during the last decades. [53] At the heart of these discussions is the basic question of whether or not an author should be compensated for the unauthorized taping of copyrighted programs. Legislatures have debated whether or not authors should be compensated for such copying[54] and if so, what the proper remuneration should be, whether it should apply to both the software and the hardware, whether it should take the form of a royalty or a tax, and how the monies generated should be allocated.

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52 S. Dupler, "DAT Accord is Reached, but Questions Linger," Billboard, 1, 87 (August 5, 1989).

53 OTA Report at 103-135.

54 Dillenz, The Remuneration for Home Taping and the Principle of National Treatment, Copyright (June, 1990) pp. 186-193.

Most of these discussions focused on analog duplication, and several countries have already determined that a royalty or tax should be imposed for the analog duplication of broadcast or cable programming or any sound recording for commercial or personal use. Some countries have either already provided for digital copying in their compensation schemes or are proposing to do so.

As of August, 1991, at least seventeen countries had enacted legislation to compensate copyright owners for unauthorized private copying of their works. These countries include: Argentina, Australia, Austria, the Congo, the Federal Republic of Germany, Finland, France, Gabon, Hungary, Iceland, the Netherlands, Norway, Portugal, Spain, Sweden, Turkey, and Zaire. Bulgaria introduced a blank tape levy in April 1991 apparently to facilitate trade with their western trading partners. Several other countries including Belgium, Denmark, and Italy, are considering such legislation. [55] Recently the Electronic Industries Association of Japan preliminarily approved plans for home taping royalties for digital hardware. A royalty structure will reportedly be established in 1992. At that time Japan's copyright law will be amended to reflect the new agreement. [56]

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55 See App. I. Information for this chart came from the Report by European Mechanical Rights Bureau (BIEM), Distribution of Audio/Video Home Taping Royalties, January 1990; Survey by International Federation of the Phonographic Industry, 1990 Survey of Tariffs for the Public Performance of Phonograms, November 1990; WIPO, Copyright, Sept. 1990 at Text 1-01; 3 Copyright Laws and Treaties of the World, UNESCO, Supplement 1979-1980; 3 Copyright Laws and Treaties of the World, UNESCO, Supplement 1987-1988.

56 McClure, Japanese Hardware Group Supporting Digital Royalty, Billboard, (Sept. 14, 1991) at 5.

The countries that do add royalties or taxes to either the software or hardware have developed different schemes. A review of these schemes reveal that some countries, such as Austria, France, and Sweden, place the royalty on the tapes, and some, such as Norway and Spain, on both the tapes and the equipment. As can be expected, both the amount of the royalty and the distribution schemes differ. But most of the countries which have developed royalty systems require that a significant part of the royalties goes to authors and other copyright proprietors. Distribution facts vary according to the formula a country chooses. [57]

Most countries with a high level of intellectual property protection have realized that there is considerable loss to legitimate copyright owners when home tapers copy works without compensating the copyright proprietor. But only a few of these countries go beyond national interests and make distributions to foreign authors.

Compensation for home or private taping is currently a topic for discussion within the World Intellectual Property Organization. The second session of the Committee of Experts on a Possible Protocol to the Berne Convention for the Protection of Literary and Artistic Works met in Geneva, on February 10, 1992. This Committee is considering provisions on private reproduction for personal use. The document prepared by the World Intellectual Property Organization (WIPO) indicated a concern that technology has advanced to a stage where the issue should be studied in a wider context. It notes the growing use of digital and optical reproduction techniques by

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57 See App. I.

means of which works can be easily and perfectly reproduced. The proposed provision for private reproduction, other than serial digital reproduction, would be permitted without permission based on a payment provided by a levy on the equipment, the blank material, or both.

The Protocol would thus reflect what is already provided in some countries and is proposed in the bill. It would also ensure that all of the minima of the Berne Convention and the principle of national treatment would be applicable to the proposed provisions.

Compensation for home taping is also being discussed among members of the Universal Copyright Convention and by various other groups representing countries such as the European Economic Commission (EEC). [58] While no compensation system is perfect, some international organizations are now advocating harmonization of such systems, at least as far as establishing a method to balance the interests of the authors of works and users of those works so as to encourage continued creation of new work as well as promoting international unity and distribution. The European Commission met in August 1991 to discuss, among other things, harmonization of copyright law in the European Community. Among the topics of discussion was the value of works lost to piracy of both U.S. and E.C. materials. Proposals are imminent for increasing copyright protection and stimulating commercial sales within the

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58 See Statement of Ralph Oman Before the Subcommittee on Communications of the Senate Committee on Commerce, Science and Transportation, 101st Congress, Second Session, June 13, 1990 at 31 for a discussion of the EEC position on compensation for digital home copying.

E.C. [59] The European Commission already has before it two proposals. One would grant writers, performers, and producers the right to authorize or forbid the loaning or renting out of works protected by copyright. The second proposal would require adhesion by all the Member States before the end of 1992 to the Berne Convention for the Protection of Literary and Artistic Works as updated by the Act of Paris, and the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations. The European Community has also stated that it will submit a proposal to "harmonize the national systems of remuneration for private copying of films, video cassettes, records, audio cassettes and compact discs by way of a levy on blank tapes by the end of 1991." [60]

Concluding that digital tape recorders would stimulate home taping since the technology would permit one to make perfect copies easily, the E.C. concluded in its 1988 Green Paper that urgent action was needed to protect copyright proprietors. [61]

Review of the systems developed in other countries for compensating authors for home taping should be persuasive in determining that it is time for the United States Congress to legislate in this area.

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59 Riddell, Euro Commission Reports "Great Urgency" On Copyrights, Billboard, (Sept. 14, 1991) at 80.

60 Commission sets out copyright work programme, Common Market Reporters, Release 672, Jan. 91, para. 95,690 at 51,989.

61 Commission of the European Communities, Green Paper on Copyright and the Challenge of Technology--Issues Requiring Immediate Action, para. 3.91, p. 127 (June, 1988).

V. OBSERVATIONS OF THE COPYRIGHT OFFICE

The Audio Home Recording Act proposal represents a potentially historic compromise among the recording, music, and electronics industries and among the representatives of musical performers and consumers. The Copyright Office is pleased to note that the bill apparently brings under its umbrella all affected interests. The legislation will have a positive impact on protection for United States authors and copyright owners worldwide. Many countries collect royalties on recording equipment and media, but distribute the royalties to their foreign authors only on the basis of reciprocity. American authors will now be able to claim their fair share abroad.

The AHRA includes several innovative features. The proposed allocation of royalties based on fixed percentages is new in the United States copyright law, but the system has precedents in foreign copyright laws. It is common to allocate the compulsory license fees among various groups, especially when different authors and copyright owners create the works of authorship. Sound recordings -- the subject matter of the AHRA-- involve two copyright owners in virtually every case. The composer of the music or music publisher owns the underlying music; the record company owns the separate copyright in the recorded sound. The contribution of performers to the creation of the recording is also unique; their creativity warrants recognition through a share of royalties.

Another innovative feature is implementation of the SCMS. The proposal incorporates an existing technical standard, but would be flexible enough to cover new standards as they are approved by the Secretary of

Commerce. The basic elements of the technical requirements seem reasonable and workable. The bill achieves both the certainty of known standards and the flexibility of accommodating future developments. It is not technology specific.

The proposal necessarily includes technical definitions regarding the equipment and media subject to the royalty system and the SCMS. The preliminary analysis of the Copyright Office at this time is that the technical definitions are clear and properly exclude the products not intended to be covered. Further analysis may lead to fine-tuning of the definitions, but we see no major problems now. One minor problem addressed by the Senate was the continuing perception that computer software and audio-visual works might be included under the bill. The Senate's new definition "audiogram" was added to address the perceived ambiguity.

The overall structure of the proposal seems workable. The provisions are carefully drafted. The Copyright Office at this time would suggest only small adjustments regarding time limits set by the proposal, and similar adjustments regarding the procedures related to filing Statements of Account, confidentiality procedures, and verification of the statements.

1. Effective date. It is not clear whether the AHRA would apply to devices and media sold before the effective date. We suggest that the bill apply to products sold after the effective date (even if manufactured or imported before the effective date) but not to sales prior to the effective date of the law. Thus we recommend that the bill make clear that the 45 day period (for reporting the manufacture, importation, and sales of recording equipment or media) begins to run from the effective date of the law, that

reporting does not apply to the equipment and tape sold before the effective date, but does apply to manufacture, and importation that occurs before the effective date when sales occur after the effective date.

2. Time limits for binding arbitration. SEC. 1032 regarding arbitration requires action by the Register of Copyrights within ten days of the receipt of certain requests or reports. The ten day period may be reasonable where the Register must simply publish in the Federal Register a document already prepared by the arbitral panel, as in paragraph (b)(3) of SEC. 1032. Where the Register must analyze or summarize a document, as in paragraph (c) of SEC. 1032, the ten day period may not be sufficient. We recommend a 30 day period to carry out this task.

3. Quarterly and annual Statements of Account. SEC. 1011 (c) requires the filing of quarterly Statements of Account and payment of royalties. This proposal contrasts with the semi-annual filing of statements under the existing cable and satellite carrier licenses, sections 111 and 119 respectively, of the Copyright Act. Since the digital recording industry is in its infancy, at least initially we recognize that more frequent monitoring is necessary. We believe, however, that it would be administratively more efficient to combine the fourth quarter and annual Statement of Account, to total four rather than five separate filings per year. Although it can be handled administratively, we also recommend clarifying in the report the relationship between the quarterly and the annual statements, for example, whether in the course of reconciling the annual statement with earlier quarterly statements amended statements will be required for such earlier quarters.

4. Verification procedure. The proposal establishes a detailed verification procedure for auditing the accuracy of the statements of Account. Pursuant thereto, subsection (e) of section 1011 requires the Office to establish procedures under which interested copyright parties may conduct audits of manufacturers and importers at their business locations. The Copyright Office does not object to the proposed verification, but as prescribing audit procedures is fraught with the potential for controversy, the Office is hopeful that consultation with the interested parties will lead to an agreement rather than lengthy Copyright Office proceedings. We are willing to prescribe procedures and the scope of such audits, but, as this procedure is a first for the Copyright Office, we will expect to consult with interested manufacturing and copyright parties, and are sanquine about the prospect of nonadversarial proceedings.

Under subsection 1011(g), the Register of Copyrights entertains challenges to the independence of certified public accountants used by the parties in the verification proceeding. With respect to the meaning of "independence" as well as the meaning of "generally accepted auditing standards" called for in section 1011(c)(3), the Copyright Office intends to apply the auditing standard of the American Institute of Certified Public Accountants. If any other standard is intended to be used, perhaps references thereto should be contained in the legislative report.

5. Confidentiality. Section 1011(h) prohibits public disclosure of quarterly and annual Statements of Account and information generated during verification audits by creating a presumption that such information is confidential trade secret information within the meaning of 18 U.S.C. §1905.

The Office takes the position that properly promulgated regulations for maintaining secure files and adherence thereto will be sufficient to insulate Office staff from the sanctions of section 1905. The regulations are to include prescribing procedures for permitting interested parties to obtain in confidence access to Statement of Account and verification information. The Office operates under the assumption that section 1011(h)(2) and (3) would not permit making copies of confidential information available to the prescribed parties except in specified circumstances, such as in litigation. The greater the number of copies the Office makes the greater the possibility of compromising confidentiality.

6. Alternative filing dates. Section 1011(c)(3) permits the manufacturer or importer to elect to file either on a calendar year or fiscal year basis. Such alternative filing dates are acceptable to the Copyright Office if elections are relatively permanent, that is, if a manufacturer or importer would only change his or her filing basis in cases of business necessity.

7. Royalty credits for returns. Section 1012(c) allows manufacturers and importers to deduct "the amount of any royalty payments already made on digital audio recording devices or media" that are "returned to the manufacturer or importer as unsold or defective merchandise" or "exported by the manufacturer or importer or a related person." The policy of allowing returned merchandise as a credit against royalties unlimited in time complicates the calculation of royalties. The Copyright Office recommends an amendment to establish a reasonable time limit, such as two years, for taking credits.

8. Relationship of Copyright Office to Copyright Royalty Tribunal. Section 1013 directs the Register to submit to the CRT "such information as the Tribunal shall require to perform its function under this chapter." In the case of the cable license, the Office and the CRT have developed a working relationship that involves the submission of monthly reports. The Copyright Office recommends adoption of the same practice for this new license. We recommend that the last sentence of section 1013 be amended to read as follows: "The Register shall submit to the Copyright Royalty Tribunal, on a monthly basis, a financial statement reporting the amount of royalties available for distribution."

9. Distribution of royalties absent a dispute. Section 1015(b) requires the CRT to make a determination whether or not a controversy exists concerning distribution of royalties within 30 days after the close of the claiming period. The Copyright Office recommends an additional 30 day time period to provide for a total of 60 days. As drafted the language seems to require the CRT to make its determination in a mere 30 days, which includes the necessary notice in the Federal Register, a public comment period, and evaluation by the CRT. Both determining that there is no controversy and authorizing distribution within a 30 day period also presents problems for the Copyright Office since we are required to prepare reports relating to distribution of the royalties.

10. Revolving fund accounts. The Copyright Office requests the specific statutory or regulatory authority to close out royalty payment accounts after a reasonable period, such as three to four years. Under the cable license, the Office has maintained separate accounts for each calendar

year since 1978, even though some accounts contain only a few dollars. It would be more efficient to roll the accounts over into another year rather than maintain separate accounts indefinitely.

CONCLUSION

The Copyright Office fully endorses the principles of the proposed legislation. We commend the parties for their all-encompassing compromise and recommend swift favorable action by Congress. The proposal seems sound, fair, and workable. All creative and proprietary interests are accommodated by the compromise. Consumers will benefit both from the diversity of creative works and from new recording technologies. The record companies will sell more products. The public will have more music to enjoy. Everyone seems to benefit. At last, the American creators will share the profits from this wonderful technology, not just the equipment manufacturers.

APPENDIX I

COUNTRY	1. Royalty Paid On	2. Who Collects?	3. How Distributed?	4. Basis for Royalty
ARGENTINA	Recording Equipment, Blank Tapes	SADAIC	Authors 45%; Performing Artists 25%; National Art Fund 25%.	N/A
AUSTRALIA	Blank Tapes	AUSMUSIC	N/A	N/A
AUSTRIA	Blank Tapes	AUSTRO-MECHANA	Authors 50%; Producers 24%; Artists 20%.	Analog & digital
CONGO	Blank Tapes	BCDA	N/A	N/A
FINLAND	Blank Tapes	TEOSTO	Minister of Education annually approves distribution plan giving a percentage to authors, artists, producers. No fixed percentages.	Analog & digital
FRANCE	Blank Tapes	SACEM/SORECOP	Authors 50%; Producers 24; Artists 25%.	Analog & digital
GABON	Blank Tapes	ARPAC	10% for cultural and welfare purposes.	Analog & digital
GERMANY (FGR)	Recording Equipment, Blank Tapes	ZPU	Authors 50%; Producers/Artists/Others 42%.	Proposed digital to be 4 times higher
HUNGARY	Blank Tapes	ARTISJUS	Authors 50%; Artists 30%; Producers 20%.	N/A
ICELAND	Recording Equipment, Blank Tapes	IHM	Authors 46%; Producers 27%; Artists 27%.	Analog & Digital
NETHERLANDS	Blank Tapes	STEMRA	N/A	Proposed for digital only

COUNTRY	1. Royalty Paid On	2. Who Collects?	3. How Distributed?	4. Basis for Royalty
NORWAY	Recording Equipment, Blank Tapes	NOAF	N/A	N/A
PORTUGAL	Recording Equipment, Blank Tapes	SPA	Authors; Artists/Performers; Producers; State Cultural Promotion Fund. No Percentages available.	N/A
SPAIN	Recording Equipment, Blank Tapes	SGAE	Training/Promotion of young artists 20%; remainder: Authors 40%; Performers 30%; Producers 30%	Proposed for Digital only
SWEDEN	Blank Tapes	Dist. by STIM, IFPI, SAMI	Authors 40%; Performers 30%; Producers 30%.	N/A
TURKEY	Blank Tapes	Ministry of Culture & Tourism	N/A	N/A
ZAIRE	Recording Equipment, Blank Tapes	N/A	N/A	N/A

Mr. HUGHES. Before I go to questions, the Chair would recognize the distinguished gentleman from Michigan, chairman of the Government Operations Committee.

The gentleman from Michigan.

Mr. CONYERS. Thank you very much, Chairman Hughes. I want to commend you for the craftsmanship that has led us to a compromise. After over a decade on this committee as a supporter of our American music and the jazz music, which is a unique American creation in particular, I am very happy about this, because we worked out, as has been already said well here, an agreement between songwriters, copyright owners, the manufacturers, the artists, and then, of course, most of all the consumers.

So I am very happy to have this opportunity to weigh in with you on the Audio Home Recording Act. I think it is an excellent resolution of a very longstanding and sticky problem.

I ask unanimous consent that my statement be included in the record at this point.

Mr. HUGHES. Without objection, it will be so ordered.

Mr. CONYERS. I yield back the balance of my time. Thank you very much.

Mr. HUGHES. Thank you.

[The prepared statement of Mr. Conyers follows:]

STATEMENT ON

H.R. 3204, THE AUDIO HOME RECORDING ACT

BY

HONORABLE JOHN CONYERS, JR.

February 19, 1992

Mr. Chairman, this is a rare day. We have before us a piece of legislation, H.R. 3204, the Audio Home Recording Act, which all of the affected groups support, which will indisputably benefit the American public, and which resolves a controversy that has split the music industry, the consumer electronics industry, and consumer groups for more than a decade. I say, this is a rare day because -- unfortunately -- Congress so infrequently has the opportunity to enact consensus solutions to complex and longstanding problems of such importance to all concerned.

H.R. 3204 is comprehensive in its approach and contains benefits for each of the groups concerned about digital audio technology and home taping.

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- **Songwriters and copyright owners will be compensated for digital home copying of their works through a system of modest royalty payments and will be protected against multi-generational digital copying by SCMS technology.**

- **Consumers will be freed from the possibility of legal liability for home audio taping for private, non-commercial use, whether in digital or analog formats.**

- **Manufacturers, also freed from the legal uncertainty surrounding digital audio technology in the U.S., will be able to bring exciting new products into the American market.**

Moreover, passage of this delicately crafted compromise should cement U.S. leadership in the

international protection of intellectual property rights, a subject of great consequence not only to writers and copyright holders, but also to our trade negotiators. Music – and other intellectual property related industries – are vitally important to our economy and afford us a substantial favorable balance of trade. That, obviously, means American jobs.

I would like to commend the Chairman of the Subcommittee, Mr. Hughes, and the Chairman of the full Committee, Mr. Brooks, for introducing this bill. As a longstanding supporter of the music industry, who has had friends on all sides of the home taping issue over the past years, I am proud to be a co-sponsor of this landmark legislation. Passage of H.R. 3204 will help assure the vitality and variety of American music to the benefit of music lovers everywhere.

Mr. HUGHES. Mr. Oman, Professor Litman—who will testify, as you know, on the next panel—raises questions about the negotiation process through which this legislation was developed. Do you have any views about the process of incorporating a privately negotiated agreement into legislative form?

Mr. OMAN. This subcommittee in the past has relied on that procedure very successfully. I am thinking primarily of the jukebox negotiations. It is a way of getting parties to sit down and work out their problems. And, if they come up with a solution that is not in the public interest, they will certainly find out in short order. And that is the purpose of your hearing today, to find out whether that agreement is in the public interest, and I think your conclusions will be the same as mine, at least I hope they are, that it does serve the public interest.

Mr. HUGHES. In your view, would it be useful to secure international agreements with respect to the SCMS system, the royalty provisions or other aspects of the proposed legislation?

Mr. OMAN. In terms of seeking a formal international agreement, it is always difficult to both negotiate a treaty and then have countries adhere to it. It is my view that with the international standard that has been developed by the major manufacturers and the major creative interests, that standard will become the worldwide standard perforce, just as a result of their economic power. And it is my understanding that the manufacturers will not manufacture machines without the SCMS technology for countries that don't have SCMS laws. With that being the case, it is unlikely that pockets of rampant home taping will develop in the digital format without some international standard. So I think the system is going to work well without a formal treaty.

Of course, the Berne Convention already has a great impact on the situation in that it protects the rights of composers, and even in those countries that don't have specific SCMS legislation, there are certain protections built in under the Berne Convention.

Mr. HUGHES. Are you concerned at all about the detailed and technical nature of the legislation? If we were to follow the approach of this particular bill, is the copyright code going to look more and more like the Encyclopedia Britannica as new technologies evolve?

Mr. OMAN. This is an unusual circumstance in which technology really is the key to the solution, and without a detailed exposition of the agreement in technical language, it would have been difficult to get agreement on broad general terms. And, though I do prefer legislation that is more general in nature, under the circumstances I think it was essential that we do permit that type of specificity in this case.

Mr. HUGHES. The legislation provides fairly broad powers for the Secretary of Commerce to make some changes in the basic fabric of the law. Some critics have suggested that the Congress is pretty much giving away the store. What is your view on that score?

Mr. OMAN. You have established the broad parameters. There can be technical variations within those broad parameters. If it appears that 10 years down the road the standards that are later developed because of new breaking technology do not comport with those broad parameters, you can jump back into the fray. But it is

my expectation that the bill as drafted provides the essential guidelines that the Secretary of Commerce can use in applying technical standards.

Mr. HUGHES. You outline in your full statement about 10 mostly administrative changes that the Copyright Office would recommend in the bill. Are there any of those that you want to particularly touch upon in your oral statement?

Mr. OMAN. Let me ask Ms. Schrader to comment on that point. She may have some additional views.

Ms. SCHRADER. Of course, a number of the items that we brought to the attention of the subcommittee have been considered in the other body and certain adjustments have been made in the Senate bill as amended. But I would especially bring to your attention our point No. 3, that we don't see a need to have four quarterly statements and then an annual statement filed every year. Also, point No. 1, that the bill should be clarified to make clear just exactly the effective date in terms of material that has been distributed before the bill comes into law. Again, that adjustment has been made in the Senate bill as amended.

We would also particularly ask you to consider point No. 10, to give the Copyright Office the authority to, in effect, have revolving fund accounts as the royalties come in.

Mr. HUGHES. Thank you. Dr. Lebow will testify on the second panel, and as I went through his testimony, he makes a very interesting observation about his interpretation of the bill's definition of digital audio interface device and digital audio recording device and digital audio recording medium when he suggests that they are overly loose, overly broad and possibly will inhibit the development of new technologies which are bound to occur.

Do you have a view on that, Mr. Oman?

Mr. OMAN. It is a problem that I have heard discussed in the past, and there was, I think, a legitimate concern that it might be overbroad in terms of its sweep. It could bring in computer programs and the like.

I think the Senate addressed the problem by defining with greater precision, perhaps, what it is we are talking about here, and I think the term they came up with was audiogram and that seemed to solve the technical problems of overbreadth. That may be a solution you might want to pursue.

Mr. HUGHES. Has your shop looked at that question in particularity?

Mr. OMAN. We have looked at it and we do think that it solves the problem without creating problems in other areas.

Mr. HUGHES. One of the criticisms that I have heard is that it is not fair to impose a penalty across the board when consumers will not make any home tapes. What is your response to those making that criticism?

Mr. OMAN. Generally, the technology is for the serious audiophile, and I think studies have suggested that an extremely high percentage of those who buy the machines intend to tape copyrighted works on the machines. That is what is so attractive. For those few who do not tape copyrighted materials, I suppose there is some small injustice. But I think by and large they will be in

such a miniscule minority that that unfairness will have to be accommodated.

Of course, in terms of the royalty on the blank tapes, there is no obligation to buy blank tapes with the royalty imposed, unless you intend to use the blank tapes to record, which is generally copyrighted materials. So, even though there is some small element of unfairness, I think by and large it is not an unfair burden on the recording public.

Mr. HUGHES. And I would presume that the overriding public good is served by bringing this technology to the marketplace.

Mr. OMAN. It will allow the technology to prosper. It will allow for the consumer to have a much wider choice in terms of materials available. And I think ultimately it will spread this technology throughout the country, and not just have it be the high line luxury item that it is today.

Mr. HUGHES. Well, thank you very much.

The gentleman from California.

Mr. MOORHEAD. Thank you, Mr. Chairman.

I think we take for granted that any kind of copying of copyrighted work without permission is a violation of the copyright law. At the same time, Americans pretty well take it for granted they have the right to copy anything in their own homes. This is an area of the law that is unclear.

Would it be in the public interest to clear this up, say that home taping for noncommercial purposes is not a copyright violation?

Mr. OMAN. Well, in many ways that is what you are doing in this legislation, Mr. Moorhead. You are for the first time making clear that home taping in the digital format is not a violation of fair use because the royalty that is paid on the blank tapes and on the machines covers the interest of the creators.

I do think that the balance that has been struck is a good one, and it is ultimately fair to all parties. And I think that a fair-minded consumer will recognize that the small price that has to be paid is worth the price in terms of the prospering of the technology and the availability of new materials.

Mr. MOORHEAD. Could you give us some idea of the thinking that went to involve the disparity in royalty payments with the record industry receiving two-thirds of the funds and the songwriters and music publishers providing the other one-third?

Mr. OMAN. I suppose the negotiations that led to that split were based on some recognition of the amount of investment and the amount of effort that goes into the various aspects of the promotion of music. You have experts in that field in following panels, and I would respectfully request that they attempt an answer to that question based on their years of experience and years of tough negotiations at the bargaining table.

Mr. MOORHEAD. Can you give us some idea of what the cost to the Federal Government will be in implementing this legislation?

Mr. OMAN. The bill as drafted allows for administration in the U.S. Copyright Office and the cost of that administration will be borne by funds from the royalty pool. So, even though we have requested in the 1983 budget cycle three additional positions to administer this law, the cost of those positions will be borne by the

users of the system. So it won't cost the American taxpayers any money directly.

Mr. MOORHEAD. This bill provides the formula for handling home taping of music only. Could the same formula be used for home taping and home copying generally of other material?

Mr. OMAN. What you have determined in drafting the legislation as you have, limited to the digital technology, is that in the normal analog field the likelihood of a copy made at home displacing a sale is much less likely than in the digital format where you have a perfect copy made. And, under those circumstances this distinction is a logical one and one I think that will be borne out in experience.

When someone has the money to buy expensive DAT machines and buy the expensive blank tapes, one has disposable income that could be used to buy the tapes prerecorded. The fact that many of the people who use the analog technology, the teenagers with limited income who don't seek the high quality in their analog copies, generally aren't the ones with the disposable income that can buy the prerecorded tapes. So it is not displacing a sale in many cases. And that is the determination I think you have made in drafting the bill and limiting it to the digital technology, because it is in that medium that the studies show that taping at home displaces sales.

Mr. MOORHEAD. The chairman alluded to one other situation, the fact that the bill is so long, 57 pages long, and a tremendous amount of the details deals with the auditing of the books. I wonder as far as litigation is concerned whether that tremendous detail will alleviate potential legal battles in court or will it be something that causes more of them as people argue over more and more terms and find more areas in which they can?

Mr. OMAN. In this particular case, since the solution is so rooted in technology, I think the detail will eliminate confusion down the road and will make lawsuits less likely.

Mr. MOORHEAD. Well, I know what an important role you have played in all of this, Mr. Oman, and we appreciate your action and your activity in bringing the parties together. This has been a very difficult issue to solve and I know it is necessary that someone who is well aware of all of the people involved and all of the issues involved to get into it as you have. So I think that you deserve a great deal of the credit for bringing this legislation before us.

Mr. OMAN. Well, you are kind to suggest it, Mr. Moorhead. But, if the truth be known, we were very much on the sidelines and it was the parties themselves who really have put it together, and they serve all the credit.

Mr. MOORHEAD. You are modest, anyway.

Mr. HUGHES. I thank the gentleman.

I have just one additional question. The SCMS copying prohibition reaches material not protected by copyright. That seems to be so because all materials which are not electronically encoded as noncopyright materials are considered to be copyrighted.

My question is, there seems to be no provision for changing the treatment of material once copyright expires. In other words, for purposes of serial copying, material having copyright-protected encoding would not use that encoding. Am I correct in that assumption? And does that give you any concern?

Mr. OMAN. It was a concern that we had, and it is still a concern. We had concluded, however, what the expected life of a recording was, even though the expected life in the digital format is greater than in the analog format, it still is limited by the physical properties of the media, and that a prerecorded tape that is issued with the encoding on it today cannot be expected to physically last for the duration of copyright. In the life of the author plus 50 years, new recordings will be made, and if the work is in the public domain, it could conceivably be made without the encoding on it or it could still require the encoding because the sound recording itself is protected under copyright.

I think in the long run you will find that the duration of copyright mitigates any unfairness that might creep in with the coding not being erased at a certain time in the life of the music, and I do think that it is in many ways a theoretical problem rather than a practical problem.

Mr. HUGHES. Thank you. I have no further questions. I just want to thank you for your help once again and tell you that I have known and I am sure we have known on the subcommittee for a long time that your office enjoys a terrific reputation in this country, but I am happy to say that I observed firsthand just how highly regarded our own Copyright Office is in the international community. My recent visit to the World Intellectual Property Organization, where I was privileged to speak this past Monday, was very instructive in that regard. And I just want to congratulate you on your professionalism over the years and thank you and Eric Schwartz in particular, and your staff for the splendid job they did in making my own visit to Geneva and with some of the organizations in France so productive. Thank you.

Mr. OMAN. Thank you very much, Mr. Chairman.

Mr. HUGHES. I would like to introduce our first panel of witnesses this morning representing the recording and electronics industries. I would like to commend you for your important work and for the compromises that each of your organizations made in order to reach an accord that will assure the protection of copyrights and provide consumers with new and important products.

First, I would like to welcome Mr. Barry Manilow, a renowned performer and songwriter, whose credits include some of our most cherished American musical classics. I think we will have a chance in just a few minutes to hear Mr. Manilow's music on the digital compact cassette player. We're just delighted to have you with us today, Mr. Manilow.

Second, I would like to welcome Mr. Stanson G. Nimiroski, the vice president and manager of the Sony Music Entertainment manufacturing plant in Pitman, NJ, which is in my congressional district. We're very proud to have them as corporate citizens in Gloucester County.

Third, Mr. Joseph Smith, president and chief executive officer of Capitol-EMI Music, Inc. Testifying also is John Roach, the president and chairman of the board and chief executive officer of Tandy Corp., and Mr. George David Weiss, also a highly acclaimed songwriter and president of the Songwriters Guild of America. Mr. Cary Sherman, an attorney with Arnold & Porter, is accompanying the witnesses today.

We are delighted to have each of you with us. We have your full statements which, without objection, will be made part of the record, and you may proceed as you see fit. Why don't we begin with you, Mr. Manilow. We welcome you today.

STATEMENT OF BARRY MANILOW, RECORDER AND SONGWRITER, HOLLYWOOD, CA

Mr. MANILOW. Thank you, Mr. Chairman. Thanks for the opportunity to testify in support of H.R. 3204, the Audio Home Recording Act.

I am Barry Manilow, and I come before you today as a BMI songwriter, as a musician, recording artist, music publisher, and consumer. But I also represent thousands of others in the music industry.

This legislation is of paramount importance to the music community and to consumers. It will provide compensation to the creators, producers and performers of music when copies of our work are made at home by private citizens. It will give consumers access to the most innovative and exciting new digital audio technologies that the market has to offer. But more than that, it will protect consumers from copyright infringement lawsuits whenever they copy music at home for their personal use.

Finally, it will continue the great tradition of America's copyright law which fosters the creative spirit by preserving incentives for songwriters, musicians, performers and record companies to produce music. By ensuring a fair return on our investment of time and talent, Congress will guarantee that America's music community will continue to be the world leader in the production of recorded music.

You know, I've been very lucky. I'm proud of my achievements and I am proud of my music. But I'm not just here on behalf of myself today. I am here on behalf of thousands and thousands of struggling American songwriters, musicians and performers and generations of talent to come. I am also here on behalf of the people who the public never hears about—publishers, recording engineers, producers, background vocalists and musicians, A&R executives, promoters, marketers, distributors, and, of course, the record retailer. These are just some of the people who help bring music to the public. So, you see, it's for all these individuals that I appear before you today to get support for this important legislation.

You know, songwriters, performers and musicians earn their money pennies at a time. It's a struggle to make ends meet getting paid like that. For every record sold, one only earns a few pennies. Only a few of the biggest super stars get paid up front. Most of us only get paid when a record sells. If you're lucky enough to get a hit, it's great news. It means that people like our songs. But the bad news is that it's primarily the hits that get copied; it's the hits that get taped. Of course, I would rather have a hit, but when someone makes a copy of our work instead of buying it, it is just not fair. Home copying threatens our livelihood.

This threat is greater today than ever before because of digital technology. Digital technology is great, it's fantastic. Because of digital technology, music sounds extraordinary. As a producer and as an artist, no one appreciates the advance of new technologies

more than I do. It has been very exciting to work with digital recording in the studio. But now anybody can make a perfect copy of our work at home. With digital technology, the 100th copy is as perfect as the first. If perfect copies can be made for only the cost of a blank tape, why purchase the original? Why pay for a prerecorded cassette or compact disk when you could get a digital copy from a friend that is as perfect as the original, or when you can tape perfect copies off the radio? So, you see, it's not pleasant for me to read about blank tape sales.

That is why I'm here today on behalf of this legislation. This legislation can only bring positive benefits to us all. By providing royalties on blank tape, this legislation will effectively remove the fears associated with digital recording technologies and permit songwriters, musicians and performers to join hands with consumers to embrace these fantastic new products.

Also, this bill provides for a limitation on the ability to make digital copies of digital copies by requiring that all nonprofessional models of such equipment incorporate the Serial Copy Management System, the SCMS. This way consumers will gain access to exciting new technologies free from the legal hassles of the past.

We musicians want the best possible equipment available to deliver our music. The higher the quality of the equipment, the better our music sounds. No one in the music community has enjoyed being labeled as antitechnology just because we're concerned about the need to protect our rights, our copyrights. We have always wanted our fans to hear what we create in a setting as close to studio perfect as possible.

But so far the consumer has been denied access to this great new technology because of the legal climate surrounding the introduction of DAT and other products. This bill changes the landscape, permitting manufacturers of new digital audio recorders to bring their products to market without fear of lawsuits and the problems of the past. As it should be, the market will dictate the success or failure of these technologies. I am very excited about all the possibilities that await us. The only dilemma will be for the consumer to decide among all these great new toys available, and that's the way it should be.

This legislation will preserve the incentives for American songwriters, musicians, performers and record companies to continue to create music, maintaining our preeminence in the world market.

H.R. 3204 protects millions of livelihoods. It provides the financial nourishment necessary to produce the quality and diversity of music we are accustomed to enjoying. Without this bill, the music industry will be on a downhill spiral. Without the protection of this legislation, the music community will lose so much revenue because of home copying that we might never be able to recover. There will be fewer dollars to invest in new talent. We could lose a whole generation of young songwriters, musicians and performers solely from the lack of adequate protection of their copyrights. Record companies would be less willing and much less able to take chances on new talent. Songwriters couldn't make a living. Less popular genres of music, such as jazz, folk or classical, could disappear.

Mr. Chairman, you have taken the opportunity and provided the leadership necessary to prevent this dismal future by introducing H.R. 3204. Please now take the final step by enacting this measure as soon as possible so that American music, in all its richness and diversity, will be around for generations to come.

Mr. HUGHES. Thank you very much, Mr. Manilow.

[The prepared statement of Mr. Manilow follows:]

PREPARED STATEMENT OF BARRY MANILOW, RECORDER AND SONGWRITER, HOLLYWOOD, CA

Mr. Chairman, members of the subcommittee, my name is Barry Manilow. I want to thank you for the opportunity to be here today to testify in support of H.R. 3204, the Audio Home Recording Act of 1991. I come before the subcommittee today as a BMI songwriter, but I am also a musician, recording artist, music publisher and consumer. I am also here today to represent thousands of others in the music industry.

In the time I've been allotted, I would like to stress three reasons why this legislation is of paramount importance to the music community and to consumers. First, this bill provides compensation to the creators, producers and performers of music for the home copying of our works.

Second, it will provide consumers with access to the most innovative and exciting new digital audio technologies that the market has to offer; in addition, the bill protects consumers from copyright infringement lawsuits for home copying of music for their personal use.

Finally, it will continue the great tradition of America's copyright law in fostering the creative spirit by preserving incentives for songwriters, musicians, performers and record companies to produce music. By ensuring a fair return on our investment of time and talent, Congress will guarantee that America's music community will continue to be the world leader in the production of recorded music.

Let me return to my first point as to why compensation to creators and producers of music is so important, by giving you a little insight into this crazy business of music. Like any other profession, it takes a great deal of work to achieve any degree of success. Not to mention a whole lot of luck. I've been very fortunate in my career. I'm proud of my achievements and my music. But I'm not here on behalf of myself. I've made it. My career started over twenty years ago, at a time when technology only presented new horizons, not fears. I'd like to speak to you on behalf of the thousands and thousands of American songwriters, musicians and performers who are struggling right now and who may or may not make it; and even more importantly, for the next generation of talent who will start with the same basic gifts I did and who must have the same opportunities.

As you probably know, success in the music business is a rarity. For every songwriter or performer that you can identify -- there are hundreds of names that you'll never hear; hundreds of people who will never achieve any degree of financial success as a songwriter or performer. In addition, there are many other people who contribute to an artist's efforts who will never gain the attention of the public -- other songwriters, publishers, recording engineers, mastering engineers, producers, background vocalists and musicians, A & R executives, promoters, marketers, distributors and, of course, the record retailer -- these are just some of the people who help bring music to the public. It is for these faceless and nameless individuals that I appear before you today to support this important legislation.

As songwriters, performers, and musicians we earn our money pennies at a time. We want our fans to enjoy our music, yes, but we also want to be paid for our work. When you're struggling to make ends meet, every little bit helps. For every record we sell, we earn some money -- a few cents. These pennies add up to be our salary. Only a few of the biggest superstars get paid up front. Most of us only get paid when a record sells. If we are lucky enough to get a hit, it's great news -- that people like our songs.

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The bad news is that it's the "hits" that get taped. Don't get me wrong. I'd rather have a hit, but when someone makes a copy of our work instead of buying it, this takes money out of our pockets and bread off our tables. Home copying threatens our very livelihood.

Never before has this threat been greater than today, as we enter an age of digital technology. The irony is that, as a producer and an artist, no one appreciates the advance of new technologies more than I. It has been really exciting to work with digital recording in the studio.

However, the advent of new digital audio recording devices for consumer use, such as DAT, Digital Compact Cassette (DCC), recordable CD, and Mini-Disc (MD), has a different meaning for me. DAT, for instance, permits consumers to make perfect copies for many generations. With digital technology, the 100th copy is as perfect as the first. If perfect copies can be made for only the cost of a blank tape, why purchase an original? Why pay for a prerecorded cassette or compact disc when you could get a digital copy from a friend that is as perfect as the original?

It is not a pleasant exercise, Mr. Chairman, to read about blank tape sales. That is why I am so pleased to be here today on behalf of this legislation. In my view, it brings only positive benefits to us all. This legislation will effectively remove the fears associated with digital recording technologies and permit songwriters, musicians and performers to join hands with consumers in embracing these new products. In addition to royalties, this bill provides for a limitation on the ability to make digital copies of digital copies through a requirement that all nonprofessional models of such equipment incorporate the "Serial Copy Management System" ("SCMS").

This leads to my second point, that consumers will gain access to exciting new technologies, free from the legal entanglement of the past. I want to address this point, first as an artist, then on the part of the consumer.

First, musicians want the best possible equipment available to deliver our music. The higher the quality of the equipment, the better our music sounds. No one in the music community has enjoyed being labeled as "anti-technology" just because we were concerned about the need to protect our rights -- our copyrights. We've always wanted our fans to hear what we create in a setting as close to studio perfect as possible.

In the past, the consumer has been denied access to developing new technologies because of the legal climate surrounding introduction of DAT and other products. This bill changes the landscape, permitting manufacturers of new digital audio recorders to bring their products to the market without fear of lawsuits or the problems of the past. And, as it should be, the market will dictate the success or failure of these technologies. As an avid music fan, I am excited about all the possibilities that await us. The only dilemma will be for the consumer to decide among all the available technologies. But isn't that the way it should be?

Finally turning to my third point, this legislation will preserve the incentives for American songwriters, musicians, performers and record companies to continue to create music, thus maintaining our pre-eminence in the world market. When American music is played abroad we're not just exporting U.S. product, we're exporting American culture and ideals.

In these tough economic times, American music continues to dominate world trade. This means songwriters, musicians, and performers can continue to work at this business we all love. This legislation fuels investment in a diversity of music -- music designed to meet all the tastes and interests of our

pluralistic society, such as jazz, classical, gospel, folk, country, rap, and yes, even good old fashioned rock and roll.

By protecting our livelihoods, H.R. 3204 will provide the financial nourishment necessary to produce the quality and diversity of music we've all become accustomed to enjoying. Without this bill, our music industry could be on a downhill spiral that would result in a uniformity of music and career changes for songwriters, musicians, and performers.

Imagine this -- without the protection this legislation offers, the music community would surely lose more revenue from home copying at an ever increasing rate. This translates into fewer dollars available to invest in new talent. We could lose a whole generation of young songwriters, musicians and performers solely from lack of adequate protection for our copyrights. Record companies would be less willing, and much less able, to take chances on new talent. Songwriters would be forced to write only those songs that they think would sell. Less popular genres of music, such as jazz, folk or classical, would fall by the wayside. And, we'd all be bored and uninspired!

In conclusion, Mr. Chairman, and members of this committee, you have taken the opportunity and provided the leadership necessary to prevent this dismal future by introducing H.R. 3204. Please now take the final step by enacting this measure as soon as possible so that American music, in all its richness and diversity, will be around for generations to come.

Thank you.

Mr. HUGHES. Mr. Nimiroski.

STATEMENT OF STANSON G. NIMIROSKI, VICE PRESIDENT AND MANAGER, SONY MUSIC PITMAN MANUFACTURING PLANT, PITMAN, NJ

Mr. NIMIROSKI. Mr. Chairman, my name is Stan Nimiroski, and I am vice president and manager of the Sony Music Pitman manufacturing plant in Pitman, NJ. I want to thank you for the opportunity to come before you today to offer testimony on H.R. 3204, the Audio Home Recording Act of 1991. Chairman Hughes, I was very proud to show you our facility and introduce you to our operation and our employees in Pitman, and I am pleased to be with you here today.

When one thinks of the music industry, he or she generally thinks of the stars, like Barry Manilow, and all the attendant glamour and glitz. I am here today to discuss another facet of the business and to represent the people behind the scenes who actually manufacture and distribute the music product we all enjoy.

I want to tell you briefly about the history and capacities of our plant and, more importantly, how this legislation benefits our end of the music business. The Pitman manufacturing plant first opened in 1960 and produced LP, longplay albums, until December 1986. This was one of the largest LP record manufacturing facilities in the world.

In our company, and particularly in our plant, we have always tried to move forward with new technology. When digital compact disks were first developed, we closed the plant, retooled our machinery, and began manufacturing in the digital arena with compact disks. Plant employment was approximately 400 people on January 1, 1987. Pilot CD plant production began October 1, 1987, and reached full production capacity in January 1988. Today, our plant manufacturers CD's at the rate of 50 million units annually, with a total number of 925 employees.

The Pitman plant not only manufactures the CD's but also packages and ships finished CD product to regional distributors and retail dealers all over the United States. Our plant is not an antique from the industrial age but, rather, a high technology, state-of-the-art manufacturing facility. We work hard to ensure that our facility remains on the leading edge of production technology. For example, we have just announced a $30 million expansion. This expansion includes $10 million in facility work for plant renovations and $20 million in additional manufacturing equipment.

We also have a sister plant in Carrollton, GA, that currently manufactures audio cassettes, and another facility in Terre Haute, IN, that has just announced a similar expansion phase. And the same holds true for other record companies. Our industry employs tens of thousands of workers in the manufacturing end of the business, workers prepared to meet the technological challenges that we face today, as well as tomorrow.

This phase of expansion will allow us to increase our Pitman manufacturing capacity by an additional 24 million units annually, while adding approximately 100 new jobs. And it is anticipated that future expansion could add up to as many as 200 more jobs to our work force. With the passage of this bill and the introduction

of new audio formats, we could see even greater expansion. We expect this current phase to be completed within 8 months and we anticipate that the plant should be in full operation by the end of September.

Now to the effect this legislation would have on our operations. First, of course, is that by encouraging the cooperation between hardware companies and record companies on new digital formats, we will have more product to manufacture. In addition, technical measures will protect our original digital product from being cloned. Our plant will be able to manufacture CD's compatible with SCMS standards.

As a manufacturer, our prime concern is quality. We're extremely proud of the new prerecorded music we produce. We have quality control mechanisms in place to assure that consumers get the quality product they demand. When this legislation goes into effect, the high quality of our product will not be lost in any copying process, and there will be a well-deserved system to provide compensation to the creators and producers of music. For every copy made of a CD, that may be one less unit that will be manufactured at our plant. The seemingly innocuous problem of home taping, when amplified, threatens not just the artists' livelihoods but our jobs as well.

This new digital recording technology is phenomenal, Mr. Chairman. You saw first hand that we are able to rerelease, in CD format, old favorites that have been rejuvenated through digital remastering. The public wants this new, high quality. LP's and tapes in the analog format lose quality with the passage of time. Digital does not.

We are looking forward to making new digital formats available to the buying and listening audience. With the technical protection of SCMS and the royalty compensation system outlined in the legislation, we at the manufacturing end of the music chain feel that, finally, fair treatment will be accorded to all of us in the process, from songwriters and artists for their writing and singing talents, all the way down to my plant workers for their dedication to their own jobs in producing the highest quality of prerecorded music available anywhere in the world. And the fans—and that's who all of us are really working for, after all—can have the music in whatever format they desire.

On behalf of all of the employees at the Pitman plant, I want to thank you for taking the time to examine this legislation. I urge your swift enactment.

Thank you.

Mr. HUGHES. Thank you very much, Mr. Nimiroski.

[The prepared statement of Mr. Nimiroski follows:]

STATEMENT OF STANSON G. NIMIROSKI
BEFORE THE
SUBCOMMITTEE ON INTELLECTUAL PROPERTY
AND JUDICIAL ADMINISTRATION
H.R. 3204: THE AUDIO HOME RECORDING ACT OF 1991

FEBRUARY 19, 1992

Mr. Chairman, members of the subcommittee, my name is Stan Nimiroski and I am Vice President and Manager of the Sony Music Pitman Manufacturing plant in Pitman, New Jersey. I want to tell you briefly about the history and capacities of my plant and, more importantly, what this legislation will do for us.

When one thinks of the music industry, he or she generally thinks of the stars, like Barry Manilow, and all the attendant glamour and glitz. I am here today to discuss another facet of the business and to represent the people behind the scenes who actually manufacture and distribute the music product we all enjoy.

In our company, and particularly in our plant, we have always tried to move forward with new technology. The Pitman plant manufactures CD's, as well as packaging and shipping to retail dealers and regional distributors. Today, our plant manufactures CDs at the rate of 50 million units annually, with a total number of 925 employees. Our plant is not an antique from the industrial age, but rather a high-technology, state-of-the-art manufacturing facility. And we work hard to ensure that our facility remains on the leading edge of production technology. The same holds true for other record companies. Our industry employs tens of thousands of workers in the manufacturing end of the business, workers prepared to meet the technological challenges that we face today, as well as tomorrow.

For example, we have just announced a 30 million dollar expansion. This phase of expansion will allow us to increase our Pitman manufacturing capacity by an additional 24 million units annually, while adding approximately 100 new jobs. And it is anticipated that future expansion could add up to as many as 200 more jobs to our work force. With the passage of this bill and the introduction of new audio formats, we could see even greater expansion.

Now, to the effect this legislation would have on our operations. First, of course, is that by encouraging the cooperation between hardware companies and record companies on new digital formats, we will have more product to manufacture. In addition, technical measures will protect our original digital product from being cloned. Our plant will be able to manufacture CD's compatible with SCMS standards.

As a manufacturer, our prime concern is quality. We're extremely proud of the new prerecorded music we produce. We work very hard to assure that consumers get the quality product they demand. With this legislation, the high quality of our product will not be lost in any copying process, and there will be a well deserved system to provide compensation to the creators and producers of music. For every CD copied, that may be one less unit that will be manufactured at our plant. The seemingly innocuous problem of home taping, when amplified, threatens not just the artists' livelihoods, but our jobs as well.

The public wants this new, high quality. We're looking forward to making new digital formats available to the buying and listening audience. With the technical protection of SCMS and the royalty compensation system outlined in the legislation we, at the manufacturing end of the music chain, feel that, finally, fair treatment will be accorded to all of us in the process -- from songwriters and artists all the way down to my plant workers.

On behalf of all of the employees at the Pitman plant, I want to thank each of you for taking the time to examine this legislation. I urge your swift enactment. Thank you.

Mr. HUGHES. Mr. Smith, we welcome you.

STATEMENT OF JOSEPH SMITH, PRESIDENT AND CHIEF EXECUTIVE OFFICER, CAPITOL-EMI MUSIC, INC., HOLLYWOOD, CA

Mr. SMITH. Mr. Chairman and members of the committee, my name is Joe Smith. I'm president and chief executive officer of Capitol-EMI Music. On behalf of my company and the other members of the Recording Industry Association of America I am pleased to have the opportunity to appear today on the subject of digital audio recording and to urge your support for H.R. 3204, the Audio Home Recording Act.

Capitol-EMI Music encompasses a diverse group of operations in North America and around the world, including several record labels, manufacturing facilities for prerecorded cassettes and compact disks, a legendary recording studio in Hollywood, and a sales and distribution division. Our record labels include Capitol Records, which this year is celebrating its 50th anniversary; Blue Note Records, a premier jazz record label of over 50 years; Angel Records, one of the most important classical operations in the world; Capitol-EMI Latin Music, EMI Records, USA, and our Nashville operation called Liberty Records. We are also part of a worldwide organization called EMI, with companies in 38 separate countries. In the United States alone, we have over 3,000 employees.

When Capitol Records was founded, most big name artists 50 years ago were already signed to other labels, so Capitol Records set about signing and developing its own roster of artists. The fledgling label scored big hits with soon to be classic artists, like Nat Cole, Peggy Lee, Margaret Whiting, Stan Kenton, George Shearing, Ella Mae Morse, and others, and revitalized the career of Frank Sinatra. Over the years, the Beatles, the Beach Boys, the Band and others were introduced by our label.

Today, our diverse roster of artists includes Bonnie Raitt, Hammer, Garth Brooks, Tina Turner, Paul McCartney, Bob Seger, and many others. At Capitol Records, we're extremely proud of our artists and their accomplishments.

That's the history, and I would like to set forth several reasons why this legislation is of paramount importance to the record industry in general and to Capitol Records.

Our assets talk back to us. Our assets can walk out and leave us in a room. Our assets are not in recording studios or bricks or mortar. Our assets are the unpredictable and the dynamic recording artists and writers that we deal with.

H.R. 3204 significantly improves the landscape for our artists in many respects. The bill provides some compensation to the creators and producers of music for the home copying of our works. The legislation also protects against serial copying—making copies of copies endlessly. This has never been more important than with today's digital technology.

We did an experiment at our studios, Mr. Chairman, last year, where we lined up six digital recording pieces and six analog cassette machines. We took a brandnew compact disk recorded by Itzak Perlman and the Israeli Symphony Orchestra, with Zubin Mehta. We made copies from the compact disk to the digital line and to the analog line. The sixth analog cassette had lost all of its

high end, it was muddy, and not satisfactory. The sixth digital cassette was undistinguishable from the compact disk. We realized the danger in this unlimited recording ability.

As Barry Manilow said, success in the music business is a rarity, not only for the artists who make it but for the songs that rise to the top. The facts are, economically, in our business that 85 percent of all pop records and 95 percent of classical records do not recover their recording costs and marketing costs. It doesn't sound like a terrific business when 85 percent of everything you do doesn't make it back financially. The fact is that the 15 percent make enormous profits. It is those profits that we reinvest in new talent and new technology. Also in music like classical folk gospel.

When someone makes a copy of a record at home, as Barry said, they're only copying that 15 percent, those hits. That means less revenue for us, less money to develop artists and to produce music in the less popular genres.

Second, this legislation permits record companies to embrace the new consumer digital audio technologies, including the soon to be available digital compact cassette, known as DCC, and the minidisk developed by Sony. In this business, we have seen and heard the advances that digital technology has offered in the studio. Today, most of our artists will only record in the digital format, demanding the finest sound quality available. In the past, and without the protection that this legislation offers, all record companies were rightly concerned about the introduction of digital recording technology, like digital audio tape, for consumer use. This legislation removes that fear, provides the protection we need to move forward with technology and to offer our consumers prerecorded music on the newest digital formats.

The bill gives our business a much-needed "shot in the arm." The record business, like so many others, has been hurt in these difficult economic times. With this protection, Capitol can now begin to release music on these new formats. We hope to see the same surge in sales that marked the introduction of the compact disk 10 years ago. When we reintroduced the entire Beatles catalog, Sergeant Pepper and all the others, it had an amazing economic impact right away. We foresee the same kind of impact with digital recording.

But to release our product on digital formats, we have to expand our manufacturing facility. At the moment, Capitol Records manufactures both compact disks and analog cassettes in Jacksonville, IL., employing over 1,000 workers. We are gearing up for the September launch of DCC, preparing our facility to begin production of digital compact cassettes. That translates into more jobs.

H.R. 3204 provides more than just a new format for Capitol's prerecorded music. This legislation also helps lead the way in opening new markets around the world for U.S. music.

In the global marketplace, over 40 percent of the market is U.S. music. It's one of the last exportable products this country has that is consistent. We are constantly looking to open new markets and expand our business. This legislation increases the level of production for our product here in the United States and helps open these future markets. Following the introduction of this legislation, Japan and the European Community began to move ahead with

plans for royalty systems similar to the proposal before you. When these proposals have been enacted, we can move into other new markets.

Let me explain briefly what the consumer gets out of this compromise. It's simple: the most exciting new digital audio recording technology available anywhere and the music to go along with it. Mr. Chairman, you and Americans everywhere will be able to listen to country, classical, jazz, rock, on innovative state-of-the-art digital recording equipment. New technologies bring the listener as close as possible to the experience of being right there. In sum, we all benefit from this legislation.

So, on behalf of the recording industry, Mr. Chairman, and members of the committee, I thank you for your leadership on this issue, and especially to our California Congressman, Mr. Moorhead, and other members. I encourage the swift enactment of this bill. The digital revolution is upon us and we've got to get ready for it.

Thank you.

Mr. MOORHEAD [presiding]. Thank you very much, Mr. Smith.

[The prepared statement of Mr. Smith follows:]

PREPARED STATEMENT OF JOE SMITH, PRESIDENT AND CHIEF EXECUTIVE OFFICER, CAPITOL-EMI MUSIC, INC., HOLLYWOOD, CA

Mr. Chairman, members of the committee, my name is Joe Smith and I am President and Chief Executive Officer of Capitol-EMI Music, Inc. I am pleased to have the opportunity to appear here today on the subject of digital audio recording and to urge your support for H.R. 3204, the Audio Home Recording Act.

Capitol-EMI Music encompasses a diverse group of operations in North America and around the world, including record labels, manufacturing facilities for pre-recorded cassettes and compact discs, studio operations and a sales and distribution division. Our record labels include Capitol Records, Blue Note Records, Capitol/EMI Latin, Angel Records, EMI Records USA and Liberty Records in Nashville. We are also part of a world-wide music family of EMI with operations in over 36 foreign countries. In the United States alone we have almost three thousand employees.

Capitol Records was founded in June, 1942. In fact, this year marks our 50th Aniversary. The company was established by singer/songwriter Johnny Mercer, music store owner Glenn Wallichs, and motion picture producer B.G. "Buddy" DeSylva in 1942. As most "big name" artists were already signed to other labels, Capitol Records set about signing and developing its own stable of acts. The fledgling label scored big hits with soon-to-be-classic

artists such as Nat King Cole, Ella Mae Morse, Stan Kenton, Peggy Lee, and Margaret Whiting. Today, our diverse roster of artists includes Bonnie Raitt, Garth Brooks, Tina Turner, Paul McCartney, Bob Seger, Hammer, Richard Marx, Phil Perry and many others. At Capitol, we're extremely proud of our artists and their accomplishments.

With this little bit of history behind us, I would like to set forth several reasons why this legislation is of paramount importance to the record industry in general and to Capitol Records in particular. First, and most importantly, this bill protects our most valuable assets - our artists. Second, it enables us to embrace new technology and pursue new marketing opportunities. Third, it provides our customers with the most innovative technology the world can offer. In sum, H.R. 3204 is good for our business and for our customers.

These three points are interrelated. First, the legislation protects our assets. The assets of a music company are not in the studio and not in the mixing boards or the microphones or the buildings. Our assets talk back to us and sometimes don't talk to us at all. Our assets are unpredictable because they are the artists that make the recordings we all enjoy.

H.R. 3204 will significantly improve the landscape for our artists in several respects. The bill provides some compensation to creators and producers of music for the home copying of our works. The legislation also protects against serial copying -- making copies of copies endlessly. This has never been more important than it is with today's digital media. Now the 100th copy is as perfect as the first.

How does H.R. 3204 protect our investments and improve our business? Very simply, this bill would allow record companies to continue to invest in new talent, to continue to take the financial risks to develop unknown artists, and to continue to bring the public the diversity of music that our consumers demand.

As Barry Manilow said, success in the music business is a rarity -- not only for the artists who make it, but also for the songs that rise to the top of the charts. Today, over 85% of all pop recordings, and 95% of classical recordings, do not recover their costs. Well, you may ask, why bother if only 15% of all records make money? The record business is a "hits" business. When a song or artist becomes popular, our profit margins are terrific.

This means that we rely on the "hits" to sustain our business. These few "hits" make is possible to invest in other genres of music that do not make money. As a result, this bill is critical to the survival of jazz, classical, folk, and gospel. When someone makes a copy of a record at home, they're usually making copies of the "hits." This means less revenue, and less money to develop artists and to produce music in these less popular genres.

Secondly, this legislation will permit record companies to embrace new consumer digital audio technologies. This, in turn, will open new markets as we begin to produce music on other digital mediums -- including the soon-to-be-available digital compact cassette or DCC.

In this business, we've seen, and heard, the advances that digital technology has offered in the studio. Today, most of our artists will only record in the digital format, demanding the finest sound quality available. We have always wanted this same quality for our consumers, but the price was too high. In the past, and without the protection that this legislation offers, all record companies were rightly concerned about the introduction of digital recording technology for consumer use.

When digital audio tape (DAT) machines first hit the consumer marketplace, Capitol Records decided that it was not in our economic interest to release pre-recorded music on a format that could then be used to make endless perfect copies of our material. This legislation would provide the protection we need to move forward with technology and to offer to our consumers pre-recorded music on the newest digital formats.

This bill may also give our business a much-needed "shot in the arm." The record business, like so many other businesses, has been hurt in these difficult economic times. With the protection that H.R. 3204 provides, Capitol can now begin to release music on these new formats. We hope to see the same surge in sales that marked the introduction of the compact disc over ten years ago.

In order to release our product on new digital formats, we must first expand our current manufacturing capability. Capitol Records manufactures both compact discs and analog cassettes in Jacksonville,

Illinois, employing over 1,000 workers. We are now gearing up for the September 1 launch of DCC, expanding the plant and preparing our facility to begin production of digital compact cassettes. Of course, this translates into MORE JOBS.

H.R. 3204 provides more than just a new "format" market for Capitol's pre-recorded music. This legislation will also help lead the way in opening new markets around the world for U.S. music. Capitol-EMI Music currently operates in 36 countries around the world. From Italy to the Ivory Coast, from Spain to Singapore, and from Australia to Argentina, we are working to develop local markets and talent and to bring U.S. music to these distant shores. In every case, our decision to move into a market is determined by the level of legal protection afforded intellectual property. We are fortunate in that, unlike other industries, we do not have to create a demand for our product. We like to think that one can walk into any restaurant, store or disco in the world and hear our music. But we will only do business in countries that protect our product.

In the global marketplace, over forty percent of the market is U.S. music. We are constantly looking to open new markets and expand our business. This legislation will not only increase the level of protection for our product here in the United States, but will help open these future markets. Although the United States was a relative late-comer to the world copyright regimes, we are now in the forefront and are moving the debate forward. A number of countries are looking to the United States to take the lead in the area of home copying, though 11 other countries are ahead of us in providing protection. Following introduction of this legislation, Japan and the European Community began to move ahead with plans for royalty systems similar to the proposal before you. When these proposals have been enacted, we can move more forcefully into other new markets.

I have tried to set forth a few ways that Capitol's business will directly benefit from this legislation. Now, let me just briefly mention what the consumer gets out of this compromise. It's simple -- just the most exciting new digital audio recording technology available anywhere and the music to go along with it.

Mr. Chairman, you will now be able to listen to your favorite music, whether it's country, classical, jazz or rock, on innovative state-of-the-art digital recording equipment. New digital audio recording technologies bring the listener as close as possible to the experience of being right there in the recording studio with the artist. In sum, we all benefit from this legislation. I would encourage your swift enactment of this bill so as to make this vision a reality.

Mr. MOORHEAD Our next witness will be John Roach, who is the president, chairman of the board, and chief executive officer of Tandy Corp. Thank you, Mr. Roach.

STATEMENT OF JOHN V. ROACH, CHAIRMAN OF THE BOARD, CHIEF EXECUTIVE OFFICER, AND PRESIDENT, TANDY CORP., FORT WORTH, TX

Mr. ROACH. Thank you, Mr. Moorhead.

Tandy is a Texas-based company that manufactures and sells consumer electronic products. We are proud of being the largest U.S.-headquartered consumer electronics company in the business. We have over 20 factories in the United States and employ 39,000 people in the United States, and do business with 50 million Americans.

I am also representing today the Electronic Industries Association, which is a leading organization representing manufacturers in the electronics industry, and the Home Recording Rights Coalition that represents consumers, retailers and manufacturers who have kept a vigil on home taping rights over the last decade. All of these groups support House bill 3204.

Over the years, Mr. Chairman, this committee has worked hard to bring the interested parties together and yet protect the consumer in the process. Similarly, last year, when the music and consumer electronics industry representatives were before the Senate Commerce Committee, your colleagues in the other chamber asked us to work out a compromise. Today I can report that we have. We have sat down with members of the music industry and negotiated a compromise that we believe is fair.

As a result of your leadership and support, Mr. Chairman, and also with Chairman Brooks and Mr. Moorhead's support and your other colleagues, this historic compromise is now embodied in the legislation before you today. The Audio Home Recording Act is an equitable solution that promises everyone a share in the benefits of the digital audio revolution. This legislation enables consumers to make recordings for their own private, noncommercial use, eliminates manufacturers or retailer liability for alleged copyright infringement, and fosters music industry support for a new generation of digital recording formats.

In addition to providing manufacturers and retailers with confidence to introduce and market new audio products, the act would instill consumers with confidence to purchase and enjoy them. For too long the public has paid the cost of controversy and suffered from the absence of new products. Thus, the legislation expressly states that consumers have the right to use both digital and analog recorders to make recordings at home, removing any legal uncertainty our customers may have about whether they can make copies or prerecorded albums for broadcast for their own private use.

In exchange for these assurances, the bill requires manufacturers to pay a royalty on the sale of digital recorders and blank digital tapes or other digital media. The royalties would go into a special fund for distribution to music creators and copyright holders.

It is not a secret that paying royalties to the music industry is not something that I particularly relish, but Tandy, like other manufacturers, both pays and receives royalties under circumstances

where the company paying is not actually convinced that it infringes. It is part of the cost of doing business. In this case, we are willing to assume this necessary and predictable overhead to keep copyright claimants from undermining new products.

I would like to emphasize that the legislation has been carefully circumscribed in its provisions and effects. The legislation covers only consumer model "digital audio recording devices" designed and marketed for the primary purpose of making copies of audio recordings. The legislation does not encompass personal computers, videocassette recorders, multimedia devices, answering or dictating machines, or professional products that would be used by professional musicians or recording studies.

Given Tandy's diverse product line, no one is more concerned than we are about the possibility of a mistaken or overly broad interpretation of this legislation, either directly or in terms of precedent. We and fellow industry representatives have consulted with other groups and industries to ensure that we have not overlooked anything in this respect.

With the benefit of these consultations, we have been able to recommend eve specific language, and we can say with confidence that the bill comports with its intention, that the royalty obligation and serial copying limitation govern only recorders and blank media in the marketplace that are explicitly and primarily for the purpose of consumer digital audio recording from music albums. Thus, VCR's, computers, and other devices not primarily used for digital audio recording are outside the scope of the bill. Language refinements in this respect have been incorporated in the version of this legislation in the other body, and we recommend them to this subcommittee as well.

In the past few years we have learned a lot of things. It is that, for one thing, all the legal feuding has not promoted new technology. Our product shelves, though by no means bare, have been bare of those things that we were technically capable of producing.

This solution guarantees at long last that consumers have the right to record with both digital and analog audio devices. Its immunity from copyright infringement suits provision allows Tandy and other manufacturers and retailers to market new audio digital recording technology without fear of legal challenge. To make these new digital products more attractive to consumers, the bill provides strong incentive for record companies to release new albums in these formats. If the legislation is passed now, it will permit companies like Tandy to get a return on the vast investments we've made in digital R&D technology, it will create jobs in the Fort Worth, TX, plant for the manufacturer of a digital compact cassette recorder, one of the few new consumer electronic products produced from the beginning in this country in the last 15 years, jobs in Santa Clara, CA, for tape manufacturing facilities, and in every State where we have retail business and where the consumers will benefit from this.

Consumers, retailers, manufacturers and the music industry all stand to benefit from this act. It's a fair deal for all of us. We appreciate your support and we hope that the bill will pass without delay.

Mr. MOORHEAD. Thank you very much, Mr. Roach.

[The prepared statement of Mr. Roach follows:]

STATEMENT OF
JOHN V. ROACH
CHAIRMAN OF THE BOARD
TANDY CORPORATION

Supporting H.R. 3204
THE AUDIO HOME RECORDING ACT OF 1991

before the
House Judiciary Committee
Subcommittee on Intellectual Property
and the Judicial Administration

February 19, 1992

Mr. Chairman and Members of the Subcommittee:

My name is John Roach. I am chairman of the board, chief executive officer, and president of Tandy Corporation. Tandy is a Texas-based company that manufactures and sells business and consumer electronics products. We are proud of our being the largest U.S.-headquartered consumer electronics company in the business. We have 20 factories nationwide, employ over 27,000 people in the United States, and do business with over 50 million Americans each year. Last year, Tandy's sales exceeded 4.5 billion dollars.

Tandy's 7,400 stores and dealers comprise the nation's largest chain of consumer electronics stores. Most of these stores, which operate under the Radio Shack, Scott, McDuff and VideoConcepts names, sell a diverse product line that includes everything from batteries to personal and business computers, as well as a wide array of audio recorders, audio tape, and recording accessories. In 1990, we began opening a new chain of stores -- the Edge in Electronics -- with a more upscale image and a state-of-the-art product line. And just last fall we opened our first Computer City Supercenter, which will feature America's best selling brands of computers including IBM, Apple, Tandy, Compaq, and AST.

I am honored to appear before you today to testify in support of H.R. 3204 -- the Audio Home Recording Act of 1991 -- on behalf of Tandy as well as the Electronic Industries Association and the Home Recording Rights Coalition. The Consumer Electronics Group of EIA, of which Tandy is a member, represents the leading manufacturers of electronics products that entertain and inform American consumers. The Home Recording Rights Coalition is a coalition of consumers, retailers, and manufacturers of recording products, also including Tandy. Since its founding a decade ago, the HRRC has sought to preserve the rights of consumers to make noncommercial home recording for private use. I am therefore pleased to convey the unqualified support of Tandy, EIA, and the HRRC for H.R. 3204.

After years of controversy and uncertainty about home recording, the Audio Home Recording Act embodies an historic compromise among the consumer electronics industry, the recording industry, artists, and copyright owners. The Act is significant because it ends the debate over private, noncommercial audio home recording, opening the door to a vibrant market free of legal concerns. I will focus my remarks this morning on what the Audio Home Recording Act means to consumer electronics manufacturers and retailers -- and ultimately, to our customers.

At the very outset, I can state unequivocally that there is nothing more important to the vitality and robustness of the consumer electronics industry than new technology. It is what keeps manufacturers manufacturing, retailers retailing, and consumers consuming. And just as important, new audio technology is what keeps the record industry recording.

Yet the past few years have been difficult for audio; sales have been flat for manufacturers, retailers, and record companies alike. In fact, since the introduction of the compact disc ten years ago, we have not had any exciting new technology on our shelves to capture the imagination of consumers. Put another way, the last decade has been recessionary not only for the economy but for new technology as well.

Unfortunately the United States has been losing its edge in producing consumer electronics products. More and more manufacturers -- and with them, more and more jobs -- have gone overseas. That's why at Tandy we have become so obsessed with recapturing the "Edge in Electronics."

Tandy has been looking forward to the dawning of a new digital audio era as just the development to put American consumer electronics manufacturing back on the map -- and to bring customers back into our retail stores. Digital recorders offer consumers the ability to make digital recordings of superb quality -- a tremendous advance over conventional analog tape decks. In particular, Tandy has been working to develop and market the digital compact cassette or "DCC" -- a new digital tape format that plays and records with crisp, clear digital sound. Plus, DCC tape decks are designed to be "backward compatible," so that consumers can also use them to play back their existing collection of analog cassette tapes. DCC promises to be a dynamic and exciting new audio format.

Yet frankly, Tandy has been hesitant to manufacture and market this new product. In recent years, introducing new consumer audio products has become

risky business.

Last year's introduction of digital audio tape or "DAT" recorders is a case in point. Two weeks after the introduction of DAT recorders in the U.S. market, a group of music publishers and songwriters sued the manufacturer for contributory copyright infringement. More than a year-and-a-half later, the DAT format still lacks full software support from the music industry.

Faced with the threat of litigation and an uncertain market environment, manufacturers and retailers have felt hamstrung. It seems crazy that our marketing budget should have to include a contingency for legal fees and court costs just so we can introduce a new audio product. Yet without any products in the windows, consumers have little to entice them into our stores. Clearly this impasse has been in no one's interest.

So we've struck a deal.

Over the years, Mr. Chairman, this Committee has worked hard to bring the interested parties together, yet protect the consumer in the process. Similarly, last year, when music and consumer electronics industry representatives were before the Senate Commerce Committee, your colleagues in the other chamber asked us to work out a compromise. Today, I can report that we have. We have sat down with members of the music industry and negotiated a compromise we believe is fair. And as a result of your own leadership and support, Mr. Chairman, and that of Chairman Brooks and your other colleagues, this historic compromise is embodied in the legislation before you today.

The Audio Home Recording Act is an equitable solution that promises everyone a share in the benefits of the digital audio revolution. This legislation enables consumers to make recordings for their own private, noncommercial use; eliminates manufacturer or retailer liability for alleged copyright infringement; and fosters music industry support for the new generation of digital recording formats.

Of special importance to Tandy is the protection the bill would afford manufacturers and retailers from copyright infringement actions based on consumer audio taping practices. This would create a more stable environment for the introduction of new products and formats, allowing us to focus on marketing strategies instead of litigation strategies.

In addition to providing manufacturers and retailers with confidence to introduce and market new audio products, the Act would instill consumers with confidence to purchase and enjoy them. For too long, the public has paid the cost of controversy, and suffered from the absence of new products. Thus, the legislation expressly states that consumers have the right to use both digital and analog recorders to make recordings at home, removing any legal uncertainty our customers may have about whether they can make copies of prerecorded albums or broadcasts for their private use.

In exchange for these assurances, the bill requires manufacturers to pay a royalty on the sale of digital recorders and blank digital tapes or other digital media. The royalties would go into a special fund for distribution to music creators and copyright holders.

It is no secret that paying royalties to the music industry is not something I particularly relish. But Tandy, like other manufacturers, both pays and receives royalties under circumstances where the company paying is not actually convinced that it infringes. It is part of the cost of doing business. In this case, we are willing to assume this necessary and predictable overhead to keep copyright claimants from undermining our products.

I would like to emphasize that this legislation is carefully circumscribed in its provisions and effects. The legislation covers only consumer model "digital audio recording devices" designed or marketed for the primary purpose of making copies of audio recordings. The legislation does not encompass:

- Personal computers, videocassette recorders, or multimedia devices;
- Answering or dictating machines; or
- Professional products that would be used by professional musicians or recording studios.

Given Tandy's diverse product line, no one is more concerned than we are about the possibility of a mistaken or overly broad interpretation of this legislation, either directly or in terms of precedent. We and fellow industry representatives have consulted with other groups and industries to ensure that we have not overlooked anything in this respect. With the benefit of these consultations, we can say with confidence that the bill comports with its intention -- the royalty obligation and serial copying limitation govern only recorders and blank media that are in the marketplace explicitly or primarily

for the purpose of consumer digital audio recording from music albums. Thus, VCRs, computers, and other devices that are not used primarily for digital audio recording are outside the scope of the bill.

Let me conclude with these thoughts.

If the past few years have taught us anything, it is that all our legal feuding has not promoted new technology. Our product shelves, though by no means bare, have been anything but a reflection of what we're technically capable of producing.

This solution guarantees at long last that consumers have the right to record with both digital and analog audio devices. Its "immunity from copyright infringement suits" provision allows Tandy and other manufacturers and retailers to market new digital audio recording products without fear of legal challenge. And, to make these new digital products more attractive to consumers, the bill provides strong incentives for record companies to release new albums in new formats.

Consumers, retailers, manufacturers, and the music industry all stand to benefit from the Audio Home Recording Act. It's a fair deal for all of us. We deeply appreciate your support and urge you to pass this bill without delay.

Thank you.

Mr. MOORHEAD. Mr. Weiss, we welcome you once again.

STATEMENT OF GEORGE DAVID WEISS, PRESIDENT, SONGWRITERS GUILD OF AMERICA, NEW YORK, NY, ON BEHALF OF THE COPYRIGHT COALITION, ACCOMPANIED BY CARY SHERMAN, ESQ., ARNOLD & PORTER, ON BEHALF OF THE WITNESSES

Mr. WEISS. Thank you, sir.

Mr. Chairman, and members of the subcommittee, my name is George David Weiss, and I am president of the Songwriters Guild of America. SGA is a national organization representing nearly 5,000 songwriters, as well as the estates of deceased SGA members. SGA and its Songwriters Guild Foundation are also committed to aiding and educating beginning songwriters through scholarship grants and specialized guild programs.

On behalf of SGA and all the remarkable writers who create American music, I am happy to appear before you today to urge swift passage of H.R. 3204, the Audio Home Recording Act. Importantly, I am also testifying for the Copyright Coalition, founded in 1989 and consisting of more than 30 copyright advocacy groups, which strongly endorses this landmark legislation. Included in the Copyright Coalition are the National Music Publishers Association, ASCAP, BMI, SESAC, numerous State and local songwriter groups, the Authors Guild, and the Dramatists Guild. All told, the coalition represents thousands of individuals and businesses who share the goal of promoting the protection of copyrights in creative works.

I have been the nonsalaried president of SGA for 10 years. I would stress that I am not a businessman or a recording engineer, but a songwriter. I earn my living writings songs or, more accurately, I earn my living from the songs I write. You may be familiar with some of my music. I wrote "Can't Help Falling in Love," which Elvis Presley made a hit; "What A Wonderful World," recorded by, among others, the great Louis Armstrong. You may also know "The Lion Sleeps Tonight," "Lullaby of Birdland," and "Mr. Wonderful." These songs, and all the songs I create, are my property—intangible intellectual property—protected by copyright.

I am here today to describe why I and the organizations I represent so enthusiastically support H.R. 3204. In so doing, I hope it will become clear to the subcommittee that a delicate balance has been achieved in this legislation between the desire to provide the newest technologies for the American public, on the one hand, and the need to protect the vital interests of music creators and copyright owners on the other.

The balancing of these interests in H.R. 3204 represents a historic achievement, which, if enacted into law, will end more than a decade of controversy that has consumed the energies of many people in both government and industry and has delayed the availability to the public of exciting new means for the enjoyment of music.

It is important to emphasize that H.R. 3204 addresses the issue that in the past has been most crucial for the creative music community: the substantial threat that we believe is posed by unlimited, uncompensated digital home taping. By providing for a modest royalty and a copy-limiting system, the bill implicitly recognizes

the need to protect intellectual property rights and the economic well-being of the American music industry.

In our view the threat of digital audio recording technology lies in its ability to produce a perfect copy of an original recording and an endless series of perfect clones of that copy. Unlike analog technology, where the quality of each successive generation of copies will be degraded, digital copies of a digital recording will sound as pristine as the original regardless of whether they are the first, the fifth or the five thousandth generation.

As creators, we derive our income from the royalties we receive from the sale of records and when our music is played commercially. All songwriters depend on royalties to provide for themselves and their families. Our royalty checks are our paychecks, plain and simple. The specter of rampant uncompensated digital recording thus frightens songwriters, just as the suggestion of a plant closing strikes fear in the heart of an auto worker.

I can speak from some experience about the financial effects of new technology on our industry. When I was young—when I was younger—and starting to write, I studied and worked and wrote and studied and worked and wrote and I was a big flop. Finally, when I was about at the bottom I hit the top. I wrote a song that Frank Sinatra recorded that became number one. It was called "Oh, What It Seemed To Be." That song sold 1 million copies of sheet music. Then along came the photocopying industry. Today, a number one hit will sell at most 15,000 to 20,000 copies of sheet music. Next, of course, came analog taping. And now we have digital technology.

So, you see, songwriters have long been affected by the miracle and wonder of technology. We are not against it. In fact, it can greatly enhance our music. But we feel strongly that we must be treated fairly so that we, too, can send our kids to college.

From the testimony of my colleagues on this panel, the subcommittee is aware of the substantial benefits of H.R. 3204 to each of us. There is no need for me to repeat their statements. Rather, let me say in closing that I think it is clear to all of us who have been involved in these issues for the past decade that without the members of this subcommittee and your colleagues in the other body no compromise would ever have been forged. By rejecting piecemeal approaches to these complex issues, and by forcing the parties back to the bargaining table, you made us all focus on the broader public policies at stake and induced us to reexamine our individual demands. At bottom, that approach led to this legislation.

Mr. Chairman, on behalf of all of us in the creative community who so strongly support H.R. 3204, I want to thank you and Chairman Brooks for introducing this legislation, and Mr. Moorhead, Mr. Fish, and the many, many other members of this committee and the House for cosponsoring it. Passage of this bill would be a remarkable achievement benefiting the American public and every segment of the music industry.

We look forward to working with you in the coming weeks to make it a reality. Thank you for this opportunity.

Mr. HUGHES [presiding]. Thank you very much, Mr. Weiss, for an excellent statement.

[The prepared statement of Mr. Weiss follows:]

PREPARED STATEMENT OF GEORGE DAVID WEISS, PRESIDENT, SONGWRITERS GUILD OF AMERICA, NEW YORK, NY, ON BEHALF OF THE COPYRIGHT COALITION

Mr. Chairman and Members of the Subcommittee, my name is George David Weiss and I am president of the Songwriters Guild of America. SGA is a national organization representing nearly 5,000 songwriters, as well as the estates of deceased SGA members. SGA and its Songwriters Guild Foundation are also committed to aiding and educating beginning songwriters through scholarship grants and specialized Guild programs.

On behalf of SGA and all the remarkable writers who create American music, I am pleased to appear before you today to urge swift passage of H.R.3204, the Audio Home Recording Act. Importantly, I am also testifying for the © Copyright Coalition, founded in 1989 and consisting of more than 30 copyright advocacy groups, which strongly endorses this landmark legislation. Included in the © Copyright Coalition are the National Music Publishers Association (NMPA); the American Society of Composers, Authors and Publishers (ASCAP); Broadcast Music Incorporated (BMI); SESAC; numerous state and local songwriter groups; the Authors Guild; and the Dramatists Guild. All told, the © Copyright Coalition represents thousands of individuals and businesses who share the goal of promoting the protection of copyrights in creative works.

I have been president of SGA for ten years and my position is a non-salaried one. I would stress that I am not a businessman or a recording engineer, but a songwriter. I earn my living writing songs or, more accurately, I earn my living from the songs I write. You may be familiar with some of my music. I wrote "Can't Help

Falling In Love," which Elvis Presley made a hit; "What A Wonderful World," recorded by, among others, the great Louis Armstrong, which was the featured song for the movie "Good Morning Viet Nam"; "Stay With Me," by Bette Midler; and "That Sunday, That Summer," originally recorded by Nat King Cole and currently featured on his daughter Natalie's top selling album "Unforgettable". You may also know "The Lion Sleeps Tonight," "Lullaby of Birdland," and "Mr. Wonderful." These songs, and all the songs I create, are my property--intangible "intellectual property"--protected by copyright.

I am here today to describe why I and the organizations that I represent so enthusiastically support H.R. 3204. In so doing, I hope it will become clear to the Subcommittee that a delicate balance has been achieved in this legislation between the desire to provide the newest technologies for the American public, on the one hand, and the need to protect the vital interests of music creators and copyright owners on the other. The balancing of these interests in H.R. 3204 represents an historic achievement, which -- if enacted into law -- will end more than a decade of controversy that has consumed the energies of many people in both government and industry and has delayed the availability to the public of exciting new means for the enjoyment of music.

With that as background, Mr. Chairman, I would now like briefly to address three topics: the role of the © Copyright Coalition in reaching this compromise; the

concerns raised for creators by digital audio home taping; and the benefits of H.R. 3204 for all segments of the music industry and the American consumer.

I. Role of the © Copyright Coalition in Reaching A Compromise

When the © Copyright Coalition was originally founded, our aim was to provide a forceful voice for creators and copyright owners seeking fair compensation for home taping of our musical works. Our initial concern was focused on legislation introduced in 1989 that would have relied solely on a technical fix--the Serial Copy Management System--to address the copyright issues raised by the advent of digital audio tape (DAT) technology. In June 1990, NMPA president Ed Murphy and I, among others, testified before the Senate Commerce Subcommittee on Communications on behalf of the Coalition against that legislation. We opposed the bill principally because it did not represent a comprehensive solution: first, it did not provide for compensatory royalties to creators and copyright owners; and second, it applied only to DAT technology, not to all digital recording systems.

In part due to the objections expressed by the © Copyright Coalition, Members of Congress urged the various interests to go back to the negotiating table, and to return when we had reached an agreement. With these negotiations successfully concluded, the Coalition can now express its unqualified support for H.R. 3204 because this bill does represent a comprehensive solution. It addresses the

needs and concerns of consumers, creators, copyright owners, and the electronics industry, balancing their various interests. Although no group may have achieved everything it would have wanted, each group gets what it can live with in order to move forward into a more prosperous future, one in which the American consumer will have access to the most advanced technologies for the enjoyment of music.

I would be remiss at this point if I did not acknowledge the central role that Ed Murphy, as chairman of the © Copyright Coalition, played in reaching this compromise. His vision and skill were crucial in bringing the disparate--and oftentimes contentious--groups together. His ability to find the common ground, to cajole and push the parties, and his willingness to work virtually full time to seek an agreement led us to this point.

At the same time, I would also like to recognize John Roach, my co-panelist and the very able chairman of Tandy Corporation, who represents the best in American industry. John's role in breaking the stalemate simply cannot be overstated; his courage in personally seeking a compromise was perhaps the single most important factor in moving the negotiations with the consumer electronics industry forward. Jay Berman, the President of RIAA, is not testifying today but has worked for years to find an acceptable legislative solution; unquestionably, we would not have reached this point without him.

II. Creative Concerns Raised by Digital Audio Home Recording

This Subcommittee is well aware of the lengthy and often acrimonious controversy surrounding the audio home taping issue. Although in the past decade there have been a number of attempts to fashion legislative solutions--either by enacting a royalty to compensate for our revenue losses or by requiring copy limiting circuitry in digital machines--the resistance of one segment or the other of the music industry, or complaints from the electronics industry or consumer groups, have inevitably doomed these efforts to failure. Today, of course, all of us join in strongly endorsing H.R.3204.

It would serve no purpose today to rehash the details of the ten-year struggle over home taping. Suffice it to say that eventually--and with substantial help from this Subcommittee and our other friends in Congress--all sides realized that it was imperative for creators, industry and the public that we conclude this dispute. Now that we have done so, my colleagues on this panel, and those we represent, strongly believe that our past disagreements are irrelevant and we must move on to implement the agreement embodied in H.R.3204.

Nonetheless, it is important to emphasize that H.R.3204 does address the issue that in the past has been most crucial for the creative music community--the substantial threat that we believe is posed by unlimited, uncompensated digital

home taping. By providing for a modest royalty and a copy limiting system, the bill implicitly recognizes the need to protect intellectual property rights and the economic well being of the American music industry.

To that end, H.R.3204 is rooted in a constitutionally-based copyright scheme that fosters creativity by rewarding innovation. As Linda Golodner of the National Consumers League testified recently in support of the Senate companion legislation, this system "serves not only the copyright holder but the American public at large--the consumer--because it ensures a steady supply of new creative products such as music." Ms. Golodner appropriately added that "innovation cannot be properly rewarded and encouraged where technology is allowed to undermine the financial incentives for creativity."

In our view, the threat of digital audio recording technology lies in its ability to produce a perfect copy of an original recording and an endless series of perfect clones of that copy. Unlike analog technology, where the quality of each successive generation of copies will be degraded, digital copies of a digital recording will sound as pristine as the original regardless of whether they are the first, fifth or five thousandth generation.

As creators, we derive our income from the royalties we receive from the sale of recordings and when our music is played commercially. All songwriters depend on

royalties to provide for themselves and their families. Our royalty checks are our paychecks. Plain and simple. The specter of rampant uncompensated digital recording thus frightens songwriters just as the suggestion of a plant closing strikes fear in the heart of an auto worker.

I can speak from some experience about the financial effects of new technology on our industry. When I was young and starting to write, I studied and worked and I studied and wrote, and I was a big flop. Finally, when I was about at the bottom, I hit the top. I wrote a song that Frank Sinatra recorded that became number one, "Oh, What It Seemed To Be". That song sold one million copies of sheet music. Then, along came the photocopying industry. Today, a number one hit will sell at most 15,000 to 20,000 copies of sheet music. Next, of course, came analog taping, and now we have digital technology.

So you see, songwriters have long been affected by the miracle and wonder of technology. We are not against it--in fact, it can greatly enhance our music--but we feel strongly that we must be treated fairly so that we can send our kids to college, too.

III. The Benefits of H.R.3204

H.R.3204 is the declaration of victory for all of the parties involved in the longstanding dispute over home taping--the music creators, the publishers, the recording industry, the electronics manufacturers and the consumer. For as long as the legislative stalemate continued, everyone was a loser: consumer electronics manufacturers were unable to introduce new products in the American market; the record companies were reluctant to produce a product in a format that might later damage their industry; creators were denied new formats for the presentation of their works; and consumers were denied the benefits of new technologies.

To break the impasse and address the various issues posed by audio home recording, H.R.3204 combines three key elements from previous proposals.

The first addresses a central concern of consumers. The bill makes clear that consumers copying for private, non-commercial use, whether in digital or analog format, cannot be the subject of a copyright infringement suit.

The second element is a system of modest royalty payments, designed to partially compensate music creators and copyright owners for digital audio copies made by consumers. Importers and domestic manufacturers would make modest royalty payments based on the sale of digital--not analog--audio recording equipment

and media (such as blank digital tapes and discs). These royalty payments would be collected in a special fund administered by the Copyright Office and the Copyright Royalty Tribunal. Payments would be distributed like other compulsory royalty pools under existing copyright law.

The third element involves a technological limitation–the Serial Copy Management System–on the recording capability of nonprofessional digital audio recording equipment. With this system, an endless number of first-generation digital copies could be made from copyrighted digital source material. However, second-generation digital copying (that is, copies from copies) would not be permitted. Thus, the consumer would be able to copy a favorite digital recording for his or her personal use, but the creator and the record company would be protected from unlimited copying of their works.

This carefully balanced package therefore provides substantial benefits to each of the affected parties. First, for creators and music copyright owners, it will provide compensation for digital copying of our music and will thereby stimulate creativity. Second, by removing the legal cloud that has surrounded digital recording technologies, manufacturers and importers will finally be free to bring their new products into the American market without concern about copyright infringement lawsuits.

Consumers will benefit in a number of ways. Principally, as noted, H.R.3204 removes concerns about infringement lawsuits against home audio taping for personal use. Moreover, consumers will also benefit from those sections of the bill that help creators and manufacturers. As I have already pointed out, by providing modest royalties, H.R.3204 should stimulate creativity and guarantee the consumer continued variety in American music. In addition, by removing the possibility of infringement actions against the consumer electronics industry, the bill will hasten widespread distribution of new digital audio recording products and pre-recorded music.

While I have spoken as a creator about my view that H.R.3204 will help both established and beginning songwriters by providing them with the means and additional incentive to pursue their craft, it would also seem logical to believe that additional American employment will follow in the manufacturing and service related sectors. My co-panelists can undoubtedly speak to this in more detail.

By reflecting Congress' commitment to strong international intellectual property protections, H.R.3204 will also assure that the U.S. will be able to argue forcefully and persuasively that similar legislation should be adopted in countries where no royalty system presently exists, such as Japan. Numerous other nations have already adopted audio royalty systems to protect their creative communities and it is vital that Congress take an aggressive leadership role to protect our own

intellectual property-based industries, which account for a large proportion of the U.S. GNP and which provide a substantial favorable balance of trade.

I would note that a number of nations that have previously enacted audio home taping laws provide royalty benefits to U.S. creators and copyright owners only on a reciprocal basis. Since American music is by far the most listened to world-wide, such reciprocity requirements mean that substantial royalties owed to American copyright owners are not being repatriated to this country. By enacting H.R.3204, Congress can make certain that American creators collect the foreign home taping royalties rightfully due them. Hopefully, enactment will also stop the trend of other nations enacting similar reciprocity requirements.

In my view, the Audio Home Recording Act also contains a benefit for Congress. Because H.R.3204 extends to all analog and digital audio recording devices, whether now known or later developed, you will be spared from having to consider separate legislation each time a new audio recording format is developed.

IV. Conclusion

Before I close, I would like to take a moment to make a personal observation. Ten years ago, when I began with SGA to seek compensation for writers who we believed were threatened with loss of their livelihoods through home taping it seemed

a lonely quest and an insurmountable task. Frankly, it seemed like bailing out the ocean with a teaspoon and success seemed about as likely. But, little by little, the situation has changed and there has been a growing recognition of the importance of protecting American creators. For my colleagues in the songwriting profession--young and old, successful and yet to be published--I could not be happier at the prospect that H.R.3204 may now soon become law.

Finally, I think it is clear to all of us who have been involved in these issues for the past decade that, without the Members of this Subcommittee and your colleagues in the other body, no compromise would ever have been forged. By rejecting piecemeal approaches to these complex issues and by forcing the parties back to the bargaining table, you made us all focus on the broader public policies at stake and induced us to re-examine our individual demands. At bottom, that approach led to this legislation.

Mr. Chairman, on behalf of all of us in the creative community who so strongly support H.R.3204, I want to thank you and Chairman Brooks for introducing this legislation and Mr. Moorhead, Mr. Fish and the many, many other Members of this Committee and the House for co-sponsoring it. Passage of this bill would be a remarkable achievement benefitting the American public and every segment of the music industry. We look forward to working with you in the coming weeks to make this a reality. Thank you.

Mr. HUGHES. I thank the panel. I thought what we might do is, perhaps, at this time hear some of the music before we get to questions. I understand that we have some digital music that you can share with us, and we would appreciate that.

[Technology demonstration by Michael Grubbs and Dale Bledsoe.]

Mr. HUGHES. Thank you very much, Dale. And, Mike Grubbs, thank you very much for that demonstration. That is very helpful. That is the first time that I have heard digital audio tape. Obviously, it will bring great joy to music lovers around the world. It is an exciting time to be living.

Mr. WEISS. And listening.

[Laughter.]

Mr. HUGHES. And listening.

Let me just, if I might, ask just a few questions of the panel. Either you, Mr. Smith, or Mr. Nimiroski, if I buy a new record, tape or CD, what parties have a financial interest, in your judgment, in that product?

Mr. SMITH. The artists; the music publishers; the songwriters; the musicians union; obviously, from our part it is the manufacturing facility and distribution organization that shares in it; and the record company. We pay the union trust fund. Those are the parties that share financially in the purchase price of a record.

Of course, the price that is charged at the retail outlet is not the price that we get. That is the retail price and ours is approximately half of that.

Mr. HUGHES. Mr. Roach, do you know if the SCMS system or any other technical requirements in the technical reference document are protected by patents?

Mr. ROACH. The SCMS system, as I understand it, has been made available to all manufacturers and is effectively freely licensed to them.

Mr. HUGHES. Mr. Weiss, I know that you participated actively in the negotiations, as did everybody, really, at the table, and we commend you for that. Is it your belief that the division that is set forth in the legislation is fair and reasonable to songwriters?

Mr. WEISS. Absolutely. I would love to get more, a lot more, and I am sure the consumer electronics people like Mr. Roach would like to give us a lot less. But is any compromise ever perfect? I think the perfect compromise is one in which everybody walks away from the table angry and unhappy. That means nobody got more than anybody else and the public will be served.

Mr. HUGHES. The reason I asked, you look very happy this morning?

[Laughter.]

Mr. WEISS. I am very happy at the prospect of getting more than zero. We are all sullen but not mutinous, I think.

Mr. HUGHES. Barry, would you like to comment at all?

Mr. MANILOW. No, sir.

Mr. HUGHES. OK. One of the suggestions that has been made is that we may, perhaps, be inhibiting in some way the development of a new generation of equipment. Mr. Roach, what is your view on that score?

Mr. ROACH. Clearly, at this point in time it is inhibiting technology. The DAT that has been demonstrated has not really reached mass market acceptance because of the fact that the recording industry has not been really able to support it. There are other digital recording technologies that are ready to be introduced into the marketplace. Clearly, this issue needs to be resolved and needs to be resolved properly. And fortunately, the legislation is broad enough that it favors no particular technology for now and for the future. Any technology that is in the digital recording area has the potential of coming to market legally.

Mr. HUGHES. Professor Litman suggests in her testimony that the SCMS provisions contain a sunset clause, so that we can examine how well a system works before making it a permanent part of the copyright law. What is your view of that suggestion?

Mr. ROACH. Well, I am not sure that it is terribly practical. The manufacturing will incorporate the SCMS within semiconductors such that it would be difficult to predict when this sunset might actually take place or whether it would take place, et cetera. Additionally, the SCMS represents a principle that only copies can be made from originals, and I think that is clear. And there is adequate provision as time goes along should the technology of implementing that aspect change to permit the Commerce Department to do it.

Mr. HUGHES. Is there anything else that we can do, Mr. Roach, or any other member of that panel, that would assure that the legislation would be limited in its implementation to consumer audio recorders and will not in any way affect video technology, personal computers, multimedia devices, or professional equipment, for that matter?

Mr. ROACH. Well, it has been the intent from the very first that the legislation be defined as audio recording or consumer purposes. Every effort has been made to ensure that the great amount of specificity within the legislation limits this, and clearly it is only appropriate that it be limited because in these other fields of technology there are different precedents, there are technologies, there are different methods of use of the technology that would make this not applicable. So I think that the bill very clearly states that it is only the things that are primarily and explicitly for the purpose of consumer digital audio recording.

Mr. SHERMAN. If I could just add to that, we take a great deal of satisfaction that the legal and technical experts in the computer and telecommunications industry have reviewed this legislation in order to ensure that it wouldn't inadvertently impact them. They have made some good suggestions to clarify the legislation and those changes were adopted in the other body. We would recommend them here as well. We think that it clarifies the limited intent of the legislation.

Mr. HUGHES. Thank you. For the record, Mr. Roach, or other members of the panel, we have seen a limited amount of prerecorded digital audio tape music in the marketplace today. I wonder if you would just outline for us some of the reasons for that, why we have not seen this particular technology more widely available and demanded.

Mr. ROACH. OK. The issue about the respective rights of the consumer to record versus the copyright rights of the artists and songwriters and the recording industry have been hotly debated for a decade, and during that period of time, for instance, the Sony Corp., in introducing DAT was sued by a group of songwriters and artists for copyright infringement issues, and that suit had a very chilling effect on the entire industry. It made it very difficult for those of us that were investing in R&D, investing in the technology to consider taking these digital recording technologies forward until this issue could be resolved. And clearly, in this particular case I don't believe there is any certainty that the courts would have come to a final decision and we would probably have been right back to Congress anyway.

So the bottom line is the industry has effectively been stopped and will remain effectively stopped until this legislation passes.

Mr. HUGHES. Any member of the panel, the legislation is widely perceived to relate only to taping of digital recordings such as CD's, but the fact is it can be extended to ban serial copying of analog recordings as well without any further congressional enactment. My question of either you, Mr. Roach, or perhaps you, Mr. Nimiroski, is do you expect to see coverage of analog as well as digital source material?

Mr. Roach.

Mr. ROACH. OK. The bill really makes it very clear that the consumer has the right to record analog for their own personal use, and this clarifies something that has been questioned among the parties for a long period of time. A royalty does not apply to that analog right that the consumer receives. The royalty provisions are only related to the digital recording, which is effectively a new industry in its embryonic stage. So we think that clarification of the consumer's right to record for their own personal use is one of the key points to the bill.

Mr. SHERMAN. Mr. Chairman, you may be referring to the SCMS provisions relating to analog. Those made clear that analog recorders are not to be affected in any way by SCMS. That simply provides that if we develop a technology in the future by which analog recordings can be encoded with copyright flags and the like the same way that digital recordings can be encoded so that the SCMS will function even better in the digital domain that is to be extended to analog source material as well. But it will not affect any analog recorders at any time, and that is specifically spelled out in the legislation.

Mr. HUGHES. And that is the intent?

Mr. SHERMAN. Yes.

Mr. HUGHES. Thank you. The gentleman from California.

Mr. MOORHEAD. Thank you, Mr. Chairman. We all know that there is an awful lot of home taping taking place today. But has there been any kind of a study to tell us how much of that actually represents lost sales? A lot of people will copy something if they can get it free, but they might not go out and buy the record. How much is really being lost by that kind of activity?

Mr. SMITH. It is very difficult to quantify it, Mr. Moorhead. Our record industry association figures say we are losing a billion dollars. That is a very subjective number. How many people record

only for their automobile? How many people make copies for other friends that displace sales? It is very hard to figure. But the sales of blank tapes dramatically increased so much over the past 10 years that, obviously, there was this great deal of activity in home taping for all kinds of purposes, rather than just making a single copy for another home or for an automobile and so forth.

We believe we are losing a billion dollars here in this country. Forget what we are losing to piracy, to international areas like Thailand and other countries that are almost totally pirated. So the extension of this to the digital format, to this temptation, is a terrible danger to us economically.

Mr. MOORHEAD. Because of the capabilities of making so many more perfect copies?

Mr. SMITH. Making more perfect copies and entering into this new technology without the protection, as we did with analog cassettes a dozen years ago. Technology is a double-edged sword for us all the time in this business. We were the first to be copied. Long before Gucci and Rolex and Polo shirts, the tapes were copied and copied all around the world, and it is an ongoing effort to try to control that. So the protection afforded in this bill along with the support we are getting from Japan and the European Community effectively controls that taping capability.

Mr. MOORHEAD. Could you estimate for us what would happen if we had no legislation here? What would the future bring?

Mr. SMITH. Well, from Capitol Records' standpoint, we would feel very much the same as we did about the digital audio tape. We would be terrified to hand over our masters without any protection that would be so easily copied, and we might have to consider from our own standpoint our decision to license our software.

I think it was Mr. Roach who mentioned it. With DAT our record company would not license our masters for that format and that configuration which had a dulling effect, a fatal effect on DAT's growth in the marketplace. This is the protection we need to go forward to enter the DCC and whatever other new digital configurations arise.

Mr. WEISS. Mr. Moorhead, may I answer that?

Mr. MOORHEAD. Yes.

Mr. WEISS. I think we would be back right where we started from if we didn't get this bill. All of us would be fractious, unhappy. The ultimate loser would be the consumer because songwriters would have much less incentive to write, recording companies would not want to invest in the exotic musics like jazz, folk, et cetera, and the hardware manufacturers would not be able to put their product out. We would all be unhappy. We would all be back where we started from. But you see, the consumer would be hurt most by all of this.

Mr. MOORHEAD. Have you heard from Ralph Nader and other consumer rights people?

Mr. WEISS. No, I haven't.

Mr. ROACH. A number of consumer organizations have supported this bill. As I mentioned, the HRRC, which represents many of these consumer organizations, strongly supports the bill. By and large, I believe that consumer organizations believe that the balance struck here between the rights being obtained by consumers,

the technology being obtained by consumers, and the royalty being at the manufacturers' level is a reasonable compromise to a complicated problem.

Mr. MOORHEAD. I was going to ask you, Mr. Roach, you really wouldn't want to cut down the amount that Mr. Weiss and Mr. Manilow get under this agreement, would you?

Mr. Weiss mentioned that you were on different sides and you would like to pay them nothing if you could.

Mr. ROACH. Clearly, in the long discussions, negotiations, as the parties reached their compromise there was never any agreement as to whether or not the billion dollars mentioned at the other end of the table or zero was the real amount of damages that were being received, or being incurred by the various interests in the recording industry. But clearly, we have come to agreement with something that recognizes the interest and needs of all of the parties, and I think that is very positive.

Mr. MOORHEAD. I had one more question. How much money do we anticipate may be put into this royalty fund for distribution each year? Is there any kind of an estimate on that?

Mr. ROACH. It is really very imprecise, Mr. Moorhead. The reason is we do not know how quickly the consumer will adopt these new technologies, the various pricing of the products is not real clear at this point, the normal reduction of price over time is not known. So it is really very difficult to make any type of estimate of what the level of compensation will be over the next 5 or 10 years.

Mr. MOORHEAD. Thank you.

Mr. HUGHES. The gentleman from North Carolina.

Mr. COBLE. Thank you, Mr. Chairman. I apologize to you and the panel for having had to go to another meeting, and I have missed most of the testimony. I want to make a statement and then ask a question or two, if I may, Mr. Chairman?

This bill is not unlike all bills up here. It is not perfect. But I think this bill or something akin to it is necessary to address the flood behind the floodgates and the floodgates are about to part. So we need something to strengthen the floodgates and this may well be it.

Now, some insist that politically the Congress cannot enact legislation to prohibit home taping for private use, on the one hand, and then in the same utterance they contend but this legislation may well be a back door attempt to accomplish that purpose. I want that thought to be on the table, and this is the question I want to ask. If you all want to respond to that thought later on, that will be fine too.

But, under this bill recording companies would receive two-thirds of all royalty payments made by the equipment manufacturers, while, on the other hand, songwriters I think would receive the balance or the remaining one-third, and the American consumers get ripped off. Now, let's assume that—I am not saying that. Let's assume that charge is made to me back home. You all insert your feet into my shoes. How would you respond to that?

Mr. ROACH. I would be glad to respond to the rip-off portion. Mr. Coble, we have about 77,000 customers in your district in North

Carolina, and we have been communicating with those customers through our advertising material about——

Mr. COBLE. Mr. Roach, pardon me just a minute. My name appears as a cosponsor. So I don't mean to suggest that I want to trash this bill. But I do suggest, even though my name is thereon, I still have some questions. So go ahead, Mr. Roach.

Mr. ROACH. OK. And we believe that in our close relationship with the consumer that the consumer has been reasonably educated toward the issues involved and that royalties are modest. They are at the manufacturing level. They will be paid by the hardware manufacturers, and therefore that you have in this legislation brought about the best compromise to the benefit of the consumer that it possibly would be possible to do, and at the same time you have protected the songwriters and artists and others that live in your area for the rights that they believe they have. So it is really a win-win situation for everyone.

Mr. SHERMAN. I think it might also be worth putting the royalty fees in perspective. For an average tape that might retail for $10, the royalty under this bill might amount to 15 cents. That is 15 cents to be able to copy the equivalent of two CD's of music. What would the retail value of two CD's be? And that 15 cents is being distributed among all of the participants in the creative process. I think that is quite a deal for consumers.

Mr. COBLE. Anybody else want to be heard?

Mr. SMITH. If we could do away with any taping, we would gladly concede the royalty. This is in no way a full repayment for what we honestly believe we lose—all of the parties, the writers, the artists, the recording companies. Our investments as a recording company are rather major. With every new artist we record in the pop field, with our marketing costs and video costs we are well over a half a million dollars. As I stated before—you weren't here, sir—but 85 percent of our pop records do not earn back the money, so our investment is considerable and we rely upon that 15 percent to pay for our ability to involve ourselves in classical and jazz and gospel music and so forth. So the 15 cents, the royalty is a modest one given the level of home taping and so forth.

Mr. COBLE. Mr. Chairman, my next and final question is a rhetorical one. We refer to this as a royalty fee. Opponents might call it a tax. Now, it is my belief that it is a royalty fee. Does anybody want to get into the business of distinguishing between a tax and a royalty fee in this context?

Mr. ROACH. I would be glad to deal with that question. I think clearly it is a royalty. It is something paid by the manufacturer on hardware at the manufacturing level. It is passed through to the parties in the recording industry and the music industry in general. And a tax is something that goes to the Government, as I understand it, for the Government's use. So this really does not have any of the aspects of a tax. It is really simply a royalty.

Mr. COBLE. Well, that is my belief as well.

Now, Mr. Roach, if my constituents don't buy off so readily on this, I may take you to Tobacco Road with me and accompany me on a campaign trail.

Mr. ROACH. Well, I would love to go there, and I think with your popularity we can convince them that this is really the best solution.

Mr. COBLE. Oh, he is a charmer. Isn't he a charmer?

[Laughter.]

Mr. COBLE. Thank you, gentlemen. Thank you, Mr. Chairman.

Mr. HUGHES. Thank you. I just have a couple more questions.

In the few short years that hardware-based copyright restriction has been pursued and advocated, we have seen one system scrapped after another as tests revealed serious defects. My question is is rapidly changing technology likely to make this legislation obsolete and, perhaps, even counterproductive in the next few years? Mr. Roach or Mr. Nimiroski. One or the other.

Mr. ROACH. It would appear to me that the legislation really is broadly construed from a technology perspective, and it, unlike some other legislation that was proposed that was limited to very specific formats, this is a very general piece of legislation that encompasses really all of the digital domain which is likely to be introduced into the technology for the foreseeable future. And so I think the bill does do an adequate job of making future technologies legal.

Mr. HUGHES. Is that what distinguishes the bill that was developed just 2 years ago?

Mr. ROACH. Yes.

Mr. HUGHES. Because those that talk to us today about that technology indicate that it would have been obsolete if, in fact, we had passed that legislation 2 years ago.

Mr. ROACH. Yes. The last bill was specifically a DAT—digital audio tape—the technology that Sony demonstrated earlier. This bill will encompass DAT, digital compact cassette, recordable CD, minidisk, even firmware type of distribution of digital music which could conceivably come about in the future. So it is not really limited as to the media, but really to the specific intent and purpose of the recording for music purposes.

Mr. WEISS. Excuse me, Mr. Chairman?

Mr. HUGHES. Mr. Weiss.

Mr. WEISS. Isn't it nice that this is such a comprehensive bill that you won't have us coming back to you every year or 2 years asking, please solve this new problem for us?

Mr. HUGHES. Mr. Weiss, it is a pleasure to see you back.

[Laughter.]

Mr. HUGHES. It is a pleasure to see you before the committee.

Imagine a store and forward system under which recording music is supplied by broadcasters, telecopiers, et cetera, on demand to consumers at home who are listening and taping. Would the home taping authority in this bill still apply and be effective, in your judgment? Anybody?

Ms. SHERMAN. Voice and storage equipment that would be at a commercial level would not be covered by this legislation because this legislation basically covers devices used by individuals for individuals. It would not cover transmission equipment and other equipment that would be in commercial enterprises.

Mr. HUGHES. But I am talking about a technology where you could access that, let's say by a home device, computer device or other device. Where the accessing is done in one's home.

Ms. SHERMAN. To the extent that the equipment at home comes within the definition, then it would fall within the legislation. The offering of that kind of service raises other issues which are not the subject of this legislation, but the home equipment would be covered.

Mr. HUGHES. I see. I think that is all the questions that I have. The panel has been very, very helpful to us today, and we are indebted to you for your tremendous leadership. I know each of you have been very key players in arriving at this consensus. We particularly appreciate having a constituent from my district so prominently playing a role in this important area. We are delighted to have Barry Manilow with us, and we can understand why he has made so many folks around the world happy for so many years. And we are delighted to have you with us. And, Mr. Weiss, I am familiar with many, many of your songs. I was going through the list of them and you have shared with Americans likewise, and people around the world, some treasures, and we thank you. In particular, thinking about "I'll Never Be Free" brings back so many pleasant experiences.

Mr. WEISS. You know that one?

[Laughter.]

Mr. WEISS. You are one of the four people that remembers that.

Mr. HUGHES. Because I wonder if I'll ever be free.

[Laughter.]

Mr. HUGHES. In any event, thank you very much. You have been very helpful to us today.

Mr. ROACH. Thank you, sir.

Mr. HUGHES. I would like to welcome now our second distinguished panel of witnesses.

I wonder if those that remain in the room will attempt to try to keep it down as you either go back to your seats or leave the hearing room, so we can bring our next panel up.

Our distinguished second panel this morning consists of three individuals with expertise in the areas of copyright law and digital technology.

First is Jessica Litman, a professor of law at Wayne State University, who has written extensively on copyright law and has taught intellectual property law for much of the past decade.

Second is Dr. Irwin Lebow, a physicist who has worked in computers and satellite communications. He recently published a book, "The Digital Connection: A Lawman's Guide to the Information Age."

Our third witness is Dr. Wayne Green, publisher of CD Review, as well as a number of other publications dealing with music and technology. Dr. Green is also the secretary of the Independent Music Publishers Association.

We thank you for being with us today. We have your statements. We have read them. And, without objection, they will all be made a part of the record. We hope you can summarize for us, but you may proceed as you see fit.

Why don't we begin with you, first of all, Ms. Litman. Welcome.

STATEMENT OF JESSICA LITMAN, PROFESSOR OF LAW, WAYNE STATE UNIVERSITY

Ms. LITMAN. Thank you, Mr. Chairman, members of the subcommittee. You have clearly read my statement and I won't go back through it. I am just here to help. I raise in my statement some of the difficulties that I think this bill raises that I think you must take very, very seriously before enacting it. Private copying is a fundamental problem for the entire field of copyright, and sooner or later Congress is going to have to bite the bullet and resolve it. This might be one step toward trying a solution and seeing whether or not it works.

I do want to make just a couple of very short comments in response to earlier testimony. The Register of Copyrights talked about this bill as applying only to high-end audio, very expensive digital machines for the audiophile, and that is certainly true today. Ten years from now, it is my expectation that all tape recorders will be digital tape. We are talking about a solution not for the next 2 years or 10 years, but a permanent feature of the copyright law, although I would urge you to add a sunset provision to the bill.

Second, the suggestion that we could resolve some of the ambiguity in the bill by replacing the term "phonorecord" with the term "audiogram" will indeed remove one potential ambiguity from this bill only to introduce another ambiguity back into the copyright law as a whole. If an audiogram is not a phonorecord, then phonorecord no longer means what the courts have thought that it meant. If you decide to pursue that course, you might amend the definition of phonorecord, rather than adding in another term and generating litigation over what Congress now says that phonorecord means.

Finally, the last panel talked about how the technology in the bill will not become obsolete because instead of simply covering one medium or one format it covers all digital media, all digital format; "now known or later developed" is the language. The difficulty I see is that while the coverage of the bill is for all digital media "now known or later developed" the technological solution that all of those digital formats must incorporate is terrifically specific. The technical reference document is very specific, very detailed. We don't know whether that technological solution is going to make sense for products that haven't been developed yet.

It might be more sensible simply to tell Commerce what it is you would like the standards to accomplish, which is to prohibit a second generation copying in digital recording technology, and leave it to Commerce to try to generate regulations that keep up with technology, with some more breathing space to adjust as technology develops faster than any of us can ever predict.

Thank you.

Mr. HUGHES. Thank you, Professor Litman.

[The prepared statement of Ms. Litman follows:]

Statement of Professor Jessica Litman on H.R. 3204

Before the Subcommittee on Intellectual Property and Judicial Administration of the
House Committee on the Judiciary,
102d Congress, Second Session
February 19, 1992

Mr. Chairman, members of the Subcommittee, my name is Jessica Litman. I am a Professor of Law at Wayne State University. I have taught, and written about, copyright law for eight years. Thank you for inviting me to testify on the Audio Home Recording Bill. I should say at the outset that I neither support nor oppose this legislation; I wish only to raise some issues for your consideration.

This bill results from the negotiation of industry representatives. No member of Congress drafted it or was even involved in its drafting. Instead, private parties negotiated a compromise of their ongoing dispute, embodied their understanding in proposed statutory language, and handed the bill to Congress, saying "Here. We've all agreed on this. Now, you enact it."

That process is, in fact, the same process you have used for drafting and enacting copyright legislation throughout this century. Indeed, the negotiations that led to H.R. 3204, like the negotiations that led to previous copyright statutes, were strongly encouraged by members of this Subcommittee and the Senate Subcommittee. So there is nothing unprecedented in enacting a copyright bill that was devised and drafted entirely by private industry.

Because the substance of the bill was worked out and the language of the bill was drafted with little or no Congressional input, however, it is very important that Congress, in deciding whether to enact the bill, make an independent assessment of whether it serves the public interest. Industry representatives are just doing their jobs when they propose legislation that they believe will benefit their industries. Your job is to ascertain whether that legislation will benefit the public at large. Those inquiries are not the same. My hope is to raise some of the issues that might be relevant to your determination.

First, because this is a negotiated bill that tries to resolve disputes among a number of industry actors, it shows some of the hallmarks of negotiated legislation. For one thing, the bill is very, very long. This is not a bill to curl up with in front of the fire for a good read: when combined with the technical appendix, it may, all by itself, double the number of words in title 17 of the United States Code. Like most privately negotiated bills, it is numbingly specific in some instances, where the parties compromised on very detailed specifications, and frustratingly vague in others, where the parties glossed over their disputes. I would not want to be either of the three administrative agencies charged with administering the statute, nor the court asked to review those agencies' compliance with the statutory mandate.

Second, because this bill is a result of negotiations among private industry representatives, it is important to think about who was not at the bargaining table, and to ask whether their interests are adequately addressed by the resulting proposal. The most obvious absent parties were the members of the general public who engage in home taping of recorded works. The removal of the cloud surrounding whether home taping is fair use is not much of a direct benefit to these consumers, since any rights to prevent their home taping, if they exist, are essentially unenforceable. On the other hand, consumers, by virtue of this bill, will get the opportunity to buy DAT machines and media without the manufacturers being sued, and are asked to pay relatively modest royalties in return for that privilege. Another unrepresented group includes the musicians and artists who

themselves use consumer electronic equipment to to record their own compositions. It is less clear to me that these artists' interests are well-served by this bill, but you may be hearing from them directly. There is, however, a group you cannot hear from, because it doesn't yet exist: the manufacturers and users of future generations of technological products.

The bill is chock-full of up-to-the-minute 1991 technology. It is now 1992; by the time this bill is effectively in force, it will be 1993; by 1994 it will already be having significant unintended effects on new products. I can't predict what those effects will be; none of us can. I am, however, sure they will occur. By defining "digital audio recording device" and "digital audio recording medium" very broadly, the bill attempts to sweep within its scope a wide assortment of products that have not yet been invented. By defining with great specificity the requirements of the serial copy management system that all such devices must implement, however, the bill requires those products of the future to incorporate a particular solution that may make no technological sense for the products in question. Compliance may be infeasible, expensive, or just plain silly in the context of particular products. The Department of Commerce is charged with updating the serial copy management system standards, but the bill appears to contemplate such a course only in connection with devices that are functionally equivalent to audio recording devices now on the market, and gives no meaningful guidance for how to respond to products on the horizon that fit within the literal definition of "digital audio recording device" or "digital audio recording medium" or "digital audio interface device" but are not simply improved tape recorders. Thus, I predict that if you pass this bill in its current form, it will not be too many years before industry comes knocking on your door to request revisions.

These are general concerns: they arise with most negotiated bills that attempt to solve the problems posed by new technology. I would also like to draw your attention to some specific features of this bill that deserve consideration. Let me emphasize that I am

not saying that any of these specific proposals are good ideas or bad ones. I am suggesting only that they merit careful thought before they are made law.

First, and most obviously, the statute confers regulatory authority over the manufacture and sale of digital audio products on two different administrative agencies, the Commerce Department and the Copyright Royalty Tribunal; three different agencies if you count the Copyright Office. You have done something of this sort before in the copyright field: the compulsory license for cable television in section 111 invoked the authority of the FCC and the Copyright Royalty Tribunal in an analogous way. Some of you may recall that in the late seventies, the FCC and the CRT for a time were working at cross-purposes. The FCC dismantled the regulatory structure that had supplied the basic assumptions underlying the cable compulsory license in section 111; the CRT then frantically tried to impose a compensating regime through adjustment of compulsory license royalties.

Second, the authority conferred on the administrative agencies has some unusual limitations. The Commerce Department is in essence instructed that as an initial matter, it is to treat the technical reference document as if it were regulations that Commerce had adopted -- notwithstanding that it did not propose, draft or seek public comment on the language of the document. Further, while the Commerce Department is given authority to adopt regulations that vary somewhat from the technical reference document, that authority is circumscribed. The Register is instructed to promulgate regulations permitting private parties to request and coordinate audits and to request and coordinate binding arbitration; the Register is, however, given no authority to initiate either.

The Copyright Royalty Tribunal is instructed to distribute the collected royalties among four groups. The first three groups, record companies, composers, and music publishers, are called "interested copyright parties" and are given a variety of procedural rights before the Tribunal, including the ability to opt out of the procedures set by the Copyright Office and the CRT entirely, by two-thirds vote. The fourth group, performers,

are not "interested copyright parties" and have none of these procedural rights. If two-thirds of the record companies, composers and music publishers elect to remove the collection and distribution of royalties from the statutory procedure, the Copyright Royalty Tribunal is given no power to prevent their doing so, even if all of the performers should object. In general, the Tribunal has no obligation and no authority to determine whether a negotiated substitute procedure is in the public interest; it is instructed to determine only whether the procedure has the participation of two-thirds of each of the three categories of interested copyright parties.[1] The bill has a number of provisions designed to encourage the interested copyright parties to reach private agreements about royalty distribution. If private agreements prove elusive, however, the Tribunal is assigned the tremendously complex, and probably infeasible, task of allocating the royalties on a work-by-work basis.

Once the statute has been in force for six years, any interested copyright party may petition the Tribunal to increase the maximum royalty. The Tribunal's discretion is narrowly circumscribed. The bill does not direct the Tribunal to consider whether an increase in the maximum royalty would advance statutory goals; rather, the bill appears to require the Tribunal to grant the increase whenever more than 20% of the royalty payments made are the maximum royalty in the range. That seems almost certain to result in an increase in maximum royalties. The royalty on digital audio recording devices, for example, is set at 2% of the transfer price, with a $1 floor and a $8 initial ceiling. Thus, devices selling for less than $50 would still pay the $1 minimum royalty; devices selling for more than $400 would still pay the $8 maximum. The Tribunal cannot lower the $1 floor. After six years, the Tribunal must raise the royalty ceiling on the petition of any interested copyright party if more than 20% of the digital audio recording devices have a transfer price of more than $400. Devices might sell for substantially more than $400, however, for reasons having nothing to do with their ability to reproduce copyrighted recordings; they

1. The CRT is instructed that it must ensure that alternative distribution procedures are available to any *interested copyright party* who is not a party to the negotiated arrangement. The bill gives the CRT no instructions about how it is supposed to accomplish this task.

might include features completely unrelated to digital audio recording that command a higher price. Assessing whether the high transfer price of expensive devices is related to the copying of copyrighted works would be relevant both to the decision to raise the maximum royalty and to the decision where to set the new ceiling. The bill does not, however, give the Tribunal any discretion to consider it.

I am not an administrative law expert, so I cannot tell you just how unusual this bill's approach to administrative regulation is. It seems to me, however, that the private parties who negotiated this statute are simultaneously trying to invoke the coercive power of three administrative agencies to enforce the deal that they have struck, and declining to submit to any meaningful regulatory authority to determine whether the terms of that deal are in the public interest. I would be more comfortable with the bill as drafted if it gave the administrative agencies charged with implementing it more substantive authority. Since the bill, in its current incarnation, gives little meaningful regulatory authority to Commerce, the Copyright Office or the Copyright Royalty Tribunal to adjust its very detailed provisions to better accommodate the public interest, members of Congress must make an unusually searching examination of whether the bill serves the public interest before enacting it.

The bill adopts two solutions to the problem posed by the ease with which copyrighted works can be copied. Neither solution has been a part of U.S. copyright law before. The bill levies a tax on digital recorders and blank digital tape to be deposited into a fund used to compensate rights holders for unauthorized recordings. That's new, although it has seemed to work well in Europe. We can call it a levy, or a royalty or a license fee, but it is functionally equivalent to a tax. The mechanism for actually getting this money to the rights-holders it is supposed to compensate is one we have used before: it is essentially the same mechanism we use for other compulsory licenses. This distribution mechanism, however, is, at best, very rough. It is impossible to ascertain which individual rights holders would actually be entitled to royalties and what amount of

royalties they should collect. So, after some of the money in the fund is eaten up by administrative expenses, and some of the money is earmarked for litigation expenses, the rest gets allocated by a combination of private agreements and somewhat arbitrary formulas.

The bill also requires a technological copy-prevention device to be included in all qualifying equipment. That is very new: my impression is that we are so far the world pioneers of that approach. I am more concerned about this provision than I am about the royalty provision. I spoke earlier of the dangers of trying to legislate technology into the future. We cannot predict the form future technology will take, so we can't assess the impact of this provision on products that have not yet been invented. The bill not only tells manufacturers of digital recording products what to do, it tells them how to do it. We simply cannot know whether the very specific requirements set out in the technical reference document will be sensible or senseless when applied to future technology. There is some limited flexibility built into the bill in the provision permitting Commerce to update its regulations, but that authority is fairly narrow. If this turns out to have been a bad idea, Congress will be the only agent with the authority to undo it.

My final point is that the problem of unauthorized copying that the bill seeks to address is hardly unique to the audio recording industries. Since the 1976 Copyright Act was enacted, private copying of copyrighted works has become commonplace. Whether private copying is fair use or copyright infringement is ambiguous under current law. The Supreme Court's opinion in the *Sony* case[2] lays out the factors a court would need to consider, but the analysis could go either way. How our copyright law is to handle private copying is a fundamental question, and one not limited to the audio recording and music industries. Authors of books, newsletters, newspapers, magazines and other print media face a similar threat from photocopy and fax machines; authors of computer programs face an even more serious threat from personal computers. Congress might wish to attack the

2. Sony Corp. of America v. Universal City Studios, 464 U.S. 417 (1984).

problem of private copying as a whole, rather than legislating industry-by-industry specific solutions.

If Congress decides to address the private copying problem in this specific context as a sort of pilot project, you should expect further proposals built on this model. The Record Rental Amendment of 1984 was an example of a pilot approach to the same problem this bill seeks to address: private home copying of copyrighted works. It was followed by bills leading to the Software Rental Amendments of 1990, and by not-yet-enacted videotape rental bills. You should expect that other industries will try to tailor the model this bill sets up to their own needs. Copyright owners might, for example, seek the addition of a serial copy management system to computer hardware or operating systems programs, permitting the owner of a copy of a computer program to make the back-up copy permitted by section 117 and to enable the installation of the program on the computer's hard disk, but to disable copying of those copies. They might propose a tax on computer data storage media. More fancifully, copyright owners might propose requiring technological modification of photocopiers, so that they could photocopy originals but not copies, and a tax on blank paper.

At some time in the near future, Congress will have to address the issue of private copying globally, and figure out how to treat it. Whether the courts would define private copying to be copyright infringement remains very much in the air -- and will so remain, in my view, until Congress makes that determination itself. What Congress does with this bill will influence the proposals that industry representatives will make in the future to come to terms with the difficult issues posed by private copying.

If, after careful examination, you should decide that the approach taken by the bill is the appropriate solution to this particular portion of the private copying problem, I have suggestions for ways you might consider modifying the current bill before enacting it. First, if you have not already done so, I would suggest that you ask the Commerce Department whether it is comfortable with the role the bill assigns to it. Similarly, if you have not

already asked the Commissioners of the Copyright Royalty Tribunal whether the tasks committed to the Tribunal by the bill are feasible, and whether the language of the bill poses problems that might be avoided through better drafting, these are questions that should be asked. It is my understanding that the Copyright Office has no major problems with the bill, but the other agencies also need an opportunity to speak to you about how easy or difficult they will find it to follow your instructions. I would suggest that you at least consider separating the two proposals: enacting the tape tax now, and giving the industry some time to live with the serial copy management system before passing a statute that requires everyone to use it. You might want to adjust the procedural provisions that give interested copyright parties, but not performers, standing to invoke the Tribunal's authority and that give interested copyright parties the option of replacing the collection and distribution mechanisms with procedures of their own devising. Finally, I would certainly recommend adding a sunset provision to the serial copy management system portion of the bill, so that you will be able to examine how it has worked out in practice before making it a permanent feature of the copyright law.

Mr. HUGHES. Dr. Lebow, welcome.

STATEMENT OF IRWIN L. LEBOW, PH.D., AUTHOR, PRIVATE CONSULTANT, AND FORMER CHIEF SCIENTIST-ASSOCIATE DIRECTOR FOR TECHNOLOGY, DEFENSE COMMUNICATIONS AGENCY

Dr. LEBOW. Mr. Chairman, I am pleased to have been invited to testify before this subcommittee on the subject of H.R. 3204. I am in no way connected with either the recording industry or the electronic equipment industry, nor have I ever had any direct experience with these industries. I am an engineer with many years of experience in digital communication and computer technology applied to other fields.

As I observed how ubiquitous digital technology was becoming, and especially how the compact disk was revolutionizing the audio recording industry, I was prompted to write a book for the general reader covering the basics of this technology as it applies to computers, communication and music. This book, "The Digital Connection," was published a little over 1 year ago.

My purpose therefore in appearing before the subcommittee is to provide some technical background to the proposed legislation. The bill provides a prescription for the peaceful coexistence of music copyright holders and the manufacturers of digital audio recording—DAR technology. As such, it constitutes an important step in enabling digital audio technology to thrive in an uninhibited way. The potential problems with the proposed legislation relate not to its intent but to the difficulty of writing a law that does the job without impinging on the rights of others. The source of this difficulty is inherent in the technology.

I will touch briefly upon three main topics: the distinguishing features of the newer digital technology as opposed to the older analog, the relationship of DAR technology to the more general digital computer technology, and, third, some future trends in the information technology industry that will further complicate the issue of protecting intellectual property in the years to come.

The single aspect of digital audio technology that has prompted this proposed legislation is its extremely high fidelity or accuracy as compared to that achievable with analog technology. The signals obtained from playing a compact disk are almost exactly the same as those that were originally generated in the recording studio. In contrast, the signals obtained from a longplaying record usually deviate from the original in more substantial ways. This is why the recording industry is much more concerned about piracy in the digital age than it ever was before when recordings were analog.

The reason for this is fundamental. An LP record is cut so that its soundtrack is as close as possible to a replica of the electrical signal coming out of the microphone. Similarly, the record player attempts to reproduce the electrical signal from this soundtrack as accurately as it possibly can. The problem is that both the recording and playback operations are made up of a series of complex processes and at every step the signal is distorted just a little bit. A familiar example of one source of distortion is the way a phonograph pickup needle causes physical abrasions on the record's surface leading to the unpleasant effect known as record scratch.

While the distortion at each step may be very small, the cumulative effect of the many processes can be substantial.

In the compact disk the audio in the recording studio is converted to a stream of digits, and it is these digits that are cut into the disk. The digital CD recording and playback processes are just as complex as those of the analog LP and potential distortions are there at every step, but there are techniques that guarantee that the digits stored on the disk are exactly the same as those generated from the audio in the studio and that the digits retrieved from the disk are almost exactly the same.

These techniques are similar to those used to guarantee accuracy when digits are sent from one computer to another, as, for example, when funds are electronically transferred from one bank to another. The same digital communication employed by the long distance telephone companies is what makes most of today's long distance telephone calls sound as good as local calls. The reasons for this extraordinary accuracy are addressed in a note which will be in the record.

Since a digital recording is an exact replica of the recorder audio, it follows that rerecording from a digital recording preserves this same accuracy. Once tape and disk technology was developed that made rerecording available to the consumer the problem of piracy assumed an importance that it never had before with the lower quality analog rerecording, and that is why the part of the bill that requires use of the Serial Copy Management System to preclude making second generation copies of digital recordings is so important.

A potential problem with the proposed legislation lies in the way in which it defines DAR technology. Should it be so broad as to include general purpose computer equipment that may record audio just as it records other data? The fundamental reason for the question is that equipments that record and playback digits don't care about the source of the digits. To paraphrase Gertrude Stein—a digit is a digit is a digit regardless of where it comes from. These digits can represent the Library of Congress catalog, airline schedules, bank balances or atmospheric pressures as well as a Beethoven symphony.

The same storage media used for audio are used for all the other kinds of information. For example, the device called the Compact Disk-Read Only Memory (CD–ROM) is commonly used to store encyclopedic information including audio. A CD–ROM reader, very similar to a CD-player, is available to computer users at nominal cost. More to the point, the so-called erasable compact disk or magneto-optic disk, which differs from the familiar CD in that it can, like magnetic tape, be used for rerecording audio, is also used by some computers for general storage purposes in place of the more familiar floppy or hard disks.

Digital audio equipment is, in reality, special-purpose computing equipment dedicated to audio use. General purpose computers are used for a wide variety of purposes that may include audio storage and retrieval, emulating the special purpose audio equipment. But it is very difficult, if not impossible, to regulate audio reproduction with this general-purpose equipment when it may not be used for audio at all. If the legislative definitions are very strict, piracy can

be committed through the use of general purpose computers. If, on the other hand, the definitions are too loose, then computer users with no interest in audio may be penalized.

My interpretation of the bill's definitions of digital audio interface device, digital audio recording device, digital audio recording medium is that they are overly loose and can be interpreted to apply to general purpose computing subsystems that may or may not be used for audio recording. I think the Senate rewording helps a bit, but, in my opinion, it is not enough to prevent this from occurring.

Finally, the subcommittee should be aware of some possible future developments germane to intellectual property rights. The bill recognizes that piracy can occur both from storage media and from broadcast. Today, the latter is no threat since there is no digital broadcasting, and even the best FM broadcasting gives lower quality than a record. But people are now experimenting with digital audio broadcasting and in all probability it will be distributed commercially in not too many years.

The World Administrative Radio Conference now underway in Spain is considering requests for a frequency allocation for this service. Over-the-air digital broadcasting will always be limited by bandwidth constraints, but, later on, huge capacities will be available with door-to-door optical cable constituting, in effect, an online information marketplace, and this has some relevance to the other subcommittee of this full committee that is now meeting on the subject of the Baby Bells handling information services.

Subscribers will be able to make a selection of a variety of information sources, including audio or video which will be delivered to the home information center almost instantly as a stream of digits. The home information center will be general purpose, including the ability to store audio, video and textual information.

It is not inconceivable that some day this will be the primary way in which people obtain their records—maybe 10 or 15 years from now. If everything ever recorded is available in this way at a reasonable price, then why own records or tapes at all. In this situation piracy will consist of storing audio and video and then distributing it on line in competition with legitimate vendors. The techniques for thwarting this kind of piracy are quite different from those proposed in the pending legislation.

I commend the subcommittee for grappling with this very difficult problem. Just because there may be loopholes in the regulatory mechanism doesn't necessarily imply that the legislation addressed to the most obvious sources of piracy should not be undertaken. But care must be taken to write legislation that will not penalize computer manufacturers and owners who are not in the audio business at all but use the same technology.

Thank you, sir.

Mr. HUGHES. Thank you, Dr. Lebow.

[The prepared statement of Dr. Lebow follows:]

SUMMARY STATEMENT BY IRWIN L. LEBOW BEFORE THE SUBCOMMITTEE ON INTELLECTUAL PROPERTY AND JUDICIAL ADMINISTRATION OF THE HOUSE JUDICIARY COMMITTEE REGARDING H.R. 3204, FEBRUARY 19, 1992.

My purpose in appearing before the Subcommittee is to provide some technical background to the proposed legislation. The Bill constitutes an important step in enabling digital audio technology to thrive in an uninhibited way. Its potential problems relate not to its intent but to the difficulty of writing a law that does the job without impinging on the rights of others. The source of this difficulty is inherent in the technology.

The single aspect of digital audio technology that has prompted this proposed legislation is its extremely high fidelity or accuracy as compared to that achievable with analog technology. An analog recording on a long-playing record or tape deviates from the original in substantial ways. In contrast, a digital recording is almost an exact replica of the original audio, and a rerecording from a digital recording preserves this same accuracy. Once tape and disc technology was developed that made rerecording available to the consumer, the problem of piracy assumed an importance that it never had before with the lower-quality analog rerecording. And that is why that part of the Bill that requires use of the Secure Copy Management System (SCMS) to preclude making second-generation copies of digital recordings is so important.

The potential problem with the proposed legislation lies in the way in which it defines DAR technology. The same storage media used for audio are used for all the other kinds of information. Digital audio equipment is, in reality, *special-purpose* computing equipment dedicated to audio use. *General-purpose* computers are used for a wide variety of purposes that may include audio storage and retrieval, emulating the special-purpose audio equipments. But it is very difficult if not impossible to regulate audio reproduction with this general-purpose equipment when it may not be used for audio at all. If the legislative definitions are narrow, it is possible that piracy can be committed through the use of general-purpose computers. If, on the other hand, the definitions are too loose, then computer users with no interest in audio may be penalized. My interpretation of the Bill's definitions of "digital audio interface device," "digital audio recording device," and "digital audio recording medium" is that they are overly loose.

The Subcommittee should also be aware that in the future the main piracy threat may come from high-quality digital music obtained either over the air or via cable and redistributed illegally in the same way rather than via a recording medium. The techniques for thwarting this kind of piracy are quite different from those proposed in the pending legislation.

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STATEMENT BEFORE THE SUBCOMMITTEE ON INTELLECTUAL PROPERTY AND JUDICIAL ADMINISTRATION OF THE HOUSE JUDICIARY COMMITTEE REGARDING H.R. 3204, FEBRUARY 19, 1992.

I am pleased to have been invited to testify before this Subcommittee on the subject of H.R. 3204, the Audio Home Recording Act of 1991. I am in no way connected with either the recording industry or the electronic equipment industry. Nor have I ever had any direct experience with these industries. I am an engineer with many years of experience in digital communication and computer technology applied to other fields. As I observed how ubiquitous digital technology was becoming and, especially, how the compact disc was revolutionizing the audio recording industry, I was prompted to write a book for the general reader covering the basics of this technology as it applies to computers, communication, and music. This book, *The Digital Connection: A Layman's Guide to the Information Age*, was published a little over a year ago.

My purpose, therefore, in appearing before the Subcommittee is to provide some technical background to the proposed legislation. The Bill provides a prescription for the peaceful coexistence of music copyright holders and the manufacturers of digital audio recording (abbreviated DAR) technology. As such, it constitutes an important step in enabling digital audio technology to thrive in an uninhibited way. The potential problems with the proposed legislation relate not to its intent but to the diffi

culty of writing a law that does the job without impinging on the rights of others. The source of this difficulty is inherent in the technology.

I will touch upon three main topics: 1) the distinguishing features of the newer digital technology as opposed to the older analog technology; 2) the relationship of DAR technology to the more general digital computer technology; and 3) some future trends in the information technology industry that will further complicate the issue of protecting intellectual property in the years to come.

The single aspect of digital audio technology that has prompted this proposed legislation is its extremely high fidelity or accuracy as compared to that achievable with analog technology. The signals obtained from playing a compact disc are almost exactly the same as those that were originally generated in the recording studio. In contrast, the signals obtained from a long-playing record usually deviate from the original in more substantial ways. This is why the recording industry is much more concerned about piracy in the digital age than it ever was before when recordings were analog.

The reason for this is fundamental. An LP record is cut so that its sound track is as close as possible to a replica of the electrical signal coming out of the microphones. Similarly, the record player attempts to reproduce the electrical signal from this sound track as accurately as it possibly can. The problem is that both the recording and playback operations are made up of a series of complex processes, and at every step the signal is distorted just a little bit. A familiar example of one source of

distortion is the way a phonograph pickup needle causes physical abrasions on the record surface leading to the unpleasant effect known as "record scratch." While the distortion at each step may be very small, the cumulative effect of the many processes can be substantial.

In the compact disc, the audio in the recording studio is converted to a stream of digits, and it is these digits that are cut into the disc. The digital CD recording and playback processes are just as complex as those of the analog LP, and potential distortions are there at each step. But there are techniques that guarantee that the digits stored on the disc are exactly the same as those generated from the audio in the studio and that the digits retrieved from the disc are almost exactly the same. These techniques are similar to those used to guarantee accuracy when digits are sent from one computer to another, as when, for example, funds are electronically transferred from one bank to another. This same digital communication employed by the long-distance telephone companies is what makes most of today's long-distance telephone calls sound as good as local calls. The reasons for this extraordinary accuracy are addressed in Note 1.

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The same storage media used for audio are used for all the other kinds of information. For example, the device called the compact disc read-only memory (abbreviated CD-ROM) is commonly used to store encyclopedic information including audio. A CD-ROM reader, very similar to a CD player, is available to computer users at a nominal cost. More to the point, the so-called *erasable compact disc* or *magneto-optic disc*, which differs from the familiar CD in that it can, like magnetic tape, be used for rerecording audio, is also used by some computers for general storage purposes in place of the more familiar floppy or hard disks. Digital audio equipment is, in reality, *special-purpose* computing equipment dedicated to audio use. *General-purpose* computers are used for a wide variety of purposes that may include audio storage and retrieval, emulating the special-purpose audio equipments. But it is very difficult if not impossible to

regulate audio reproduction with this general-purpose equipment when it may not be used for audio at all. If the legislative definitions are very strict, piracy can be committed through the use of general-purpose computers. If, on the other hand, the definitions are too loose, then computer users with no interest in audio may be penalized. My interpretation of the Bill's definitions of "digital audio interface device," "digital audio recording device," and "digital audio recording medium" is that they are overly loose and can be interpreted to apply to general-purpose computing subsystems that may or may not be used for audio recording. [Note 2]

Finally the Subcommittee should be aware of some possible future developments germane to intellectual property rights. The Bill recognizes that piracy can occur both from storage media and from broadcasts. Today the latter is no threat since there is no digital broadcasting, and even the best FM broadcasting gives lower quality than a record. But people are now experimenting with digital audio broadcasting and, in all probability, it will be distributed commercially in not too many years. The World Administrative Radio Conference now under way is considering requests for a frequency allocation for this service. Over-the-air digital broadcasting will always be limited by bandwidth constraints. But later on, huge capacities will be available with door-to-door optical cable, constituting, in effect, an on-line information market place. Subscribers will be able to make a selection of a variety of information sources including audio or video which will be delivered to the home information center

almost instantly as a stream of digits. The home information center will be general-purpose, including the ability to store audio, video, and textual information.

It is not inconceivable that this will be the primary way in which people obtain their recordings 10 or 15 years from today. If everything ever recorded is available in this way at a reasonable price, then why own records or tapes? In this situation, piracy will consist of storing audio and video and then distributing it on-line in competition with legitimate vendors. The techniques for thwarting this kind of piracy are quite different from those proposed in the pending legislation.

I commend the Subcommittee for grappling with this very difficult problem. Just because there may be loopholes in the regulatory mechanism doesn't necessarily imply that the legislation addressed to the most obvious sources of piracy should not be undertaken. But care must be taken to write legislation that will not penalize computer manufacturers and owners who are not in the audio business at all but use the same technology.

NOTES

1. There are two aspects to the recording or communication of audio digitally. First, the audio must be converted from analog to digital form accurately enough so that when the digits are reconverted to analog, the original signal is recovered. Then the digits must be recorded or communicated with high accuracy in the face of noise and other distorting effects. The conversion from analog to digital is done by taking samples of the audio and then converting each sample to a number. It can be shown mathe-

matically that if these samples are taken often enough and if the numbers representing each sample have enough decimal points, then the process of converting from analog to digital and back again is virtually perfect. In the second process, there are mathematical techniques for adding redundancy to the audio digits to overcome the effects of the noise and distortion. For a more extensive explanation of these processes, see Irwin Lebow, *The Digital Connection*, Chapters 6, 7, and 8, W. H. Freeman and Company, New York, 1990.

2. Since a general-purpose computer can "supply a digital signal through a nonprofessional interface," it meets the definition of a "digital audio interface device." A digital storage device for general-purpose use may be indistinguishable from one used for audio recording and therefore meets the definition of a "digital audio recording device." Similarly a general purpose storage medium may be indistinguishable from a "digital audio recording medium." For more details see Owen C. B. Hughes, *Digital Audio Recording: A Look at Proposed Legislation*, New York Law Journal, October 1, 1991.

Mr. HUGHES. Dr. Green, welcome.

STATEMENT OF WAYNE GREEN, PH.D., PUBLISHER, CD REVIEW MAGAZINE, AND SECRETARY, INDEPENDENT MUSIC PRODUCERS SOCIETY, HANCOCK, NH

Dr. GREEN. Thank you. I am Wayne Green, publisher of CD Review magazine and the secretary of the Independent Music Producers Society with about 2,000 independent record companies as members.

I have a digital audio recording studio and I have several record labels, a distributing company, and so forth. I feel somewhat like the youngster that was facing the tanks at Tiananmen Square, and I well remember what happened to him. I believe they eventually executed him. But I am holding up my hand to try to stop things. I do not know of any of the independent record companies that favor this type of a movement.

I have attended the panels at consumer electronic shows for the last several years where we have had Senators and Representatives there testifying and telling us, and the story has been consistent. They have said every time, We will not put through legislation to prevent copying of digital information unless we have proof that there have been losses. You have no proof. You have speculation. You have unsubstantiated figures of a billion dollars in losses. Make it $10 billion. We have no proof of anything like that.

Congress has heard these stories before. When the audio analog cassette came along, there was testimony that this would destroy the music industry. It turned out to be the biggest bonanza the music industry has ever had. Half of all music sales are on prerecorded cassettes. When the video tape recorder came along, testimony before Congress that this would absolutely, positively, without a doubt destroy the movie industry. It has been the biggest bonanza the movie industry has ever had. They are making more money from their prerecorded videocassettes, than they are from the theaters. I see this pattern being played over and over.

There are technical problems, as the doctor pointed out. One of the things that I have issued is a CD–ROM which lists all of the compact disks that are available, complete with any imaginable kind of cross-indexing. But it also has full-color pictures of the covers of many of them and samples of the music. So it is a combination for computers of music, video and data information.

I have been the editor and publisher in the past of a number of computer magazines, so I am not unfamiliar with digital data. And what we are storing on our compact disks, what we are storing on our digital audio tape is 0's and 1's, the same thing that we use for computer programs, the same thing that we use for computer data, and this is just a different kind of computer output that reads it into our earphones and our speakers.

Now digital audio broadcasting was mentioned. Digital audio broadcasting is coming. There is no way to stop it. The preliminary tests show that it is enormously advantageous over FM. And, indeed, tests over in the UK have shown that with .001 of the power you get about 10 times greater coverage, and instead of having one channel of music, you have six channels of music on each fre-

quency. So that we are going to have an enormous amount of digital materials going over these broadcasting stations.

I think that there are some hidden agendas here. Digital audio tape is pretty much, as far as the consumer is concerned, a dead technology. The consumers have been able to buy these for several years whenever they wanted, and they have not bought them because there is not much use in normal consumer applications for digital tape. We use it in our recording studio because it beats the heck out of anything that we had previously.

But coming soon are DCC (digital compact cassette) and the minidisk, and we have some Thor technology from Tandy, and we have a number of these things coming. As I say, I am just a small person speaking up in this mass of million dollar companies that are pushing for this and lobbying for it, and I see the ulterior motives of controlling these new technologies.

Now, you listened to the test here. How many of you would be willing to bet money on whether you were hearing an audio of an analog cassette, a digital cassette or a compact disk? The difference is really very small between a good analog cassette and a compact disk, and the difference actually with DCC, the engineers tell me that that sound is not as good as a good analog cassette. But it has the advantage of being abie to play both a digital type of music, where they throw away 80 percent of the digital information, and an analog in the same machine.

The same thing goes for the minidisk, the MD, which will be coming out probably next year, where they throw away about 75 percent of the digital information. And again, it is not as good to the ear, according to the engineers that I have talked with at Panasonic, as a good analog cassette.

Now, if this goes through, if this legislation goes through I can tell you one of the first things that is going to happen is that 10,000 hackers are going to figure out how to change that 0 to a 1 on your data stream. And it is going to be simple to do. We have a very similar situation in the radio field, where they were selling radios to CBers and they said, "Do not cut this red wire," because it will make it so that you can transmit outside of the CB band. Well, tens of thousands of people cut that red wire, and the FCC has never been able to stop them. They are operating outside of the normal legal bands and there has been no way to stop it.

In my magazine, I suspect, there will be articles very quickly on how to convert consumer DAT machines so that they no longer have copy protection. Because the consumer machines normally will be less expensive, and I think many of our recording engineers are going to buy those and do the conversion. And the word will get out because these computer hackers are going to be able to solve this in minutes. If they can get into your biggest data bases in the country, they are going to be able to solve something simple like this.

So I am not in favor of doing this. I think that you have a few—and I have heard all of these testimonies, the same things that I was hearing when the analog cassette came along—word for word, virtually—about the destruction of the industry. I see no such destruction. I see only more and more sales.

The home recording has not been a problem. We have done studies of this. So few people are making copies for friends. They do make a copy to play in the car or to play in their Walkman, and you are permitting that, so that is no change.

Another aspect of it is, if you start with digital information from a compact disk or a digital audio tape and you go through an analog stage, it removes the digital encoding totally, and then you go back to digital again and you won't hear the difference. You cannot hear the difference. Yes, you have gone through an analog stage, but the difference is so minute that I don't think even the editor of the most high-end magazines are going to be able to tell the difference.

So I don't see that we are gaining anything or doing anything here. I recognize the problems, and I think there must be other ways to solve these problems rather than hamstringing a new technology.

Thank you.

Mr. HUGHES. Thank you, Dr. Green.

[The prepared statement of Dr. Green follows:]

Prepared Statement of Wayne Green, Ph.D., Publisher of CD Review Magazine, and Secretary of the Independent Music Producers Society, Hancock, NH

1) Congress members on Consumer Electronic Show panels have for several years faithfully promised to defeat legislation such as HR-3204 unless provided with proof that the music industry had actually suffered losses and needed relief. No study has proven any losses. The need for this legislation is purely speculative. This whole anti-technology exercise seems to me a waste of time and money for the recording industry, it's lobbyists, and the government.

2) No cost estimates have been given for implementating HR-3204. Presumably the collection, distribution, legal work, courts, enforcement, accounting, administration, etc. costs are to be paid by the treasury. I propose that if HR-3204 is enacted it be made totally self-funding. Instead of possibly adding hundreds of millions of dollars to the budget deficit to implement this special interest legislation, I propose the government costs be deducted from the collected royalty payments. If the costs are more than the collected royalties, the difference would be made up by the royalty payees in proportion to the royalty shares each payee would normally expect to receive, should the royalties actually exceed the costs of administration (which seems unlikely).

3) There would seem to be no rationale for the government to be asked to foot the bill for this royalty collection scheme. The costs appear to be a subsidy for the six international recording megacorporations (which control about 95% of all music sales in America) such as Sony, BMG, and Matsushita, as a way to further increase their revenues at no cost to them.

4) The digital audio recording equipment intended for professional use is not required to include the copy protection device. Since professionals may prefer to buy less expensive consumer digital audio recorders and merely disable the copy protection circuit, there is reason to expect that disabling the copy protection circuit will be easily accomplished and that information on how to do this will quickly be published in buff magazines (which publication is not prohibited by the Act).

There was a similar situation to this in the manufacture of citizen's radio transceivers wherein a single red wire could be cut to allow the equipment to operate on frequencies other than those allocated to the CB service. Tens of thousands of CB operators bought these transceivers, cut the red wires, and operated outside the allocated citizen's band channels. The FCC has been helpless to control this massive illegal operation, which has been continuing for over twenty years.

5) I'm sure Congress still remembers the efforts of music industry lobbyists to tax analog cassette tapes, claiming the technology would surely destroy the music industry. Instead it turned out to be the biggest bonanza the industry had ever seen. And Congress may even remember the similarly impassioned pleading by movie industry lobbyists, claiming video recorders would bankrupt the movie industry. Now video tapes bring in more than theaters. Will Congress fall for this latest attempt to stop a new technology? I hope not!

6) HR-3204 is ill-considered, unneeded and an egregious waste of the taxpayer's money. As an independent music producer I object to this attempt to hamstring a new technology. I am satisfied that we already have more than adequate copyright protection for our music.

Mr. HUGHES. Dr. Green, has anybody to date, to your knowledge, developed the capacity to basically change the serial management system so that they have total access?

Dr. GREEN. I don't know—there has been no serial management system, but I would predict that within minutes of it being released to the public we will have the changes necessary.

Mr. HUGHES. I was under the impression that the technology is a lot more complicated than attempting to defeat, as has been the case in the past, other technologies. Such as the scrambler, you know, for cable TV and the devices that were developed to defeat those scrambling devices, to counter the scrambling devices. Am I incorrect? Is your information different than mine?

Dr. GREEN. I would say that this would be very simple. It is a matter of changing a couple of bits in the bitstream, and as I say, any hacker would be able to do that very quickly.

Mr. HUGHES. Do you share that opinion, Dr. Lebow?

Dr. LEBOW. I think there is no such thing as a foolproof device of this kind. No law can be foolproof. You try to take care of all the loopholes you can. If someone really wants to do it, whether to make money out of it or just as a game, he will do it.

Mr. HUGHES. While you are responding to questions, Dr. Lebow, you allude to the fact that some of the terminology might be overly broad. Overly loose, I think you suggest. But you don't suggest any way in which that could be addressed. Do you have some suggestions?

Dr. LEBOW. No, I don't have any specific suggestions. The gentleman from Tandy, Mr. Roach, seemed to feel that the legislation took care of personal computers in particular, that the language in the bill as amended by the Senate took care of personal computers. My reading did not say that. And because the devices, the storage devices, the recording devices are so similar, the same storage devices can be supplied as computer peripherals for general use as for audio recording.

The only suggestion I could make in the legislation would be to specifically exclude those devices that are provided for general-purpose use on computers. If you do that you open up the loophole that someone, a determined pirate, can buy himself some cheap general-purpose computing equipment and go and make audio copies to his heart's delight. But you have to figure how many people will do that.

The opposite side of the coin is that you may penalize the purchasers of those devices who have no intention of using them for audio.

Mr. HUGHES. Do you share Dr. Green's view that home taping is really not a serious problem, Professor Litman or Dr. Lebow?

Dr. LEBOW. I really don't know.

Mr. HUGHES. Professor.

Ms. LITMAN. I think home taping is less of a problem than home copying of computer software. I think home copying is increasingly going to become a huge problem as we move into a society where we are distributing many of our copyrighted works on line, over wires, through the air, and as we move to a technology that makes copying very easy.

Mr. HUGHES. And as the quality improves, Professor, isn't that going to encourage home taping? Why would anybody want to go out and buy a tape if they can make one from somebody else's, if the quality is there?

Ms. LITMAN. There are some of us who would, perhaps because I teach copyright law. I go out and get an audio cassette tape to play in my car in addition to the compact disk I have got in my bookshelf. Surely that is rare. I do recall that back before metal and chrome cassette tapes, serious audiophiles, rather than buying prerecorded cassette tapes, made their own because they felt the quality was better than what they could get from prerecorded tapes.

Mr. HUGHES. But if you can make a tape that is almost perfect, almost a duplicate of the original, isn't that going to present an increasing problem of home taping?

Ms. LITMAN. No question.

Mr. HUGHES. Dr. Green, do you accept that premise or reject that premise?

Dr. GREEN. It depends on degree. I don't see it being much of a problem now, and if we doubled it, it would not be much of a problem. You are going to have this technology difficulty hitting you in many ways. For instance, we have simple ways now of inputting books into computers. You just put it on there, on a reader and it inputs the data from the book into the computer, and then you can print out that book at a fraction of the cost of buying the book, and we don't have any way to cope with this. This is going to be very popular, I believe, as more and more scanners become available.

These are things that we have to tackle in some way, but I don't think hamstringing the technology is the approach to that.

Mr. HUGHES. Well, you know, frankly, the one area where I have some difficulty with your argument is that you suggest that home taping isn't a problem. I haven't seen any data either. I don't know how you measure the piracy that takes place. I can only borrow from my own personal experiences in my own life, and I see that copying taking place with some degree of regularity. Don't you?

Dr. GREEN. No, I don't.

Mr. HUGHES. You don't?

Dr. GREEN. I have a fairly large tape collection and most of it is recordings of meetings and things like that, and talks that I have given, but I have a fairly large collection of prerecorded tape, all of which I have bought. And I probably have a dozen tapes that I have made from LP's or CD's to use in the car, but not much else. I have never had anybody give me any copies of tapes.

Mr. HUGHES. Don't you find that is pretty commonplace?

Dr. GREEN. What is that?

Mr. HUGHES. Making tapes.

Dr. GREEN. Oh. For the car or the Walkman? Yes.

Mr. HUGHES. For exchanging with friends, you don't see that?

Dr. GREEN. The youngsters seem to be doing that.

Mr. HUGHES. Well, I include youngsters. They are a part of us.

Dr. GREEN. We did a study of our readers. I have about 300,000 readers of CD Review, and there were about 1½ percent that said that they had gotten tapes from other people or had given tapes to other people. So it seems like a small leakage there.

Mr. HUGHES. But it seems to me that there is some argument to be made that as you technologically increase their ability to make perfect tapes—I find that youngsters are pretty good at distinguishing sound. I am sure my son could have very easily seen the difference between the analog that was played today, certainly more so than myself, and the digital tape that was played today taken from a CD.

Dr. GREEN. He won't be able to hear the difference of a digital tape that has gone through an analog stage to remove all of the coding and gone back to digital again. This coding will not go through that and he won't be able to hear the difference. So it is going to be pretty simple to defeat.

Mr. HUGHES. Your argument is that why do what we are doing because it is going to be easy to defeat. And besides that, as I understand your testimony, there are new technologies that are just around the corner, including digital broadcasting, which will make it all moot.

Dr. GREEN. Also, video is going digital audio and this would cover all movie recordings in the future, as far as I see your proposed legislation, because the high definition movies are all going to have digital audio, and you don't say anything about digital audio where it includes video. So you are going to be having these royalties on videos in the future.

And remember a 3-percent royalty doesn't seem like much, but that goes on at the manufacturer, which means that it is at least doubled by the time it gets to the consumer. So a 15 cents royalty will end up costing the consumer 30 cents, and in all probability will then be moved up to the next 99 cents point.

Mr. HUGHES. Dr. Lebow, does the exclusion of computers and audiovisual devices from the bill mean that the legislation could quickly become meaningless? For example, should unrestricted taping of the digital audio portion of high definition television be permitted once HDTV becomes available in totally digitalized form?

Dr. LEBOW. It could be. It could be. When digital television becomes available, whether it is HDTV or ordinary TV, then it is just another stream of digits and one can do with it what one will. If the bill specifically restricts its provisions to audio and audio only, then that is not a problem. But, if the language is ambiguous so that it can include audio that is part of an overall video program, then that is something to be concerned about.

Mr. HUGHES. I thought the bill was constructed to limit it to audio.

Dr. LEBOW. I believe so.

Mr. HUGHES. Do you find any of this language that would suggest that it could be misinterpreted?

Dr. LEBOW. I found in my reading of it that it eliminated video to my satisfaction. My problem, as I said in my statement, was the equipments. The equipments for audio recording can be general-purpose peripherals to computers. That was my problem.

Mr. HUGHES. I take it from your testimony—I don't want to overgeneralize, and I am sure you will correct me if I am wrong—basically, you indicate that you can see some advantages to the legislation moving forward but you are concerned about some of the terminology, that it might be overly broad.

Dr. LEBOW. Yes, that is right. I have no objection to the intent of the bill at all. It is just simply the provisions applying to nonaudio uses that I am concerned about.

Mr. HUGHES. Professor Litman, I take it that you can see that there could be some public good from the bill, but you would like to limit, by sunset, perhaps, and some other suggestions, the legislation to make sure that we reexamine it in a few years as the technology evolves?

Ms. LITMAN. I have no difficulty with the concept underlying the bill, and no difficulty at all with the tax on the tapes as a concept. I am concerned, and I say in my statement I am concerned—with the administrative procedures that go to the distribution and the collection of the tax, and with the provision allowing interested copyright parties to opt out on a two-thirds vote with nobody taking a look at that. I am concerned that the performers, who are for the first time getting a royalty, are not parties with standing to ask the Copyright Royalty Tribunal for anything in the distribution procedure. Those are difficulties with execution.

Conceptually, I do have a problem with the Serial Copy Management System, although it may well be worth trying to see if it works. And I think I share with these gentlemen the belief that it usually turns out to be folly to try to legislate technology. There is too much that we cannot predict that is going to come around 1 year, 2 years, 3 years from now and cause the legislation to have unintended meaning.

So I am concerned about that particular proposal conceptually, although the parameters of what copying it permits and what copying it prohibits strike me as sound.

Mr. HUGHES. And, Dr. Green, I take it that you are still trying to make up your mind about the bill, as to whether it is just bad policy or whether it just would be worthless.

Dr. GREEN. Not really. I would like to see it shelved until there is some demonstrated need, some proof that something like this can actually be put into place, as was promised at consumer electronic show panels.

I notice that there has been a great reluctance to make any estimates of the cost of implementing this and any estimate of the revenues to be involved. I know that there is a phrase in there that says that the cost of implementation are to be taken from the revenues, and I raise the question, supposing the costs of implementation which are to be done by the U.S. Government, and we know that that is a very efficient unit, supposing they exceed the revenues, will we then be able to turn around and retrieve those losses from these people who would normally benefit from this? Because I would hate to see this bill become another addition to the budget deficit and add another $50 or $100 million to that.

Implementation of this is not going to be simple. We are talking about a police force. We are talking about courts and lawyers. All through the bill the reference is to the various problems of implementation, and, of course, we might want to have some kind of an environmental impact statement on just what is going to happen with all the paperwork that this generates.

Mr. HUGHES. We use that all the time. Any time we want to shelve a bill we always ask for an EIS.

[Laughter.]

Dr. GREEN. Because the paperwork is going to be monumental.

Mr. HUGHES. Well, you are suggesting seriously that possibly the costs of implementing would exceed revenues? Do you really believe that?

Dr. GREEN. I would not be surprised at all.

Mr. HUGHES. I find that interesting.

Dr. GREEN. Well, consider this. The digital audio tape technology has failed in the consumer market all over the world, and it is not a success. So, if you are going to try to get money from the sale of digital audio tape consumers you are not going to get any money from that.

Mr. HUGHES. I have an awful lot of people coming in to see me these days, back in the district and here, who believe that it is a winner. I can't imagine them coming in to see me as frequently as they have in the last few months believing that it is not going to generate revenues—songwriters and other artists and performers and record companies.

Dr. GREEN. I know. I heard the testimony.

Mr. HUGHES. And they are pretty good with arithmetic.

Dr. GREEN. Yes. So am I. I have a pretty good track record.

Mr. HUGHES. Well, how about the argument that technology has not been widely marketed because of a number of barriers? What do you say to that? One of the things that this committee has to look at is the overriding public interest, and the public interest is served by advancing the arts. It is so important that it is in our Constitution.

How about that? How about the pure joy of listening to one of Mr. Weiss's wonderful songs?

Dr. GREEN. Well, of course, I have digital compact disks and I listen to those. I have had a digital audio tape recorder for several years now, since they first came out, and I find that I never listen to prerecorded, and I have cartons and cartons of prerecorded DAT tapes. I don't listen to those because it is so much more clumsy to use than a compact disk, where I can go from one track to another whenever I want. And so I, just as a consumer, do not use it.

Now, I looked at my own case as a recorder, and I have recorded, as I said, thousands of tapes. There are very few cases where I would want to use digital audio tape in preference to analog, because in most recording cases you don't have the environment that is going to make the difference. Now, I have a digital audio tape studio, and I know what it takes to make a good digital master, and it is formidable. So for most applications analog does just fine.

I looked back through my whole history, and I guess I wish that there had been a digital audio tape of me singing in "The Pirates of Penzance" in high school. But outside of that, not much.

Mr. HUGHES. Did you hear the same arguments when the CD technology was emerging—why would anybody want CD with analogs and that sort of thing? Did you hear those same arguments?

Dr. GREEN. Oh, yes. Yes.

Mr. HUGHES. I seem to have remembered.

Dr. GREEN. This is the reason that I started the magazine 9 years ago on compact disks, because I knew that they would sound

better with normal average audio equipment. They are going to sound better than an LP. They don't have the cracks and pops. They have a broader frequency range. They have a greater dynamic range. They are better and you can hear that instantly.

But they are not that much better than a good analog tape, and they are certainly better than a DCC or an MD is going to be.

Mr. HUGHES. I understand.

Ms. LITMAN. Mr. Chairman.

Mr. HUGHES. Yes, Professor Litman?

Ms. LITMAN. Let me make an unpopular suggestion. If the overriding problem were that there is a cloud over this technology, Congress could remove the cloud with a one sentence provision that it is not copyright infringement to sell or manufacture digital audio recorders. End of cloud. That, for lots of policy reasons, might not be the way that Congress would want to go. But surely the cloud can be removed without 150 pages in a technical appendix.

Mr. HUGHES. I understand. But, unfortunately, our task is a little more complex than that. Our task is one of balancing, balancing the interest of the public, and having the cultural diversity that are important to this country, and encouraging creators to produce. That balance is a very important one to maintain. And, frankly, if we waited until the new technologies were on the block, we would be waiting from here to eternity. Technologies continue to emerge.

We have the wherewithal to make changes in the law if we find the law is outmoded. You don't have to put a sunset provision in to sunset it, we can change the law. And we do that from time to time.

Dr. GREEN. But could we wait until we are hurt instead of saying, "Gee. We might get hurt. Let's do this to stop it."

Mr. HUGHES. Well, Dr. Green, that is an interesting observation. I don't think there is any question I am persuaded, just like the songwriters found much of their sheet music was being photocopied and as a result they were not being rewarded for their works, that there are abuses in the home copying area. So I differ with you, as a matter of—maybe it is degree, but I differ. I can understand the argument that as we perfect these copying technologies it is going to induce those who so copy and share with friends and others, it is going to exacerbate that problem.

Dr. GREEN. Well, this is one of the things we have to live with, and I have been through this in the computer field. I started one of the first companies to produce mass-produced software for microcomputers, and I was put out of business by copying. I first ran into it in the educational field. We produced some superb educational programs, but we noticed that we were selling very few of them. And when we studied it, we found that we were selling one copy to each school. Then we noticed a year later that that had slowed down to one copy to each school district. So we stopped making educational software, and indeed, there is very little educational software out there today, mostly as a result of this copying thing.

So I am aware of that. And that killed off several thousand small companies. It was only the companies that made software that was so complex and had so many instructions that they had to buy it that survived.

So this is survival of the fittest, the Darwinian theory again.

Mr. HUGHES. I understand. As I indicated at the outset, and this will be my last comment, that is why I indicated that our job is to ensure that the public good is served. We will certainly look at your testimony and the concerns, the legitimate concerns that you have raised, and we appreciate your contributions to this hearing today. Thank you very much.

That concludes the testimony for today, and the subcommittee stands adjourned.

[Whereupon, at 12:12 p.m., the subcommittee adjourned, to reconvene subject to the call of the Chair.]

APPENDIXES

APPENDIX 1.—LETTER FROM MICHAEL R. KLIPPER, VICE PRESIDENT, LEGAL AND GOVERNMENTAL AFFAIRS, ASSOCIATION OF AMERICAN PUBLISHERS, INC., TO HON. WILLIAM J. HUGHES, CHAIRMAN, SUBCOMMITTEE ON INTELLECTUAL PROPERTY AND JUDICIAL ADMINISTRATION, FEBRUARY 18, 1992

Association of American Publishers, Inc.

aap

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Telephone 202 232-3335
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February 18, 1992

The Honorable William Hughes
Chairman, House Judiciary Subcommittee on Intellectual
Property and Judicial Administration
207 Cannon House Office Building
United States House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Following are the comments of the Association of American Publishers ("AAP") with respect to H.R. 3204, the Audio Home Recording Act of 1991. We respectfully request that this letter be made part of the formal hearing record on H.R. 3204.

As this Subcommittee is well aware, for many years the issue of unauthorized home taping of music has been a much-debated and contentious one. In the past representatives of the music and the consumer electronics industries have engaged in a time consuming and fractious debate focusing, in large part, on the impact of new audio electronics technologies on the economic well-being of those who create music and make a vast array of musical works available to consumers both here and abroad. A milestone was reached last July when the participants in the audio home taping debate announced their support for the legislative solution embodied in the bill now before this Subcommittee.

AAP applauds those parties that have devoted so much time and effort to resolving the dispute over the home taping of music. At the same time, however, AAP believes that, as presently drafted, the pending legislation extends beyond the issue of audio home taping of prerecorded music and affects directly the interests of various book publishers -- publishers who were neither immersed in this long-standing dispute between the music industry and the audio hardware manufacturers, nor party to the negotiations that led to the "historic compromise" reflected in the bill. H.R. 3204 impacts on the interests of the publishers of so-called "spoken word recordings," -- e.g., audio book or books on tape, recordings of instructional materials and conference proceedings -- which contain no musical sounds or musical sounds that are only incidental to spoken words fixed in the recording. In particular, the bill

denies these publishers both the right to sue for copyright infringement under certain circumstances and the right to share in the royalty pool created under the bill.

The legislation's impact on these "spoken word recordings" is of great concern to various members of AAP. The market for spoken word recordings is a growing one. For example, it is estimated that in 1991 audio book sales totaled approximately $850 million. In addition, sales of spoken word technical and training materials total approximately $50 million per year.

In its current form, H.R. 3204 treats these "spoken word recordings" differently from the musical recordings that are the focus of this legislation; and, by doing so, we submit, H.R. 3204 affects "spoken word recordings" in a manner that warrants legislative correction.

Significantly, although spoken word recordings fixed in phonorecords are covered by Section 1002 of H.R. 3204 -- thereby preventing "spoken word" copyright owners from protecting their rights by bringing copyright infringement suits against non-commercial copying -- these same copyright owners are denied the right to participate in the royalty pool created under the bill. This is so because the royalty pool applies only to musical works and the recorded musical works themselves. Thus, as now drafted this legislation unfairly discriminates against "spoken word recordings." It effectively creates an uncompensated exemption from copyright liability for unauthorized, non-commercial duplications of spoken word recordings.

To remedy this situation, AAP urges this Subcommittee to amend H.R. 3204 to exclude "spoken word recordings" from the scope of the bill. In AAP's view, this result can be best accomplished by amending H.R. 3204 to provide that for purposes of this legislation, phonorecords do not include material objects in which are fixed "spoken word recordings." We have discussed this approach both with Subcommittee staff and representatives of the proponents of H.R. 3204. Mr. Chairman, as the result of a series of our discussions with the proponents, we have agreed jointly on the language of a suggested amendment to H.R. 3204. We hope that you and your colleagues will endorse an amendment along these lines:

> For the purposes of this chapter, a phonorecord does not include a material object in which the fixed sounds consist entirely of spoken word recordings. A "spoken word recording" is a sound recording in which are fixed only a series of spoken words, except that the spoken words may be accompanied by incidental musical or other sounds.

It is our understanding that the proponents of the bill will, consistent with the current version of the Senate bill, advocate that the word "audiogram" be substituted for "phonorecord". Should that change be made, the suggested amendment should be modified accordingly.

In AAP's view, this language will accomplish the important purpose of removing "spoken word recordings" from the reach of this legislation. Under the proposed language, for example, "audio books" or "books on tape" that contain only spoken words are excluded from the bill. In addition, various other works, including "audio books" or "books on tape" that may use incidental music e.g., to serve as a bridge between chapters or sections, also would be outside the scope of H.R. 3204.

Mr. Chairman, it is AAP's position that the inclusion of the "spoken word" language set out above is consistent with the other provisions in H.R. 3204 that are also designed to limit the reach of the legislation and to focus the proposal on private, home copying of prerecorded music. For example, expressly excluded from the definition of "digital audio recording device" are among other things, "dictation machines, answering machines, and other audio recording equipment that is designed and marketed primarily for the creation of sound recordings resulting from the fixation of nonmusical sounds" (Section 1001 (3)(B)). Similarly, the definition of "digital audio recording medium" specifically excludes a material object "that is primarily marketed and most commonly used by consumers either for the purpose of making copies of motion pictures or other audiovisual works or for the purpose of making copies of nonmusical literary works, including, without limitation, computer programs or databases" (Section 1001 (4)(B)(ii)). AAP submits that the suggested "spoken word" amendment is in line with these and other narrowing provisions in H.R. 3204.

In addition, AAP urges that the bill be amended so as to delete "(2) EXAMPLE. -- " from Section 1002, page 11, line 16. We have mentioned this suggested change to Subcommittee staff and we have also been informed that the bill's proponents do not object to this change. As AAP understands it, the purpose of the language following "(2) Example" is to make clear that the copying of a phonorecord by a consumer for private, noncommercial purposes is not for direct or indirect commercial advantage and thus is not actionable under the bill. AAP believes that this purpose can be better achieved by deleting "(2) Example."

Mr. Chairman, AAP would be remiss if it did not take this opportunity to thank the representatives of the bill's proponents for their willingness to work with us to address the issues discussed above and to reach a mutually satisfactory resolution --

a resolution that we hope will prove acceptable to you and your colleagues. As always we are also grateful for the efforts of your Subcommittee staff and we greatly appreciate their cooperation on this important issue.

Sincerely,

Michael R. Klipper

Michael R. Klipper
Vice President, Legal and
Governmental Affairs

cc: Chairman Brooks;
Members of the Subcommittee on Intellectual Property and Judicial Administration

APPENDIX 2.—STATEMENTS AND MATERIAL SUBMITTED BY FRANK BEACHAM, NEW YORK, NY

Mr. Chairman and members of the subcommittee.

Before addressing some substantive issues involving the Audio Home Recording Act, I wish to protest to the members of this subcommittee the handling of the public hearing regarding this legislation on Feb. 19, 1992.

That hearing was dominated by industry lobbyists and corporate proponents of H.R. 3204 and was virtually closed to end users of digital recording technology. As a producer of network radio programming and a professional user of digital recording technology, I personally was denied the opportunity to testify at the hearing and no one representing my point of view was there either. An entire body of working recordists will be affected by this legislation and neither the Senate nor House has offered these people a chance to be heard.

The very idea that headline-grabbing entertainers such as Barry Manilow and Debbie Gibson are used to divert attention from the real issues at stake is a disgrace. Have we reached the point where congressional hearings are being turned into the equivalent of "Entertainment Tonight?" What ever happened to objective information gathering on the issues and fairness to all sides?

Mr. Chairman, I urge you to hold a new hearing on The Audio Home Recording Act and seek the testimony of a cross section of the people whose lives are to be affected by this legislation. If the subcommittee staff is not capable of locating these witnesses, then I suggest you hire an unbiased outside consultant to do it for you. Lobbyists with a vested financial interest

in the passage of this legislation have dominated the hearing process so far and have misled the public enough regarding H.R. 3204. It is time for an objective and open-minded forum on the issues at hand.

Last year I submitted oral and written statements concerning the Audio Home Recording Act to the Senate. I enclosed a copy of those statements here (Exhibit 1) and will not repeat the same information in this statement. I ask that the Senate statements be made part of this record. In this statement I would like to address two key issues not raised earlier: 1.) the effect the legislation will have on business users of digital tape recorders, and 2.) the unintended effects of the tax.

So-called "professional" equipment is supposedly exempt from the provisions of the legislation. A problem for broadcasters, business and educational recordists lies in the distinction made between "professional" and "consumer" equipment. Under the legislation, equipment considered professional will be marked with the letter "P" or have the word "Professional" on the outside packaging. In order to determine whether or not a machine is really designed for pros or consumers, the bill lists several factors including the type of error detection system, input/output interfaces, sales literature, distribution channels and, curiously, the occupation of the user and the application to which the recorder is put.

It is interesting to note that certain of the so-called "pro" features mentioned in the bill, such as read-after-write, time code functions and professional connectors, are already appearing on some high-end consumer model DAT decks. Many of the nation's top professional recording engineers and producers use this consumer-grade gear in their homes and offices for reviewing their work. Consumer model DAT machines (some professionally

modified) are found in hundreds of radio stations and have even been used to record commercial CD releases and motion picture soundtracks.

So how will H.R. 3204 affect business? A new Sony digital recording technology, released on the Japanese market in February, 1992 and scheduled for release later this year in the United States, offers a clear illustration of how the "sweep" of this legislation will damage many professional recordists.

Sony's new "Scoopman," an ultra miniature 7-oz. broadcast-quality stereo digital tape recorder (with postage stamp-sized cassette) is designed for use by radio news reporters, business and education users (see attached product literature, Exhibit 2.) Sony's U.S. publicists say the device is not intended for or marketed to the consumer market. However, "Scoopman" is equipped with SCMS copy protection circuitry. Why? I'm am told that the reason is the company wants to keep within the spirit of the "DAT Pact" agreement and the pending legislation.

This raises some interesting questions. Are the news broadcasters and businesses who will use "Scoopman" tape recorders "consumers" or "professionals?" How will a radio broadcaster digitally edit a tape restricted by SCMS circuitry? If a radio broadcaster is considered a "professional" under H.R. 3204, does Sony have the right to arbitrarily employ SCMS in this product? Since Sony is both an equipment manufacturer and music company, is it not a conflict of interest to allow Sony to decide which equipment will or will not be subject to the provisions of H.R. 3204? And what about the companies that modify consumer DAT machines for radio station use? Will they be prohibited by federal law from tinkering with SCMS capabilities?

Mr. Chairman, as you can see, all this gets very confusing. Though you may not intend for broadcast and other business/education users to be caught in the web of this legislation, how do you keep Sony from limiting gear with SCMS "to keep within the spirit" of the DAT Pact agreement? The sweep here is very wide and many of us in business will get hurt.

And what about the so-called "royalty?" By definition, a "royalty" is a payment for use of property. But whose property am I using when I purchase a digital tape recorder and blank tape to produce an audio documentary or to record a live musical performance in my living room? Will radio broadcasters make a payment to the music industry for every digital tape purchased for use in their newsroom or to record a commercial announcement? This appears to be the case with "Scoopman."

One can only imagine a hearing to determine what is "professional" and what is "consumer" in a marketplace where the distinctions are blurred to begin with. The confusion will also extend to dealers who sell digital recording media. Tape and discs sold by dealers catering to the professional trade will not be subject to the tax while media sold in consumer outlets will be taxed. Does this mean your local record store will start a "professional division" to avoid paying the royalty? Who knows?

Mr. Chairman, the world is turning "digital." This is not some exotic technology for the elite. The analog equipment we buy today will be as obsolete three years from now as tube technology is now in radio and TV receivers. All tape recorders will soon be digital. In assessing this legislation, we must ask ourselves a fundamental question: Does the very ownership of recording technology capable of piracy mean the owner is in fact a tape pirate? Of course not. But this is the underlying basis for H.R. 3204.

5

When the truth about this bill is known, there will be a huge outcry from the public. So far the legislation has been misrepresented as a pro-consumer solution to break the deadlock between the music and electronics industries. The issues involved here have been well-disguised from most of the people who use tape recorders in business and industry. There's been virtually no balanced press coverage of the issues involved here due to the stronghold on the trade media by such organizations as the Electronic Industries Association and the music and recording lobbies. I urge you, as the people's representatives, to ignore the special interest groups who stand to profit from this bill and take a hard look at the matter from the viewpoint of the consumer. Thank you.

EXHIBIT #2

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SONY

News and Information

Corporate Communications
Sony Corporation
6-7-35 Kitashinagawa
Shinagawa-ku, Tokyo 141 Japan
Telephone (03) 3448-2200

No. 92A-005E
January 17, 1992

New Products

Sony Announces Digital Microrecorder

2 hour-recording on a stamp-size cassette

Scoopman

Sony Corporation today announced the introduction of the NT-1 digital microrecorder and NTC-60 / 90 / 120 digital microtapes, an ideal system for making digital tape memos.

Model	Introduction	Price (without tax)
NT-1 digital microrecorder	Feb. 21, 1992	¥100,000
NTC-60 digital microtape (60 min.)	Feb. 21, 1992	¥1,100
NTC-90 digital microtape (90 min.)	Feb. 21, 1992	¥1,400
NTC-120 digital microtape (120 min.)	Fall, 1992	—
NTC-100L cleaning tape	Feb. 21, 1992	¥1,400

The digital microrecorder incorporates the Sony-developed non-tracking (NT) technology, which allows for two hours of low-noise digital recording and playback on a metal-evaporated tape cassette the size of a postage stamp (1/25th the volume). Low energy consumption is another feature of the digital microrecorder, and seven hours of recording can be made with one alkaline "AA" battery.

Its ultracompact size, low-noise recording, and low energy consumption make the digital microrecorder ideal for conferences, news gathering, and other applications in business, education, and communications.

Note: The aramid base film for the digital microtape was jointly developed by Toray Industries, Inc. and Sony Corp.

Main Specifications

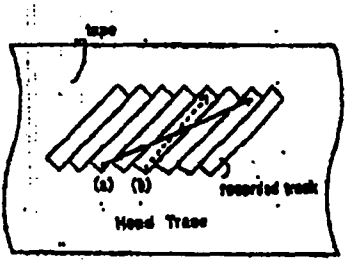
NTx1 microrecorder

Recording system:	Rotary, helical scanning, digital recording system
Number of heads:	3
Tape speed:	approx. 8.35mm / s
Drum rotation speed:	3000 rpm
Number of channels:	2-channel stereo
Sampling frequency:	32kHz
Playback frequency range:	10Hz - 14,500Hz
Quantization:	12 bit, non-linear (17 bit equivalent)
Playback dynamic range:	over 86dB
Total distortion:	below 0.08%
Wow and flutter:	below measurable limits (±0.001% W. Peak)
Input:	mic (stereo mini jack / plug-in power)
	line in (stereo mini jack)
Output:	headphones (stereo mini jack)
	line out (stereo mini jack)
Power source:	1 AA dry cell battery / AC power adaptor (included) / car battery cord
Power consumption:	approx. 0.3W
Dimensions:	113mm (width) x 23mm (height) x 65mm (depth)
Weight:	approx. 147g (including battery)

NTC-60/90 microtape

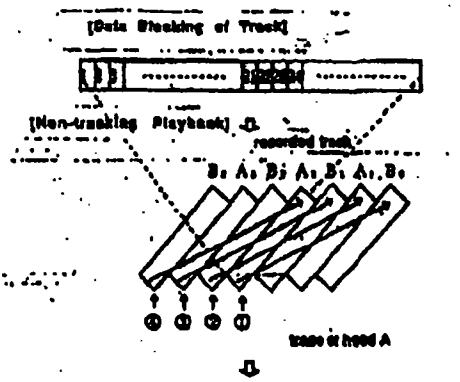
Cassette size:	30mm (width) x 8mm (height) x 21.5mm (depth)
Tape width:	2.5mm
Tape thickness:	4.8µm
Retentivity (Br):	390mT (3,900 Gauss)
Coercivity (Hc):	87.5kA/m (1,000 Oe)
Squareness (Rs)	0.75

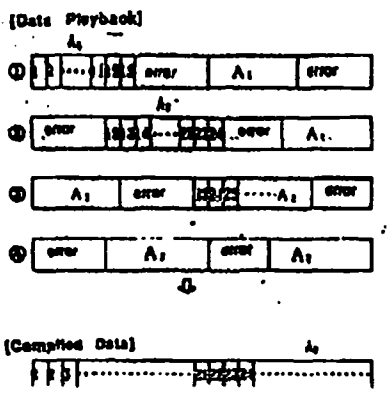
Technical Information



(a) head trace of non-tracking system

(b) head trace of VTR





*1 NON-TRACKING SYSTEM

This non-tracking system does not require, as a VTR does, the playback head to faithfully trace (tracking) the recorded track.

The non-tracking system divides the data on each track into data blocks during recording. At playback, the track is read by double scanning. For example, the data on track A_2 is read by several tracings (①-④). The data picked up by the four tracings are then combined in the semiconductor memory to provide complete information for playback.

Oral Statement of Frank Beacham to the
Subcommittee on Patents, Copyrights and Trademarks
Regarding S.1623, the Audio Home Recording Act
Oct. 29, 1991

Mr. Chairman and members of the subcommittee. As a producer of audio and video programs and a writer who follows technology issues, I come here today to voice opposition to the Audio Home Recording Act.

The assumption is made that this compromise is good for the consumer. Supposedly it will free up pre-recorded software on new digital audio formats and stimulate the sales of digital audio recording and playback equipment.

But, in fact, it taxes the consumer, limits the consumer's ability to use recording devices and paves the way for a new generation of audio equipment which is sonically inferior to the current compact disc and DAT formats. The compromise also sets a dangerous legal precedent which could easily be extended to a new generation of video recorders.

Organizations supporting the bill contend we should go along with this industry compromise because it acknowledges the consumer's right to tape for private, non-commercial purposes. We are also told the royalty rates are modest and would apply only to digital recorders and media. And we are told passage of this legislation will spur music industry enthusiasm for new recording formats.

I think the only people who will really benefit from this legislation are electronic equipment manufacturers, the music industry and their retailers.

Under this proposed legislation, the consumer pays a royalty to the music industry but gets nothing in return. The insidious SCMS copy protection system which affects the dubbing of personal as well as pre-recorded software will be required in every consumer digital recording device.

Since an estimated 73% of home taping does not involve pre-recorded

music,* why should consumers have to put up with limitations on their recording equipment just to protect the music industry from copyright infringement? Worse yet, why should consumers suffer such limits on top of royalty fees for equipment and tape?

Of course, none of this will stop the serious tape pirate who can buy slightly higher-priced "professional" equipment, which, under the bill, would neither be limited by SCMS nor subject to the royalty fee.

If the music industry really wants to stop its CD's from being copied digitally, it could easily put "flags" in the digital signal which would stop all copying. But a government study* has found that about one-quarter of pre-recorded purchases were made after the consumer heard the artist or recording on a home-made tape. One gets the feeling the music industry wants it both ways?

The legislation has another interesting side effect. For the first time, the law would encourage a new generation of digital audio equipment which is clearly inferior in sonic quality than that of the current generation. In a way this is an anti-technology bill.

Unlike the compact disc and DAT tape formats now available, the upcoming digital compact cassette (DCC) and mini-disc (MD) formats employ a data compression technique which is based on assumptions about human hearing. Data which is deemed inaudible is not recorded, thus requiring less data storage space on the media.

Though the manufacturers of the new formats contend most consumers will not hear the difference, many engineers have publicly expressed doubt and fear the new formats will actually degrade their recordings. The record industry likes the new formats because each offers less sonic quality than their master recordings and objectionable artifacts from data compression appear in multi-generational copies.

The DAT format, which uses no data compression, has been unsuccessful as a

consumer product in part due to continuing legal actions by the music industry against equipment manufacturers. However, the sound quality of DAT is so good that many professionals now use it for mastering high quality commercial releases. The record industry does not want this kind of recording quality in the hands of consumers.

The legislation also ventures into some other untouched areas. For example, the bill lists criteria that distinguishes consumer equipment from professional equipment, it makes it illegal to sell a device or to modify a piece of equipment that evades the SCMS system and keeps royalty payment accounts a secret to protect equipment manufacturers from having their sales figures made public.

Under the Audio Home Recording Act, everybody gets a piece of the pie except the lowly consumer. Thoughtful users of audio and video equipment had better start asking some hard questions about this proposed legislation before it is too late. If this industry "compromise" is made into law the government will for the first time start dictating to citizens how they may and may not use home recording devices.

*(U.S. Office of Technology Assessment, 1989 study)

Written Statement by Frank Beacham to the
Subcommittee on Patents, Copyrights and Trademarks
Nov. 13, 1991

Mr. Chairman and members of the subcommittee. I wish to submit the following additional information for the record concerning my opposition to the Audio Home Recording Act.

First, there is the issue of the tax this legislation imposes on consumers of digital recording equipment and media. The industry likes to portray this added fee as a "royalty" which will be paid by the equipment manufacturer, not the consumer. However, no part of the proposed legislation requires this fee be taken from the profits of the manufacturers.

Any reasonable assessment of this legislation will determine that the tax -- and that's what it is, a tax -- will be passed on to the consumer in the final purchase price of hardware and media.

One supporter of S.1623, Bob Heiblim, president of Denon of America, expressed concern in an August 21, 1991 article by John Gatski in Radio World, a trade publication, about whether members of Congress could be persuaded to support this legislation.

> "Heiblim said members of Congress may remember that the companies now supporting the levies are the same ones who opposed them in years past. He said Congress could be wary of support from companies who once opposed royalties on a right-to-tape principal, but now support the levies because they want to make money from a larger DAT market." (Exhibit 1)

The electronics industry -- having done a total flip-flop on this issue -- agreed to support an unprecedented tax on consumers so that it's member companies can boost sales in a stalled economy.

In the April, 1990 issue of TV Technology magazine, Mario Orazio discussed the implications of SCMS on consumer recorders. After noting SCMS would do absolutely nothing to stop pirating, he spotlighted a group of creative consumers who will be damaged by the copy protection scheme.

> "There's one group for whom it is devastating, and that is the semi-pros -- the garage recording studios, perhaps.
>
> Semi-pros, almost by definition, can't afford professional equipment. If they buy digital audio gear, it's probably because they like its multigenerational performance.
>
> With the asinine forced copyright assertion through analog inputs, however, they'll be restricted to two generations, which is hardly enough to edit anything. As far as I can tell, this is the function of SCMS: to prevent entry-level production facilities from using digital audio." (Exhibit 3)

Of course, SCMS affects many other potential consumer applications. It, in effect, limits the use of digital consumer recording devices anytime multiple generations of a recording are needed. In the coming age of multimedia computers, SCMS could become a major disabling factor in the production of desktop audio/video presentations for home and business.

In a brief conversation on Oct. 29, 1991 with John Roach, Chairman of Tandy Corporation, I suggested a scenario in which an SCMS-restricted recording could thwart the use of a Tandy multimedia computing system.

I proposed to Mr. Roach that I want to make an electronic album in which I take the digitally-recorded voices of family members and edit them with digitized photographs to make a "multimedia" family history which I can display on my Tandy computer. I asked Mr. Roach how I can go past two generations of digital audio editing on his Tandy system if SCMS is employed in my digital tape recorder.

Mr. Roach responded that he considers multimedia production a professional application which should not be done on consumer equipment. If this is so, I question why Tandy's 1992 Radio Shack catalog is promoting the multimedia PC "revolution" for consumers. The advertising slogan says: "At Radio Shack, the future of multimedia is here today."

Touting that multimedia offers tremendous possibilities for "even the average consumer," the Radio Shack advertising proclaims "in addition to furnishing superb, photographic-quality images and sparkling animation, multimedia PCs are able to play and mix digital audio, recorded stereo sounds and MIDI music. In fact, multimedia is the next step in the evolution of the PC." (Exhibit 4)

I suspect that if this legislation becomes law and the upcoming generation of consumer recorders fail in the marketplace that Mr. Roach and others supporting this industry compromise will be back before Congress asking that the Home Recording Act be repealed. They might argue SCMS is limiting the capabilities of consumer multimedia computer products.

Shortsighted, ineffective and crippling technologies like SCMS are being promoted in order that a few people can make a quick buck over the next decade. SCMS will not stop a single tape pirate and will limit the legitimate and creative use of digital recording technology by consumers.

If the music industry's actual goal is to stop the piracy of digital media, it can do so immediately without the aid of new legislation. A "flag" can be placed in any commercial digital recording that will block anyone from making a digital copy. This method is foolproof and inexpensive. So why isn't the recording industry taking this step to prevent piracy?

The answer may be found in a 1989 study titled *Copyright and Home Taping* by the U.S. Office of Technology Assessment. The report found that about one-quarter of pre-recorded music purchases were made after the consumer first heard

the artist or recording on a home-made tape."

This prompts one to think that the music industry likes a little piracy, but not too much.

We are told that passage of the Audio Home Recording Act is essential to the success of the new digital compact cassette (DCC) and mini-disc (MD) consumer formats. If S.1623 fails, we are warned, these formats will not get the necessary support from the music industry needed for success in the consumer marketplace.

Since when do we pass laws to enhance the prospects of commercial success for speculative consumer electronics products? These new formats should live or die on their merits and not be propped up by artificial forces.

But there is more here than meets the eye. S.1623 has another unstated, but very real effect, on technology. Both of these new consumer audio delivery systems represent a step backward in the sonic quality and multigenerational flexibility from the current CD and DAT formats. Without the boost of S.1623 both formats will almost certainly fail in the marketplace.

Why are these formats sonically inferior to current technology? Unlike the compact disc and DAT tape formats now available, the DCC and MD formats employ a data compression technique which is based on assumptions about human hearing. Data which is deemed inaudible is not recorded, thus requiring less data storage space on the media.

Though the manufacturers of the new formats contend most consumers will not hear the difference, engineering professionals have publicly expressed doubt and fear the new formats will actually degrade their recordings.

In an Oct. 1991 article titled "Engineers Are Hesitant to Accept New DCC and Mini-Disc Formats" in Pro Sound News, engineer Jim Berry of HBR Audio, Lowell, MA was quoted as saying:

> "We are being bombarded with formats and none of them particularly improve the quality of the finished product. The designers of new formats are doing the engineers and the consumer a disservice by not designing high sonic quality into their standards." (Exhibit 5)

Why would the music industry want to support new music delivery systems inferior to what is now available? In that same Pro Sound News article, writer Andrea M. Rotondo reported:

> "Data compression also solves a major headache for the record labels. They are able to support a recordable CD format while banishing fears that the product would be of equal quality to a master recording." (Exhibit 5)

Ken Pohlmann, professor of music and director of the Music Engineering Program at the University of Miami in Coral Gables, Fl. also addressed sonic quality in the August, 1991 issue of Mix magazine. On the question of why not create a recordable CD instead of an entirely new format, Pohlmann wrote:

> "Record labels simply would not tolerate a recordable CD that matched the sound quality standards of the professional master recording. Instead, they might support a new format of slightly lower sound quality (specifically, non-cloned data). Handily, data compression also solves that problem." (Exhibit 6)

Sony, for its part, is not even claiming the MD format meets CD sound quality standards.

In the Aug. 1991, issue of Popular Science, writer Dennis Normile reported:

> "The Mini Disc system, though, is designed for listening anywhere -- with headphones, in a boom box, or in a car audio system -- where there's a potential for background noise. This format is not earmarked for audiophile hi-fi equipment you would savor in a quiet listening room. Sony executives admit the

7

> sound quality of their Mini Disc won't quite match that of CD's." (Exhibit 7)

In an article titled "Audio Format Confusion" in the Sept. 1991 issue of Radio-Electronics, writer Brian C. Fenton posed a question about the sonic quality of audio compression, a technology used in both the MD and DCC formats:

> "Can a recording that 'leaves out 80% of the bits' sound as good as a CD? In theory, if all you're leaving out is things you can't hear, then yes. In practice, we don't know yet. At Sony's announcement (of MD), they demonstrated a prototype by playing some pop-rock for a half minute or so. It sounded OK, we guess, considering that the listening environment was a crowded hotel meeting room. No A/B comparisons were provided between CD and MD. Sony claims that 'only 2% of the population will be able to hear the difference.'" (Exhibit 8)

Another major unanswered question about the MD and DCC formats is their multigenerational dubbing capability. Though both formats employ SCMS copy protection which prevents digital copying, many engineers feel the data compression used to make recordings will even result in poor analog copies.

In an informal poll of audio engineers, I could find no one who had been allowed to do multigenerational tests with either the MD and DCC formats. Will the dubbing capability of these new formats be even as good as conventional analog cassettes? No one seems to know. Are we in for another unpleasant surprise when these formats are unleashed on unsuspecting consumers?

As has been widely reported, the record industry likes the MD and DCC formats because each offers less sonic quality than their master recordings.

The DAT format, which uses no data compression, has been unsuccessful as a consumer product in part due to legal action by the music industry against equipment manufacturers. However, the sound quality of DAT is so good that

many professionals now use it for mastering high quality commercial releases.

Would passage of S.1623 revive the DAT format in the consumer market? Few industry observers think so because the record industry does not want this kind of recording quality in the hands of consumers.

A June 19, 1991 New York Times article titled "Advance in CD's Starts a New Battle" by David E. Sanger reported:

> "The industry, worried that DAT would enable recording pirates to make perfect copies of compact disks, worked out an electronic protection plan that satisfied neither consumers nor manufacturers. Sony is now repositioning DAT for music professionals and audiophiles, not for the mass market." (Exhibit 9)

A look around the room during the hastily-called Oct. 29, 1991 Senate hearing on S.1623 provided clear evidence of who is advocating the legislation. The proponents are a group of lobbyists for the music, recording and equipment manufacturing industries. Consumers and audio professionals were conspicuously absent.

S.1623 is an ill-conceived quick fix for a stagnant sector of the consumer marketplace. The flip-flop position on royalties by the electronic equipment manufacturers revealed how quickly they will sell out their own customers to make an extra dollar.

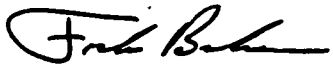
And, of course, lurking on the sidelines are the video software lobbyists, waiting anxiously for the audio industry to pave the way for a "royalty" on a new generation of digital video recorders and media. If S.1623 is enacted, it will set a dangerous precedent for a new wave of taxation on consumers, not by government but by private industry.

Digital audio equipment is used by a wide range of consumers and businesses

throughout America. Such equipment is as likely to be found in the local radio station as it is in a living room sound system. The vast majority of users of this technology have not heard of this proposed legislation nor or are they aware of its content.

Slanted pro-industry reporting by a timid and ineffective trade press has contributed to the general impression that the "industry compromise" is good for the consumer. It is hoped that the prospect of new taxation on consumers in an election year will prompt legitimate news organizations to take a closer look at the real implications of S.1623.

A honest evaluation finds that S.1623 taxes consumers with no return benefit, deprives consumers of their rights to freely use digital taping equipment and encourages the development of a new generation of inferior audio recording technology.



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*Other general findings of the *Copyright and Home Taping* report and a historical summary of the industry agreement are found in "The DAT Pact" by Brian C. Fenton in the Nov., 1991 issue of Popular Electronics. (Exhibit 10)

DAT Royalty Agreement Reached

by John Gutekl

WASHINGTON Professional digital audio recording devices will not be directly affected by a recent recording industry/manufacturer agreement requiring royalty levies on consumer digital audio recorders and blank media, if such an agreement passes into law.

After several years of resisting royalty proposals for DAT recorders, manufacturers have finally agreed to music publishers' demands for a royalty fee system that could be distributed to publishers and artists.

The agreement, made in July, covers DAT as well as the upcoming Digital Compact Cassette (DCC) from Philips and the Sony Mini-Disc.

Pushing for quick action

Supporters of the digital audio royalty agreement have been pushing to get legislation introduced into Congress very quickly. At press time, action was hoped for as early as late July or the first part of August.

DAT supporters said they hope the agreement finally settles the four-year-old controversy over copyright that has sharply curtailed the product's market penetration.

Key industry players including the Electronic Industries Association (EIA) and the Recording Industry Association of America (RIAA) agreed to support an eight percent levy on recorders with an $8 limit on single decks and $12 on dual decks. Blank tapes would be subject to a three percent fee.

The agreement also calls for legislating the Serial Copy Management System (SCMS), the Philips-developed technology that does not allow a direct digital DAT recording of a CD to be copied. DAT manufacturers tried unsuccessfully to get SCMS legislated as a way around

Professionals definitely would benefit from the legislation . . .

royalty fees on hardware and tapes in 1990.

Professional DAT recorders, consumer audio tape recorders and video recorders that have digital recording capability would not be subject to the fees on recorders, or the SCMS provision, according to the agreement.

Agreement details, however, are not clear as to whether professional stores selling DAT blank tapes would be subject to the levy or whether such tapes would be exempt.

EIA Consumer Electronics Group VP Gary Shapiro said the issue of tape levies is not spelled out as clearly as the exemption on professional recorders, but the intent of the agreement is to also exempt professional tapes or digital discs.

Professionals definitely would benefit from the legislation if it allows manufacturers to aggressively market DAT products, according to industry analysts.

A major consumer demand for DAT will mean lower prerecorded tape and accessory prices that will benefit both pros and consumers. Right now, DAT is a minimal product in the consumer tape recorder market, garnering much of its sales from the professional realm, according to market surveys.

Reverse the trend

Many analysts blame the lagging sales on timid DAT marketing due to the music publishers' legal threats.

Music publishers had threatened companies with litigation if they brought DAT decks into the country with direct CD copying capability, unless some type of royalty system was employed. Their argument focused on DAT's ability to copy CDs "perfectly," thus decreasing consumer demand for pre-recorded music.

The publishers did follow through on one suit in 1990, following Sony's introduction of a line of SCMS-equipped consumer DAT recorders. That suit has been dropped as part of the new agreement.

Despite apparent industry consensus, which often impresses Congress, a digital audio recorder royalty law's passage is not totally assured, according to Denon of America President Bob Heiblim, who supports the levies.

Denon produces both professional and consumer DAT recorders and a professional CD recorder.

An enticable agreement

"I think that this agreement is very, very good," Heiblim said. There is a real value in being able to sell this stuff. If this is the only way to do it, so be it."

But, he cautioned, "we don't know if it will pass."

Heiblim said members of Congress may remember that the companies now supporting the levies are the same ones who opposed them in years past. He said Congress could be wary of support from companies who once opposed royalties on a right-to-tape principal, but now support the levies because they want to make money from a larger DAT market.

Also, Heiblim noted, if the royalty law was challenged in court, it could be struck down, based on the 1971 U.S. Supreme Court precedent that upheld private use of video recorders.

Heiblim added, however, that similar royalty systems have been put in place in European countries such as Germany, and they work.

Even though initial reaction from manufacturers has indicated that they would absorb the royalty fee costs if the law is passed, the cost is likely to be passed on to consumers, according to one DAT manufacturer.

Audio industry analysts predict, however, that a levy added onto a consumer DAT or other type digital recorder's price will not be the determining factor in buying the product—except when comparison shopping.

Digital Compact Cassette: Background and System Description 3215 (I-2)

G. C. Wirtz
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Beacham Exhibit No. 2

BM/I-2

Presented at the 91st Convention 1991 October 4–8 New York

AES

AN AUDIO ENGINEERING SOCIETY PREPRINT

DIGITAL COMPACT CASSETTE

background and system description

Author: G.C. Wirtz, Philips Consumer Electronics B.V.
Eindhoven - The Netherlands

In this speech I would like to cover why and how DCC was developed, and provide you with a system description.

Why and how did Philips embark on the development of DCC?
Most of you probably know that Philips was with the forerunners of the DAT development. This development started in the period of time that digital electronics became an option in consumer electronic products.
It was logical to consider next to the CD-system, digital alternatives for a tape system.

In time more companies joined in the discussion which ultimately resulted in a big standardization conference for the R-DAT system in which 83 companies participated.

It were predominantly crews from research and pre-development who were involved with the standardization. CD was not yet in the market and digital technology was not yet commonly understood.
From a product or market point of view the preconditions seemed clear: Digital technology was supposed to deliver better quality. So the effort was to concentrate on top sound quality.

In the mid eighties the standard and the technology was ready to be implemented into products. For the first time market issues were addressed at length. The picture was not encouraging.

First products were very expensive, price-wise more in line with new video-products than with an audio recorder.
Moreover, research and development had been concentrating on the recorder application. Technically that was the most eye-catching function. And was not the analogue tape system called a compact cassette recorder? Underrating the playback side of the new system went as far as that software manufacturers were excluded from the DAT discussions.
By the time the DAT technology was standardized it proved to be a problem to manufacture music tapes with the required flexibility, speed and price.

Being the inventor of the Compact Cassette system, back in 1963, Philips had experienced the necessity to create pre-recorded music tapes to sufficiently stimulate the cassette system.
In the first 7 years Compact Cassette was in the market as a recording system, and sales were developing only very slow. It was the worldwide introduction of pre-recorded cassettes which started to boost growth.

Stimulated by the pre-recorded musicassette the compact cassette system developed into a mass portable playback system. Because of the large scale application by consumers of all kinds of portable playback players the demand for recorders increased.

Today we see a market for compact cassette which for 75% consists of portable playback units. This market is driven by the sales of pre-recorded cassettes at an annual level of around 1 billion. At the other hand, recordability is an essential feature of the system. Whether or not applied by all consumers, it does deliver the promise that tapes for playback can be

easily obtained. As an indication of the importance to provide the recording option look at the market for radio cassette recorders, where we sell tonnes of millions of units with a recording function which often never is used.

In our view, replacement of the musicassette by DAT is not possible. DAT is too much developed as a top quality recorder for stationary use. Without pre-recorded cassettes, sales of (portable) players can not develop. Without portable players, sales of recorders are only of interest for recording freaks. In addition the costprice projections of the system are not in tune with the compact cassette market.

Learning from our DAT experience we started to define the ideal system to replace the musicassette.
This time, however, we worked the other way around; first the essential system ingredients were defined. Later the technology to built such a system was looked for.
That's where the start of DCC can be defined.

Three questions were central in the analysis of defining the ideal system:

* Why innovate the cassette system?
* What in the cassette system needs to be innovated?
* How should this innovation take place?

Why innovate?

The fact that a variety of new technologies are becoming available cannot be the only reason for innovation. As long as everybody is happy with the current analogue system there is little reason for

change. Looking at the massive annual sales quantities of cassette (2.6 billion) and cassette machines (180 million) it would seem everybody is very happy with the analogue system. If, however, we look at market trends we get a different picture.

Hardware sales have stabilized over the last couple of years. Most market segments, apart from stereo headphones, are in a replacement phase. We see no growth. Consumers are merely replacing existing cassette functions which indicates that the cassette players are purchased more to complete an audio system than as the main attraction. The predominant reason why consumers include the cassette function in their choice is because they have so many cassettes. Average every household has a library of 50 to 60 cassettes.

Sales of pre-recorded cassettes have been constantly growing over the last decades. But, as has been forecasted by some, sales growth levelled off in 1989 and went into decline since.

This picture is familiar to us. By the end of the seventies we saw the same trend for the markets of LP and turntables. Several years before the introduction of the CD, consumers started to loose interest in the LP, reflected in a declining sales level. Sales volumes of turntable remained stable for a number of years (People still possessed extensive libraries of LP's) but then also started to decline. We call it the life cycle of a music carrier. After being in the market for three decades the consumer starts to loose interest despite the constant flow of brand new music titles. This by the way underlines that the consumer is not only buying the musical contents; the physical presentation of the carrier is also relevant.

If musicassette is losing interest will CD replace the musicassette?
Certainly not. Also here we have valuable experience. When by the end of the seventies LP started to decline some expected that the musicassette would easily compensate for the lost sales quantities.
MC was booming over that period of time (very similar to CD now) and MC could just take over from LP. In reality nothing of the kind happened.
The main reason is that there is not one music market but two: a dual carrier market:

- The disc for active, foreground use in the home
- Cassette for the road.

The consumer is perceiving both media as different, not compatible. The main differences are:

- The disc, as the foreground medium, often used actively where of course the random track access is very important. The disc with its jewel like image, which makes it the collectors format. The CD is even perceived as vulnerable, precious, although the technology is rather robust. But people do not even like fingerprints on their disc because they want to see it as precious.

- The tape is much more used as a background medium, passively e.g. when driving your car. With cassette the issue is much more to provide continuously and as long as possible a musical background. The related image is of a much more sturdy, robust carrier you feel comfortable with to throw through your car, which is simple to operate with one hand.

The reason for innovation is in short: We see a tape system with a specific function in the market, which is massively used in a very passive way but which despite its large volume is losing interest.
Here we ran into the second question.

What is to be innovated?

It is good to realize that an annual sales volume of 2.6 billion underlines a tremendous popularity; after the lightbulb, Compact Cassette is probably the most successful consumer electric product. Cassette, therefore, must have a lot of attractive features which should be maintained in the new system. Market research indeed indicates that most features like seize, weight, playing time, way of operation of the cassette system score very high. Basically there are three points which rate low:

- Image
  Cassette lost its appeal. It is no longer seen as the miraculous device which will operate everywhere, but as an old-fashioned piece of plastic without any shine or attractiveness.
  It is pre-dominantly because of image why cassette starts to loose ground.

- Soundquality
  The sound quality is perceived as out of range with modern audio equipment. It is important to refer to the average sound quality perception which is not the high-end-Hifi-deck-with-Dolby and a high grade cassette but a low cost deck with a lot of wow and flutter, and a lot of distortion, tape hiss an lack of stereo image.

- Durability
  Cassette warp, tapes are breaking or otherwise get jammed.

To select the technology for this innovation is not obvious. A wealth of options exists, as can be seen by the great number of announcements of new recording systems over the last 2 years: one

every 4 months. Central is the decision to go tape or disc.
It is possible to make tape or disc functionally to a large extend overlapping by adding extra electronics.
E.g. a disc system by nature not shock-proof, can be improved by adding a lot of solid state memory; a tape system, by nature a streamer and not a random access technology, can be improved by powerful winding motors, solid state memory chips and clever μ processor control.
It is, however, obvious that such extras do not help to reach low cost markets. The new technology must, however, have a costprice perspective to ultimately replace the entire compact cassette system, including the low cost applications. Price levels for these applications are very tough targets.
From the perspective of the recording industry it is essential that the new system has the prospective to integral substitute the musicassette; a new carrier in the market will in first instance just increase operational costs because of extra inventory and obsolescence. If ultimately introduction price levels are dropping the new carrier must replace the old one. With this in mind it is only logical to go for tape, which by nature better fits the tape driven compact cassette system.

But there is another even more important reason to use tape: the issue to maintain the business level in cassette over the nineties.

Here we run into the third question:

How to innovate MC?

Replacing the MC is different from the LP/CD case.
The purchase behaviour for cassette makes a consumer on average only buy 3.5 cassettes in the first year when he bought himself a new cassette player.
For compact disc this number is 10 discs. The dual carrier character of the market extends to a much more passive buying behaviour in case of cassette for which more hardware in use is required.
Cassette sales are generated by 1 billion cassette machines in use. This enormous park needs to be converted into the new digital machines sufficiently fast. But after nine years of exceptional success there are "only" 120 million CD players in use, considerably less than the 180 million cassette players sold every year. Sales of the new digital cassette hardware have to develop at least 3 x as fast as what was accomplished with CD, if we are to maintain the business level in cassette.
The only way to make hardware sales develop 3 x as fast as the CD case is by making the new technology backwards compatible: The new machine must include a compact cassette function to playback the analogue cassette. This implies that the new system is not only addressing the typical innovator, the guy who will always buy what is new, but also the regular consumer of which each year 180 million come to the shop to replace their existing cassette machine.
Any new, not compatible technology would at least require 10 to 15 years to grow into mature market quantities. In replacing the musicassette, however, it is not just the issue to build up the new market, it is also the issue to build up with sufficient speed, to compensate for what we loose in analogue cassette business.

Let me next address some of the system specification points.
Next to a backwards compatible tape system the other main specification points for the new DCC system are derived by looking to the market.

The system shall again include the main four ingredients of the actual analogue compact cassette system:

- pre-recorded cassettes together with
- blank cassettes which will be recorded predominantly on
- home cassette decks and a great variety of
- portable cassette players to playback music wherever the consumer goes.

Moreover, all these options must be available from the start to make it an interesting system for the consumer.

Portable, outdoor application, specifies not to stretch recording density and use standard low coercive tape. In the DCC system we apply as a minimum a wave length on tape of 1 μ. In addition a large portion of error correction is applied, and a metal slider shall provide additional physical protection.

The requirement for pre-recorded software makes the use of high speed duplication necessary. This specifies a linear track format.

The need to (quickly) reach mass markets and therefore attractive costprice levels specifies the application of relaxed mechanical tolerances, to limit the number of tracks to 8 and to use as much as possible existing CC mechanisms which are available at very cost effective price levels.

The requirement to reach top end HiFi markets specifies a CD sound quality. Comparing the rate between CD, 1.5 Mbit/s, and a system as specified before indicates:
8(tracks)x[1μ(wavelength)x4.7(cm/s)(tapespeed)}=768 Kbit/s

A 47% error correction leaves 384 k bit/s for the audio information.

Consequently a new coding has been developed which is 4x as efficient as the traditional PCM encoding used in CD. The new coding is called PASC for Precision Adaptive Subband Coding.
Half of the required efficiency improvement comes from application of a more intelligent coding language. The other half from a drastic change of principle. The encoder no longer tries to follow the characteristics of the analogue microphone signal, but instead the signal is modeled in accordance with the receiver, the human ear.
Bits are allocated to the signal in order of priority in how far information from the signal is relevant or audible.

The concept of both allocating maximum coding room for the most audible parts and no coding room for inaudible parts, makes it possible to simultaneously improve efficiency and sound quality.

The PASC coding measures a frequency range of 5 Hz up to 22 kHz, dependent on the sampling rate which can be 32, 44.1 or 48 kHz.

Total harmonic distortion including signal to noise specifies up to 92 dB and dynamic range up to 18 bits or 108 dB.
This does not specify, however, the sound quality.
An indication for the sound quality are blind tests in which CD sound and DCC sound are to be identified. Sofar we did not find people who could identify any music fragments we used in the blind tests. We therefore specify the sound quality of the DCC system as identical to compact disc.

It is the new DCC cassette which is to create a new appeal. The basic dimensions of the cassette have not been changed; they prove to be ideal, just large enough to present itself as a serious software carrier but small enough to fit the average shirt pocket. The cassette is somewhat slimmer shaped and completely flat. All DCC players will be autoreverse by standard. The cassette therefore only requires holes to access the reel spindles at one side. The top is completely closed. In the case of a pre-recorded cassette a paper graphic artwork is sealed under a transparent window. Cassette and window are fused together by means of ultrosonic welding thus providing a rigid construction. By standard DCC cassettes have to fulfil strict requirement on temperature stability up to 90°C. This, in combination with specification points on tape strength, the metal slider for extra tape protection and the error correction capacity, shall greatly enhance the durability of the DCC cassette.

Read and write of the 8 music tracks plus auxiliary track is done by means of thin film head. It is possible to integrate in one head chip the magneto resistive heads with the 9 recording heads and the 2 heads for read-out of the conventional analogue cassette.

The track width on tape is 185 μ m for each of the 8 tracks. Read-out heads are only 70 μ m in height, which reduces the sensitivity to misalignment and azimuth errors significantly below that of compact cassette.

The data format on tape is similar but different from the main data in the 8 music tracks and the auxiliary data on the auxiliary track.

Data are grouped into tape frames. Each of the 8 tracks carries 32 tape blocks per frame, where a tape block contains 51 tape symbols of 10 bits. The 10 bit symbols are generated by the 8 to 10 modulator to create DC-free code.

Every tape block starts with a header of 3 symbols, for synchronisation and frame and block address. The remaining 48 symbols carry the PASC audio data, system information and parity symbols for error detection and correction. At tape block level a C_1 error correction code is applied which is capable of correcting 4 error symbols per tape block.

At frame level a C_2 error correction code is added. The distribution of the symbols for the C2 code is "ideally" distributed over the tape, which results in a "honey-comb" pattern.

At maximum the C_2 code can correct 6 errors which could not be corrected at C_1 level. Because of the physical distribution over the tape drop outs with a diameter up to 1.45 mm can be corrected or alternatively a complete missing track can be corrected.

PASC symbols are also distributed over the tape in a way to prevent burst errors and allow for concealment of uncorrectable errors.

For the auxiliary track the bit rate is only 12 k bits/s (against 96 kbits/s for the music tracks).

The number of tape blocks is therefore reduced with 1/8 to 4. To enable easy detection during high speed search, the tape blocks 1 and 3 are recorded at marker location to create an envelope. Therefore, marker positions can be detected without the need to decode the complete auxiliary code.
The auxiliary track contains many features similar to those specified in DAT like start-flags, track numbers and time codes. The pre-recorded cassette contains a table of contents with precise location information of the tracks.
The DCC system includes a standard for text information on tape. On pre-recorded cassettes text information is programmed in the system area of the main data area. The technical capacity of this system is 400 characters per second. Information is grouped per item; 255 different items can be defined. Some items are standardized e.g. album title, track titles, table of content, artist credentials and song lyrics.
The text information system can also fulfil the growing demand for more background information and enhance users friendliness in finding the desired music track.

DCC is a system which could easily be talked on for the next couple of hours. There are other presentations planned during this conference on the DCC encoding and on the textmode system. Together with this presentation I hope we have provided you with a fair amount of information.

Some of Digital Audio's Dilemmas

by Mario Orazio

SOMEWHERE OUT THERE *You Might Not Have Noticed* . . . that your ancient sync pulse distribution amplifiers may be perfect for your latest equipment, that home recordings might have copyrights asserted on them, that SMPTE isn't the only organization with standards problems, and that all of the above has to do with digital audio.

You remember digital audio: it's what's recorded on Compact Discs, digital audio tape (DAT), videocassettes (with and without encoders), and both the D-1 and D-2 digital video formats. JVC has even announced a new technique that allows two channels of full quality (48 kHz sampling, 16-bit) digital audio to be recorded—in *addition* to video and hi-fi stereo—on an S-VHS tape.

That's what most people think of when they think of digital audio: recording. There are also some digital mixers, equalizers, reverbs, editors and the like, but I want to get *really* basic. I'm going to tell you about digital *wires*.

Okay, I'm kidding. There's no such thing (I hope), but there has to be a way to get digital audio out of one device and into another without making it become analog in the process.

Actually, there are two popular standards. One is called AES/EBU (Audio Engineering Society/European Broadcasting Union) and the other is called SPDIF (Sony/Philips Digital Interface Format) or EIAJ (Electronic Industries Association of Japan). The first is professional and the second consumer, but they're remarkably similar.

Both allow for audio to be sampled at

> ***Now (pulse DAs) are your AES/EBU digital audio distribution amplifiers . . .***

32 kHz, 44.1 kHz (the CD rate) or 48 kHz (the D-1/D-2 rate). Both organize each sample of each channel into a 32-bit subframe, consisting of four bits of sync at the beginning and four bits for such purposes as data validity indications, user information, channel status (more later) and parity (for error checking) at the end. You'll notice that leaves 24 bits, and, yes, Virginia, that's how many you can use for audio, if you want to.

Two channels (64 bits) form a frame in both formats, and 192 frames form a data block (thus, the single-channel status bit in each subframe becomes 384 bits per block). Biphase mark encoding is used, meaning every bit (one or zero) involves a level shift, and a one has two level shifts. To identify sync, a special pulse lasting 1.5 bits is used.

Bit by bit

So, if you sample at 48 kHz, you need to be able to pass pulses at a rate of 48,000 (samples per second) × 64 (bits per sample—in a frame) × 2 (level shifts per bit for a one), or about 163 nanoseconds per pulse (by comparison, a single cycle of the NTSC color subcarrier lasts 279 nanoseconds). On the other hand, if you sample at 32 kHz, a sync pulse lasts about 732 nanoseconds.

That's quite a range. Furthermore, a zero at 32 kHz sampling lasts precisely as long as a sync pulse at 48 kHz sampling, which makes it kind of hard to find sync.

Everything to this point is the same between the formats. Now they get different. AES/EBU starts out at around five volts; SPDIF/EIAJ starts at around half a volt. That's supposed to be because we professionals are much more careful with high frequency signals that might radiate interference than consumers are.

AES/EBU is balanced; SPDIF/EIAJ is unbalanced. So the AES/EBU connectors you see are standard XLR connectors, while the SPDIF/EIAJ connections are usually RCA phono plugs and jacks.

So far, so good. Unfortunately, while the SPDIF/EIAJ format uses 75 ohm transmission impedance, AES/EBU specifies 110 ohm sources and 250 ohm loads. The idea is that you can use tees or y-cables to connect up to four loads to a single source without much trouble.

Huh? Folks, what we have here is a failure to communicate. Anyone who has graduated Video 101 knows that if you tee branches off a video feed of any distance, you get reflections. So AES/EBU expects some poor data receiver that's having a hard enough time figuring out a 32 kHz zero isn't really 48 kHz sync to have to deal with teed reflections, too? Yah.

And that's not all. It's pretty easy to get a 75 ohm patch bay. It's not so easy to maintain 120 ohms between the big wires in a microphone cable and the tiny ones in a patch bay. Guess what? More reflections.

The worst source of reflections is simply connecting two pieces of equipment together over typical professional distances (say, the length of a properly dressed cable going between an edit suite and a machine room, or about 50 feet). With typical cable propagation velocities, the duration of a half-bit one-pulse is about as long as it takes a signal to travel 100 feet. So a zero leaves a 110 ohm source, bounces off a 250 ohm load 50 feet back, bounces off the source again, and shows up at the receiver as who-knows-what when it gets back.

Some manufacturers, sensing the problem, have made their inputs a nice, matching 110 ohms. Sure enough, that works better. Unfortunately, a 110 ohm input violates the standard.

Of course, someone (not you, of course), just for the simple expedient of making things work, might *intentionally* violate the standard. Suppose baluns (for matching impedance and balance) were used so AES/EBU signals could travel via ordinary video coax and patch bays.

Now the problem is in distribution. If tees don't work, distribution amplifiers are necessary, but a video DA won't pass the kinds of levels AES/EBU calls for. A pulse DA, however, will.

For those of you who haven't been in the business long enough to qualify for the Order of the Iron Test Pattern, pulse DAs were devices used to distribute video sync, at a level for four volts peak-to-peak, back in the days before every video device had its own sync generator and could genlock to a video signal or black.

Go on. Look around your plant. You probably have some pulse DAs you thought you couldn't even give away. Well, they're not your ancient, useless pulse DAs anymore. Now they're your AES/EBU digital audio distribution amplifiers, and they work great!

Of course, all of this just gets the receiver at the input of an AES/EBU device to identify the bits correctly. Figuring out what to do with the bits is something else again. That data validity bit, for example, seems to be treated differently by every manufacturer (and sometimes by different products of the same manufacturer). The standard doesn't tell you what to do with it.

Even the parity bit seems too confusing for all manufacturers to deal with. The channel status bit (384 per data block) seems overwhelming! It can tell receivers what the sampling rate is supposed to be, whether emphasis was used (and what type) and whether the audio is mono or stereo, for example. It has not just one but two time codes, and it even has its own code for error checking.

But some pieces of gear generate this stuff, and some don't. Some look for them in the data stream, some don't, and some don't have the foggiest idea what to do with them if they're there.

Consumer status

The consumer situation is easier. Only a few of the channel status bits are used, but two of them—bits C and L—are lulus.

As you know from high school civics, the function of the U.S. Congress was to stimulate the economy by creating the lobbying industry. And, just as no one has ever found a magnetic monopole, there's no such thing as a lobbyist without another lobbyist who has the opposite viewpoint.

Lobbyists for record companies spread the alarm in Congress about the possibility that DAT recorders could allow perfect digital copies of CDs so no producer (who might otherwise have lots of money for campaign contributions) would ever be able to sell more than one copy of a record.

The appropriate anti-lobbyists, from the consumer electronics industry, countered with the argument that keeping DAT out of the U.S. would destroy the economy, violate the First Amendment and, perhaps worst of all, anger potential voters.

The first product of this lobbyist/anti-lobbyist clash was the CBS-developed Copycode system, a technique for encoding audio so that a consumer could listen to it but couldn't record it. The National Bureau of Standards shot that down in flames as creating audible defects and not really preventing recording.

The latest product is something called SCMS (serial copy management system). Bits C and L say whether copyright has been "asserted" on the material and, if so, whether a copy can be made.

A CD with copyright asserted allows only one generation of digital copy to be made. A DAT made from that CD cannot be digitally copied by an SCMS-equipped DAT recorder.

The scholars who worried about SCMS, however, came up with a scenario where someone buys a CD and feeds its *analog* audio to the input of a DAT. If that DAT had no copyright assertion, why, millions of generations of copies might be made from it.

So, instead, any recording on an SCMS-equipped DAT recorder from the analog inputs becomes considered original copyright-asserted material, allowing only one more generation to be made. The tape may be baby's first words, but Congress will slap copyright protection on it.

And Congress doesn't plan to fool around. They're talking about penalties in the range of $10,000 per device and $100,000 per transmission (for when HDTV and digital audio broadcasting have us feeding direct digital audio to consumers). Judges are allowed to hike the fine by $5,000,000 if someone's nasty, but they can't drop it below $250 even if someone was just ignorant of the law's provisions.

Who loses?

Just whom would this law affect? Well, theoretically, it was designed to prevent one person from buying a CD, copying it, passing the copy to a friend who copies it and so on. SCMS *does* prevent that, as long as everyone uses DAT recorders and makes digital connections between machines. If someone finds their DAT won't copy something, all they need to do is connect the machines via their analog spigots.

SCMS doesn't affect pirates, since all SCMS controls is the *number of generations* that can be made, not the number of copies. SCMS allows a pirate to make, say, 100 digital copies in 100 passes on one machine, or (using video DAs, of course) 100 digital copies in one pass on 100 machines.

SCMS won't even be noticeable to the consumer who just wants to make copies of CD songs in a certain order to play in a car, for example. And SCMS won't affect professionals, because professional machines don't need SCMS.

What's a professional machine? Oh, a long time was spent on that issue. One of the criteria is whether the machine uses XLR connectors or not.

Semi-pros hit hardest

Have you noticed so far that SCMS doesn't seem to do anything? Well, that's not exactly true. There's one group for whom it is devastating, and that is the semi-pros—the garage recording studios, perhaps.

Semi-pros, almost by definition, can't afford professional equipment. If they buy digital audio gear, it's probably because they like its multigenerational performance.

With the asinine forced copyright assertion through analog inputs, however, they'll be restricted to two generations, which is hardly enough to edit anything. As far as I can tell, *this* is the function of SCMS: to prevent entry-level production facilities from using digital audio.

The current bill is being co-sponsored by Rep. Henry Waxman (D-Calif.) who seems to be in the recording industry camp, Rep. Al Swift (D-Wash.) who seems to favor the consumer electronics industry and Rep. Jim Cooper (D-Tenn.) whose home state capital is Nashville.

It's still just a bill, and only in the House, so you've got some time to put your two cents in on this one. The way I figure it, if SCMS passes, there'll probably be a lot of consumer DAT machine sprouting XLR connectors.

Write Mario Orazio c/o TVT.

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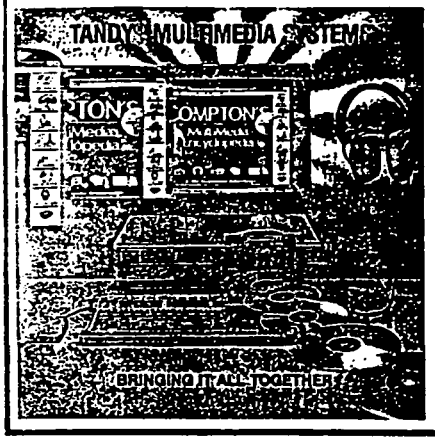

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Beacham Exhibit #5

Sonic Integrity; 1 Step Forward, 2 Steps Back

Engineers Are Hesitant to Accept New DCC and Mini-Disc Formats

By Andrea M. Rotondo

NEW YORK—Sonic quality has come a long way since those early days of needle drop recordings. Today's engineer has the advantage of being able to produce a recording of high sonic integrity via the multitudes of professional recording gear available. Every step in the recording chain is carefully considered to insure accurate sound reproduction. New software formats however, are not as interested in accurate sonic replication as many engineers would hope.

Owner/chief engineer Jim Berry, of HBR Audio in Lowell, MA, said, "We are being bombarded with formats and none of them particularly improve the quality of the finished product." Berry went on to say that studio recordings are currently reaching technical and creative heights never before imagined. "The designers of new formats are doing the engineers and the consumer a disservice by not designing high sonic quality into their standards," Berry noted. "The new DCC and Mini-Disc aren't bad formats but they do not raise the quality of duplicated products either."

All of this talk of new formats, namely the DCC and the Mini-Disc, have left many engineers wondering if the quality of their work will be carried over to the software version of the consumer's choice. After all the advances in professional audio, will the consumer market support formats which actually detract from the original quality of a recording? Engineers are feeling as if they are taking one step forward and two steps back with the introduction of DCC and MD.

Both the DCC and the MD employ data compression which according to Van Webster, president of Webster Communications in Los Angeles, "makes a lot of assumptions."

Data compression also solves a major headache for the record labels. They are able to support a recordable CD format while banishing fears that the product would be of equal quality to a master recording. Data compression works in conjunction with the threshold of human hearing. It sets a threshold frequency of what it believes the ear can and cannot hear. If audio signal is present which is deemed inaudible, then it is not recorded. This translates into a narrow bandwidth.

Others state that data reduction technology is such that these techniques can be used without creating inferiority. According to Ken Pohlmann, coordinator of the Sound Recording program at the University of Miami, "Given today's technology, if you want to be able to record and erase 74 minutes on a disc that's as small as the MD or tape that's as cheap to manufacture as the DCC, something has to give. The only choice is to reduce the amount of data being stored. Data compression technology is quite sophisticated and I think for many, many applications people will be unable to tell the difference between the CD and the two other formats."

A seminar entitled Low Bit-Rate Audio Coding will discuss this type of technology during the AES Convention, October 6 at 7 PM. Pohlmann will be hosting the seminar. The panel will include author John Eargle; Louis Fielder, Dolby Labs; Bart Lacanthi, BNL Research; Stephen Smyth, Audio Processing Technology; John Stautner, Aware and Raymond Veldhuis, Philips Research.

The DCC format boasts that it is compatible with analog cassettes. The compatibility is a one-way street, however. The DCC player will play back existing analog tapes but analog decks will not play back DCC tapes.

All of this could spell trouble for both the professional recording engineer's psyche and the consumer's value-per-dollar ratio. However, Webster believes that sound quality will be a minor issue in the consumer market. "The consumer has never made their decisions in the marketplace based on audio quality," remarked Webster. "They have always made their decisions based on convenience and cost." Berry agreed that the consumer rates portability over performance. "People chose the cassette over the LP because of the format's portability."

According to Webster, neither format will find its way into the professional market. While a recordable CD would be welcome in studios the world over, the Mini-Disc just isn't up to snuff. Webster said, "The MD will not win over the pro market in its present form. The pro market needs a broader bandwidth disc-based system."

Howard Johnston, owner/chief engineer at Different Fur Recording in San Francisco, concurred. "I think the Sony MD will be successful as a format that you carry around with you," said Johnston. "I don't think that either the DCC or MD will take the place of the compact disc, however, or enter the pro market because the specs of these products are less than those of the CD." Johnston went on to say that the MD has the advantage of its small size, recordability and random access. "It doesn't have the negative aspects of tape moving across tape heads which presents problems," concluded Johnston.

At White Crow Audio in Burlington, VT, owner/chief engineer Todd Lockwood is looking forward to making sound quality comparisons between DCC and the MD. Although he believes that the DCC holds more promise as the format of choice for the consumer, he wondered if the quality of the product is at a high enough level. Lockwood used the example of DAT to prove his point. "DAT is a good format but it is not a particularly good solution to the needs of the professional," said Lockwood. "There was no reason why the DAT cassette had to be so tiny. Making the tape twice as wide would have probably reduced the error rate quite a bit."

PRO SOUND NEWS

by Ken C. Pohlmann

MD

No, it doesn't stand for Medical Doctor. It doesn't stand for Mogen David, or even Mad Dog. It stands for Mini Disc. One look at Fig. 1 explains the name. The Mini Disc is a 2.5-inch optical disc format. It stores 74 minutes of stereo digital audio with a frequency response of 5 Hz to 20 kHz, a dynamic range of 105 dB, and a sampling frequency of 44.1 kHz. Data is encoded with EFM, and error-protected by CIRC. But MD is not CD-compatible. It employs data compression. And it is completely recordable and erasable.

The Mini Disc is the latest brainchild of Sony and is clearly targeted at the analog cassette market, as well as any new formats with similar targets, specifically the Philips DCC digital cassette format. The MD is a consumer product that has the potential of redefining the economics of music retailing, and takes us all one step closer to the day when tape sheds its mortal coil and goes to that great head gap in the sky.

MD attempts to snatch the Holy Grail of audio media: high sound quality, random access, durability, portability, convenience, shock resistance and recordability. Cassette tape comes close, but ultimately fails, especially in terms of sound quality and random access. The CD fares well in these criteria, but is not as portable as one would like and is not recordable. MD proposes to merge analog cassette tape (emphasizing the portability of a Walkman-type concept) and compact disc, resulting in a high-fidelity, portable, recordable medium.

The MD system employs two kinds of media: magneto-optical media for recordable blank discs and CD-type optical media for prerecorded software. The magneto-optical drive (MOD) technology in MD is similar to others already in use, but brings some clever ideas to the party. For example, it allows overwriting, whereby previously recorded data can be erased and new data written simultaneously. As with other MOD systems, a magnetic head is positioned over the laser source and on the opposite side of the disc. To record, the laser heats the magnetic surface beyond its Curie point at 400° F so that the polarity of the heated magnetic spot is directed by the bathing magnetic field. As the disc rotates, the heated spot moves away and cools, and the magnetic information is stored. The size of the recorded spot is determined by the reversal cycle of the modulating magnetic field, as opposed to methods in which the laser is turned on and off. Because the laser source is always on, the controlling circuitry is simplified.

The MOD disc is built on a polycarbonate substratum, with a terbium ferrite cobalt recording layer covered by a reflective aluminum layer and top protective layer. The terbium ferrite cobalt recording layer changes polarity with 80 Oersteds—about one-third the coercivity of other MOD media; this is important because the magnetic head does not touch the media, and the need for stronger fields at the recording layer would necessitate higher heat generation and power consumption. The magnetic head itself is said to be particularly power-efficient, and able to perform polarity reversals at a rate of 100 nanoseconds per cycle.

The dual-function, 0.5 milliwatt laser can operate with both recordable and read-only MD media. Its design is essentially taken from a conventional CD pickup, with the addition of a MOD analyzer. When using a MOD disc, the pickup distinguishes the polarization angle of the reflected light, which is determined by the magnetization of the recording layer. The MOD analyzer converts the polarization angle into a light intensity, and light is directed to two photodiodes; these signals are subtracted to generate a positive or negative readout signal. When playing back a CD-type disc, the pickup reads the intensity of the reflected beam as

modulated by the pit surface. The signal from the photodiodes is summed to generate a readout signal. In either case, the optical disc is captive in a protective caddy; the total package weighs about 0.6 ounces. The small disc size means quick access—less than one second to any data.

ATRAC (Adaptive Transform Acoustic Coding) data compression is used to encode data on MD, reducing the [redacted] ment and generates corresponding frequency component data. Using psychoacoustic modeling, the system identifies the audio components that are audible and encodes them, assigning bits as needed according to the amplitude of audible frequency components. Other inaudible material is discarded.

data undergoes CIRC and EFM encoding and is recorded to disc along with subcode and address information. The data track is recorded with constant linear velocity of 1.2 to 1.4 meters per second, depending on playing time, as on the CD.

During playback, following CIRC and EFM decoding, frequency information is deciphered by an ATRAC decoder, and the 20-millisecond intervals are reconstructed into digital waveform data. This data is then processed by a conventional D/A converter.

Data compression provides another important feature. As noted, while the data rate off the disc is 1.41 megabits per second, the ATRAC decoder requires only 0.3 megabits per second. This low rate permits efficient use of a

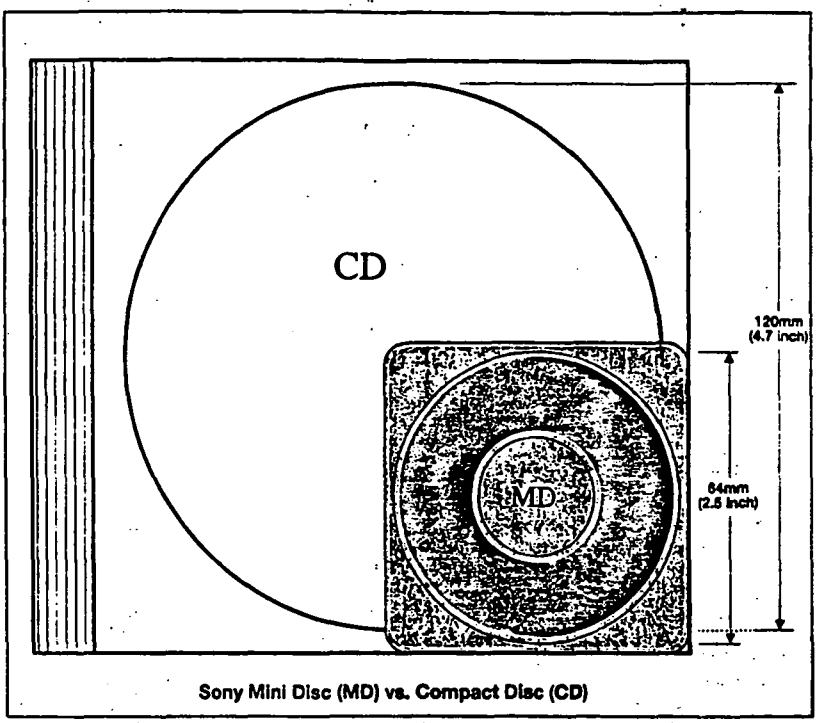


Fig. 1: actual size

data rate to nearly one-fifth, from 1.41 megabits per second to 0.3 megabits per second. During recording, analog signals are sampled at a rate of 44.1 kHz and quantized with a conventional A/D converter. The ATRAC encoder divides this PCM data into segments in intervals up to 20 milliseconds long. Fourier transform software analyzes the waveform data in each segment and generates corresponding frequency component data. Using psychoacoustic modeling, the system identifies the audio components that are audible and encodes them, assigning bits as needed according to the amplitude of audible frequency components. Other inaudible material is discarded.

This method is based on the workings of the human ear; sound below a certain level cannot be detected, and low-level signals are masked by high-level signals at a similar frequency. In addition, as overall sound level increases, the ear is relatively less sensitive. These inaudible components can be removed with minimal sound degradation. Following ATRAC encoding,

Beacham Exhibit #7

Just when you thought the familiar silvery compact disc was all you needed in terms of audio, along comes yet another incompatible recorded music format. The latest format, Sony's take-along Mini Disc music system, combines features of CDs and Walkman-type portable cassette machines. Both the Mini Discs and another new format scheduled to appear next year, digital compact cassettes, bring the advantages and disadvantages of computer technology to music recording and playback. The growing variety of audio hardware promises a confusing battle for market domination.

Miniaturization has been the key goal in designing the Mini Disc system. If Sony engineers succeed in cramming all the components into the mock-ups shown recently, you will have a choice of two exceptionally compact machines: a recorder about the size of today's portable cassette recorders or a tiny playback-only machine that fits into your shirt pocket with room to spare. In addition to extreme compactness, the machines give you one-second access to any music selection on the 2.5-inch discs, plus the advantages of digital audio technology compared with standard cassettes (see A Growing Menu of Incompatible Audio).

The development of prerecorded and erasable Mini Discs involves the refinement of four technologies:

- Digital-audio compression that uses five times less data than standard compact discs for 74 minutes of audio—with some loss of music fidelity.
- A technique for erasing and recording Mini Discs at the same time, using magnetism and laser heating.
- A small laser that helps erase and record discs, or illuminates both prerecorded and erasable discs for playback.
- A memory feature that enables you to handle the machines roughly—even jog with them—without causing audible interruptions.

If Sony marketa its Mini Disc system next year as scheduled, it will be a first for most of these technologies in audio products. Except for the memory feature, however, similar technologies have already appeared in other prototype disc recorders not yet sold (see Erasable Discs Revisited).

The new Mini Discs are mounted in plastic cases with metal shutters, much like 3.5-inch diskettes used in personal computers. This protects the discs and makes them easier to handle, an important advantage for a portable audio system.

To achieve their goal of storing the same amount of music —74 minutes—on Mini Discs as conventional compact discs, Sony engineers had several options. "One possibility," said Katsuaki Tsurushima, "was to develop some completely new recording mechanism. But another option was to use digital technology to manipulate and compress electronic signals."

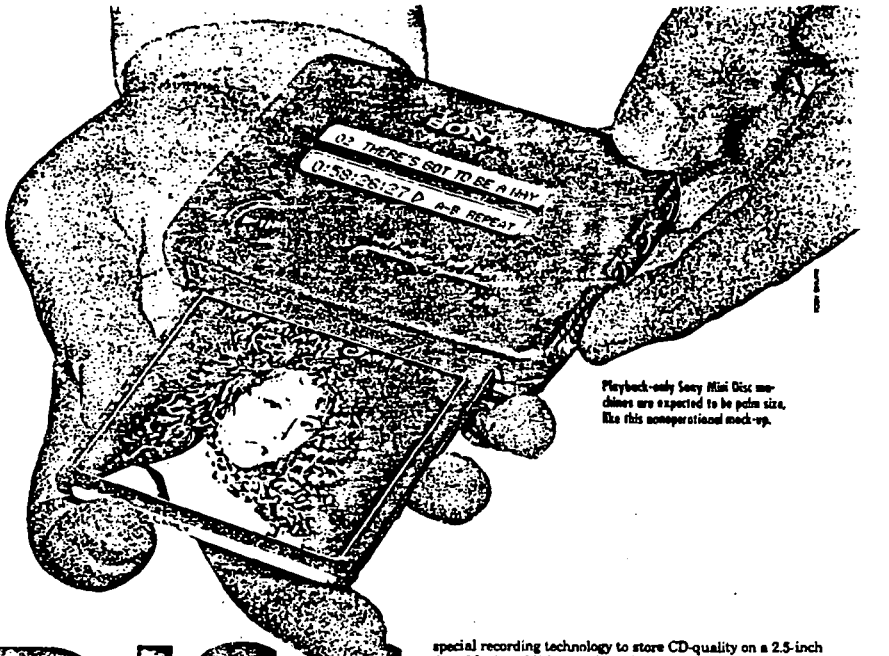
Sony settled on a compression scheme that takes advantage of two particular limitations of human hearing: the threshold of hearing, referring to the decibel level below which humans can no longer detect sound vibrations; and the masking effect that occurs when loud and soft sounds with similar frequencies strike the ears simultaneously and the soft sound isn't recognized.

During Mini Disc recording, the incoming analog signal is sampled and digitized much like it is in existing CD technology. But then the compression encoder analyzes the data and selects only those digital signals representing sounds the human ear is likely to hear. Address information, which helps the laser find its place on the disc when there's an interruption, and error correction data are added and the digital signals are recorded onto the disc.

Sony's compression scheme squeezes the same amount of data into one-fifth the space of conventional digital recordings with only a slight loss in sound quality after it's decompressed, the company claims. Demonstrations of Mini Disc audio have so far been too restrictive to allow for comparisons with other audio media. However, one Sony engineer

COMING IN 1992

POCKET-SIZE RECORDER PLAYS MUSIC ON A MINI



Playback-only Sony Mini Disc machines are expected to be palm size, like this nonoperational mock-up.

DISC

By DENNIS NORMILE

said that about two percent of the population, especially musicians and audiophiles, might be able to hear the differences between full-range CD recordings and the uncompressed audio from Mini Discs. The Mini Disc system, though, is designed for listening anywhere—with headphones, in a boom box, or in a car audio system—where there's a potential for background noise. This format is not earmarked for audiophile hi-fi equipment you would savor in a quiet listening room. Sony executives admit the sound quality of their Mini Disc system won't quite match that of CDs.

Compression has another advantage over developing a special recording technology to store CD-quality on a 2.5-inch disc: Music publishers will be able to use current CD-recording equipment to produce prerecorded Mini Discs, making it easier to put a variety of titles on store shelves.

Although the same laser can play back music from both prerecorded and erasable Mini Discs, the record-playback technologies for the two discs are completely different. The new prerecorded discs use the same optical technology as present CDs in which pits are formed on a metallic disc surface at the factory. These pits disrupt a laser beam during playback, making its reflection strong or weak to correspond with digital ones and zeros, respectively.

By contrast, the recordable discs use magneto-optical technology. "If you look closely, you can tell the difference," says Tsurushima, holding up both types of Mini Discs. From the back the two discs appear the same. Along one edge is a sliding metal shutter that gives the laser access to the disc from below. But while the front of the prerecorded disc is smooth, the recordable disc has another shutter.

"For magneto-optical recording, it's necessary to have a [magnetic] head above the disc," Tsurushima explains. With the magneto-optical technology used for erasable Mini Discs, a laser briefly heats a microscopic spot on the disc's magnetic layer. The high temperature (about 400 degrees F) makes it easier to reorient the magnetic polarity at the spot with a magnetic recording head. After the spot cools, its polarity is difficult to change unless it is reheated. The magnetic polarity of the spots encircling the disc corresponds to the ones and zeros of digital music data.

When magneto-optical recordings are played, the laser's power is reduced and its light is polarized and trained on the magnetized spots. When the polarized light interacts with the magnetic field of the spots, a phenomenon called the Kerr effect, the polarization plane of reflected light is twisted slightly. It's analogous to throwing a stick at one angle onto a sheet of

ERASABLE DISCS REVISITED

Disc machines designed to record hi-fi audio aren't new. The giant Dutch company N. V. Philips showed a prototype compact disc recorder in 1982. And at a European audio-video show two years ago, about 20 varieties of recordable CDs appeared. (Recordable disc formats include permanent recordings that can't be erased.) But the history of erasable-disc announcements and their availability in stores has been dismal. Among the reasons: Representatives of the music industry, fearing a loss of revenue from recordings made with highly accurate digital technology, have successfully blocked or delayed many new recorder entries with threats of copyright infringement lawsuits.

But technology can be a problem too. Early in 1988, Tandy Corp. in Fort Worth, Texas, announced an erasable CD called THOR. While Tandy's disc venture is more than a year behind its on-sale schedule, a spokesman says the project is still under way, although he declines to estimate an on-sale date. Tandy isn't giving any details, but if early reports about THOR are accurate, Tandy's erasable disc is based on a rare technology, dye-polymer recording ["Coming: CD Recorder," July '88]. In this technique, a record-play laser heats a polymer layer on the disc, causing tiny pits to form. During playback, the pits disperse laser light, producing a blinking pattern needed for digital audio. To erase a THOR disc, another laser heats and softens an adjacent polymer layer, which flattens the pits. Researchers must perfect this flattening stage, because inadequate smoothing of the pits limits how many times a disc can be erased.

While the dye-polymer blend gives THOR discs a brilliant blue color, the vast majority of erasable discs have a muddy-brown hue from their thin coating of a magnetic iron-oxide-based powder. The technology for such magneto-optical discs is well established: For recording, laser heating and magnetism from a coil creates microscopic regions of different magnetic polarities. During playback, the magnetic polarity of one of these regions twists the optical polarity of light reflected from it, which identifies the original recorded pattern.

Last year, the French company Thomson Consumer Electronics showed a laboratory prototype of a magneto-optical disc recorder ["Electronics Newsfront," Oct '90]. Some of Thomson's technology is strikingly similar to that used in Sony's Mini Disc. But because the two machines are designed for different functions—hi-fi recording at home versus Sony's take-along personal format—there are also major differences in the hardware. First, both recorders can play prerecorded and erasable discs. Thomson's machine handles ordinary compact discs. And because the Thomson recorder is designed for 4.7-inch CDs, it doesn't need the extreme five-to-one data compression Sony employs to squeeze a CD's 74 minutes of music onto its 2.5-inch discs. As a result, Thomson's recorder achieves the full range of fidelity possible with the 16-bit data resolution used for CDs. But to extend the recording time in its machine, Thomson includes a long-play mode based on four-to-one data compression. That compression reduces music fidelity, although Thomson, like Sony, claims few people can detect the missing music data. Few, of course, have had the opportunity.

Both the Sony and Thomson machines record by sending data signals to a magnet above the disc while heating tiny points on its ultra-thin recording layer from below the disc with a laser. The recording materials are also similar: a blend of the rare-earth terbium, cobalt, and iron compounds.

Thomson has not been able to agree upon a disc standard with N. V. Philips, which originated both the compact disc and compact cassette. Philips is promoting its own digital compact cassette format ["The Second Coming of the Digital Cassette," June]. "But later this year," says a Philips spokeswoman, "we will offer a small compact disc recorder for the professional market." Philips hasn't priced the machine yet, but the spokeswoman speculated songwriters and musicians might pay more than $5,000 for a recorder based on the CD format. This machine, however, will probably use write-once disc technology, which permanently pits discs, rather than erasable disc technology. "Once a solution to the copyright problem has been reached," says the spokeswoman, "a compact disc recorder for the consumer market will be introduced."—*John Free*

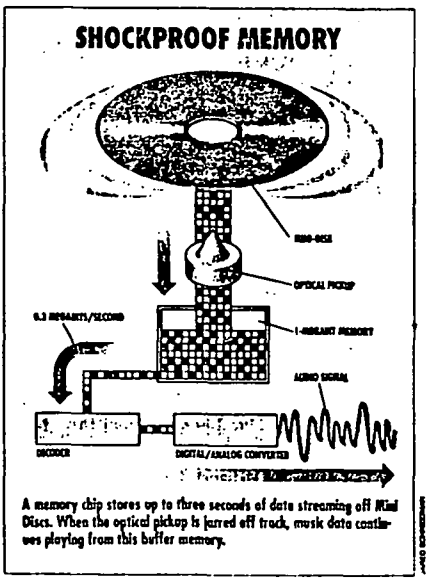
ice and having it bounce off at a different angle. An analysis of the light with detection circuits registers the magnetic polarities of the spots, reconstructing the recorded ones and zeros.

Two technologies were especially important in the development of the portable, battery-powered magneto-optical recorder, says Sony. The first is the magnetic medium of terbium ferrite cobalt used on the erasable Mini Discs. Terbium is a rare-earth element, and ferrite is the iron oxide also used on magnetic tape. For data storage, this material can be magnetically switched with one-third the power needed for the conventional magneto-optical discs used by the computer industry. Second, Sony developed a high-efficiency magnetic recording coil and driving circuit that can reverse polarity within about 100 billionths of a second (see diagram on facing page).

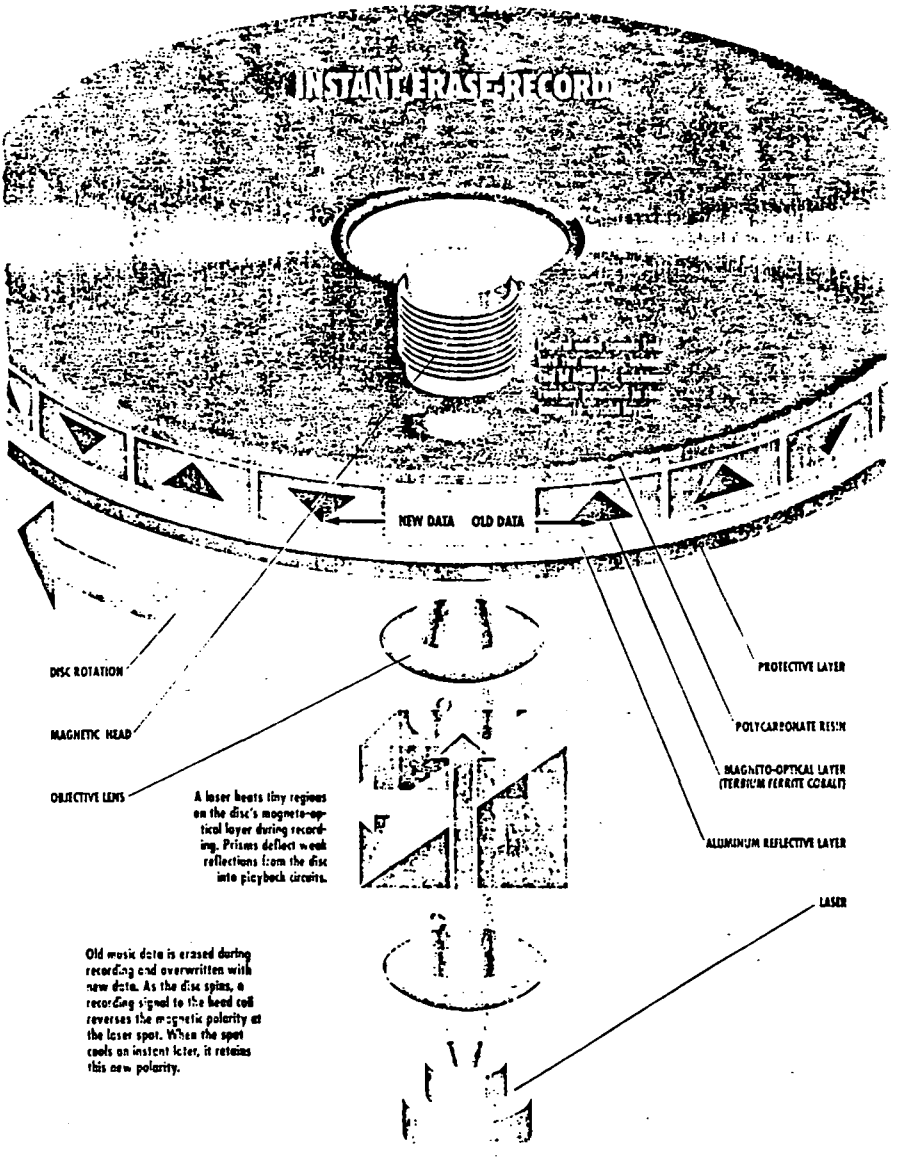
Here's why this combination now makes portable disc recording possible: Because the magnetic recording coil needs little power and the terbium ferrite cobalt can be magnetically reoriented with little power, a battery can supply the required energy. Moreover, the rapid reversal rate of the new magnetic head makes it possible to erase old data and record new information simultaneously in one disc rotation. As a result, the Mini Disc recording mechanism is simpler and more compact.

This one-rotation erase-record sequence differs from most previous magneto-optical drives, which require a separate step to erase the disc before new data can be written. This separate erasing stage involves either a time-consuming rotation of the disc over the laser combined with magnetic signals to reorient the magnetic layer or separate lasers operating at the same time, one for erasing and one for recording.

One final challenge in creating a disc machine that operates on the go: overcoming the skips and distortions that result from mistracking. A problem with existing portable CD players is that jarring them throws the optical pickup out of position. Rather than try to prevent mistracking, the



A memory chip stores up to three seconds of data streaming off Mini Discs. When the optical pickup is jarred off track, music data continues playing from this buffer memory.


INSTANT ERASE/RECORD
NEW DATA
OLD DATA
DISC ROTATION
MAGNETIC HEAD
OBJECTIVE LENS
A laser heats tiny regions on the disc's magneto-optical layer during recording. Prisms deflect weak reflections from the disc into playback circuits.
Old music data is erased during recording and overwritten with new data. As the disc spins, a recording signal to the head coil reverses the magnetic polarity at the laser spot. When the spot cools an instant later, it retains this new polarity.
PROTECTIVE LAYER
POLYCARBONATE RESIN
MAGNETO-OPTICAL LAYER (TERBIUM FERRITE COBALT)
ALUMINUM REFLECTIVE LAYER
LASER

Mini Disc system compensates with a buffer memory.

To demonstrate this memory feature, Tsurushima picks up a laboratory version of a Mini Disc player and shakes the machine as it plays music. Instead of the rasping sound you would expect as a laser is thrown off track, the music continues uninterrupted. Next he pries open the lid of the player, pulls the disc out, holds it up briefly, and then pops the disc back into the machine. Remarkably, not a beat is missed. Once again he pulls out the disc, but this time he waits several seconds. Finally the music stops. "That was just to show you the sound wasn't coming from somewhere else," he says.

The trick to this playback tenacity is that the optical pickup reads data from discs more than four times faster than is necessary for real-time playback. Data read from the disc flows into a one-megabit buffer memory at the rate of 1.4 megabits per second. But the decoder circuits converting this data into sound only need a 0.3-megabit-per-second flow of data. This enables the one-megabit buffer memory to hold three seconds of music information (see drawing on page 66).

If the optical pickup is jarred out of position, the flow of correct data from the memory to the digital-analog converter continues as long as the pickup resumes proper reading within three seconds. When mistracking occurs in an Mini Disc player—as in conventional CD machines—counting circuits detect the abrupt change in address information recorded periodically with the music data. The laser pickup then quickly repositions itself using the address information registered just before the interruption.

Although the Mini Disc technology has been established, the equipment is still being refined. Sony is also negotiating with music companies and other equipment manufacturers to broaden the use of the new format. One concession to the interests of music companies and recording artists is that Mini Disc machines will include a serial copy management system. This digital encoding scheme, also included on the newest digital tape formats, allows you to make one recording of prerecorded material, but blocks the recording of additional copies. Sony has not disclosed the Mini Disc player or recorder prices.

But just as the CD has driven LPs to near extinction, the new 2.5-inch discs may eventually replace standard compact cassettes. Sales of prerecorded cassettes have been declining in industrialized countries, according to data from the International Federation of the Phonographic Industry. Sony's researchers claim that listeners are dissatisfied with the sound quality of cassettes after growing accustomed to CDs. The design goal for Mini Discs, therefore, was to achieve the portability, recordability, and shock resistance of the Walkman, but with the quick random access and nearly the sound quality of CDs.

With the range of audio formats now available, consumers face a daunting choice selecting audio equipment. Sony intends to support all the format, even the digital compact cassette format developed by N. V. Philips of the Netherlands. Stay tuned as the battle lines are drawn. GFS

A GROWING MENU OF INCOMPATIBLE AUDIO

FORMAT	FEATURES	PRO	CON
 MINI DISC	2.5-inch digital prerecorded optical and magneto-optical discs. Designed for Walkman-type use. Due in 1992.	Recordable. Compact, portable player/recorder. Anti-shock memory. Rapid access to bands. No-wear recording.	Data compression sacrifices fidelity. Limited titles initially.
 COMPACT DISC	4.7-inch prerecorded digital optical disc. For high-quality home/car playback only.	Full 16-bit fidelity (wide dynamic range). Rapid access to bands. Wide range of titles.	Mistracks when players are jarred. Nonrecordable.
 COMPACT CASSETTE	1/8-inch-wide tape; fixed record/playback head. For home and portable use.	Extended recording times. Wide variety of inexpensive titles.	Limited dynamic range, tape hiss, speed and pitch changes, tape damage and wear. Slow access to bands.
 DIGITAL COMPACT CASSETTE	8 digital-audio tracks in each direction, with auto-reverse standard. Fixed record/playback heads. For home and portable use. Due in 1992.	Digital encoding eliminates pitch-change, hiss, low dynamic range problems. Machines also play standard compact cassettes. Shutter protects tape.	Data compression sacrifices fidelity. Tape damage and wear. Slow access to bands. Limited titles initially.
 DIGITAL AUDIO TAPE	1/8-inch-wide tape. Spinning record/playback heads. High-quality home and portable use. Professional recording.	Full 16-bit record/playback fidelity (wide dynamic range).	Complex, costly machines. Few prerecorded titles. Slow access to bands. Tape damage and wear.
 LP RECORD	Grooved 12-inch discs. Mechanical-electrical playback. For home use.	Wide range of inexpensive titles available.	Restricted dynamic range. Susceptible to dirt, scratches, and wear.

IT'S BEEN LESS THAN A DECADE sense the compact disc was introduced. In that short time, the CD has brought high-quality audio reproduction to the masses, and taught us to appreciate good sound. We're not exaggerating when we say that the CD has changed the way we listen to music.

It's rare for a new technology and format to catch on so quickly—especially one that threatens to make its predecessors obsolete. CD was a success not only because of consumer acceptance, but because it also offered something to manufacturers, recording companies, and retailers.

It wasn't the CD's "gee whiz" appeal—nor was it the promise of perfect audio reproduction—that caused sales to catch fire. It was *convenience*. When compared to the LP that it replaced, CD's were a dramatic breakthrough. They can store more audio in a package a fraction of the size. They can be lent to even your most careless friends without getting scratched. They even play back more conveniently, because you can skip tracks that you don't want to listen to, or re-arrange the order in which the songs play back.

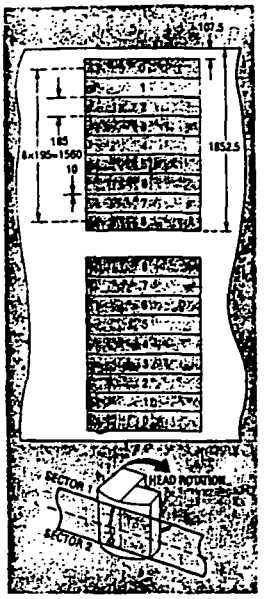
It's convenience, also, that makes the venerable compact cassette our music medium of choice. (Cassettes outsell CD's by a ratio of about 1.5:1.) They fit in your shirt pocket, and they stand up reasonably well to abuse. They're ideal for use in a car or in a personal stereo because they're relatively immune to shocks. So what if they can't come close to the audio quality of a CD or even an LP?

Two new digital audio formats—Sony's Mini Disc and Philips' Digital Compact Cassette—promise to battle each other as they create consumer confusion.

How about DAT?

In the belief that consumers had fallen so much in love with the idea of digital audio because of their exposure to CD, Japanese manufacturers reasoned that Digital Audio Tape (DAT) would be to the CD what the compact cassette was to the LP. Unfortunately, it didn't work out that way for a number of reasons. First, the record industry, spearheaded by the RIAA (Recording Industry Association of America), threatened lawsuits against any Japanese manufacturer who exported the DAT machines to the U.S. The RIAA was concerned about DAT's potential to make virtually perfect copies of CD's. (They seemingly missed the fact that, for most people, cassettes do the same thing. And despite that, *pre-recorded* cassettes have outsold both LP's and CD's combined since 1982! They've outsold blank tapes as well.) The threats of lawsuits were enough to stop DAT dead in its tracks, despite considerable accolades for the format in the audio and general press.

Although some DAT machines were available on the "gray market" of unofficially imported goods, DAT officially arrived in the U.S. market last year—with generally disappointing results. Whether it was the years of delay, the taint of the lawsuits, the expense of the machines, or the lack of pre-recorded software that have killed DAT in the consumer market, we'll never know for sure. Perhaps DAT failed because



EIGHT TRACKS OF MUSIC DATA are contained on each "side" of the Digital Compact Cassette, as shown in *a*. (All dimensions shown are in micrometers.) The DCC head shown in *b* is manufactured using thin-film techniques. It contains a set of 8 digital recording and playback heads as well as two analog playback heads.

it doesn't offer the avarage consumer anything that they're not already getting from their favorite compact cassettes.

Although the compact cassette—even with its inherent problems—is just fine for most people, Philips, the originators of the compact cassette, was convinced that the format could be improved, and that consumers would buy into the updated format. Thus, DCC, the Digital Compact Cassette, was born.

Enter DCC

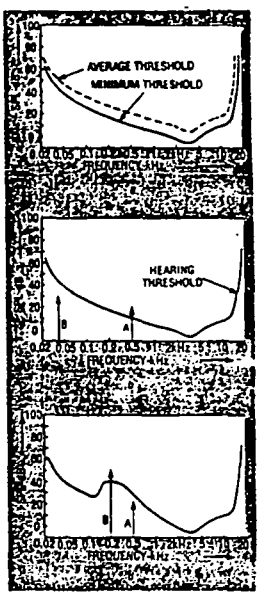
In January of this year, Philips announced that "a new era of audio reproduction has started." DCC, a digital extension of the compact cassette, would offer "the best opportunity available for consumers and industry to enter into the field of digital recording." Tandy Corporation announced that they would be the first U.S. licensee of Philips' technology, and would introduce a home recording deck in late 1992.

The most important feature of DCC is that it doesn't make the familiar cassette obsolete. All DCC players will play back existing analog cassettes, so even when you make the jump to DCC, you can still listen to your existing library of tapes. (You won't, however, be able to record analog cassettes on your DCC machine, or play DCC tapes on your standard cassette deck.) That "backward compatibility" could convince some consumers to upgrade to DCC even though they like what they already have. After all, an upgrade won't just give them better sound, but as we'll see, more convenience as well.

A DCC deck is essentially a standard cassette recorder that includes some extra digital electronics and a new head design. The dimensions of a DCC cassette are essentially the same as that of a standard cassette, but the digital cassette's sides are flat—the case doesn't get fatter where the head enters the shell. Also, since the DCC standard demands that all DCC players feature auto-reverse, there's never a need to flip the tape over, so you don't need to have holes for the reels on both sides of the cassette. That means that one full side of the cassette can be used for information and graphics—something the recording companies love.

The spool holes and the tape surface are protected against dust and fingers by a sliding metal cover, which also locks the tape hubs. There's no need for an carrying case, so the digital cassette is easier to use and store, especially in a car.

The key to maintaining compatibility with standard cassettes is a new thin-film semiconductor head, manufactured using a process similar to that used for integrated circuits. The first layer of the head contains one set of 9 magneto-resistive heads for digital playback, and a pair of similar heads for analog playback. On the second head layer is one set of 9 integrated recording heads for digital recording. We'll see shortly why 9 digital heads are required.



PHILIPS' PASC ENCODING ignores sounds that are below the hearing threshold (*a*). Of the signals shown in *b*, only A would be recorded because B, below the hearing threshold, would not be heard. The hearing threshold, however, varies dynamically depending on what other signals are present. In *c*, signal B has altered the threshold, making A inaudible.

PASC makes it work

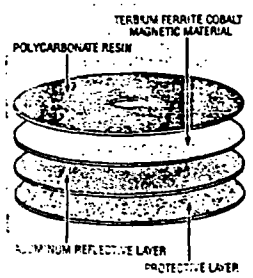
The key to the DCC system is the a new digital coding technique called PASC, or precision adaptive sub-band coding. The goal of PASC is to produce a signal equivalent to that of a CD. The results? A dynamic range better than 105 dB, and a total harmonic distortion, including noise, of less than 0.0025%.

PASC is based on two important phychoacoustic principles. The first is that we can hear sounds only if they're above a certain level, called the hearing threshold. The second is that loud signals mask soft ones by raising the hearing threshold.

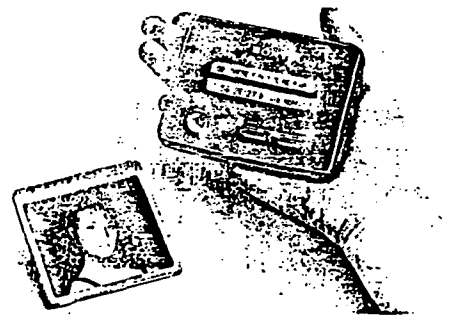
The hearing threshold, as you might expect, varies from person to person. Even a very sensitive ear, however, won't be able to hear a sound if it is masked by a louder sound. (You couldn't, for example, hear an unamplified violin at a rock 'n' roll concert!) The theory behind PASC's efficiency can be expressed by the question, "If you can't hear it, why record it?"

During encoding, the PASC processor analyzes the audio signal by splitting it into 32 subband signals. By continuously taking into account the dynamic variations of the hearing threshold, the PASC processor encodes only the sounds that will be audible to the human ear. Each subband is allocated the number of bits that are required to accurately encode the sound within it. If a subband doesn't require any bits—because it contains sounds that are masked, for example—its bits are re-allocated to other subbands so that the sounds within them can be encoded more accurately. On average, the PASC system needs to encode only one quarter the number of bits that a CD or DAT encoder would to reproduce a given audio signal.

The encoded data is multiplexed into an 8-channel data stream, and error-detection and -correction codes are added. The eight channels are recorded on 8 parallel tracks on the DCC tape. The ninth track can be used to carry auxiliary data, such as song titles, recording times, and the like). The auxiliary track could be used to generate hundreds of characters of text per second, so decks could include readouts for song lyrics or other information about the selection.



THE MINI DISC is composed of 4 layers.


A PROTOTYPE MINI DISC player and a pre-recorded disc.

DCC, an elegant extension of the most popular music carrier we have, seemed to be a sure-fire hit. It had something for everyone, including hardware manufacturers, record companies, retailers, and consumers. It now appears, however, to have run up against a formidable competitor: Sony's Mini Disc.

Sony's Mini Disc

In May of this year, in what seemed to be a deliberate attempt to derail DCC before it got moving, Sony announced a brand new recordable audio format, the Mini Disc or MD. Sony, however, denied that their MD was meant to compete with DCC. In response to the question of what MD replaces, the President of Sony Corporation of America answered "We are replacing nothing. We are Creating new markets."

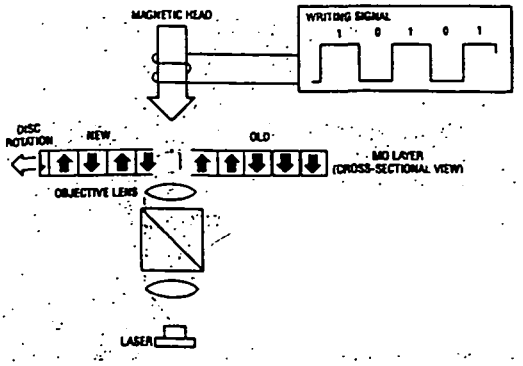
The Mini Disc format is specifically designed for portable applications (personal stereos, boom boxes, etc.) and is slated for introduction, conveniently, in late 1992—the same time that DCC decks are due. The disc, about 2½ inches in diameter, looks—and acts—like a cross between a compact disc and a micro floppy computer disk. Like a compact disc, the Mini Disc is an optical medium—it is read by a laser and can store up to 74 minutes of digital audio. Like a floppy disk, the mini disc can be magnetically recorded again and again.

How did they manage to get the same capacity as a CD on a disc that has about ¼ the surface area? Interestingly, by treating audio in much the same way as DCC does. Sony's encoding scheme, which is called ATRAC, or adaptive transform acoustic coding, is also based on the psychoacoustic principles regarding the threshold of hearing and the masking effect.

Because the ATRAC encoder ignores sounds that fall below the threshold of hearing (which varies dynamically because of signal masking) it can encode data five times more efficiently than CD or DAT systems. That's even better than DCC's 4:1 advantage!

Can a recording that "leaves out 80% of the bits" sound as good as a CD? In theory, if all you're leaving out is things you can't hear, then yes. In practice, we don't know yet. At Sony's announcement, they demonstrated a prototype by playing some pop rock for a half minute or so. It sounded OK, we guess, considering that the listening environment was a crowded hotel meeting room. No A/B comparisons were provided between CD and MD. Sony claims that "only 2% of the population will be able to hear the difference."

The Mini Disc is constructed of four layers, including a newly developed magnetic layer of terbium ferrite cobalt. Since magneto-optical discs can't come in contact with the recording heads, it's important that the magnetic material be able to



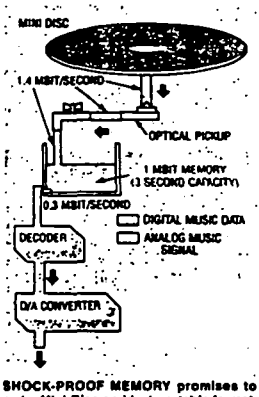
MAGNETO-OPTICAL OVERWRITE TECHNOLOGY. When the magnetic layer is heated by the laser, it becomes possible for the magnetic head to change its polarity. The polarity is then detected by the laser during playback by noting the direction of reflection.

change polarity when subject to a very small magnetic field. The new material fills the bill.

The Mini Disc requires both a laser and a magnetic head for recording. When the magnetic layer is heated by the laser (to a temperature of about 400°F), it loses its coercive force—that is, it becomes very easy to magnetize. The head then supplies a magnetic field to set the material's magnetic polarity. When the heated spot cools, the new polarity is "locked in" and, thus, the digital data are recorded.

Sony's Mini Disc has a couple of advantages over other optical recording methods. The structure of the head is much simpler because the laser can be on continuously during recording and playback. And the low-coercivity of the magnetic material greatly reduces the power required, making portable operation feasible.

One feature of Mini Disc touted by Sony is that the portable Walkman players will have "shock-proof memory." One of the problems with current portable CD players is that they don't work too well unless they're standing still. Any sharp jarring causes the laser to mistrack. Mini Disc players shouldn't suffer from that problem because data is read off the disc at a rate far faster than required by the ATRAC decoder, creating a data buffer of



SHOCK-PROOF MEMORY promises to make Mini Disc an ideal portable format. Since the data is read off the disc far faster than required by the ATRAC decoder, a buffer as long as three seconds is created.

three seconds. If the laser mistracks, the listener won't hear it. The buffer will feed data to the decoder while the laser finds its way back to the right spot. Sony's announcement included a demonstration where a prototype player was shaken vigorously without any audible result. The prototype continued to play even after the disc was removed until the 1-megabit buffer was empty! Of course, there's no technological reason why portable CD players couldn't offer their own shock-proof memory buffer. But since the buffer would have to be 5 times the size, it would add greatly to the cost.

Who wins?

Ever since we forecast that DAT would be a sure-fire success, we've been reluctant to make predictions. But let's look at some of the issues involved, and how DCC and MD stack up.

For consumers—assuming that both formats offer high-quality audio—DCC has the decided advantage in that existing libraries of cassettes won't be obsolete. Both formats have the potential to supply such convenience features as song title and lyric readouts, but MD offers much faster random access of tracks. Although it's too early to say for sure, prices for home DCC decks should be under $500 when introduced, while a portable MD player is expected to cost around $400. For consumers, we give DCC a slight edge.

The recording companies will have a hard time taking sides. Both technologies will use the serial copy management system or SCMS, an anti-piracy system. Manufacturers will be able to duplicate DCC at 64 times normal speed on equipment similar to what is now used for standard cassettes. Mini Disc players will be able to play back not only magneto-optical discs, but pre-recorded optical discs as well—discs manufactured using the same process as is used for CD's. Various recording companies have expressed support for each format. Which way will the record companies go? For us, it's too close to call.

Hardware manufacturers should prefer DCC because standard tape transports can be used. Retailers, always reluctant to have to stock the same titles in various formats, are dreading the thought of re-vamping their stores to accommodate either DCC or MD.

What about you? In the long run—since both formats seem destined to compete with each other for your money—it's you who will decide whether DCC or MD is the personal recording format of the 90's and beyond. R-E

Beacham Exhibit #9

THE NEW YORK TIMES

BUSINESS TECHNOLOGY

Sony Corporation

Sony's mini disk technology removes the major advantage that tape enjoys over compact disks: the tiny, "rewritable" disks can be used to record as well as play. A prototype of Sony's mini disk player and recorder is shown with a plastic-encased prerecorded disk, left; and a similar blank recordable disk.

Advance in CD's Starts a New Battle

By DAVID E. SANGER

Special to The New York Times

TOKYO, June 18 — When the compact disk emerged from the laboratory as a consumer product in the mid-1980's, recording companies hated it. It would confuse consumers and ruin the recording business, they said. Today, records are indeed near extinction, but the recording business has doubled since CD's, with their scratch-free, hiss-free digital clarity, went on sale eight years ago.

Now the battle is about to be fought again — this time over compact disks that record. The industry is choosing sides over a new technology called MD, for mini disk, a variant of the compact disk that the Sony Corporation is betting will make its own Walkman obsolete.

The MD, or mini disk, can record as well as play.

Only two and a half inches in diameter, about the size of soda can tops, the disk is not only made for portables but is also "rewritable," meaning that data stored on it, whether music or digits, can be changed. With that innovation, the one great advantage of tapes over compact disks is about to be wiped away. Sony is not saying yet, but when production of the player-recorders begins next year, they are expected to cost about $400.

For a decade, the CD that can record has been one of the Holy Grails of the electronics industry, and Sony is hardly the only entrant. Toshiba, Philips N.V. of the Netherlands, I.B.M., and many others have been building prototypes, and there are already some specialty systems on the market as disk drives for computers — taking advantage of the huge storage capacity of what the industry calls "optical disks."

But Sony is attempting a classic Japanese strategy: It is quickly forcing new, cutting-edge technology into a relatively inexpensive consumer product in hopes that big manufacturing volume will cut production costs

and leapfrog the company over the rest of the industry.

It is a high-risk approach that in the past has had some broad successes — most recently with lightweight consumer video cameras — and a few crashing failures.

And once again, the recording industry (except for Sony Music) and many of Sony's competitors are protesting vociferously, contending that what is good for the march of technology could prove disastrous for the business.

The fate of the MD over the next few years may well determine more than just the profits of the consumer electronics industry. Rewritable disk technology — of which the mini disk is just one variation — has innumerable uses beyond music. The most important may be in computing, where optical compact disks, known as CD-ROM's, are already coming into use because they can store far more data than magnetic disks. But unlike mini disks, CD-ROM's cannot record data. A variant of the new mini disk, with its small size, would have obvious applications to laptop computing.

For now, Sony says its only immediate interest is the audio market. "To expand the market for the compact disk, we needed a much smaller disk that could be used outdoors," said Terusaki Aoki, who heads Sony's tape and disk products division and until recently ran its research and development programs. "And, of course, we needed recording capability."

So far, small size and recording capability have been available only *with floppy disks and audio and video* tape. These rely on thin layers of particles that are magnetically read or altered to play or record. In compact disk technology, lasers pick up reflected light from a disk's finely pitted surface; and these optical signals are converted it into a stream of digital 0's and 1's. The compact disks can store far more information.

Now, the race between magnetic and optical technologies is on. The first problem for the optical researchers was to shrink the disks,

The one great advantage of tapes over CD's is about to be wiped away.

and players, to no more than the size of cassette tapes and Walkmans. Ordinarily, a mini disk the size of the one Sony developed would store far less data than a standard-size, five-inch compact disk, which can play about 74 minutes of music. But Sony's new compression technology can jam the same amount of music into a fifth the space, partly by cutting out frequencies that cannot be detected by the human ear. The price: audio quality that is a bit lower than on ordinary compact disks.

In the future, similar technology may be used to compress the data

For the Scientist, Electronic Notebooks

The days of the traditional laboratory notebook may be almost over. As scientists and engineers do more and more of their work on computers, the task of keeping data in a handwritten notebook has become cumbersome and impractical. How can a scientist enter a complex, three-dimensional color *model into a notebook?*

Researchers at the Baylor College of Medicine in Houston have come up with an electronic alternative, the Virtual Notebook System, or VNS, a software package that turns a computer work station into a *multimedia lab notebook that can accept not only* text but also sound, electronic mail, photographs and still video images. The software can also receive faxes, allowing data from them to be incorporated into the lab notes.

More important, VNS easily ties into a computer network, which makes the lab notebook mobile. A scientist who is traveling can call up the notebook on any work station, regardless of brand. It also allows scientists to share their notebooks with selected colleagues anywhere in the world using any type of computer running the popular X Windows operating system that I.B.M., Apple, Digital Equipment and others use to control their computers' basic functions.

The Virtual Notebook System borrows a key concept from airline reservations systems: a change made by one user is seen immediately by all. According to Kevin Long, a Baylor researcher and one of the developers of VNS, program users can amend the notes in Texas and colleagues running the program in California, New York or Hong Kong will immediately see these changes on their own screens.

Tom Sloan

The notebook program can automatically monitor and collect data from other sources, like a computerized news wire. A researcher can instruct his system to find articles on any subject.

Baylor has created a commercial subsidiary, Groupwork Systems Inc., to sell the notebook program for about $2,500.

New Battle

needed for video images, so that videodisks — long a hit product in Japan — will no longer need to be the size of pizza platters.

Then there is the jogging problem. While audio tape easily absorbs bouncing and jostling, the delicate laser pickups in portable CD players sometimes skip. In MD machines, special circuitry feeds 3 seconds of music into a one-megabit memory chip before it is played — meaning that if the music appears garbled, the machine has time to recover and read it again. "Even if you take the disk out, the music plays on for a few seconds," Mr. Aoki said.

The last trick was to design a way to record data without using gobs of electricity, because the MD will be used in battery-operated portables. Some other systems require two lasers — one for erasing data by heating up a spot on the disk to 400 degrees Fahrenheit, one for recording. One-laser systems need several rotations of the disk to perform the same job, which takes time. The Sony system, using a single laser, can perform these operations in a single pass over the disk.

Philips's Cassette

While the technology has been much admired, the MD itself has not. The biggest critic is Philips, Sony's one-time ally in CD's. Next year, around the time that the mini disk appears on the market, Philips is bringing out the digital compact cassette, or DCC.

Like digital audio tape, the technology that Sony and other electronics makers here have tried to promote for years, the cassettes have nearly the sound quality of compact disks. But unlike digital audio tape or mini disk machines, the new digital cassette players will also play the billions of conventional cassette tapes that have been sold over the past two decades.

Some Fear Industry Ruin

Some are already complaining that Sony, by leaving consumers dizzy with yet another incompatible technology, is risking ruin for the industry. Alain Levy, who heads Philips's recording business, Polygram Records, says Sony "thinks the rest of the world is like Japan" — in love with the compact disk and willing to buy the latest technology. The percentage of the population that owns CD players in gadget-happy Japan is far higher than anyplace else.

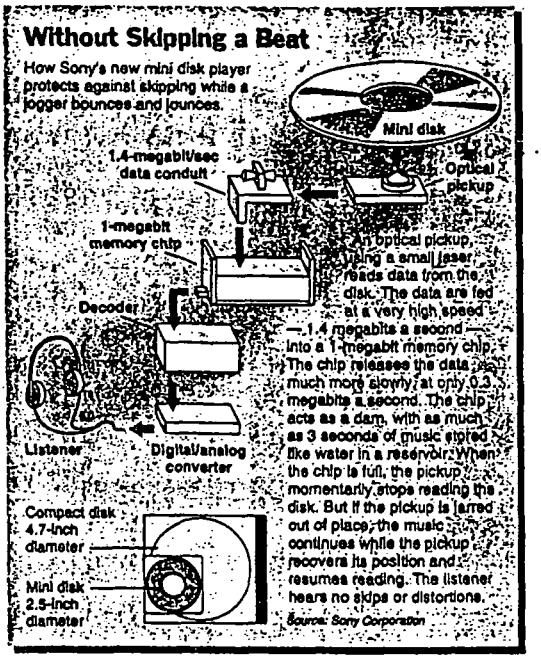
"We can sell a lot more tapes, and a lot more CD's, without confusing the world with a new format," Mr. Levy said. Among his new allies is Sony's archrival, the Matsushita Electric Industrial Company.

The winner will be whichever format attracts the most software — whether M. C. Hammer and Mozart drift to the Sony camp or the Philips one. Sony's record on promoting new formats is spotty at best. The failure of Betamax to attract good programs ultimately led to its failure as a videocassette format. That shortcoming started Sony on its buying spree in recent years, starting with CBS Records and moving on to Columbia Pictures.

Yet even with CBS Records and all its top-selling titles in hand, Sony was unable to make digital audio tape a success. Last year, when digital audio tape sales were expected to boom, only 150,000 players were sold.

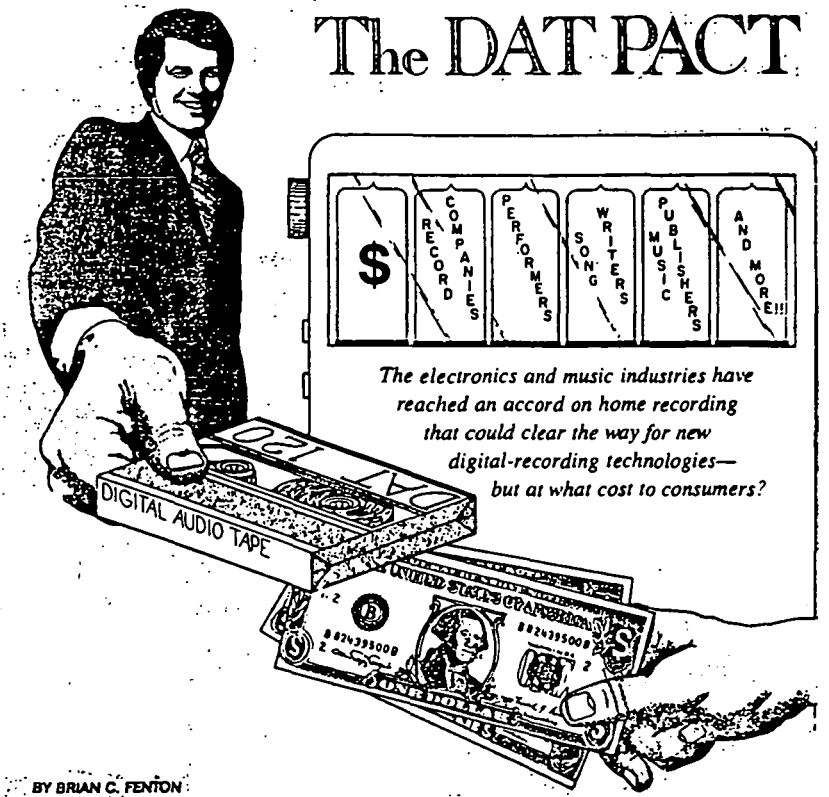
The industry, worried that DAT would enable recording pirates to make perfect copies of compact disks, worked out an electronic protection plan that satisfied neither consumers nor manufacturers. Sony is now repositioning DAT for music professionals and audiophiles, not for the mass market.

The same piracy worries surround the new mini disks. Technologically, the mini disks are superior products: faster, cleaner and more durable than tape. Whether that will be enough to make it a winning product is hardly a sure bet.



The New York Times

The DAT PACT



The electronics and music industries have reached an accord on home recording that could clear the way for new digital-recording technologies—but at what cost to consumers?

BY BRIAN C. FENTON

Just as we were ready to write off digital audio tape (DAT) as a mass-market failure, we were again reminded how difficult it is to predict the future of consumer electronics. After more than a decade of intra-industry fighting, the electronics manufacturers, recording companies, songwriters, music publishers, and performers have reached an agreement that could pave the way for DAT's entrance as a mass-market item. Ironically, DAT may owe its new shot at life to two new competing digital formats, Philips' Digital Compact Cassette (DCC) and Sony's Mini Disc (MD), which were introduced earlier this year.

History Repeats? Although most consumers consider DAT to be new technology, that's hardly the case—it was introduced more than five years ago in Japan. Before DAT could be brought to the U.S., however, threats of lawsuits from the recording industry forced manufacturers to hold back. When Sony finally did introduce a DAT deck here in June of last year, they were promptly sued by the National Music Publishers Association. (That suit has been dropped as part of the recent agreement.)

After a slow start, the DAT format has finally caught on in Japan. Sales in the U.S., however, have been poor at best. The recording companies, who were worried about the potential decrease in profits that might occur if consumers could make virtually perfect copies of copyrighted recordings, chose not to support DAT. Since no prerecorded software was available, consumers—more than satisfied with standard cassettes—saw little need to buy DAT decks despite their impressive hi-fi capabilities.

DAT is not the first electronic product to enter the market under the shadow of legal action. A similar situation arose in 1975 when Sony introduced their Betamax videocassette recorder. The movie industry was very worried about the potential competition of VCR's, and

the threat of financial losses brought about by home taping. Universal Studios and Walt Disney Productions sued Sony, alleging copyright infringement in 1976.

Although a U.S. District Court ruled in 1979 that home video taping for private use didn't constitute copyright infringement, the ruling was reversed by a U.S. Court of Appeals. Congress stepped into the controversy in 1981, introducing legislation that would overturn the Appeals Court decision. Later, a bill was introduced that would place royalty taxes on VCR's and blank video cassettes. Congress did not act on either bill.

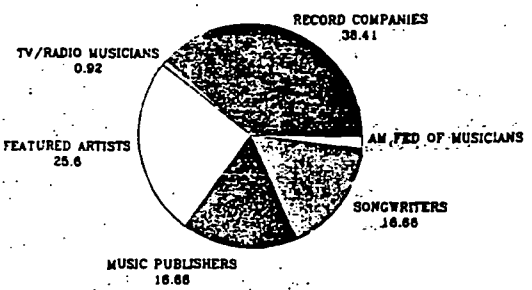
In 1982, the U.S. Supreme Court was petitioned to resolve the home video-taping question. Initial hearings were heard in January 1983, and one year later, the Supreme Court ruled that home video taping does not constitute copyright infringement. Ironically, Hollywood now makes more money from the release of movies on videocassette than it does from theatrical releases!

Not a Good Answer? Despite the Supreme Court ruling, the video- and audio-recording industries continued to seek legislation that would impose royalties on cassette decks and VCR's as well as blank tapes. Bills were introduced in Congress that would impose royalties as high as 25% on recorders and at least 1 cent per minute on blank tape! Other alternatives were offered, including the requirement that anti-taping chips be built into recording decks. (Studies done on the anti-taping chip by the National Bureau of Standards concluded that it was not an acceptable solution because it seriously degraded the music quality.)

The introduction of DAT to the U.S. at the January 1987 Consumer Electronics Show got the recording industry even more worried, even though no company announced definite sales plans. A bill that would impose a 35% tariff on imported DAT recorders was introduced in Congress, but that also died.

Although Congress took no action on any of the bills introduced, the Recording Industry Association of America (RIAA) did—they threatened to file a lawsuit against any manufacturer who sold DAT in the U.S.

In an attempt to find out how serious a "problem" home taping was, the Office of Technology Assessment undertook a study and issued a report, *Copyright and Home Taping*, in 1989.



Although the royalty agreement spells out the percentages that each group should receive, we're cynical enough to assume that a good portion of the collected royalties will go to administering the collection and distribution of the funds. Payment to the record companies and artists will be made according to sales.

The report concluded that, even though "home taping may reduce the recording industry's revenues, a ban on home audio taping would be even more harmful to consumers and would result in an outright loss of benefits to society... in the billions of dollars." Some of the more interesting findings included:

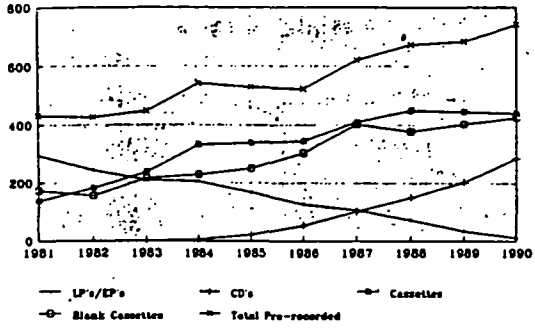
- Almost three quarters (73%) of home taping "occasions" do not involve pre-recorded music. Instead, they include the taping of family members, lectures, band practices, answering-machine messages, etc.
- Most (72%) home-recorded tapes of copyrighted material were made from the taper's own music collection. Another 9% (for a total of 81%) were made from material owned by other family members. The main reason for the taping was "place shifting." That is, home recorders made tapes of CD's so they could be played in a car's cassette player, *Walkman*, etc. The second most popular reason that home tapers made cassette copies was to make custom tapes with only the songs that they wanted, in the order they wanted them.
- About one quarter of pre-recorded purchases were made after the consumer heard the artist or recording on a home-made tape. (For example, a friend said, "Hey, listen to this song from this great new CD I just bought—you just *gotta* hear it!")
- If home tapers were not able to record, at least three quarters of home tapes would not be replaced by sales of prerecorded music.

After the report was issued, both camps went back into negotiations. The Digital Audio Tape Recorder Act of 1990, introduced in Congress early in the year, seemed to be the compromise that would finally "legitimize" the digital audio-tape recorder. Both sides realized that it was time to start working together. As the president of the RIAA testified before Congress, "Without our music, their products are worthless, but without their machines, no one can listen to our music."

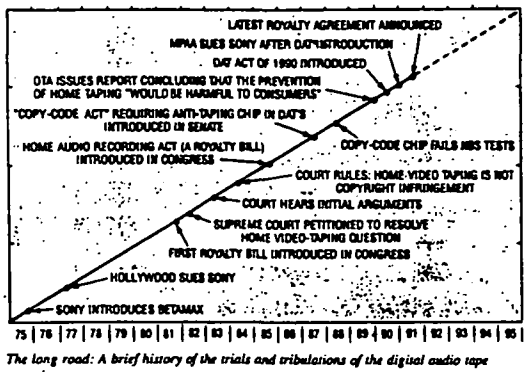
The "DAT Act" called for the inclusion of SCMS, the Serial Copyright Management System, in all digital audio recorders. (See the sidebar elsewhere in this article.) The bill, if passed, still did not promise to be a definitive end to the home taping question (despite the Supreme Court's Betamax decision). The bill, in fact, said, "...this Act does not address or affect the legality of private home copying under the copyright laws."

In the eyes of the recording industry, the bill was a compromise that sought to preserve the status quo by making DAT home taping equivalent to analog home taping—that is, you can only make first generation copies. (Second-generation cassette recordings are substantially worse than the preceding generation.)

The "DAT Bill" turned out not to be the answer we all were waiting for because of opposition from other factions within the music industry. The National Music Publishers Association (NMPA); the Songwriters Guild of America (SGA); and the American Society of Composers, Authors, and Publishers (ASCAP)—who called themselves the "Copyright Coalition"—strongly opposed the bill



What's at stake? Shown here are sales, in millions of units, of various prerecorded media and blank cassettes over the last decade or so. Note that, although few things are easier than making a cassette recording, pre-recorded cassettes still outsell blank ones. Both far outsell CD's.



The long road: A brief history of the trials and tribulations of the digital audio tape recorder.

and instead wanted to continue to press for royalties. As a result, the bill died in subcommittee, and Congress took no action before it adjourned for the year.

Even without an official bill to "legitimize" it, DAT finally arrived in the U.S. in June of last year when Sony began officially importing and selling SCMS-equipped decks. Almost immediately, a class-action suit was brought against them by the NMPA. The suit was enough to keep other manufacturers from following Sony's lead, and although units from other manufacturers are now available (see Gizmo, elsewhere in this issue, for a review of one such unit from Sharp), DAT sales fell far short of projections.

The Royalty Pact. Despite all the fighting, both sides knew that, without some sort of agreement, everyone had a lot to lose. The hardware manufacturers had the capability to produce new decks that they knew they could sell. The recording industry—though not admitting it publicly—knew that new formats are good for business. (Sales were virtually flat before the introduction of the CD in 1982.) Both sides were talking—in secret—in the spring of this year.

The impetus for the talks was likely that the hardware manufacturers were not so much trying to clear the way for DAT as they were looking for a way to ensure that Digital Compact-Cassette and Mini-Disc recorders could enter the market without the same obstacles that hindered DAT. John Roach, Chairman of Tandy Electronics (which earlier had committed to introducing DCC to the U.S. in 1992) appears to have been instrumental in getting the two camps to come to agreement.

Like the agreement reached in 1990, the pact would require that all digital consumer recorders contain SCMS circuitry. For the first time, however, royalty payments would be required on the sale of all consumer digital recorders and on blank tapes. On recorders, the payment would be 2% of the manufacturer's price, with a minimum royalty of $1, and a maximum of $8 ($12 for dubbing decks). On blank digital tapes, the royalty would be 3%.

The royalty payments would be collected by the U.S. Copyright Office and distributed—after deductions for the administrative overhead, of course—by the Copyright Royalty Tribunal into two unequal funds. One fund would be for the persons who own the copyright for the musical work, and the other for the copyright owners of the sound recording.

The total royalty pool would be divided up as follows: The record companies would get 38.41%; featured artists, 25.6%; songwriters, 16.66%; music publishers, 16.66%; the American Federation of Musicians (which represents non-featured musicians), 1.75%; and the American Federation of Television and Radio Artists (which represents non-featured vocalists), 0.92%. It is unclear to us whether there is any cap on the administrative overhead that can be collected by the various groups who must distribute the monies to the artists and copyright holders. Although no studies have shown that the more popular music is the most recorded, royalty distributions would be based on recording sales; that means that the largest-selling artists would receive the largest payments.

The pact marks the first time that the *hardware manufacturers have agreed* that the payment of royalties should be required for home taping. It also marks the first time that the recording industry has agreed that consumers can make

copies of copyrighted recordings for private, noncommercial use without the threat of copyright-infringement suits.

Analog tapes are not covered. Nor are video cassette recorders, even those with PCM (pulse-code modulation) digital-audio capabilities. The recording industry has agreed to stop pressing for royalties on the sale of blank analog cassettes. We expect, however, that the video industry—which has also pressed for royalty payments—is watching the action closely.

The royalty pact has the blessing of numerous groups, many of whom have rarely agreed in the past. Besides the EIA and the RIAA, the list includes the National Music Publishers Association (NMPA); the AFL-CIO Department of Professional Employees; the American Federation of Musicians (AFM); the American Federation of Television and Radio Artists (AFTRA); the American Society of Composers, Authors, and Publishers (ASCAP); Broadcast Music, Inc. (BMI); the National Academy of Songwriters (NAS); the National Association of Retail Dealers of America (NARDA); the National Consumers League (NCL); the Nashville Songwriters Association International (NSAI); and the Songwriters Guild of America.

There's only one group that has still to be convinced: Congress. If the pact reached by the various organizations isn't put into law by Congress, things will be right back where they started. Without a law, it's likely that some manufacturers will refuse to pay royalties. That, of course, will lead to more lawsuits, questions, refusal by recording companies to support the new digital formats, and, ultimately, stalled sales.

Time, however, is tight. With the rollout of DCC due early in 1992, it is imperative to both sides that Congress act before the end of the year. As we go to press, no sponsors for a bill have come forward in either House. Congress, however, has historically resisted royalties because they raise the prices of electronic products. However, because previous adversaries are coming to Congress with a detailed pact—and, apparently, with no industry dissenters—it would seem that only consumer groups will fight any proposed legislation. So far, none has come forward to do so, despite the "definitive" study by the Office of Technology Assessment that showed that home taping did not hurt the recording industry. ■

OFF THE AIR

Home audio royalties: Is video next?

BY FRANK BEACHAM

Is Big Brother, claiming to be doing you a favor, about to erode your rights? I think so, and the vehicle is a Trojan horse called the Audio Home Recording Act. This bill, the subject of recent congressional hearings, reflects a deal struck between record companies, music publishers and electronics manufacturers over the sale of digital audio tape recorders. On the surface, it will free up prerecorded music for new digital formats and stimulate the sales of DAT equipment.

But, in fact, it also taxes consumers, limits their ability to use recording equipment and smooths the way for a new generation of audio equipment which is sonically inferior to current CD and DAT gear.

The compromise also establishes a legal precedent that could easily be extended to a new generation of video recorders. Digital VCRs are just around the corner and offer the promise of pristine, artifact-free pictures and the ability to make copies without losing image and sound quality. If the audio legislation becomes law, you can bet that movie studios will want to levy royalties on digital VCRs and the videotapes that feed them.

Briefly, the audio act prohibits the music industry from suing electronics manufacturers over the issue of copyright infringement in exchange for two key concessions. First, it imposes a system of royalties on the importers and domestic makers of digital recording devices and media. The payments, intended for music creators and copyright holders, would raise equipment and tape costs to consumers. (The fee is 2 percent of the wholesale price for DAT recorders—up to a limit of $8—and 3 percent for blank media.)

Second, a Serial Copy Management System (SCMS) will be required for all consumer digital recorders. This will prohibit consumers from making second-generation digital copies. Consumers could make direct digital-to-digital copies only from original recordings.

The Home Recording Rights Coalition and proponents of the bill contend it breaks a long deadlock between equipment makers and the recording industry and clears the way for new digital recording products. But the SCMS copy protection circuit also affects the dubbing of personal as well as prerecorded commercial material.

Why should consumers have to put up with limitations on their recording equipment just to protect the music industry from copyright infringement?

Worse yet, why should consumers suffer such limits on top of royalty fees for equipment and tape?

Ironically, none of this will stop serious tape pirates who will only need to buy slightly costlier "professional" equipment, which, under the bill, would neither be limited by SCMS circuits nor subject to the royalty fee. If the music industry really wants to stop CDs from being copied digitally, it could easily put "flags" in the digital signal which would stop all copying.

The legislation would have another interesting effect. For the first time, the law would encourage a generation of digital audio equipment which would be inferior in sonic quality to current equipment. Unlike today's CD and DAT formats, the digital compact cassette (DCC) and mini-disc (MD) formats planned for introduction in 1992 use data compression techniques based on assumptions about human hearing. Data which is deemed inaudible is not recorded, reducing the need for storage space on media.

Though the manufacturers of the new formats contend most consumers will not hear any difference, many engineers fear the new formats will actually degrade their recordings. The record industry likes the new formats because each offers less sonic quality than master recordings and because objectionable artifacts from data compression appear in multigenerational copies.

The DAT format, which does not use data compression, has been unsuccessful as a consumer product due in part to legal actions by the music industry against equipment manufacturers. However, DAT sound quality is so good that many professionals now use it for mastering high-quality commercial releases. The record industry does not want this kind of recording quality in the hands of consumers.

The Audio Home Recording Act, sponsored in the Senate by Dennis DeConcini and in the House by Reps. Jack Brooks and William Hughes, has other noteworthy elements. For example, the bill would also make it illegal to sell or modify a piece of equipment that evades the SCMS system, and it keeps royalty accounts secret to protect equipment makers from having sales figures made public.

Everybody gets a piece of the pie except the consumer. Thoughtful users of audio and video equipment had better start asking some hard questions about this proposed legislation before it is too late. If this "compromise" is made into law, the government will for the first time start dictating to citizens how they can and cannot use home recording devices. ■

ROBERT KLEIN

APPENDIX 3.—JESSICA LITMAN, "COPYRIGHT LEGISLATION AND TECHNOLOGICAL CHANGE," OREGON LAW REVIEW, VOL. 68, NO. 2, (1989) AT 275

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Copyright Legislation and Technological Change

> Mr. Huddleston. The gentleman realizes that this is a highly technical subject and one that the ordinary Member is not qualified to deal with?
> Mr. Bankhead. I understand that.
> Mr. Huddleston. And that it is impossible to write a bill on this subject on the floor of the House. It is impossible to do it with any satisfaction.
> Mr. Bankhead. In reply to that, permit me to state it is apparent to me that it is impossible to write a bill in the committee.
> Mr. Huddleston. Let us dismiss the subject, then.[1]

THIS is a story about private parties, vested interests, and the inexorable pace of technological change. As of this writing, there are nineteen copyright bills pending before Congress. The number is typical. Throughout this century, members of Congress have introduced innumerable copyright bills, held hearings on many, reported some, and enacted few. In the past few years, Con-

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[1] 75 CONG. REC. 11,072 (1932).

gress has been inundated with proposals to revise copyright law in light of new technology.[2] That, too, is typical.

Recent commentary reflects a dispute over whether the copyright statute can adjust to the current climate of rapid technological change. One camp argues that current technology differs profoundly from prior development and calls into question the assumptions on which our copyright laws are based.[3] Another camp insists that copyright law has always faced the problem of technological change and accommodated it with remarkable success. The current challenge, the argument continues, is not qualitatively different from previous challenges, and the copyright statute is equal to the task.[4] Both camps rely heavily on received wisdom about the his-

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[2] *See, e.g., Copyright Issues Presented by Digital Audio Tape: Joint Hearing before the Subcomm. on Patents, Copyrights and Trademarks of the Senate Comm. on the Judiciary and the Subcomm. on Courts, Civil Liberties, and the Admin. of Justice of the House Comm. on the Judiciary*, 100th Cong., 1st Sess. (1987); Copyright and New Technologies: Hearings before the Subcomm. on Courts, Civil Liberties, and the Admin. of Justice of the House Comm. on the Judiciary, 99th Cong., 1st & 2d Sess. (1987); *Home Video Recording: Hearings Before the Senate Judiciary Comm.*, 99th Cong., 2d Sess. (1987); *Home Audio Recording Act: Hearings on S. 1739 before the Senate Comm. on the Judiciary*, 99th Cong., 1st & 2d Sess. (1986); *OTA Report on Intellectual Property Rights in an Age of Electronics and Information: Joint Hearing before the Subcomm. on Patents, Copyrights and Trademarks of the Senate Comm. on the Judiciary and the Subcomm. on Courts, Civil Liberties, and the Admin. of Justice of the House Comm. on the Judiciary*, 99th Cong., 2d Sess. (1986); *Copyright and Technological Change: Hearings before the Subcomm. on Courts, Civil Liberties, and the Admin. of Justice of the House Comm. on the Judiciary*, 98th Cong., 1st Sess. (1985). *See also* Kastenmeier & Remington, *The Semiconductor Chip Protection Act of 1984: A Swamp or Firm Ground?* 70 MINN. L. REV. 417, 424-30 (1985) (describing proposed copyright amendments preceding the enactment of sui generis protection for semiconductor chips); Olson, *The Iron Law of Consensus: Congressional Responses to Proposed Copyright Reforms Since the 1909 Act*, 36 J. COPYRIGHT SOC'Y 109, 110-11, 125-30 (1989) (summarizing proposed legislation).

[3] *See* Kost, *The End of Copyright*, in INTELLECTUAL PROPERTY RIGHTS IN AN ELECTRONIC AGE: PROCEEDINGS OF THE LIBRARY OF CONGRESS NETWORK ADVISORY COMM. MEETING, APRIL 22-24, 1987, at 19 (Network Planning Paper No. 16, 1987) [hereinafter Network Planning Paper No. 16]; Fleischmann, *The Impact of Digital Technology on Copyright Law*, J. PAT. & TRADEMARK OFF. SOC'Y 5 (1988). *See generally* OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, INTELLECTUAL PROPERTY RIGHTS IN AN AGE OF ELECTRONICS AND INFORMATION (1986) [hereinafter OTA REPORT].

[4] *See, e.g.*, Baumgarten & Meyer, *Program Copyright and the Office of Technology Assessment* (pts. 1 & 2), 4 THE COMPUTER LAW. 8 (Oct. 1987), 1 (Nov. 1987); Marsh, *Fair Use and New Technology: The Appropriate Standards to Apply*, 5 CARDOZO L. REV. 635 (1984); Oman, *The Copyright Law: Can it Wrap Itself Around the New Technologies?* in Network Planning Paper No. 16, *supra* note 3, at 27; *see also* Davidson, *The Black Box Approach to Software Copyright Infringement*, 3 THE COMPUTER LAW. 25, 27-28 (March 1986) (suggesting that copyright protection be extended to recombinant DNA).

tory of the interaction between copyright and technology.[5] Both, therefore, proceed on the assumption that copyright law has been effective, until now, in assimilating technological development; in fact, it has not.

Throughout its history, copyright law has had difficulty accommodating technological change. Although the substance of copyright legislation in this century has evolved from meetings among industry representatives whose avowed purpose was to draft legislation that provided for the future,[6] the resulting statutes have done so poorly. The language of copyright statutes has been phrased in fact-specific language that has grown obsolete as new modes and mediums of copyrightable expression have developed. Whatever copyright statute has been on the books has been routinely, and justifiably, criticized as outmoded.[7] In this Article, I suggest that the nature of the legislative process we have relied on for copyright revision is largely to blame for those laws' deficiencies.[8]

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[5] *See, e.g.* Baumgarten & Meyer (pt. 2), *supra* note 4, at 2-7; Marsh, *supra* note 4, at 647.

[6] *See, e.g.*, HOUSE COMM. ON THE JUDICIARY, 88TH CONG., 1ST SESS., COPYRIGHT LAW REVISION PART 2: DISCUSSION AND COMMENTS ON THE REPORT OF THE REGISTER OF COPYRIGHTS ON THE GENERAL REVISION OF THE U.S. COPYRIGHT LAW 29-32 (Comm. Print 1963) [hereinafter CLR PART 2] (colloquy); *id.* at 273-77 (written remarks of Walter J. Derenberg, U.S. Copyright Soc'y); STENOGRAPHIC REPORT OF THE PROCEEDINGS OF THE LIBRARIAN'S CONFERENCE ON COPYRIGHT, 1ST SESSION, IN NEW YORK CITY, MAY 31-JUNE 2, 1905, at 45-48, *reprinted in* 1 E.F. BRYLAWSKI & A. GOLDMAN, LEGISLATIVE HISTORY OF THE 1909 COPYRIGHT ACT, at pt. C (1976) [hereinafter COPYRIGHT CONFERENCE, 1ST SESS.] (colloquy).

[7] *See, e.g.*, Ebenstein, *Introduction* to S. ROTHENBERG, COPYRIGHT LAW: BASIC AND RELATED MATERIALS, at xv-xx (1956); Solberg, *Introduction* to R.C. DEWOLF, AN OUTLINE OF COPYRIGHT LAW at xix-xxiv (1925); Ashby, *Legal Aspects of Radio Broadcasting*, 1 AIR L. REV. 331, 342 (1930); Chafee, *Reflections on the Law of Copyright*, 45 COLUM. L. REV. 503, 503 (1945); Cramer, *Some Observations on the Copyright Law of 1976: Not Everything is Beautiful*, 1 COMM./ENT. 157, 164-66 (1977); Fleischmann, *supra* note 3, at 24-26; Kupferman, *Rights in New Media*, 19 LAW & CONTEMP. PROBS. 172, 172 (1954); MacDonald, *Technological Advances and Copyright*, 8 BULL. COPYRIGHT SOC'Y 3 (1960); Oman, *Software as Seen by the U.S. Copyright Office*, 28 IDEA 29 (1987); Stern, *Reflections on Copyright Law*, 21 N.Y.U. L.Q. 506, 512 (1947); Toohey, *The Only Copyright Law We Need*, WILSON LIB. BULL., Sept., 1984, at 27. *See generally OTA Report*, *supra* note 2.

[8] There has been a bumper crop of recent literature propounding theoretical models of the legislative process. *See, e.g.*, Easterbrook, *Statutes' Domains*, 50 U. CHI. L. REV. 533 (1983); Eskridge & Frickey, *Legislation Scholarship and Pedagogy in the Post-Legal Process Era*, 48 U. PITT. L. REV. 691 (1987); Landes & Posner, *The Independent Judiciary in an Interest-Group Perspective*, 18 J.L. & ECON. 875 (1975); Macey, *Promoting Public Regarding Legislation through Statutory Interpretation: An Interest Group Model*, 86 COLUM. L. REV. 223, 227-33 (1986); Popkin, *The Collaborative Model of Statutory Interpretation*, 61 S. CAL. L. REV. 541 (1988); Posner, *Economics, Politics, and the Reading of Statutes and the Constitution*, 49 U. CHI. L. REV. 263 (1982);

To solve the dilemma of updating and simplifying a body of law too complicated for legislative revision,[9] Congress and the Copyright Office have settled on a scheme for statutory drafting that features meetings and negotiations among representatives of industries with interests in copyright. That scheme dominated copyright revision during the legislative process that led to the enactment of the 1909 Copyright Act.[10] Congress and the Copyright Office continued to rely on meetings and negotiations among interested parties

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Mikva, *Foreword to Symposium on the Theory of Public Choice*, 74 VA. L. REV. 167 (1988).

Because this literature has focused on explicating the birth of a hypothetically *typical* statute, it has paid little attention to the myriad processes accompanying the enactment of actual statutes. Thus, while the models provide useful pedagogical tools for abstract discussions of separation of powers, they tell us remarkably little about the legislative process because they do not take as their task the examination of any actual legislative processes. Rather, they replace the traditional fictions of legislative intent with alternative fictions that may challenge the mind but are no more descriptive of any actual process culminating in legislation than the fictions they seek to displace. Until recently, the debate omitted any empirical examination of how particular statutes came to be the law. For an articulate critique of the empirical bases of the public choice literature, see Kelman, *On Democracy Bashing: A Skeptical Look at the Theoretical and "Empirical" Practice of the Public Choice Movement*, 74 VA. L. REV. 199 (1988).

In my examination of the legislative process that has yielded copyright statutes, I shunt most of these models aside. Instead of addressing the theoretical legislative process literature directly, I describe an actual legislative process that does not fit neatly into any of the propounded models.

[9] It has been a commonplace among representatives of interests affected by copyright that the subject is so complicated most members of Congress cannot understand it. *See, e.g.*, COPYRIGHT CONFERENCE, 1ST SESS., *supra* note 6, at 145 (remarks of Herbert Putnam, Librarian of Congress); CLR PART 2, *supra* note 6, at 5 (remarks of Abraham Kaminstein, Register of Copyrights).

There seems to be no reason why copyright law should necessarily be too complicated for members of Congress to draft. Congress has, after all, frequently addressed its attention to matters, such as the tax code, that are at least as complex. Copyright legislation, however, has never been accorded the congressional staff or resources available for legislation on politically sensitive issues like tax or military appropriations. It may be that the impression that members of Congress cannot or will not spare copyright sufficient time to gain a thorough understanding has been a self-fulfilling one.

[10] Copyright Act of March 4, 1909, ch. 320, 35 Stat. 1075 [hereinafter 1909 Act], *repealed by* Pub. L. No. 94-553, 90 Stat. 2541 (1976). *See, e.g., Revision of Copyright Laws: Hearings Before the Joint Comm. on Patents*, 60th Cong., 1st Sess. 365-69 (1908), *reprinted in* 5 E.F. BRYLAWSKI & A. GOLDMAN, *supra* note 6, at pt. K [hereinafter *1908 Hearings*]; *Copyright Hearings: Arguments on S. 6330 and H.R. 19853 Before the Joint Comm. on Patents*, 59th Cong., 1st Sess. 26-29, 31-33, 58-60, 68-70, 77-78, 88-90, 97, 154-67 (1906), *reprinted in* 4 E.F. BRYLAWSKI & A. GOLDMAN, *supra* note 6, at pt. J [hereinafter *Dec. 1906 Hearings*]; *Arguments on S. 6330 and H.R. 19853 Before the Joint Comm. on Patents*, 59th Cong., 1st Sess. 3-7, 20-21, 33-39, 77, 151-52 (1906), *reprinted in* 4 E.F. BRYLAWSKI & A. GOLDMAN, *supra* note 6, at pt. H [hereinafter *June 1906 Hearings*].

for subsequent efforts at copyright revision.[11] The efforts during the 1920s and 1930s to amend the copyright law to permit adherence to the *Berne Convention for the Protection of Literary and Artistic Works*[12] rested upon inter-industry negotiations and collapsed when those negotiations collapsed.[13] The twenty-one year effort that culminated in the enactment of the 1976 Copyright Act[14] again depended upon officially sponsored meetings among those with vested interests in copyright.[15] Recent efforts to amend our law to conform to the requirements of the *Berne Convention* involved a similar process.[16] The ongoing endeavor to write copyright amendments that make specific provision for new communications media relies heavily on inter-industry negotiations and stalls whenever those negotiations stall.[17] Indeed, the informal understanding

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[11] *See generally* Goldman, *The History of U.S.A. Copyright Law Revision from 1901 to 1954, reprinted in* SUBCOMM. ON PATENTS, COPYRIGHTS AND TRADEMARKS OF THE SENATE COMM. ON THE JUDICIARY, 86TH CONG., 1ST SESS., COPYRIGHT LAW REVISION (Comm. Print 1960). A single, notable exception is the process that led to the enactment of Pub. L. No. 96-517, 94 Stat. 3015, 3028 (1980) (codified at 17 U.S.C. §§ 101, 117), amending the copyright statute to make explicit provision for computer software. The text of the 1980 amendment was suggested by the National Commission on New Technological Uses of Copyrighted Works (CONTU), a learned commission charged with divining a solution to the problems posed by computers and photocopy machines. *See infra* note 399.

[12] The Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, 168 CTS 185, originated in 1886 and has been revised six times since then. *See generally* Black & Dworkin, *Foreward to Opening Speech of Arpad Bagsch at the Conference Celebrating the Centenary of the Berne Convention*, 11 COLUM.-VLA J. L. & ARTS 1 (1986). *Berne* is a multilateral copyright treaty that mandates copyright protection without formalities for works created by authors of *Berne* nations and works first published in *Berne* nations. Until 1988, the United States remained one of the few developed countries that had not yet acceded to *Berne*. The Senate finally ratified the *Berne Convention* in the final hours of the 100th Congress. *See Legislation: Bill Making Copyright Act Compatible With Berne Convention Passes House*, 36 Pat. Trademark & Copyright J. (BNA) 699 (Oct. 20, 1988); *see also* Berne Convention Implementation Act of 1988, Pub. L. No. 100-568, 102 Stat. 2853 (1988).

[13] *See* Goldman, *supra* note 11, at 4-11.

[14] General Revision of Copyright Law, Pub. L. No. 94-553, 90 Stat. 2541 (1976) (codified as amended at 17 U.S.C. §§ 101-810 (1982 & Supp. IV)).

[15] *See* Litman, *Copyright, Compromise, and Legislative History*, 72 CORNELL L. REV. 857 (1987).

[16] Olson, *supra* note 2, at 121. *See* FINAL REPORT OF THE AD HOC WORKING GROUP ON U.S. ADHERENCE TO THE BERNE CONVENTION 1-4, *reprinted in* 10 COLUM.-VLA J.L. & ARTS 513, 513-16 (1986). *See generally U.S. Adherence to the Berne Convention: Hearings before the Subcomm. on Patents, Copyrights and Trademarks of the Senate Comm. on the Judiciary*, 99th Cong., 1st & 2d Sess. 47 (1987).

[17] Proposed legislation for satellite broadcasting and the use of home satellite dishes has been pending in Congress for several years. Congressional efforts to encourage inter-industry negotiations finally culminated in the enactment of compromise legislation last autumn. *See* Satellite Home Viewer Act of 1988, Pub. L. 100-667, 102 Stat. 3985

among copyright scholars and practitioners is that copyright revision is, as a practical matter, impossible except through such a process.[18]

The process Congress has relied on for copyright revision, however, has shaped the law in disturbing ways. The inter-industry negotiations that resulted in the 1909 Copyright Act sought to revise a body of law based on an old model in order to enable it to embrace a variety of new media. Industries for whom the old law worked well sought to retain their advantages;[19] industries that found the old law inadequate sought profound changes in the way the copyright statute treated them.[20] Affected interests compromised their disputes by treating different industries in disparate ways. The draft bill that emerged from the conferences among industry representatives defined particular copyright rights with reference to the type of work in which copyright was claimed,[21] and the statute enacted in 1909 retained the draft bill's essential strategy. Authors of particular classes of works were granted specific, enumerated rights; rights differed among the classes of copyrightable works.[22] Thus, the 1909 Act gave the proprietor of the copyright in a dramatic work the exclusive right to present the work publicly,[23] the proprietor of the copyright in a lecture the exclusive right to deliver the

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(1988); Olson, *supra* note 2, at 121-22. The bill introduced in 1987, H.R. 2848, 100th Cong., 1st Sess. (1987), *reprinted in* 34 Pat. Trademark & Copyright J. (BNA) 279-85 (July 16, 1987), included provisions endorsed by the satellite industry and the Copyright Office but not by the major television networks. The staff of the House subcommittee encouraged ongoing negotiations over the bill and scheduled H.R. 2848 for mark-up repeatedly during the spring of 1988. Agreement proved elusive, and each mark-up session was canceled abruptly. Finally, in July of 1988, the networks and satellite carriers reached a compromise; only then did the House subcommittee move on the bill, incorporating the compromise into the legislation. *See Legislation: House Passes Legislation on Satellite Retransmission*, 36 Pat. Trademark & Copyright J. (BNA) 636 (Oct. 13, 1988); Legislation: House Committee OKs Animal Patenting, Satellite Retransmission Legislation, 36 Pat. Trademark & Copyright J. (BNA) 346, 347 (Aug. 4, 1988).

[18] *See, e.g.*, Kaminstein, *Introduction to Viewpoints on the General Revision of the Copyright Law — The American Bar Association Copyright Symposium at Chicago, August 1963*, 11 BULL. COPYRIGHT SOC'Y 3, 4 (1963); Olson, *supra* note 2, at 111; *cf. Home Video Recording*, *supra* note 2, at 77 (remarks of Sen. Thurmond).

[19] *See, e.g.*, COPYRIGHT CONFERENCE, 1ST SESS., *supra* note 6, at 15-17 (remarks of Charles Scribner, American Publishers' Copyright League).

[20] *See, e.g., id.* at 21-23 (remarks of Don C. Seitz, American Newspaper Publishers' Ass'n).

[21] *See* S. 6330, 59th Cong., 1st Sess. §§ 1, 4, 18 (1906), *reprinted in* 1 E.F. BRYLAWSKI & A. GOLDMAN, *supra* note 6, at pt. B; *infra* notes 142-46 and accompanying text.

[22] *See* 1909 Act, *supra* note 10, §§ 1, 4, 5; *infra* notes 144-48 and accompanying text.

[23] 1909 Act, *supra* note 10, § 1(d).

work in public for profit,[24] the proprietor of the copyright in a musical composition the exclusive right to perform the work publicly for profit except on coin operated machines,[25] and the proprietor of the copyright in a book no performance or delivery right whatsoever.

The drafters of the 1976 Act pursued similar goals to different conclusions. Congress and the Copyright Office again depended on negotiations among representatives of an assortment of interests affected by copyright to draft a copyright bill.[26] During twenty-one years of inter-industry squabbling, the private parties to the ongoing negotiations settled on a strategy for the future that all of them could support. Copyright owners were to be granted broad, expansive rights, including future as well as currently feasible uses of copyrighted works. Each of the copyright users represented in the negotiations, meanwhile, received the benefit of a privilege or exemption specifically tailored to its requirements, but very narrowly defined.[27] The 1976 Act solved the problem of accommodating future technology by reserving to the copyright owner control over uses of copyrighted works made possible by that technology. Broad, expansive rights were balanced by narrow, stingy exceptions.[28]

A comparison of the immediate futures of the 1909 and the 1976 Acts reveals that they failed the future in similar ways. Narrow provisions became inapplicable or irrelevant as technology developed, while those interests absent from the meetings of industry representatives encountered significant legal barriers to their activities. The inflexibility of specific provisions distorted the balance that the statute's drafters envisioned when it was enacted, and interested groups came running to Congress to plead for quick fixes. This history illustrates that broad rights and broad exceptions swal-

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[24] *Id.* § 1(c).

[25] *Id.* § 1(e).

[26] I have described the legislative process that produced the 1976 Copyright Act in an earlier article. *See* Litman, *supra* note 15.

[27] *See id.* at 883-88; *infra* notes 234-312 and accompanying text.

[28] Cases interpreting the 1976 Act have not described it this way; the interpretation is my own. *See* Litman, *supra* note 15, at 882-96. Courts have, for the most part, perceived the statute as striking some balance between rights and exceptions, but they have not characterized that balance in general terms. *See, e.g.*, Sony Corp. of Am. v. Universal City Studios, 464 U.S. 417, 429-33 (1984). The disparity between the breadth of the rights granted in 17 U.S.C. § 106 and the narrow specificity of the exceptions and limitations detailed in 17 U.S.C. §§ 107-118, however, is patent. The 1976 Act's legislative history suggests a rationale behind that disparity. *See infra* notes 229-312 and accompanying text.

low up their specific counterparts. Because technological development will change the world that a copyright law seeks to order, the law needs flexible provisions of general application.[29]

In this Article, I explore how the process of drafting copyright statutes through negotiations among industry representatives became entrenched, and what that process has cost us in our efforts to deal rationally with technology.[30] Part I traces the birth of the conference process and its shaping of the 1909 Act. Part II describes how the conference process became a fixture of copyright revision during later efforts to amend the statute. Part III examines the strengths and weaknesses of a legislative process predicated on negotiations among interested parties. Part IV explores the distortions that the process imposed upon the massive revision effort that produced the 1976 Copyright Act. Part V focuses on the problems posed by new communications media and private use as illustrations of the 1976 Act's weaknesses. Part VI surveys recent legislative activity and suggests that the conference process disserves both affected industries and members of Congress. I nonetheless conclude that no meaningful reform of the process is likely.[31]

I

THE FIRST CONFERENCES

Until the copyright revision that culminated in the 1909 Act, the legislative process accompanying copyright enactments differed little from the process yielding most statutes: interested parties sent

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[29] *See infra* notes 313-72 and accompanying text.

[30] I will proceed more or less chronologically, because the stresses posed by new technology and the disputes among industries affected by copyright were more straightforward when the number of technological innovations and industries in the game were fewer than they have since become. The turn of the century dispute between music publishers and the manufacturers of player pianos shares many similarities with the current brawl among motion picture producers, television broadcasters, cable systems, and the operators of communications satellites, but the parallels are easier to see if the simpler disputes are explored before tackling the more complicated ones.

[31] Because the focus of my Article is the process that yields copyright legislation, I will not address, except in passing, see *infra* note 396, the strategies that courts might employ to interpret or reinterpret copyright statutes in ways that would circumvent statutory weaknesses. That topic is a fascinating and complex one in its own right, and raises significant separation of powers concerns. *See generally* Davidson, *Common Law, Uncommon Software*, 47 U. PITT. L. REV. 1037, 1067-70 (1986); Rosen, *A Common Law for the Ages of Intellectual Property*, 38 U. MIAMI L. REV. 769 (1984); Froomkin, *Climbing the Most Dangerous Branch: Legisprudence and the New Legal Process* (Book Review), 66 TEX. L. REV. 1071 (1988).

petitions to Congress.[32] The majority of bills were drafted by representatives of affected interests, who then requested members of Congress to introduce the bills,[33] wrote petitions to Congress in their support, and testified in their favor during Patent Committee hearings.[34] By 1900, the body of copyright law was a pastiche of inconsistent amendments grafted on a basic structure that conflated (and sometimes confused) copyrights, patents, and trademarks.[35] Efforts toward general statutory revision foundered as a "result of difficulties in obtaining a quorum of the Patents Committee to give attention to this subject."[36]

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[32] *E.g.*, MEMORIAL OF PETER S. DU PONCEAU AND OTHERS, PRAYING CONGRESS TO APPOINT COMMITTEES OF INQUIRY ON THE SUBJECT OF COPYRIGHT, AND TO AWAIT THEIR REPORT BEFORE ACTING ON THE SUBJECT, S. DOC. No. 309, 25th Cong., 2d Sess. (1838). *See* H. REP. No. 16, 40th Cong., 2d Sess. (1868); S. REP. No. 494, 25th Cong., 2d Sess. (1838); *see generally* LIBRARY OF CONGRESS, COPYRIGHT IN CONGRESS, 1789-1904. (1976 Reprint of 1905 ed.) [hereinafter COPYRIGHT IN CONGRESS].

[33] *See, e.g., International Copyright: Statements on S. 191 and S. 1178 Made before the Sen. Comm. on Patents*, 49th Cong., 1st Sess. 4 (1886) (remarks of Sen. Hawley) (S. 191 drafted by authors' association and introduced by Hawley at its request).

[34] *See* COPYRIGHT IN CONGRESS, *supra* note 32, at 96-377.

[35] Throughout the nineteenth century, Congress responded to new developments by enacting discrete amendments to meet particular exigencies. *See, e.g.*, Act of Aug. 1, 1882, ch. 366, 22 Stat. 181 (amending Rev. Stat. § 4962 to permit manufacturers of molded decorative articles to affix copyright notice on the bottom of the articles). By the turn of the century, United States copyright law had become arcane and complex. *See generally* LIBRARY OF CONGRESS, REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1903, S. DOC. No. 10, 58th Cong., 2d Sess. 68-69 (1903) [hereinafter REGISTER'S 1903 REPORT] ("Our present copyright system is a highly technical one, largely due to its uneven development by means of many separate enactments dealing with particular matters, or framed to meet special exigencies."); *id.* at 443-45 (detailing examples). The law was riddled with internal contradictions and discrepancies and lacked the flexibility to adjust to the growth of new works and media. *Id.* at 443-68. Copyright owners complained of technicalities. *See* COPYRIGHT CONFERENCE, 1ST SESS., *supra* note 6, at 15-16 (remarks of Charles Scribner, Periodical Publishers' Ass'n of America); *id.* at 18-19 (remarks of W.A. Livingstone, Print Publishers' Ass'n of America); *id.* at 20 (remarks of John W. Alexander, Soc'y of American Artists); *Id.* at 137-38 (colloquy). Judicial opinions were inconsistent and confused. *See generally* R.R. BOWKER, COPYRIGHT: ITS LAW AND LITERATURE 8-20 (1886); E.S. DRONE, A TREATISE ON THE LAW OF PROPERTY IN INTELLECTUAL PRODUCTIONS 43-53, 434-67 (1879).

[36] *Copyright Legislation*, 49 PUBLISHERS' WEEKLY 856 (May 23, 1896). Although the Register of Copyrights, in his 1903 Report to the Librarian of Congress, characterized two nineteenth century statutes as general revisions of the copyright laws, *see* REGISTER'S 1903 REPORT, *supra* note 35, at 443-68, neither statute represented a comprehensive overhaul. By general revision, Register Solberg appears to have meant only that the two statutes re-enacted the copyright laws rather than merely amending them. The first, enacted in 1831 after lobbying by Dr. Noah Webster, extended the initial copyright term to 28 years and added musical compositions to the subject matter of copyright. *See* Solberg, *Copyright Law Reform*, 35 YALE L.J. 48, 49-50 (1925). The

Beginning in 1901, the recently appointed Register of Copyrights pleaded repeatedly with Congress to appoint a special commission to revise the copyright law.[37] Members of the Senate Patent Committee, however, were hostile to the idea of a commission.[38] The Librarian of Congress suggested that Congress instead pass a resolution authorizing the Library of Congress to convene a conference of experts and interested parties to consider a codification of the copyright laws. The members of the Senate Patent Committee concluded that it would be improper for Congress to authorize such a conference, but suggested that they would be delighted if the Librarian were to call an unauthorized conference on his own motion.[39]

The Librarian of Congress followed the Patent Committee's suggestion and invited representatives of authors, dramatists, painters, sculptors, architects, composers,[40] photographers, publishers of various sorts of works, libraries, and printers' unions to a series of meetings in New York City.[41] The invitees represented the beneficiaries of the rights granted by existing copyright statutes.[42] The

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second, in 1870, consolidated the copyright, patent, and trademark laws in connection with the general effort of transforming the extant federal laws into the *Revised Statutes*; it made few substantive changes but did introduce language into the copyright law that invited confusion with the patent laws. *See* REGISTER'S 1903 REPORT, *supra* note 35, at 444-45; Solberg, *supra*, at 50. Six statutes enacted between 1831 and 1870, and 10 statutes enacted between 1870 and 1900, accomplished more substantive amendment. *See* LIBRARY OF CONGRESS, COPYRIGHT ENACTMENTS: LAWS PASSED IN THE UNITED STATES SINCE 1783 RELATING TO COPYRIGHT 31-59 (1963).

[37] *See* LIBRARY OF CONGRESS, REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1902, S. DOC. NO. 6, 57th Cong., 2d Sess. 63-65 (1902); LIBRARY OF CONGRESS, REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1901, S. DOC. NO. 35, 57th Cong., 1st Sess. 60-61 (1901); REGISTER'S 1903 REPORT, *supra* note 35, at 68-69, 467-68.

[38] *See* Solberg, *supra* note 36, at 62.

[39] Letter from Sen. A.B. Kittredge, Chairman of Senate Comm. on Patents, to Hon. Herbert Putnam, Librarian of Congress (January 27, 1905), *reprinted in* 5 E.F. BRYLAWSKI & A. GOLDMAN, *supra* note 6, at pt. M, at 5.

[40] Although composers' representatives were invited to attend, their presence was nominal. *See Dec. 1906 Hearings*, *supra* note 10, at 385 (colloquy).

[41] *See* COPYRIGHT CONFERENCE, 1ST SESS., *supra* note 6, at vii-xv; Solberg, *supra* note 36, at 62-63.

[42] The extant copyright statutes extended copyright to the works of the creators and publishers, privileges to the libraries, and job protection to the printers' unions.

The Librarian also invited representatives from the National Educational Association as surrogates for the public interest. They attended some of the sessions but did not actively participate. *See June 1906 Hearings*, *supra* note 10, at 57-58 (remarks of Mr. Putnam, Librarian of Congress). Bar Association representatives, in contrast, participated enthusiastically and assisted the Copyright Office in the actual drafting of the bill. *See* AMERICAN BAR ASSOCIATION, REPORT OF THE 29TH ANNUAL MEETING 35-37 (1906).

Librarian did not invite representatives from interests that had not yet received statutory recognition; the motion picture industry,[43] the piano roll industry, and the "talking machine" (phonograph) industry received no invitations.[44] No invitee commented on their absence.

A year later, the conferences yielded a bill, and joint hearings in Congress commenced. It quickly became clear that the doubts of Senate Committee members about the propriety of a conference of private interests had been well-founded.[45] Witnesses who had not been invited to the conferences found the whole procedure scandalous.[46] Indeed, some went so far as to suggest that Congress was being hoodwinked by a monopolistic conspiracy.[47] The Librarian

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[43] Motion pictures were then in their infancy. Thomas Edison had invented the kinetoscope in 1889. By the turn of the century, short, plotless motion pictures were being exploited commercially. Under the copyright law then in force, creators of motion pictures could register their films for copyright only as "photographs." *See* Edison v. Lubin, 122 F. 240, 242 (3d Cir. 1903); American Mutoscope & Biograph v. Edison Mfg., 137 F. 262, 266-67 (D.N.J. 1905).

[44] One representative of the talking machine industry became aware of the conferences and politely crashed one of its sessions. *See June 1906 Hearings*, *supra* note 10, at 151 (remarks of Mr. Putnam, Librarian of Congress).

[45] Some of the remarks made during the hearings by members of the committees support an inference that their nervousness about the drafting process figured in their decision to delay reporting the bill. *See, e.g., June 1906 Hearings*, *supra* note 10, at 153 (colloquy); *see also Arguments on H.R. 11,943 Before the House Comm. on Patents*, 59th Cong., 1st Sess. 12 (1906) (colloquy).

[46] *See Dec. 1906 Hearings*, *supra* note 10, at 26-29 (testimony of F.W. Hedgeland, Kimball Co.); *id.* at 170 (written statement of Herbert Fromme, attorney for band directors); *June 1906 Hearings*, *supra* note 10, at 53 (testimony of George W. Oglivie, publisher); *id.* at 77 (testimony of Paul H. Cromelin, Columbia Phonograph Co.); *id.* at 97 (testimony of G. Howlett Davis, inventor of talking machine devices); *id.* at 110 (testimony of John O'Connell, representing player piano and piano roll companies); *id.* at 145-46 (testimony of S.T. Cameron, American Gramophone Co.); *id.* at 190 (written brief submitted by F.W. Hedgeland, Kimball Co.).

[47] *See Dec. 1906 Hearings*, *supra* note 10, at 73-77 (testimony of William P. Cutter, Forbes Library); *id.* at 277-83 (testimony of Albert H. Walker, attorney); *id.* at 298-313 (testimony of George W. Pound, DeKleist Musical Instrument Co.); *id.* at 337-44 (testimony of Paul H. Cromelin, Columbia Phonograph Co.); *June 1906 Hearings*, *supra* note 10, at 98 (testimony of G. Howlett Davis, inventor of talking machine devices); *id.* at 127 (testimony of H.N. Low, piano roll industry); *id.* at 166-70 (testimony of Albert H. Walker, attorney). Witnesses representing talking machine and piano roll manufacturers charged that an illegal combination of music publishers and the Aeolian Company, a manufacturer of player pianos and piano rolls, had conspired to draft a provision of the copyright bill that would enable Aeolian to secure a monopoly on piano rolls of popular songs in return for Aeolian's promise to pay royalties to the music publishers. Charges of monopoly, trust, and other restraints of trade remained popular among witnesses in many subsequent copyright revision hearings. *See, e.g.*, sources cited *infra* notes 77 & 93.

of Congress became increasingly defensive.[48]

The copyright bill produced by the conferences conferred significant advantages upon composers and music publishers, who had participated, at the expense of the piano roll and talking machine industries, which had not. Extant case law held that the manufacture of piano rolls did not infringe the copyright in the underlying musical composition.[49] The bill, however, gave copyright owners the exclusive right to make or sell any mechanical device that reproduced the work in sounds, thus making the unlicensed manufacture of piano rolls and phonograph records illegal.[50] The opposition from piano roll and talking machine companies to the bill derived significant weight from their complaints about the process and dominated the 1906 hearings. At the request of the House and Senate Committees, the bill's original authors drafted a substitute bill limiting the mechanical reproduction provisions that the piano roll and talking machine interests opposed.[51] Nonetheless, a majority of the House Committee voted to delete the mechanical reproduction subsection completely.[52] A minority of the House Committee filed a dissenting report supporting a third version of the disputed subsection.[53] The majority of the Senate Committee reported favorably on a bill incorporating yet a fourth version,[54] while the Senate minority

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[48] *See Dec. 1906 Hearings*, *supra* note 10, at 31-33 (remarks of Herbert Putnam, Librarian of Congress); *June 1906 Hearings*, *supra* note 10, at 17-18, 109, 148, 151-52 (remarks of Herbert Putnam, Librarian of Congress).

[49] *See* Kennedy v. McTammany, 33 F. 584 (C.C. Mass. 1888).

[50] *See* S. 6330, 59th Cong., 1st Sess. § 1(g) (1906). Two years later, the Supreme Court settled the issue, agreeing with prior case law and ruling that manufacture of piano rolls (and, by analogy, phonograph records) did not infringe the copyright in the underlying musical composition. White-Smith Music Publishing v. Apollo Co., 209 U.S. 1 (1908). That ruling remained good law only until it was superseded by the 1909 Act.

[51] *See* H. REP. No. 7083, 59th Cong., 2d Sess. 9 (1907), *reprinted in* 6 E.F. BRYLAWSKI & A. GOLDMAN, *supra* note 6, at pt. N.

[52] *See id.* In revising the bill, the House Committee also limited the conference bill's definition of copyrightable subject matter, restricted the performance rights in musical compositions to public performance for profit, reduced the duration of the copyright term, and introduced a procedure in lieu of renewal. *Compare* H.R. 25,133, 59th Cong., 2d Sess. §§ 1, 4, 18 (1907), *reprinted in* 6 E.F. BRYLAWSKI & A. GOLDMAN, *supra* note 6, at pt. N, *with* S. 6330, 59th Cong., 1st Sess. §§ 1, 4, 18 (1906) *reprinted in* 1 E.F. BRYLAWSKI & A. GOLDMAN, *supra* note 6, at pt. B.

[53] *See* H. REP. No. 7083, pt. 2, 59th Cong., 2d Sess. 7 (1907), *reprinted in* 6 E.F. BRYLAWSKI & A. GOLDMAN, *supra* note 6, at pt. P.

[54] *See* S. REP. No. 6187, 59th Cong., 2d Sess. 3-4 (1907), *reprinted in* 6 E.F. BRYLAWSKI & A. GOLDMAN, *supra* note 6, at pt. Q.

report supported the House Committee majority's position.[55]

None of the bills reached a vote, and, in the following year, a proponent of each of the four camps introduced a bill reflecting its position.[56] At the joint hearings held on the four bills, testimony was as divisive as it had been two years earlier.[57] At the end of the hearings, a representative of popular song writers suggested that the song writers might sit down with the piano roll and talking machine manufacturers and the music publishers' association in order to agree on a compromise solution.[58] Representative Currier, the chairman of the House Committee, urged the parties to adopt such a plan, and a spokesman for the piano roll industry disclosed that he had, in fact, begun to explore negotiations with his opponents earlier in the day. Representative Currier assured the witnesses that, if they could reach agreement, the bill would pass. The Senate Committee Chairman echoed his enthusiasm for the plan and adjourned the hearings.[59]

The copyright bill introduced in February of 1909 included a solution that apparently embodied the agreement of the affected parties.[60] The relevant provision differed from prior proposals; it established a compulsory license[61] for mechanical reproductions of music and entirely exempted the performance of musical compositions on coin operated devices.[62] The bill also incorporated a side agreement or two that the private parties had reached along the

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[55] *See* S. REP. NO. 6187, pt. 2, 59th Cong., 2d Sess. 3-4 (1907), *reprinted in* 6 E.F. BRYLAWSKI & A. GOLDMAN, *supra* note 6, at pt. R.

[56] *See* LIBRARY OF CONGRESS, REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1908, 60th Cong., 1st Sess. 90-93 (1908).

[57] *See 1908 Hearings*, *supra* note 10, at 188-93 (testimony of Victor Herbert, Authors' and Composers' Copyright League of America); *id.* at 194-218 (testimony of Nathan Burkan, attorney); *id.* at 353 (testimony of George W. Pound, DeKleist Musical Instrument Co.). One witness submitted his own substitute bill. *See id.* at 293-97 (testimony of Frank L. Dyer, Nat'l Phonograph Co.). The major players insisted that a compromise solution would be impossible. *See, e.g., id.* at 361 (testimony of Robert Underwood Johnson, American (Authors') Copyright League).

[58] *See id.* at 365 (remarks of William Kendall Evans, Words and Music Club).

[59] *See id.* at 368-69 (colloquy).

[60] *See* 43 CONG. REC. 3765-67 (colloquy).

[61] A compulsory license limits the copyright owner's exclusive rights by prohibiting her from refusing to license a particular use. Users are entitled to use the copyrighted work on statutory terms for a statutory fee. The compulsory license included in the 1909 bill provided that once a copyright owner had authorized a mechanical reproduction (a piano roll or phonograph record) of a musical composition, other concerns were entitled to produce their own mechanical reproductions of the work at the statutory royalty of two cents per record or roll manufactured. *See* S. REP. NO. 9440, 60th Cong, 2d Sess. § 1(e) (1909).

[62] *See* H.R. REP. NO. 2222, 60th Cong., 2d Sess. 7-9 (1909). The exemption for coin

way.[63] It was enacted within the month.

II

THE 1909 ACT IN A CHANGING WORLD

A. The Conferences Reprised

At the same time the Committees were struggling with the revision bill, the Kalem Company hired a writer to read the novel *Ben Hur* and write a scenario for a motion picture, which it proceeded to produce. The motion picture industry had been operating without concern for the copyright laws. A few motion pictures had been registered for copyright as "photographs,"[64] but the industry was paying no more attention to the copyrights in works it used for its raw material than had the piano roll and talking machine industries before it.[65] The copyright in the novel *Ben Hur* belonged to Harper Brothers Publishers, and Harper Brothers slapped the Kalem Company with a copyright infringement suit. In 1911, the United States Supreme Court held that the exhibition of the movie infringed the copyright in the novel.[66] The Kalem Company settled the suit for $25,000, and the motion picture industry woke up and got in touch

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operated machines was intended to shield the promotional playing of songs in penny arcades, which were thought to increase the sales of sheet music. *See id.*

[63] Negotiations between a representative of the American (Authors') Copyright League and representatives of the International Typographical Union, for example, produced a provision exempting foreign books written in foreign languages from the bill's manufacturing clause, which required all copyrighted books to be printed from type set in the United States. *See* Solberg, *supra* note 36, at 64-65. In addition, the bill revived the renewal term.

[64] *See supra* note 43.

[65] Lawyers for the motion picture industry, often the same lawyers that represented the talking machine industry, contended that the production of motion pictures based on copyrighted works did not violate the current copyright laws, and may well have so advised their clients. *See Townsend Copyright Amendment: Complete File of Arguments On H.R. 15,263 and H.R. 20,596 Before the House Comm. on Patents*, 62d Cong., 2d Sess. 17-18, 22, 41 (1912) [hereinafter *1912 Hearings*] (remarks of John O'Connell, Motion Pictures Patent Co.).

[66] Kalem Co. v. Harper Bros., 222 U.S. 55 (1911). The lower court held that the motion picture itself did not infringe the novel, relying on an analogy to piano rolls, which the Supreme Court held did not infringe the copyright in underlying musical compositions. *See supra* note 49 and accompanying text. The court, nevertheless, concluded that *showing* the motion picture violated the copyright owner's exclusive right, under Rev. Stat. 4952, to dramatize the novel. Harper & Bros. v. Kalem Co., 169 F. 61 (2d Cir. 1909), *aff'd*, 222 U.S. 55 (1911). The Supreme Court agreed that exhibition of the film infringed plaintiff's dramatization rights. *Kalem*, 222 U.S. at 61. Defendant did not itself exhibit the film but sold or leased copies of the film for others to exhibit. The Supreme Court concluded that defendant's distribution of copies to others for public exhibition was contributory infringement. *Id.* at 62-63.

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with its Congressmen.[67]

Motion pictures had barely been mentioned in the hearings on the 1909 Act;[68] the motion picture industry had not bothered to attend.[69] After *Kalem Co. v. Harper Brothers*, however, the motion picture industry faced the prospect of liability under a statute that had been drafted without its interests in mind.[70] It prepared a bill to amend the copyright statute to limit the motion picture industry's exposure in copyright infringement actions and asked Representative Edward Townsend of New Jersey to introduce the bill in Congress.[71]

Townsend introduced the movie industry bill in January of 1912; the House Patent Committee scheduled it for hearings that same month.[72] The Committee made no initial effort to notify interested parties of the pending bill.[73] A representative of the live theatre industry, however, learned of the hearings and showed up at them without invitation.[74] The hearings that followed threatened to become a replay of the talking machine dispute. Most of the witnesses who testified before the Committee were the same people who testified in 1906 and 1908.[75] Although some of them represented differ-

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[67] *See 1912 Hearings*, *supra* note 65, at 8-9, 65-73 (remarks of Frank L. Dyer, Edison Electric Co.). During the early 1910s, the motion picture industry was concentrated in New Jersey, Philadelphia, and New York City. Congressmen representing districts in which motion picture producers were located spearheaded the industry's efforts to amend the copyright statute in the House of Representatives.

[68] *See 1908 Hearings*, *supra* note 10, at 24, 31, 175-78 (testimony of Ligon Johnson, Nat'l Ass'n of Theatrical Managers); *id.* at 180-98 (various witnesses).

[69] Two of the representatives of talking machine companies said a word or two on the motion picture industry's behalf. *See id.* at 281-82 (testimony of Frank L. Dyer, Nat'l Phonograph Co., on behalf of the Edison Mfg. Co.); *id.* at 309-11 (testimony of Paul H. Cromelin, American Musical Copyright League, on behalf of Mr. Whitman of the Cameraphone Co.).

[70] *See 1912 Hearings*, *supra* note 65, at 17-22 (remarks of John O'Connell, Motion Pictures Patent Co.).

[71] *See id.* at 7 (testimony of Rep. Townsend). Among Townsend's New Jersey constituents were Thomas Edison and his Edison Electric Company. Mr. Edison invented an early motion picture camera; Edison Electric produced motion pictures.

[72] *See id.* at 3.

[73] *See id.* at 3 (remarks of Ligon Johnson, Nat'l Ass'n of Theatrical Producing Managers).

[74] *See id.*

[75] For example, Frank Dyer testified in 1906 on behalf of the Edison Phonograph Works and the National Phonograph Company. He returned in 1912 to speak for Edison Electric Company, a motion picture company. William Brady testified as a theatrical producer in 1908 and as the President of the National Association of Producing Managers in 1912. John O'Connell represented the National Piano Manufacturers Association of America in 1906 and 1908 and returned in 1912 as the representative of the Motion Pictures Patent Co.

ent interests this time around, their arguments and counter arguments had a familiar ring.[76] As was the case in the earlier hearings, opponents of the legislation testified that its supporters were conspirators in thrall to a dastardly trust.[77]

To head off a full-scale re-enactment, Representative Alexander suggested that the parties negotiate privately to reach a compromise solution, and twice asked the Committee to adjourn its hearings to permit the private negotiations to continue.[78] The parties reached an agreement in March of 1912 and turned their draft of a bill over to Representative Townsend for introduction.[79] The agreement resolved the theatre industry's objections to the bill, but disadvantaged authors of nondramatic works, who had not been involved in the controversy.[80] The Copyright Office questioned the wisdom of aspects of the compromise,[81] but the Committee reported the bill with only minor changes.[82] Enactment followed swiftly.

B. New Players Join the Game

The lesson an industry observer might have expected to learn from the preceding saga of copyright legislation was that interested parties were well advised to work out their differences before involving Congress. And, indeed, that was precisely what affected industries attempted to do with all subsequent efforts at copyright

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[76] *See, e.g., 1912 Hearings, supra* note 65, at 34, 74 (testimony of Ligon Johnson, Nat'l Ass'n of Theatrical Managers); *id.* at 41 (testimony of John O'Connell, Motion Pictures Patent Co.).

[77] *See id.* at 29-30 (testimony of Augustus Thomas, Soc'y of American Dramatists and Composers); *id.* at 31-32, 60-61 (testimony of William Brady, Nat'l Ass'n of Producing Managers); *id.* at 64, 74-78 (testimony of Ligon Johnson, Nat'l Ass'n of Theatrical Managers).

[78] *See id.* at 44-45; *id.* at 94. Initial efforts to reach agreement broke down after three weeks, and motion picture industry representatives gave Rep. Townsend their own version of a compromise proposal. *See id.* at 50-51 (remarks of Augustus Thomas, Soc'y of American Dramatists and Composers); *id.* at 79 (remarks of John O'Connell, Motion Pictures Patent Co.). The proposal was unacceptable to the bills' opponents. *See id.* at 60-78 (various witnesses). Rep. Alexander asked the parties to try again. *Id.* at 94.

[79] *See id.* at 95-96.

[80] The bill sharply reduced the statutory damages available for infringement of a nondramatic work by a motion picture. It did not, however, significantly reduce the statutory damages available for infringement of dramatic works. *See* H.R. 24,224, 62d Cong., 2d Sess. (1912). A provision of the bill that the committee later deleted would have limited the copyrightability of scenarios. *See* sources cited *infra* note 81.

[81] *See 1912 Hearings, supra* note 65, at 106-09 (testimony of Thorvald Solberg, Register of Copyrights); *see also Townsend Copyright Amendment: Hearing on H.R. 22,350 Before the House Comm. on Patents*, 62d Cong., 2d Sess. 1-9 (1912) (testimony of J.J. O'Connell, motion picture industry).

[82] *See* H.R. REP. NO. 756, 62d Cong., 2d Sess. (1912).

revision. Seeking inter-industry consensus, however, became significantly more complicated in the years that followed.

Shortly after the enactment of the Townsend amendment in 1912, the structure of industries affected by copyright changed dramatically. In 1914, representatives of music publishers and composers formed the American Society of Composers, Authors and Publishers (ASCAP) to enforce collectively the members' rights to perform their musical compositions publicly for profit. ASCAP began a campaign to make the nominal performance right remunerative.[83] On November 2, 1920, the first commercial radio broadcasting station opened with a broadcast of the Harding election returns.[84] Radio receiving set manufacturers pioneered radio broadcasting as a promotional device; other concerns soon recognized the potential of radio advertising.[85] Within a few years, there were radio stations throughout the nation. During the 1920s, the motion picture industry grew more powerful. U.S. companies produced "talkies" and began exporting their movies to Europe.

Despite the enactment of the Townsend amendment, motion picture producers grew increasingly uncomfortable with the formalities of a copyright statute written without attention to their needs.[86]

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[83] Composers and music publishers found it impossible to enforce the public performance right in individual compositions. ASCAP members pooled their compositions into a repertory and offered blanket licenses that permitted establishments to perform any composition in the repertory during the license term. ASCAP set the single, up-front blanket license fee for an establishment on the basis of the size of the business. Motion picture theatres, for example, paid an annual fee equal to ten cents per seat. ASCAP's sales tactics drew great ire from affected businesses. An ASCAP representative would first offer to sell a blanket license. When the business refused to purchase one, ASCAP's representatives would monitor the business, document its performance of ASCAP songs, and then sue for infringement. Many businesses chose to purchase licenses to settle the litigation. Others went to court, where ASCAP routinely prevailed. *See, e.g.*, Buck v. Jewell-LaSalle Realty, 283 U.S. 191 (1931). *See generally* Oman, *Source Licensing: The Latest Skirmish in an Old Battle*, 11 COLUM.-VLA J. L. & ARTS 251, 252-53 (1987).

[84] *See* Ashby, *supra* note 7, at 331.

[85] *Id.* at 332.

[86] The 1909 Act imposed formalities prerequisite to the securing of copyright, which were based on assumptions appropriate to works exploited by publishing printed copies. A story could not be registered for copyright, for example, until it had been published with correctly placed and worded notice identifying the owner of the copyright. The courts interpreted these requirements rigidly. *See generally* W. PATRY, LATMAN'S THE COPYRIGHT LAW 138-57 (6th ed. 1986). Although the Townsend amendment addressed problems surrounding registration of motion pictures, it had not altered the formal requirements for copyright in other works. Motion picture producers found that these provisions posed significant obstacles to their efforts to secure clear title to works they wished to use in their films. *See Copyrights: Hearings on H.R. 6250 and H.R. 9137 Before the House Comm. on Patents*, 68th Cong., 1st Sess. 312-13 (1924) [hereinafter

Representatives of the motion picture industry met with authors' representatives in New York and agreed to convene private copyright conferences, along the model of those that produced the 1909 Act, to work out a consensus on copyright revision.[87] Representatives of authors, book and periodical publishers, printers, labor unions, librarians, and motion picture producers met in conferences over a number of years and hammered out the details of a copyright revision bill.[88] Motion picture counsel completed a draft of the bill, and Representative Frederick William Dallinger introduced it in 1924.[89] Participants in the conferences, however, had not sought the advice of broadcasters or the talking machine industry and had sought, but not received, the advice of composers and music publishers.[90] Nor had the representatives of motion picture producers consulted the theatre owners who exhibited their films. When the supporters of the Dallinger bill arrived in front of the House Patent Committee, they discovered that the industries they failed to invite to their conferences were pursuing their own agenda.

Both motion picture theaters and radio stations used popular music in their programs. Apparently, theatre and station owners gave copyright infringement little thought until ASCAP showed up on their doorsteps demanding royalties.[91] When ASCAP went to

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1924 House Hearings] (testimony of Louis E. Swarts, Motion Picture Producers and Distributors of America).

[87] *See 1924 House Hearings, supra* note 86, at 311-27 (testimony of Louis E. Swarts, Motion Picture Producers and Distributors of America).

[88] *See Copyrights: Hearings on H.R. 11,258 Before the House Comm. on Patents*, 68th Cong., 2d Sess. 475-79 (1925) [hereinafter *1925 House Hearings*] (testimony of Louis E. Swarts, Motion Picture Producers and Distributors of America); *see also id.* at 34-45 (testimony of Matthew Woll, Nat'l Allied Printing Ass'n); *id.* at 436-39 (testimony of Arthur W. Weil, Motion Picture Producers and Distributors of America).

[89] H.R. 8177, 68th Cong., 1st Sess. (1924). *See A Bill to Amend the Copyright Act and Secure International Copyright* (H.R. 8177), 105 PUBLISHERS' WEEKLY 1113 (Mar. 29, 1924). The Dallinger bill, modeled on the British Copyright Statute of 1911, provided for automatic copyright and adherence to the Berne Convention, *see supra* note 12. The bill contained provisions that would have greatly clarified the motion picture producers' title to the copyright in motion pictures and in the underlying works used for motion pictures, and would have simplified producers' acquisition of rights. *See* H.R. 8177, *supra*, §§ 45(c), 45(d), 46.

[90] *See 1925 House Hearings, supra* note 88, at 437-38 (testimony of Arthur W. Weil, Motion Picture Producers and Distributors of America); *id.* at 475-79 (testimony of Louis E. Swarts, Motion Picture Producers and Distributors of America). During the same period of time, ASCAP initiated its own, ultimately unsuccessful, conferences with representatives of radio broadcasters. *See To Amend The Copyright Act: Hearings on S. 2328 and H.R. 10,353 before the Joint Comm. on Patents*, 69th Cong., 1st Sess. 236-39 (1926) [hereinafter *1926 Joint Hearings*] (testimony of E.C. Mills, ASCAP).

[91] *See, e.g., 1926 Joint Hearings, supra* note 90, at 5 (testimony of Paul B. Klugh,

court and got injunctions,[92] radio stations and motion picture theatre owners went to Congress to seek ASCAP's abolition.[93] Members of Congress introduced various bills to restrict ASCAP's activities, exempt radio stations and theatre owners from liability for infringement, or narrow the right to perform musical compositions publicly for profit.[94] The Patent Committee scheduled hearings on pending legislation, and the two legislative agendas collided in the House Committee hearing room.[95]

In hearings before the House Patent Committee, numerous witnesses testified that the copyright law was inadequate and needed revision. They disagreed sharply, however, on the form that revi-

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Nat'l Ass'n of Broadcasters); *1924 House Hearings, supra* note 86, at 75 (testimony of Paul B. Klugh, Nat'l Ass'n of Broadcasters).

[92] *See, e.g.*, Jerome H. Remick & Co. v. American Auto. Accessories, 5 F.2d 411 (6th Cir. 1925); M. Witmark & Sons v. L. Bamberger & Co., 291 F. 776 (D.N.J. 1923).

[93] *See 1924 House Hearings, supra* note 86, at 1-255 (various witnesses); *Broadcasting and Copyright*, 105 PUBLISHERS' WEEKLY 1802 (May 31, 1924). The feud between the broadcasting industry and ASCAP grew increasingly hostile over the years. *See, e.g., 1926 Joint Hearings, supra* note 90, at 242-63, 276 (testimony of E.C. Mills, ASCAP); *id.* at 372-72, 383-91 (testimony of Nathan Burkan, ASCAP); *id.* at 419-23 (testimony of Paul E. Klugh, Nat'l Ass'n of Broadcasters); *see infra* note 103 and accompanying text.

[94] *See, e.g.*, S. 2600, 68th Cong., 1st Sess. (1924).

[95] *1924 House Hearings, supra* note 86. The story is, in fact, more complicated than the discussion in text would indicate. Many copyright bills were introduced in the 68th Congress and referred to the Patent Committees. In addition to the bills drafted by the motion picture industry and by the broadcasters, the House Committee had on its plate two bills written by the Copyright Office. Introduction of the Dallinger bill was spurred by opposition to the Lampert bill, H.R. 2704, 68th Cong, 1st Sess. (1924). The Lampert bill had been drafted by Register Solberg to permit the United States to adhere to the *Berne Convention* with minimal change in extant domestic copyright law. Motion picture counsel sought Register Solberg's advice on the Dallinger bill. Solberg voiced his opposition and suggested that conference participants endorse the Lampert bill as the best that they could get in the current political climate.

Perhaps because of its discomfort with supporting a bill opposed by the Register of Copyrights, the Authors' League then approached Register Solberg and asked him to draft an alternative comprehensive revision bill. Solberg had been involved with the *Berne Convention* since its inception and had long admired the more author-oriented copyright laws in force on the European continent. Solberg drafted a bill based on the *Berne Convention* and the copyright laws of European nations. *See* Solberg, *supra* note 36, at 66-75. Rep. Perkins introduced Solberg's draft as the Perkins bill in 1925. The Authors' League and ASCAP endorsed the Perkins bill over the Dallinger bill. Printers and labor unions, enraged by the Authors' League's defection, announced they would reconsider the concessions they had made in the compromises reflected in the Dallinger bill. This galvanized most of the other conference participants to oppose the Perkins bill. *See generally 1925 House Hearings, supra* note 88. Ironically, the National Association of Broadcasters objected to the Perkins bill on the ground that the Register, in drafting it, had *not* followed the conference procedure that yielded the 1909 Act. *See id.* at 198 (testimony of Paul Klugh, Nat'l Ass'n of Broadcasters).

sion should take. Most of the witnesses endorsed one of a half dozen bills pending before the committee and testified solemnly that adoption of any of the other bills would bring the progress of science and the useful arts to a screeching halt.[96] Representatives Sol Bloom and Fritz Lanham expressed their frustration with the testimony, and Representative Bloom inquired whether any solution to the various disputes would be feasible.[97] An author of the Dallinger bill suggested that the lawyers for the interests affected by copyright have another try at the conference approach over the summer.[98] House Committee members endorsed the suggestion, with the proviso that the list of invitees be broader than before. Representative Randolph Perkins pointedly suggested the importance of including broadcasters, while Representative Bloom proposed that members of the House Committee also attend.[99] After some bickering among witnesses about starting points for discussion, Perkins persuaded them to give the idea of further conferences serious consideration. Bloom successfully moved the appointment of a subcommittee to oversee the effort.[100]

The Committee appointed Bloom to head a five-person subcommittee. The meetings began the following April[101] and continued for nearly a year. The list of invitees was initially expansive.[102] In an early meeting, however, representatives of ASCAP had a rancorous exchange with representatives of the National Association of Broadcasters, and the broadcasters withdrew in a huff.[103]

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[96] *See, e.g., 1925 House Hearings, supra* note 88, at 34-35 (testimony of Matthew Woll, Int'l Allied Printing Ass'n); *id.* at 136-37 (testimony of John Paine, Victor Talking Machine Co.); *id.* at 227-31 (testimony of Alfred Smith, Music Indus. Chamber of Commerce); *id.* at 426-27 (testimony of Gabriel Hess, Motion Picture Producers and Distributors of America); *1924 House Hearings, supra* note 86, at 169-71 (testimony of E.C. Mills, ASCAP); *id.* at 249-50 (testimony of Charles H. Tuttle, Nat'l Ass'n of Broadcasters); *id.* at 253-55 (testimony of George P. Ahrens, Motion Picture Owners Ass'n).

[97] *See 1925 House Hearings, supra* note 88, at 367 (remarks of Rep. Lanham); *id.* at 483 (remarks of Rep. Bloom).

[98] *Id.* at 483-84 (colloquy).

[99] *Id.* at 484 (colloquy).

[100] *Id.* at 485-86 (colloquy).

[101] *See Copyright Conferences Resumed*, 107 PUBLISHERS' WEEKLY 1432 (April 25, 1925).

[102] *See Copyright: Hearings on H.R. 10,434 Before the House Comm. on Patents*, 69th Cong., 1st Sess. 15-17 (1926) [hereinafter *1926 House Hearings*] (testimony of F.A. Silcox, United Typothetae of America). Initially, the conference met as a large group. Later, members met in roughly 150 small meetings to work out bilateral or trilateral agreements on specific issues.

[103] *See 1926 House Hearings, supra* note 102, at 193-96 (testimony of L.S. Baker, Nat'l Ass'n of Broadcasters).

After numerous meetings, representatives of almost all of the participating industries agreed on the text of a bill. The centerpiece of the bill would have enabled the United States to adhere to the *Berne Convention*,[104] an international copyright treaty mandating copyright protection without formalities. The language and structure of the bill reflected its compromise nature. Individual clauses had been created through several series of bilateral negotiations and fit together awkwardly.[105] It also lacked any accommodation for the absent broadcasters' concerns. Nonetheless, the bill, introduced as the Vestal bill in the 69th Congress, had a long list of endorsements. The broadcasting industry, of course, opposed the bill bitterly and allied with the talking machine industry and the theatre owners to block it.[106] Simultaneously, they pursued legislation to privilege public performance and broadcast of music.[107]

The Vestal bill languished in Congress for several years, accumulating opposition from libraries, periodical publishers, academics, and a splinter group of theatrical producers,[108] as well as broadcasters, motion picture producers, and the talking machine industry. In 1930, supporters of the Vestal bill intensified their efforts toward enactment.[109] During the 71st Congress, the House Patent Com-

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[104] *See supra* note 12.

[105] The Register of Copyrights gave this reason for preferring his own Perkins bill over the draft that emerged from the conferences. *See 1926 House Hearings*, *supra* note 102, at 227-39.

[106] *See, e.g.*, *id.* at 193-98 (testimony of L.S. Baker, Nat'l Ass'n of Broadcasters); *id.* at 199-206 (testimony of Fulton Brylawski, Motion Picture Theatre Owners of America). Although representatives of the talking machine industry and of the theatre owners had participated in the conferences throughout, they were unable to reach agreements with ASCAP. *See id.* at 302-03 (testimony of Alfred L. Smith, Music Industries Chamber of Commerce).

[107] *See generally 1926 Joint Hearings*, *supra* note 90.

[108] *See General Revision of the Copyright Law: Hearings on H.R. 6990 Before the House Comm. on Patents*, 71st Cong., 2d Sess. 100 (1930) [hereinafter *1930 House Hearings*] (testimony of Carl Cannon, American Library Ass'n.); *id.* at 144 (testimony of George C. Lucas, Nat'l Publishers' Ass'n); *id.* at 161-69 (testimony of William Klein, Shubert Theatre Group).

[109] The catalyst for this activity was the approaching deadline for accession to the Berlin text of the *Berne Convention*. *See id.* at 59-61 (testimony of Rep. Sol Bloom). *See generally* Solberg, *The International Copyright Union*, 36 YALE L.J. 68, 85-102 (1926). The Berlin text permitted a nation to adhere to *Berne* while specifying reservations to provisions of the Convention. A 1928 revision of the convention in Rome, scheduled to come in to force in 1931, removed the privilege of adhering with reservations. *See generally* Goldman, *supra* note 11, at 7. Thus, if the United States wished to adhere to *Berne* subject to reservations, it was necessary to do so by August of 1931. At no time during the many efforts to accede to *Berne* over the past 100 years, including the drive that culminated in the Berne Convention Implementation Act of 1988, have industry representatives agreed on anything resembling wholehearted compliance with

mittee held further hearings on the Vestal bill.[110] Authors' representatives met with representatives of organizations opposed to the bill throughout the night during the hearings and reached further compromises on disputed provisions.[111] Witnesses thus explained to the House Committee that they had opposed the bill during the previous day's testimony, but were now willing to endorse it.[112] Members of the Committee urged that further negotiations proceed with dispatch.[113] Representative Lanham suggested that one dispute be settled on the spot, in the hearing room and during the testimony.[114] As a result of the hasty negotiations, the House Committee reported the Vestal bill favorably, observing that "practically all the industries and all the authors have united in support of this revision."[115]

"Practically all the industries," of course, was not quite the same as all of the industries. Industries that had gotten little satisfaction from the conferences persuaded members of Congress to press their proposals on the floor of the House. The House of Representatives voted in favor of the Vestal bill only after adopting floor amendments restricting ASCAP's activities and privileging for-profit public performances of phonograph records and receptions of radio broadcasts.[116]

Berne's provisions. *See, e.g.*, 134 CONG. REC. H10,094-98 (daily ed. Oct. 12, 1988); 134 CONG. REC. S14,551-S14,566 (daily ed. Oct. 5, 1988); *see also* Olson, *supra* note 2, at 121 ("To make . . . consensus possible, the Berne bill was stripped of those provisions that threatened major interest groups."). *See generally U.S. Adherence to the Berne Convention*, *supra* note 16.

[110] *1930 House Hearings*, *supra* note 108.

[111] *See id.* at 140-41 (testimony of William Hamilton Osborne, Authors' League of America).

[112] *See, e.g., id.* at 100-02 (testimony of Carl Cannon, American Library Ass'n).

[113] *See, e.g., 1930 House Hearings*, *supra* note 108, at 264 (testimony of William A. Brady: "Throughout your different hearings, many of your members have suggested to the publishers and authors 'Why not get together? Why not go out in the hall and have a little talk and settle this matter?' "); *see also* 72 CONG. REC. 12,000 (1930) (remarks of Rep. Busby).

[114] *1930 House Hearings*, *supra* note 108, at 155. When William Warner, of the National Publishers' Association, alluded to a disagreement between authors and periodical publishers over the ownership and scope of serialization rights, Rep. Lanham suggested that Warner interrupt his testimony in order to permit authors to express their views and then negotiate an immediate resolution. *Id.*

[115] H.R. REP. No. 1893, 71st Cong. 2d Sess. 8 (1930).

[116] 74 CONG. REC. 2006-37 (1931); 72 CONG. REC. 12,007-15, 12,473-75 (1930); *see* Solberg, *The Present Copyright Situation*, 40 YALE L.J. 184, 201-02 (1930). The House debated, but ultimately defeated an amendment that would have made ASCAP's activities illegal and a complete defense to an infringement suit brought by one of its members. *See* 74 CONG. REC. 2031 (1931).

The amendments, however, failed to mollify the bill's opponents. When the House referred the bill to the Senate, representatives of broadcasters, radio and phonograph manufacturers, and motion picture theatre owners demanded that the Senate hold hearings to receive testimony in opposition to the bill.[117] After listening to the testimony, the Committee settled on a series of amendments and reported a by now complex, and internally inconsistent, Vestal bill to the Senate floor, where it got caught in a filibuster on another matter.[118]

In the following Congress, the House Committee started over. The new Committee Chairman scheduled extended hearings and met privately with industry representatives.[119] He then introduced a bill that embodied his notion of a fair compromise. In the face of opposition from the motion picture theatre owners, map publishers, and broadcasters, he revised the bill to incorporate their suggestions.[120] Motion picture producers and distributors and ASCAP denounced the changes.[121] Chairman Sirovich rushed the bill to the House floor under a special rule,[122] but the opposition of other members of the House Patent Committee killed the bill before it could be put to a vote.[123]

Meanwhile, private negotiations began to collapse in the face of the Depression economy. Organizations that made concessions in the spirit of compromise in 1926, 1928, or 1930 were no longer satisfied with their bargains.[124] At the suggestion of a representative of

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[117] *See General Revision of The Copyright Law: Hearings on H.R. 12,549 Before the Senate Comm. on Patents*, 71st Cong., 3d Sess. 1-2 (1931) (remarks of Chairman Waterman).

[118] *See* Goldman, *supra* note 11, at 6-7.

[119] Private industry representatives continued to meet among themselves in the now familiar conferences.

[120] *See General Revision of the Copyright Law: Hearings on H.R. 11,948 Before the House Comm. on Patents*, 72d Cong., 1st Sess. 1 (1932) (remarks of Chairman Sirovich). ASCAP also insisted on amendments, but Chairman Sirovich declined to adopt them. *See id.*

[121] *See id.* at 45-70 (testimony of Gabriel L. Hess, Nat'l Distributors of Motion Pictures); *id.* at 83-160 (testimony of Nathan Burkan, ASCAP). Among the changes was an amendment sharply reducing the remedies available for the unauthorized exhibition of motion pictures. *See id.* at 28-29 (testimony of Abram F. Meyers, Allied States Ass'n of Motion Picture Exhibitors).

[122] 75 CONG. REC. 11,059 (1932).

[123] Goldman, *supra* note 11, at 7. *See* 75 CONG. REC. 11,065-72 (1932).

[124] *See, e.g., International Copyright Union: Hearings on S. 1928 Before the Senate Comm. on Foreign Relations*, 73d Cong., 2d Sess. 89-90 (1934) [hereinafter *1934 Senate Hearings*] (testimony of M.J. Flynn, American Fed'n of Labor) (printing unions currently oppose adherence to *Berne* unless publishers agree to raise wages).

organized labor, the Senate Committee on Foreign Relations asked the State Department to organize an informal committee of State Department, Copyright Office, and Commerce Department representatives to oversee further private negotiations.[125] The interdepartmental committee held a series of conferences with representatives of affected interests. They drafted a bill that proved to be acceptable to broadcasters and to the other interests that had opposed the Vestal bill.[126] Authors, composers, publishers, motion picture producers, and organized labor, however, found the bill completely unacceptable and promptly got off of the bandwagon.[127] Strong support from the administration enabled the bill to pass the Senate, but strong opposition from interested parties caused it to perish in the House.[128]

With copyright revision stalled in Congress, a private foundation attempted to restart it. The National Committee of the United States of America on International Intellectual Cooperation called its own copyright conferences.[129] After sixteen months of meetings, it was unable to arrive at a bill that everyone would support. The Committee drafted a bill nonetheless.[130] The bill went nowhere.

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[125] *See Revision of the Copyright Laws: Hearings before the House Comm. on Patents*, 74th Cong., 2d Sess. 221-60 (1936) [hereinafter *1936 House Hearings*] (testimony of Sen. F. Ryan Duffy). A representative of the printing and typographic unions requested that the State Department be enlisted to mediate between publishers and organized labor. Publishers favored adherence to *Berne*. Labor unions facing Depression wages demanded higher pay or statutory provisions to protect American printing jobs in return for labor's support of the treaty. *See 1934 Senate Hearings*, *supra* note 124, at 90-91 (colloquy).

[126] *See 1936 House Hearings*, *supra* note 125, at 260-89 (testimony of Wallace McClure, Dep't of State); *id.* at 337-40 (letter from Wallace McClure to Phillip Loucks, Nat'l Ass'n of Broadcasters); *id.* at 1068-74 (prepared statement submitted by Wallace McClure, Dep't of State).

[127] *1936 House Hearings*, *supra* note 125, at 279-80 (remarks of Chairman Sirovich); *see Hearing on S. 2465 Before the Senate Comm. on Patents*, 74th Cong., 1st Sess 3-15 (1935) (testimony of Louise Silcox, Authors' League of America); *id.* at 15-26 (testimony of Gene Buck, ASCAP); *id.* at 47-49 (testimony of John G. Payne, Music Publishers' Protective Ass'n); *id.* at 53-56 (testimony of Gabriel Hess, Motion Picture Producers and Distributors of America); *id.* at 739-43 (testimony of Thorvald Solberg, former Register of Copyrights).

[128] *See* Duffy, *International Copyright*, 8 AIR L. REV. 213, 220 (1937).

[129] *See Copyright Group Making Progress*, 135 PUBLISHERS' WEEKLY 1281 (April 1, 1939).

[130] S. 3043, 76th Cong., 2d Sess. (1940). *See* 86 CONG. REC. 63-78 (1940); Goldman, *supra* note 11, at 10-11; *see also* Chafee, *supra* note 7 (comparing major provisions of the Shotwell bill with then-current law). *See generally* Note, *Copyright-Adherence to the International Copyright Union and Proposed Copyright Reform (Shotwell bill)*, 12 AIR L. REV. 49 (1941).

After twenty years of private negotiations, the second world war intervened, and efforts to revise the copyright statute died.

III

Shortchanging the Future

The history of copyright revision efforts during the first half of this century demonstrates how a process of private negotiations, initially adopted as an expedient alternative to a government commission,[131] came to dominate copyright revision. A closer look at the substance of some of the negotiations reveals insights about the strengths and weaknesses of that process as a method of drafting statutes.

Throughout the various conferences, interests that were absent from the bargaining table were shortchanged in the compromises that emerged. The Librarian of Congress's conferences in 1905 and 1906 excluded the piano roll and talking machine interests; the bill that emerged disadvantaged them.[132] The motion picture industry attended none of the negotiations that resulted in the 1909 Act and found the statute a significant hindrance.[133] The 1912 negotiations between motion picture and theatre industries to frame the Townsend Amendment yielded a compromise that handicapped authors and publishers of nondramatic works, who did not participate.[134] The conferences in the 1920s that led to the Dallinger bill included no representatives of the broadcasting industry; the Dallinger bill gave publishers and composers rights at the broadcasters' expense.[135] The broadcasters walked out of the conferences that produced the Vestal bill; the Vestal bill addressed none of the broadcasters' concerns.[136]

At first glance, this observation seems intuitively obvious. Parties who are negotiating would seem to have no incentive to safeguard the interests of their absent competitors. On further consideration, however, the persistent shortchanging of absent interests seems more startling. The battles that preceded the enactment of the 1909 Act should have demonstrated to the participants that interests excluded from negotiations could effectively block legislation. Many

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[131] *See supra* notes 37-40 and accompanying text.
[132] *See supra* notes 44-50 and accompanying text.
[133] *See supra* notes 67-70 and accompanying text; *supra* note 86.
[134] *See supra* note 80 and accompanying text.
[135] *See supra* notes 87-99 and accompanying text.
[136] *See supra* notes 102-07 and accompanying text.

of the participants in the later conferences had been privy to the 1906 and 1908 hearings. Even had the threat been dismissed or forgotten, the controversy that surrounded the Dallinger bill[137] should surely have persuaded conference participants to make some accommodation for absent parties in connection with the Vestal bill. Yet, the compromises that were made emerged only after face-to-face bargaining, either within the conferences or at the last minute in response to congressional pressure.[138]

If the parties' desire to draft enactable legislation would seem to engender consideration for those excluded, other forces made that accommodation difficult. The division of rights among competing interests became increasingly complex and interdependent. The compromises that emerged from the conference approach were rarely bilateral. Authors conditioned concessions to motion picture producers on their receipt of concessions from organized labor who in turn demanded something from publishers.[139] In the ensuing complex web of interrelated concessions, the hypothetical demands of absent parties got lost.

The understandable tendency of stakeholders to view representatives of the upstart future as poachers on previously settled territory also influenced the course of negotiations.[140] Composers, sheet music publishers, and musicians divided up the world in a satisfactory manner before the producers of piano rolls and talking machines entered their markets. Novelists, dramatists, photographers, book publishers, and theatrical producers had comfortable niches before motion picture theatres came on the scene. Excluding newcomers from the benefits conferred by copyright legislation may have seemed like a necessary corollary to protecting one's turf.

Indeed, the interests that had not yet come into being when the negotiations took place were the quintessential excluded parties. They threatened competition with all current stakeholders and posed no apparent threat of lobbying against legislation. As one might expect, then, they were the parties most likely to find that the negotiated compromises operated to their disadvantage. The industries that chafed most under the provisions of the 1909 Act, for example, were the motion picture and broadcast industries: the for-

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[137] *See supra* notes 87-96 and accompanying text.

[138] *See supra* notes 108-14 and accompanying text.

[139] *See, e.g.*, sources cited *supra* notes 95-97.

[140] *See, e.g.*, *1924 House Hearings*, *supra* note 86, at 105-11 (testimony of Gene Buck, ASCAP); *1908 Hearings*, *supra* note 10, at 173-79 (testimony of Ligon Johnson, Nat'l Ass'n of Theatrical Producing Managers).

mer barely begun and the latter not yet imagined at the time the Librarian of Congress called his conferences in 1906.[141]

The motion picture and broadcast industries found the 1909 Act particularly inhospitable because it required emergent industries to adapt themselves to conform to ill-fitting molds. A statute could pose difficulties for a new technology simply because its general provisions seem not to anticipate the specific circumstances of a new invention. That, however, is a problem shared by most legislation. The problems inherent in the 1909 Act were more pernicious, because its drafters crafted the language to settle particular, specific inter-industry disputes.

The 1909 Act's strategy for reconciling competing demands among industry representatives was to specify rights and remedies within subject matter categories. The conferences began in 1905 with each organization's articulation of its wish list.[142] Each of the affected interests sought to retain the advantages it enjoyed under current law, while eliminating features that worked to its detriment. Where wishes appeared irreconcilable, the parties suggested differentiation of provisions along subject matter lines.[143] The solutions to many disputes were provisions detailing the particular rights attaching to particular categories of works, the particular actions that constituted infringement of those rights, and the particular remedies available for those infringements.[144] The bill introduced in the 59th Congress followed this strategy.[145] For example, the original bill varied the term of copyright among different classes of works, from twenty-eight years for prints and labels, to life of the author plus fifty years after death for musical compositions. In addition, it placed a ten year limit on the exercise of the exclusive dramatization right in a book.[146] In tinkering with the bill, the House and

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[141] *See, e.g., General Revision of the Copyright Law: Hearings Before the House Comm. on Patents*, 72d Cong., 1st Sess. 168 (1932) (remarks of Louis G. Caldwell, Nat'l Ass'n of Broadcasters).

[142] COPYRIGHT CONFERENCE, 1ST SESS., *supra* note 6, at 7-26; *see also* STENOGRAPHIC REPORT OF THE PROCEEDINGS OF THE LIBRARIAN'S CONFERENCE ON COPYRIGHT, 2D SESSION, IN NEW YORK CITY, NOV. 1-4, 1905, at 7-29, 33-35, *reprinted in* 2 E.F. BRYLAWSKI AND A. GOLDMAN, *supra* note 6, at pt. D [hereinafter COPYRIGHT CONFERENCE, 2D SESS.]

[143] *See* COPYRIGHT CONFERENCE, 1ST SESS., *supra* note 6, at 45-48, 51-53, 77-84.

[144] *See* STENOGRAPHIC REPORT OF THE PROCEEDINGS OF THE LIBRARIAN'S CONFERENCE ON COPYRIGHT, 3D SESSION, AT LIBRARY OF CONGRESS, WASHINGTON, D.C., MARCH 13-16, 1906, at xxix-lxiv, xcv-c, *reprinted in* 3 E.F. BRYLAWSKI AND A. GOLDMAN, *supra* note 6, at pt. E.

[145] *See* S. 6330, 59th Cong., 1st Sess. (1906).

[146] *See* S. 6330, 59th Cong., 1st Sess. §§ 18, 20 (1906).

Senate committees removed some of the distinctions but added others. Thus, Congress replaced the variable copyright terms with a uniform renewable term of twenty-eight years.[147] On the other hand, the 1906 bill treated the performance rights in musical compositions and dramatic compositions similarly. The bill that Congress enacted gave the rights different scope and established different remedies for their infringement.[148]

The extent to which the 1909 Act's category-specific language encompassed new technology was difficult to predict. Although the specificity of terms initially provided security to the affected industries, the growth of new forms and methods made the language seem increasingly ambiguous. The development of the mimeograph machine, for example, created doubts about the reach of a provision requiring all books to "be printed from type set within the limits of the United States, either by hand or by the aid of any kind of typesetting machine, or from plates made within the limits of the United States from type set therein."[149] When the word roll, a piano roll with lyrics printed alongside the perforations that produced the music, superseded the simple piano roll, it was unclear whether the compulsory license for mechanical reproductions of music permitted the addition of printed lyrics.[150]

The statutory language posed more radical problems for the new media. The infant industries found the 1909 Act ambiguous and its application to their activities uncertain until the courts issued an authoritative ruling.[151] Courts, in turn, struggled to apply the 1909 Act's language to fact patterns that its drafters never envisioned. As case law developed, the application of copyright law to new technology depended more on linguistic fortuity than anything

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[147] *See* 17 U.S.C. § 24 (1909).

[148] *Compare* S. 6330, 59th Cong., 1st Sess. §§ 1(d), 1(f), 23(b)(3) *with* 1909 Act, *supra* note 10, §§ 1(d), 1(e), 25(b). *See supra* notes 15-20 and accompanying text.

[149] 17 U.S.C. § 15 (1909). Congress amended the section in 1926 to preserve the copyrights in mimeographed books from forfeiture. *See* Act of July 3, 1926, 44 Stat. 818.

[150] *See, e.g., 1926 Joint Hearings, supra* note 90, at 86-87 (testimony of Alfred Smith, Music Industries Chamber of Commerce). The courts held that the statutory mechanical license did not permit the reproduction or distribution of printed lyrics. *See* Standard Music Roll v. F.A. Mills, 241 F. 360 (3d Cir. 1917).

[151] *See, e.g., General Revision of the Copyright Law: Hearings Before the House Comm. on Patents*, 72d Cong., 1st Sess. 174-75 (1932) (testimony of Louis G. Caldwell, Nat'l Ass'n of Broadcasters); *id.* at 405-06 (testimony of George P. Aarons, Motion Picture Theatre Owners); *General Revision of the Copyright Law: Hearings on H.R. 10,976 Before the House Comm. on Patents*, 72d Cong., 1st Sess. 206-07 (1932) (testimony of Frank A.K. Boland, American Hotel Ass'n).

else.[152]

Determining the scope of copyright protection for motion pictures, for example, required courts to decide such questions as whether the exhibition of a motion picture constituted "publication" within the meaning of the 1909 Act.[153] Was a motion picture, specifically enumerated in subsections (l) and (m) of section 5, also a "dramatic or dramatico-musical composition" as specified in subsection 5(d), or, if not, could it still be deemed a "drama" for the purposes of subsection 1(d)?[154] If so, was exhibiting the film a "performance"? Should projecting the frames of a motion picture be characterized as making a "copy" of the motion picture[155] or as "dramatizing" it?[156] Radio broadcasting posed similar problems. Was the broadcast of music to receiving sets in individuals' homes a public performance?[157] Was broadcasting at no charge to listeners a performance for profit?[158] Was it a public performance for profit to install a radio receiving set and loud speakers in hotel guest rooms?[159]

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[152] *See* 75 CONG. REC. 11,062 (1932) (remarks of Rep. Sirovich):

> At the time of the passage of the 1909 Act, radio broadcasting was an unknown quantity. Because of certain general provisions of that act, such as "public performance" and "mechanical reproduction" it turned out that dramatic and musical compositions were protected over the radio, but the act nowhere provided for protection over the radio in any other respect. The author of literary works is not protected under the present law.

See also Varmer, LIMITATIONS ON PERFORMING RIGHTS 104-07, *reprinted in* SUBCOMM. ON PATENTS, TRADEMARKS AND PATENTS OF THE SENATE COMM. ON THE JUDICIARY, 86TH CONG., 1ST SESS., COPYRIGHT LAW REVISION (Comm. Print 1960).

[153] *See, e.g.*, Patterson v. Century Prod., 93 F.2d 489 (2d Cir. 1937); Tiffany Prods. v. Dewing, 50 F.2d 911 (D. Md. 1931). The majority of courts held that exhibition was not publication.

[154] *See, e.g.*, Metro Goldwyn Mayer Distrib. v. Bijou Theatre, 3 F. Supp. 66 (D. Ma. 1933); *Tiffany Prods.*, 50 F.2d at 914-15.

[155] *See Patterson*, 93 F.2d at 493-94; *Metro Goldwyn Mayer*, 3 F. Supp at 73-74. A few courts concluded that the projection was indeed a copy. *See* Varmer, *supra* note 152, at 104-07.

[156] *See Metro Goldwyn Mayer*, 3 F. Supp. at 73; *cf.* Kalem Co. v. Harper Bro., 222 U.S. 55 (1911) (applying prior law). *Kalem* held that projecting a motion picture dramatized the book on which it was based, even if the motion picture was not itself a copy of the book. Some courts extended that rationale. *See* Varmer, *supra* note 152, at 105-06.

[157] *See, e.g.*, Jerome H. Remick & Co. v. American Auto. Accessories, 5 F.2d 411 (6th Cir. 1925). Most courts held that it was. *But see* Jerome H. Remick & Co. v. General Elec., 4 F.2d 160 (S.D.N.Y. 1924).

[158] *See, e.g.*, M. Witmark & Sons v. L. Bamberger & Co., 291 F.2d 776 (D.N.J. 1923). The majority of courts said yes.

[159] *See* Buck v. Jewell-LaSalle Realty, 283 U.S. 191 (1931). The court held that it was. *But see* Twentieth Century Music v. Aiken, 422 U.S. 151 (1975) (holding that installing a radio receiving set and loud speakers in a delicatessen was not a performance). Under the case law that developed, both radio broadcasting and the playing of

The nature of the legislation that emerged from the conference and compromise process increased the problems of applying a narrowly worded statute to industries transformed by technological change. Multilateral bargaining produces statutes ill-suited to traditional interpretation. It is problematic to discuss a statute's "overall purpose" in connection with a web of negotiated deals.[160] Where specific provisions are predicated on the peculiarities of individual industries, and new industries develop their own very different peculiarities, it is difficult to formulate a basis for drawing the appropriate analogies.

Industries, however, adjust in time to even the most inhospitable law.[161] Where the copyright statute failed to accommodate the realities faced by affected industries, the industries devised expedients, exploited loopholes, and negotiated agreements that superseded statutory provisions. The broadcast industry formed its own performing rights society to compete with ASCAP.[162] The recording industry developed a form license that incorporated the basic concept of a compulsory license for mechanical reproduction, but at more favorable terms, and used it instead of the license conferred by the statute.[163] The motion picture industry established an ASCAP-like operation to deal with unauthorized exhibition of films.[164] An enterprising group of talking machine manufacturers used the copyright exemption for the performance of musical compositions on coin operated devices[165] to launch the jukebox industry, and marketed jukeboxes to establishments that wished to play music but not

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radio broadcasts in large commercial establishments infringed the copyrights in the music that was played, but radio broadcasts were not themselves copyrightable.

[160] *See* Easterbrook, *supra* note 8, at 540-44; Posner, *supra* note 8, at 273; *infra* notes 203-27 and accompanying text; *see also* Litman, *supra* note 15, at 879-82.

[161] *See, e.g., General Revision of the Copyright Law: Hearings Before the House Comm. on Patents*, 72d Cong., 1st Sess. (1932) (testimony of Will Irwin, Authors' League of America).

[162] *See* Oman, *supra* note 83, at 252. The broadcasters' performing rights association, Broadcast Music, Inc., was established in 1939 as a performing rights society owned entirely by broadcasters. Like ASCAP, it licensed its entire repertory of compositions for a flat fee. *See generally* Columbia Broadcasting Sys. v. American Soc'y of Composers, 400 F. Supp. 737 (S.D.N.Y. 1975), *rev'd*, 562 F.2d 130 (2d Cir. 1977), *rev'd sub nom.* Broadcast Music, Inc. v. Columbia Broadcasting Sys., 441 U.S. 1 (1979).

[163] *See 1926 Joint Hearings*, *supra* note 90, at 314-15 (testimony of Nathan Burkan, ASCAP); *id.* at 86 (testimony of Alfred L. Smith, Music Indus. Chamber of Commerce).

[164] *See 1936 House Hearings*, *supra* note 125, at 1026-37 (testimony of Gabriel L. Hess, Nat'l Distributors of Copyrighted Motion Pictures).

[165] *See supra* note 62 and accompanying text.

to pay royalties.[166]

IV

THE POST-WAR REVISION EFFORT

A. Returning to Conference

By the end of the second world war, industries had been operating within the confines of the 1909 Act for a third of a century. Everybody criticized the law as outmoded;[167] it had, after all, been drawn to accommodate the requirements of particular media before the advent of radio, jukeboxes, sound motion pictures, Muzak®, and now television.[168] The affected industries accommodated the arcane law through combinations of trade practice,[169] collectively bargained form contracts,[170] and practical contortions.[171] The re-

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[166] *See General Revision of the Copyright Law: Hearings Before the House Comm. on Patents*, 72d Cong., 1st Sess. 199-208 (1932) (testimony of Erwin M. Treusch, Automatic Music Indus.).

[167] *See, e.g.*, Chafee, *supra* note 7, at 503, 516-22; Ebenstein, *supra* note 7, at xv-xx; Stern, *supra* note 7, at 512. Even the industries that had opposed all prior proposals for change came to view the outmoded 1909 Act as unsatisfactory.

[168] Television was invented in the 1920s, but the first commercial television broadcast station began operation in 1942.

[169] *See, e.g., Recording and Performing Rights in Certain Literary Works: Hearings on H.R. 3589 Before Subcomm. No. 3 of the House Comm. on the Judiciary*, 82d Cong., 1st Sess. 7-8 (1951) [hereinafter *1951 House Hearings*] (testimony of John Schulman, Authors' League of America); Kaminstein, DIVISIBILITY OF COPYRIGHTS 18-25, *reprinted in* SUBCOMM. ON PATENTS, TRADEMARKS AND PATENTS OF THE SENATE COMM. ON THE JUDICIARY, 86TH CONG., 1ST SESS., COPYRIGHT LAW REVISION (Comm. Print 1960). The trade practice in periodical publishing, for example, involved a complicated series of conveyances of the copyright in contributions to the periodical in order to achieve the publisher's acquisition of the rights it needed and the author's reservation of other rights without forfeiting the copyright. *See id.* at 18-22. In the music industry, prevailing practice gave the music publisher legal title to the copyright, but the publisher behaved as if it held certain portions of the copyright in trust for the composer. Although composers did not have legal title to their copyrights, they routinely granted some rights to ASCAP and similar organizations without the publishers' formal participation. *See id.* at 23-24. These practices made little legal sense because the courts treated copyright in a work as an indivisible whole. *See generally id.* at 1-17.

[170] *See, e.g.*, Blaisdell, THE ECONOMIC ASPECTS OF THE COMPULSORY LICENSE 92-100, *reprinted in* SUBCOMM. ON PATENTS, TRADEMARKS AND PATENTS OF THE SENATE COMM. ON THE JUDICIARY, 86TH CONG., 1ST SESS., COPYRIGHT LAW REVISION (Comm. Print 1960); Henn, THE COMPULSORY LICENSE PROVISIONS OF THE U.S. COPYRIGHT LAW 44-53, *reprinted in* SUBCOMM. ON PATENTS, TRADEMARKS AND PATENTS OF THE SENATE COMM. ON THE JUDICIARY, 86TH CONG., 1ST SESS., COPYRIGHT LAW REVISION (Comm. Print 1960). Composers, music publishers, and dramatists, for example, belonged to associations that acted as bargaining agents and negotiated complicated form contracts for the transfer or licensing of rights. These associations behaved like labor unions but were not labor unions because composers and dramatists were not employees for the purposes of the National Labor Relations Act.

sulting distortions in industry structure and clout produced new vested interests and hardened bargaining positions.[172]

Industry representatives, having learned the difficulty of comprehensive statutory reform, declined to press for complete revision. Instead, they focused their legislative efforts on obtaining narrow amendments to redress specific grievances. Some of the bills introduced at the behest of particular industries succeeded;[173] others became perennial visitors in successive congressional sessions.[174]

The most imperative problem after the war was the United States' isolation from international copyright relations.[175] Prior efforts to amend the copyright law to permit adherence to the *Berne Convention* had ended in failure.[176] The government directed its attention to devising a way to establish international copyright rela-

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See Blaisdell, *supra*, at 91-92; Note, *Copyright in the Stage Direction of A Broadway Musical*, 8 COLUM.-VLA J.L. & ARTS 309, 323 n.94 (1983).

[171] *See, e.g.*, Kaminstein, *supra* note 169, at 18-22; Henn, *supra* note 170, at 44-47. Securing copyright protection abroad for a work published in the U.S. required particularly convoluted procedures. Securing copyright protection in the U.S. for a work published abroad was, in some cases, even more troublesome. *See* Stern, *supra* note 7, at 508-11.

[172] *See, e.g.*, Chafee, *supra* note 7, at 517-18; Ebenstein, *supra* note 7, at xix. Proposals to eliminate the compulsory license for mechanical reproductions of music or to increase the statutory royalty rate, for example, drew increasingly strident objections. The dispute between jukebox owners and operators, who insisted on retaining the jukebox exemption, and composers and music publishers, who demanded its repeal, became a pitched war. Suggestions that the United States eliminate the labor protection provisions contained in its copyright statute inspired fierce opposition.

[173] *See* Act of July 17, 1952, Pub. L. No. 82-575, 66 Stat. 752 (extending public performance for profit and recording rights to nondramatic literary works, lectures, and sermons); Act of June 3, 1949, Pub. L. No. 81-84 (extending *ad interim* protection for foreign books and periodicals).

[174] Bills to repeal or restrict the jukebox exemption, *see, e.g.*, H.R. 5473, 82d Cong., 1st Sess. (1951); H.R. 1269, 80th Cong., 1st Sess. (1947); H.R. 3190, 79th Cong., 1st Sess. (1945), to extend limited copyright protection to recordings, *see, e.g.*, S. 1206, 79th Cong., 1st Sess. (1945), and to provide copyright for textile designs, *see e.g.*, H.R. 2860, 80th Cong., 1st Sess. (1947), showed up again and again.

[175] Most of the world's developed nations had joined the *Berne Convention* and modified their copyright laws to accord with its terms. *See supra* note 12. This left the United States with a copyright statute distinctly out of step with the international community, and dependent upon bilateral arrangements or simultaneous publication in *Berne* nations for protection of its copyrights abroad. *See Removal of Domestic Manufacturing Requirements for the Acquisition of Copyright by Certain Foreign Nationals: Hearings on H.R. 4059 before Subcomm. No. 3 of the House Comm. on the Judiciary*, 82d Cong., 2d Sess. 207-09 (1952) [hereinafter *1952 House Hearings*] (testimony of Arthur Fisher, Register of Copyrights); *id.* at 3-4 (testimony of Luther E. Evans, Librarian of Congress); American Bar Association Section of Patent, Trademark and Copyright Law, *Report of Committee No. 13: Program for Revision of the Copyright Law*, 1957 COMMITTEE REPORTS 51, 60-61; Stern, *supra* note 7, at 508-12.

[176] *See supra* notes 101-30 and accompanying text.

tions without undertaking the politically-charged endeavor of overhauling the copyright statute to comply with *Berne*'s requirements.[177] The outcome was the *Universal Copyright Convention*.[178] The Copyright Office asked industries affected by copyright to delay requests for statutory revision until the international effort could be completed.[179] The strategy proved successful, but the clock continued to tick. The 1909 Act passed its fortieth birthday, and the need for copyright revision failed to evaporate.

Meanwhile, the subject matter of copyright remained frozen in the form it had taken in 1912. More recently developed works were copyrightable only to the extent they could be analogized to the statutory list of works subject to copyright and received rights whose scope was limited by the category in which they best fit. Decorative lamp bases and children's toys, for example, could be registered as "works of art" or "reproductions of a work of art."[180] Motion pictures and television programs recorded on film could be copyrighted as unpublished motion picture photoplays.[181] Live or taped television programs, radio programs, and phonograph records were deemed uncopyrightable. Neither the copyright statute nor case law recognized that the multiplicity of copyright rights could

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[177] The United States, working through UNESCO, used its new world power status to craft a second worldwide copyright treaty designed to accommodate the quirks of United States law without affecting copyright relations among *Berne* nations. *See 1952 House Hearings*, *supra* note 175, at 4 (testimony of Luther E. Evans, Librarian of Congress); *id.* at 209 (testimony of Arthur Fisher, Register of Copyrights). *See generally* Henn, *The Quest for International Copyright Protection*, 39 CORNELL L. REV. 43 (1953). The government created a commission of interest group representatives and government agency employees to facilitate domestic compromises. *See* Fisher, *Introduction*, 2 BULL. COPYRIGHT SOC'Y 83 (1955).

[178] Seven years of negotiations among United States and foreign industries under UNESCO's auspices produced substantial concessions to American demands and near unanimity in favor of the treaty among United States industry representatives. *See Universal Copyright Convention and Implementing Legislation. Hearings on The Universal Copyright Convention and S. 2559 Before a Subcomm. of the Sen. Comm. on Foreign Relations and a Subcomm. of the Senate Comm. on the Judiciary*, 83d Cong., 2d Sess. 177-79 (1954) (testimony of Arthur Fisher, Register of Copyrights). The Senate ratified the treaty and Congress passed the modest implementing legislation the treaty required. Act of Aug. 31, 1954, Pub. L. No. 83-743, 61 Stat. 655.

[179] *See Legislative Appropriations for 1956: Hearings Before the Subcomm. on Legislative Appropriations of the House Comm. on Appropriations*, 84th Cong., 1st Sess. 115-16 (1955) (testimony of Arthur Fisher, Register of Copyrights).

[180] *See* Derenberg, *Copyright Law*, in 1955 ANNUAL SURVEY OF AMERICAN LAW 278, 280-81 (1956); Denicola, *Applied Art and Industrial Design: A Suggested Approach to Copyright in Useful Articles*, 67 MINN. L. REV. 707, 715-17 (1983).

[181] *See* Cohn, *Old Licenses and New Uses: Motion Picture and Television Rights*, 19 LAW AND CONTEMP. PROBS. 184 (1954); Kupferman, *supra* note 7.

be separately owned and exploited.[182] Because the law viewed copyright as unitary, the industries relied on form contracts negotiated by industry groups to divide up control of subsidiary uses and the revenues they produced.[183] New technological uses waited in the wings; how the copyright statute would affect them seemed unclear.

To revive the process of comprehensive copyright revision, Congress returned to a suggestion that it had rejected summarily fifty years before.[184] In 1956, it appropriated funds for the appointment of a special committee of copyright experts.[185]

The Register of Copyrights, Arthur Fisher, initially conceived a three year revision process that would depart significantly from the familiar conferences.[186] Fisher envisioned a committee of copyright experts acting in a purely advisory capacity, while the Copyright Office's research division performed comprehensive studies of prior revision efforts, copyright laws of other nations, and each of the major substantive issues involved in copyright revision. The com-

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[182] *See generally* Kaminstein, *supra* note 169. Notwithstanding the courts' reluctance to recognize the divisibility of copyright, most industries had long relied on the separate licensing and exploitation of particular copyright rights. *See* sources cited *supra* note 169.

[183] *See* sources cited *supra* note 170.

[184] *See supra* note 38 and accompanying text.

[185] Legislative Appropriation Act of 1956, Pub. L. No. 242, 69 Stat. 499; *see* H.R. REP. NO. 1036, 84th Cong., 1st Sess. 6 (1956). Three members of Congress introduced bills in the 84th Congress calling for the appointment of a special Presidential Commission to revise the copyright law. *See* H.R. 2677, 84th Cong., 1st Sess. (1955); H.R. 5366, 84th Cong., 1st Sess. (1955); S. 1254, 84th Cong., 1st Sess. (1955). Two of the bills would have set up a commission comprising three Senators, three Representatives, and seven members appointed by the President, and charged them to return a report within one year. *See* 101 CONG. REC. A1652-53 (1955) (extension of remarks of Rep. Thompson, sponsor of H.R. 2677). The proposal alarmed members of the copyright bar, who suggested that a more appropriate committee might be appointed by the Librarian of Congress, supervised by the Register of Copyrights (the Copyright Office and the ABA enjoyed particularly cozy relations during those years), and composed exclusively of copyright experts. *See id.* at A1652 (reprinted letter from Prof. Walter Derenberg to Rep. Thompson); American Bar Association Section of Patent, Trademark and Copyright Law, 1955 SUMMARY OF PROCEEDINGS 38. The Librarian of Congress included the copyright bar's alternate plan in his annual appropriations request. *See Legislative Appropriations for 1956*, *supra* note 179, at 114-23 (testimony of Luther E. Evans, Librarian of Congress, and Arthur Fisher, Register of Copyrights). The ABA adopted a resolution disapproving the Presidential Commission bills, and Congress did not pursue them further.

[186] *See* LIBRARY OF CONGRESS, ANNUAL REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1959, H. DOC. NO. 245, 86th Cong., 2d Sess. 72-73 (1959) [hereinafter REGISTER'S 1959 REPORT]. Ultimately, the revision process lasted 21 years.

mittee's job would be to offer comments and suggestions, but not to make policy.[187] Fisher hoped to keep the policy making process insulated within the Copyright Office to avoid the partisan wrangling that infected prior legislation.[188]

The Librarian of Congress appointed a panel of twenty-nine copyright experts, the majority of whom were active in the American Bar Association.[189] The panelists' ideas about their appropriate role differed from the Register's, and they soon began requesting that they convene in a forum that would permit the thrashing out of policy.[190] The Copyright Office acceded to requests to convene meetings of the panelists for substantive discussions[191] but insisted upon its prerogative to formulate recommendations for legislation without further consultation.[192]

The ABA established a shadow committee, including many of the panelists in its membership. The committee embarked on an effort to formulate substantive proposals at the same time as it monitored the Copyright Office's revision efforts.[193] While the Copyright Office struggled to digest the studies and the panelists' suggestions and to write a report in relative seclusion, the panelists themselves were meeting with interested parties in ad hoc groups and symposia to

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[187] *See* LIBRARY OF CONGRESS, ANNUAL REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1956, H. DOC. NO. 5, 85th Cong., 1st Sess. 60 (1956) [hereinafter REGISTER'S 1956 REPORT]; American Bar Association Section of Patent, Trademark and Copyright Law, 1957 COMMITTEE REPORTS 53 [hereinafter 1957 ABA SEC. REP.].

[188] *See* sources cited *supra* note 187; *see also* REGISTER'S 1959 REPORT, *supra* note 186, at 72:

> Much care and effort went into the framing of the 1909 law, but essentially it was the product of compromises arrived at in conferences with interested groups, each of which surveyed the field of copyright from its own special and partisan point of view. Similar efforts between 1924 and 1940 to enact a general revision of the 1909 law ended in unreconciled controversies and failure. General revision is being approached today in a somewhat different manner.

[189] *See* 1957 ABA SEC. REP., *supra* note 187, at 55.

[190] *See id.* at 55-67; American Bar Association Section of Patent, Trademark and Copyright Law, 1959 COMMITTEE REPORTS 132-35; American Bar Association Section of Patent, Trademark and Copyright Law, 1958 COMMITTEE REPORTS 92-93, 99-100; American Bar Association Section of Patent, Trademark and Copyright Law, 1958 SUMMARY OF PROCEEDINGS 40.

[191] *See* REGISTER'S 1959 REPORT, *supra* note 186, at 77.

[192] *See Extending the Duration of Copyright Protection in Certain Cases: Hearing on H.R.J. Res. 627 Before Subcomm. No. 3 of the House Comm. on the Judiciary*, 87th Cong., 2d Sess. 8 (1962) (prepared statement of John Schulman, American Patent Law Ass'n).

[193] *See* 1957 ABA SEC. REP., *supra* note 187.

articulate substantive consensus.[194]

Shortly before the Copyright Office completed the Register's Report to Congress, outlining recommendations for a revision bill, Register Fisher died. His successor, Register Abraham Kaminstein, abruptly shifted gears. While Fisher appeared to have viewed the history of inter-industry compromise as a weakness of prior revision efforts, Kaminstein seemed to read the record differently. He argued that such compromise was the keystone of achieving copyright revision and that the goal of enacting a modern copyright statute was worth herculean efforts to encourage compromise among interested parties.[195]

Register Kaminstein began working toward conciliation[196] and narrowly averted a crisis that threatened to derail the revision program.[197] The substance of the Register's Report was poorly received by the Bar,[198] a number of whose members insisted that they

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[194] The core of the consensus appears to have been the provisions that the Dallinger, Vestal and Shotwell bills had in common. *See* 1957 ABA SEC. REP., *supra* note 187, at 57-58; Schulman, *The Road to Progress in Revising the Copyright Law*, 9 BULL. COPYRIGHT SOC'Y 433, 436-39 (1962).

[195] *See, e.g.*, LIBRARY OF CONGRESS, ANNUAL REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1962, H. DOC. NO. 5, 88th Cong., 1st Sess. 70-71 (1962) [hereinafter REGISTER'S 1962 REPORT].

[196] The Register's Report was written without participation by the panel of experts. Preliminary rumblings indicated that the panelists would resist its conclusions. Before filing the Report, Kaminstein circulated it to the panel's members and solicited their comments. *See* HOUSE COMM. ON THE JUDICIARY, 87TH CONG., 1ST SESS., COPYRIGHT LAW REVISION: REPORT OF THE REGISTER OF COPYRIGHTS ON THE GENERAL REVISION OF THE U.S. COPYRIGHT LAW xi (Comm. Print 1961) [hereinafter CLR PART 1]. He added a conciliatory preface characterizing the Report's conclusions as tentative, and insisting that the Copyright Office's "purpose in issuing this report is to pinpoint the issues and to stimulate public discussion, so that the widest possible agreement can be reached on the principles to be incorporated in a revised statute." *Id.* at ix. *See also* American Bar Association, Section of Patent, Trademark and Copyright Law, 1961 SUMMARY OF PROCEEDINGS 122-23 (address by Register Kaminstein inviting members of the bar to participate in the drafting process). Kaminstein announced plans for a series of meetings with interested groups to discuss the report, and promised that the Copyright Office would consider all views expressed before drafting a bill. *See* LIBRARY OF CONGRESS, ANNUAL REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1961, H. DOC. NO. 255, 87th Cong., 2d Sess. 65-66 (1961) [hereinafter REGISTER'S 1961 REPORT].

[197] Industry representatives and members of the copyright bar disliked the Register's proposals for reform, which differed significantly from the consensus that they had reached in their ad hoc meetings. The intensity of their opposition threatened to overwhelm the revision effort. *See* LIBRARY OF CONGRESS, ANNUAL REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1963, H. DOC. NO. 255, 88th Cong., 2d Sess. 71-72 (1963) [hereinafter REGISTER'S 1963 REPORT]; sources cited *infra* notes 198-200.

[198] *See, e.g.*, REGISTER'S 1963 REPORT, *supra* note 197, at 71; Schulman, *supra* note

would prefer the current outmoded statute to one following the Register's recommendations.[199] Kaminstein announced that the Copyright Office was willing to abandon unpopular proposals.[200] He expanded the membership of the panel of experts and arranged meetings with interested parties to encourage them to compromise with one another.[201] The result was, in essence, a return to the conference process. Six years of study had produced the Register's Report. Another five years of conferences produced a bill that reflected the consensus of the conference participants and bore little resemblance to the Register's recommendations. It took an additional eleven years in Congress for the interested parties to compromise on extraneous issues and late-breaking problems. When the parties finally compromised on nearly every provision in the bill, Congress enacted the 1976 Copyright Act.[202]

B. Private Parties and Vested Interests

The stormy history of past revision efforts led the Copyright Office to conclude that the only copyright bill that would pass was one built on a network of negotiated compromises. The Copyright Office concentrated much of its energy on identifying affected interests and including their representatives in the negotiations. But, of course, it wasn't possible to invite every affected interest. Some interests lacked organization and had no identifiable representatives. In the 1905 conferences, the Library of Congress had tried unsuccessfully to recruit representatives of composers to participate. Music publishers purported to speak for composers and were the only representatives available. In the conferences convened in the 1960s, painters and sculptors did not attend[203] and the Copyright Office's

194, at 434-38; *see also* Ringer, *Viewpoint of the Copyright Office on General Revision of the Copyright Law*, 11 BULL. COPYRIGHT SOC'Y 37, 37 (1963) ("Practically all of [the proposals] were criticized by somebody, and some of them were criticized by practically everybody.").

[199] *See, e.g.*, CLR PART 2, *supra* note 6, at 321-24 (written comments of Irwin Karp); *id.* at 387-94 (written remarks of John Schulman).

[200] *See* REGISTER'S 1963 REPORT, *supra* note 197, at 71-72; Kaminstein, *The General Revision Program*, 10 BULL. COPYRIGHT SOC'Y 81 (1962).

[201] *See, e.g.*, REGISTER'S 1963 REPORT, *supra* note 197, at 72; REGISTER'S 1962 REPORT, *supra* note 195, at 70, 74.

[202] *See* Litman, *supra* note 15, at 873-79.

[203] *See* HOUSE COMM. ON THE JUDICIARY, 88TH CONG., 1ST SESS., COPYRIGHT LAW REVISION PART 3: PRELIMINARY DRAFT FOR REVISED U.S. COPYRIGHT LAW AND DISCUSSION AND COMMENTS ON THE DRAFT 269 (Comm. Print 1963) [hereinafter CLR PART 3] (remarks of Irwin Karp, Authors' League of America).

efforts to seek them out proved unavailing.[204] Choreographers, theatrical directors, and computer programmers sent no representatives because they had no representatives to send. Other interests that would have profound effect on copyright did not yet exist at the time of the conferences. Just as there had been no commercial broadcasters to invite to the conferences in 1905, there were no video cassette manufacturers, direct satellite broadcasters, digital audio technicians, motion picture colorizers, or on-line database users to invite in 1960.

Nor could the rest of us be there. The amorphous "public" comprises members whose relation to copyright and copyrighted works varies with the circumstances. Many of us are consumers of copyrighted songs and also consumers of parodies of copyrighted songs, watchers of broadcast television and subscribers to cable television, patrons of motion picture theatres and owners of videotape recorders, purchasers and renters and tapers of copyrighted sound recordings. Although a few organizations showed up at the conferences purporting to represent the "public" with respect to narrow issues,[205] the citizenry's interest in copyright and copyrighted works was too varied and complex to be amenable to interest group championship. Moreover, the public's interests were not somehow approximated by the push and shove among opposing industry representatives. To say that the affected industries represented diverse and opposing interests is not to say that all relevant interests were represented.[206]

The conference participants began as the members of the Library of Congress's panel of experts and were all established members of

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[204] *See Copyright Law Revision: Hearings on H.R. 2223 Before the Subcomm. on Courts, Civil Liberties and the Administration of Justice of the House Judiciary Comm.*, 94th Cong., 1st Sess. 1844 (1975) [hereinafter *1975 House Hearings*] (testimony of Barbara Ringer, Register of Copyrights).

[205] *See, e.g.*, HOUSE COMM. ON THE JUDICIARY, 88TH CONG., 1ST SESS., COPYRIGHT LAW REVISION PART 5 76-77 (Comm. Print 1965) [hereinafter CLR PART 5] (remarks of John Schulman, Chairman of American Bar Association Committee 304); *id.* at 64 (remarks of Charles F. Gosnell, American Library Ass'n); *id.* at 70 (remarks of Nicholas E. Allen, Music Operators of America); CLR PART 3, *supra* note 203, at 425-27 (written comments of George Schiffer, on behalf of community television antenna systems).

[206] A participant in the process observed after reading a transcript of several of the meetings that the public interest had received only passing attention, little effort had been made to inform the public of the progress of the effort, and that the majority of conference participants were, unsurprisingly, copyright lawyers. *See* Goldberg, *Copyright Law Revision Part 2—A Review of the Record*, 10 BULL. COPYRIGHT SOC'Y 214, 216-17 (1962).

the copyright bar. Other representatives joined the conferences as particular conflicts arose. Register Kaminstein invited representatives of current beneficiaries of the statute to participate in discussions of cutbacks in their statutory benefits.[207] Lawyers on the panel solicited participation from their other clients.[208] As with the conferences on earlier legislation, however, participants were almost exclusively those who already had a sizable economic investment in copyright matters under current law. Although these participants undoubtedly interacted with copyrighted works outside of their professional capacity, they failed to bring that perspective to bear on the conference negotiations.

Perhaps the most patent example of the partisan perspective that dominated the negotiations is illustrated in the treatment of the issue of private use, an issue that has become increasingly vexing in the years since the 1976 Act took effect. Presumably, all industry representatives made private use of copyrighted works in their individual capacities. Yet, the issue of the appropriate scope of permissible private use of copyrighted works received little explicit attention during the revision process. Representatives were too busy wrangling over commercial and institutional uses to talk about the behavior of individuals in their homes.[209] The aggregate agendas developed in the conferences of private parties reflected systematic, if unintentional, bias against absent interests.[210] The fact that

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[207] The Register was not always successful in causing such interests to attend. Kaminstein speculated that his failure to turn up librarians or scientists to serve on the panel was partly due to the fact that few librarians or scientists were members of the bar, and partly due to the fact that their representatives were too busy to attend. *See* CLR PART 5, *supra* note 205, at 81 (remarks of Abraham Kaminstein, Register of Copyrights).

[208] *See, e.g.*, CLR PART 3, *supra* note 203, at 184-85 (remarks of Harriet Pilpel).

[209] There were fleeting proposals during the conferences, for example, to extend the copyright owner's exclusive performance right to cover private as well as public performances, or give the copyright owner control of individual book borrowing, but they received little attention.

[210] I explore the systematic nature of that bias more fully below. An illustrative example is the treatment of charitable benefit performances. The revision bill that emerged from the conferences included a privilege for charitable benefit performances so long as performers, promoters and organizers received no compensation. *See* H.R. 4347, 89th Cong., 1st Sess. § 109(4) (1965). In 1967, sponsors of agricultural fairs got involved in copyright revision and managed to secure a privilege for performance of musical works during agricultural fairs, without regard to any fees paid performers or promoters. *See* S. 543, 91st Cong., 1st Sess. § 110(6) (1969); *see, e.g., Copyright Law Revision: Hearings on S. 597 Before the Subcomm. on Patents, Trademarks and Copyrights of the Senate Comm. on the Judiciary*, 90th Cong., 1st Sess. 621-23 (1967) [hereinafter *1967 Senate Hearings*] (testimony of Rep. Kenneth Gray); *id.* at 625-27 (testimony of William Hartsfield, Southeastern Fair Ass'n). In ensuing sessions of Con-

private use had no defenders and received no explicit treatment in the revision conferences, therefore, had substantive results on the legality of private use under the revision bill.

The public, of course, does have a designated representative; acting as that representative is Congress' job description. A few Congressional committee staff members did attend some of the copyright conferences as observers, but stayed above the fray.[211] The unspoken premise of the conference process was that Congress would enact any bill that everyone else could agree on. Ultimately, that is what Congress did.[212]

Much legislation advances the agendas of private interest groups. Indeed, contemporary interest group theory holds that many, if not most, statutes are purchased by special interests from legislators in return for political support.[213] Copyright legislation produced through industry conferences nonetheless has some unusual features. Under the typical model, interest groups submit self-serving proposals, and members of Congress evaluate whether the value of supporting the proposals outweighs the political costs, necessarily passing judgment on the substantive content of the proposed legislation.[214] The bargain between members of Congress and industry representatives in connection with copyright legislation was of a different sort: Congress in effect agreed that if the industry representatives would invest the time and energy to develop a bill that all of

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gress, the privilege became narrower and more qualified. *See* S. 22, 94th Cong., 2d Sess. § 110(6) (1976), *reprinted in* H.R. 1476, 94th Cong., 2d Sess. 8 (1976); S. 22, 94th Cong., 1st Sess. § 110(6) (1975). Veterans' and fraternal organizations did not, for the most part, involve themselves in this dispute. *But see 1967 Senate Hearings*, *supra*, at 1361 (written comments from Troy Shrine Club supporting agricultural fair exemption). Shortly after the 1976 Act took effect, veterans' and fraternal organizations were dismayed to learn that the new Act made them liable for copyright infringement unless they negotiated licenses or ceased paying the bands that they hired to play at their charitable benefits. *See generally To Amend The Copyright Act, S. 2082: Hearings on S. 2082 Before the Subcomm. on Improvements in Judicial Machinery of the Senate Judiciary Comm.*, 96th Cong., 2d Sess. 6-43 (1981) (various witnesses). Veterans' and fraternal organizations mounted a successful effort before Congress for the enactment of an exemption for charitable benefit performances by nonprofit veterans' or fraternal organizations. *See* Pub. L. No. 97-366, 96 Stat. 1759 (codified at 17 U.S.C. § 110(10) (1982 & Supp. IV 1986)).

[211] *See, e.g.*, CLR PART 2, *supra* note 6, at 44 (remarks of Cyril F. Brickfield, House Judiciary Committee).

[212] See Litman, *supra* note 15, at 876-79 and sources cited therein.

[213] *See, e.g.*, Easterbrook, *The Supreme Court 1983 Term—Forward: The Court and the Economic System*, 98 HARV. L. REV. 4, 15-18 (1984); Landes & Posner, *supra* note 8, at 877; Macey, *supra* note 8, at 227-33; Posner, *supra* note 8, at 265-68.

[214] *See, e.g.*, Macey, *supra* note 8, at 232-33.

them endorsed, Congress would refrain from exercising independent judgment on the substance of the legislation.[215]

The nature of this bargain introduces particular difficulties into the enterprise of statutory interpretation. As I have argued elsewhere, this type of drafting process makes it exceedingly difficult to speak of legislative intent if by legislative intent one means the substantive intent of members of Congress.[216] But, even if one avoids that dilemma by ascribing to Congress an intent to enact the substance of the deals forged in conferences, one nonetheless may encounter difficulty in identifying any overall purpose pervading the text of the statute.[217] The compromises that evolve through the conference process can be multilateral and interrelated, but may not incorporate any common vision or strategy.[218] Courts must apply this legislation to parties, works, and situations that never arose during the conference process, and to industries that could not be present.[219]

In the 1976 Act's first decade, for example, courts struggled with cases involving videocassette recorders,[220] communications satellites,[221] and on-line databases.[222] The courts' efforts to apply the

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[215] *See* Litman, *supra* note 15, at 870-80; Olson, *supra* note 2, at 120.

[216] *See* Litman, *supra* note 15, at 863-70.

[217] *See, e.g.*, Posner, *Statutory Interpretation—In the Classroom and in the Courtroom*, 50 U. CHI. L. REV. 800, 819-20 (1983).

[218] It would be exceedingly difficult, for example, to identify a coherent strategy animating the assorted provisions of the 1909 Act, *see supra* notes 141-59 and accompanying text, or any of the versions of the Vestal bill reported out of committee, *see supra* notes 116-18 and accompanying text. It is easier to discern a scheme underlying the provisions of the 1976 Act, *see infra* notes 230-60 and accompanying text, but the scheme that emerges seems to me to be neither workable nor wise. *See infra* notes 313-15, 449-58 and accompanying text.

[219] Courts have not, for the most part, attempted to detect an overarching strategy in the provisions of the 1976 Act. Many courts have relied on the plain meaning of the statutory language of whatever provisions are in dispute. *See, e.g.*, Mills Music v. Snyder, 469 U.S. 153 (1985); Pacific & Southern Co. v. Satellite Broadcast Networks, 694 F. Supp. 1565 (N.D. Ga. 1988). Courts' use of the plain meaning rule arguably increases the influence of linguistic fortuity on the results. *See infra* notes 373-96 and accompanying text. Other courts have relied heavily on case law interpreting the 1909 Act. *See* cases cited in Litman, *supra* note 15, at 859-61, 896-901. Reversion to early case law has introduced additional randomness into courts' interpretations of the statute. *See id.* at 903. If courts were to interpret the statute with an eye to enforcing its underlying strategy, however, it seems likely that courts would hold many more activities than they have to be infringing. *See infra* notes 406-18 and accompanying text. As a result, the 1976 Act would age even more rapidly than it has thus far.

[220] Universal City Studios v. Sony Corp. of Am., 480 F. Supp. 429 (C.D. Cal. 1979), *aff'd in part, rev'd in part*, 659 F.2d 963 (9th Cir. 1981), *rev'd*, 464 U.S. 417 (1984); *see infra* notes 406-16 and accompanying text.

[221] *See* Hubbard Broadcasting v. Southern Satellite Systems, 777 F.2d 393 (8th Cir.

statute in these cases have been widely criticized.[223] The statutory language, however, gives courts little guidance. The fact-specific provisions of the statute do not contemplate such exotic creatures;[224] the paucity of provisions articulating more general principles has relegated courts to ad hoc decisionmaking.[225]

Moreover, the complexity and specificity of multiparty compromises exacerbates the problem. If a compromise is negotiated between monolithic interests, between, for example, all artists and all art users, we can find roughly defined privies in the negotiating process for the interests that develop in the future. Applying a compromise negotiated among encyclopedia publishers, popular music composers, motion picture producers, novelists, and dramatists, however, to a situation involving the importers of unicorn figurines[226] can be substantially more troublesome. This reveals the difficulty of jettisoning any effort to find coherence in such a statute and attempting to interpret it as if it were a contract.[227] If the industry to which a court is trying to apply the statute was neither represented in negotiations nor in privity with someone who was there, it is difficult to assess how the metaphorical contract allocates the risks of ambiguity.

As it happens, however, the conferences that led to the 1976 Act did finally settle on a common strategy and did allocate the risks of

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1985), *cert. denied*, 479 U.S. 1005 (1986); Eastern Microwave v. Doubleday Sports, 691 F.2d 125 (2d Cir. 1982), *cert. denied*, 459 U.S. 1226 (1983); *infra* notes 376-96 and accompanying text.

[222] *See, e.g.*, West Publishing v. Mead Data Cent., 799 F.2d 1219 (8th Cir. 1986), *cert. denied*, 479 U.S. 1070 (1987).

[223] *See, e.g.*, Adelstein & Perez, *The Competition of Technologies in Markets for Ideas: Copyright and Fair Use in Evolutionary Perspective*, 5 INT'L REV. OF L. & ECON. 209 (1985); Kost, *supra* note 4, at 24-25; Oman, *The 1976 Copyright Revision Revisited: "Lector, si monumentum requiris, circumspice,"* 34 J. COPYRIGHT SOC'Y 29, 32, 35 (1986); Patterson, *Free Speech, Copyright and Fair Use*, 40 VAND. L. REV. 1, 53-58 (1987).

[224] The fact that the statute fails to make explicit provision for video cassette recorders and communications satellites highlights how very shortsighted the negotiation process has tended to be. Both were foreseeable developments at the time of the drafting process, but had not yet posed concrete problems for affected industries, and consequently received no attention.

[225] *See infra* notes 341-416 and accompanying text.

[226] *See* Comment, *Commissioned Works as Works Made for Hire Under the 1976 Copyright Act: Misinterpretation and Injustice*, 135 U. PA. L. REV. 1281 (1987) (discussing Aldon Accessories v. Spiegel, Inc., 738 F.2d 548 (2d Cir.), *cert. denied*, 469 U.S. 982 (1984)).

[227] Some commentators have suggested that special interest legislation should be interpreted and enforced as if it were a contract between interest groups and the legislature or among interest groups. *See, e.g.*, Easterbrook, *supra* note 213, at 18.

ambiguity. Indeed, industry representatives explained the strategy to Congress in unusually explicit terms. The bills that became the 1976 Act possessed a coherence that previous revision legislation lacked, although that coherence emerged as a byproduct of the efforts to achieve inter-industry consensus. Register Kaminstein suggested early on that the key to general revision would be to draft a copyright bill that benefited each of the competing interests.[228] In that, the conferences succeeded. The bill that emerged from the conferences enlarged the copyright pie and divided its pieces among conference participants so that no leftovers remained.[229]

C. *Broad Rights and Narrow Exceptions*

In 1961, two months after Register Kaminstein filed the controversial Register's Report, he convened a meeting of an augmented panel to discuss copyright revision. Kaminstein invited the original twenty-nine panelists, chairmen of bar association committees, delegations from a dozen federal agencies and departments, and representatives of several interests that had until then been excluded.[230] Kaminstein announced that the purpose of the meeting was for the assembled government and industry representatives to use the recommendations made in the Register's Report as the foundation for the development of inter-industry consensus.[231] The meeting was the first of a series; the series of meetings spawned further series of meetings; with each meeting the number of interests represented on the panel increased.[232] Between panel meetings, the panelists met with one another in search of compromises, and the Copyright Office urged further meetings and negotiations among affected interests.[233] During the many meetings, the Copyright Office and

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[228] *See* REGISTER'S 1961 REPORT, *supra* note 196, at 71.

[229] This interpretation of the bill is not explicitly reflected on the face of the statute, or in the House and Senate Committee Reports. The evolution of the language of the bill through the process of negotiations, however, reveals broadening rights, narrowing exceptions, and redrafting of statutory language to close perceived loopholes open to future exploitation. The negotiation process encouraged each subsequent draft to treat absent interests less generously than its predecessor. *See infra* notes 230-312 and accompanying text.

[230] *See* CLR PART 2, *supra* note 6, at 1-4. Two congressional staffers also attended as observers. *See id.*

[231] *See id.* at 4-5; *see also id.* at 4 (remarks of Rutherford D. Rogers, Chief Assistant Librarian of Congress) ("We are in the unenviable position of being the middle man here trying to reconcile the interests of special groups as well as the public interest.").

[232] *Compare, e.g., id.* at 55-56 *with* CLR PART 5, *supra* note 205, at 33-36.

[233] *See 1975 House Hearings, supra* note 204, at 93-94 (testimony of Abraham Kaminstein, Former Register of Copyrights); *Copyright Law Revision: Hearings on H.R.*

industry representatives hammered out the substance of a revision bill.[234]

In the 1961 Register's Report, the Copyright Office suggested only modest changes in the law: the codification of courts' solutions to assorted copyright problems, the clarification and simplification of language, and the removal of some anomalies created by technological change or historical accident.[235] Meetings with representatives of affected interests, however, produced proposals to broaden rights[236] and narrow exemptions and privileges.[237] Suggestions for broad or general privileges evolved through negotiations to very specific ones.[238]

4347 Before the Subcomm. on Courts, Civil Liberties and the Administration of Justice of the House Comm. on the Judiciary, 89th Cong., 1st Sess. 31-32 (1965) [hereinafter *1965 House Hearings*] (prepared testimony of George Cary, Deputy Register of Copyrights); *id.* at 994 (prepared testimony of Motion Picture Ass'n of America); 113 CONG. REC. 8586 (1967) (remarks of Rep. Poff).

[234] *See, e.g., Copyright Law Revision: Hearings on S. 1006 Before the Subcomm. on Patents Trademarks and Copyrights of the Senate Comm. on the Judiciary*, 89th Cong., 1st Sess. 64 (1965) [Hereinafter *1965 Senate Hearings*] (testimony of Abraham Kaminstein, Register of Copyrights).

[235] *See* CLR PART 1, *supra* note 196; CLR PART 2, *supra* note 6, at 19 (remarks of George Cary, Deputy Register of Copyrights). *See generally* Ringer, *First Thoughts on the Copyright Act of 1976*, 22 N.Y.L. SCH. L. REV. 477, 484-90 (1977).

[236] *See, e.g.*, CLR PART 5, *supra* note 205, at 61 (remarks of Irwin Karp, Authors' League of America); CLR PART 3, *supra* note 203, at 109-17, 184-86 (colloquy); CLR PART 2, *supra* note 6, at 247-62 (written comments of Authors' League of America, Inc.).

[237] *See, e.g.*, CLR PART 5, *supra* note 205, at 58-59 (remarks of Edward Sargoy, ABA); *id.* at 96 (remarks of Phillip Wattenberg, Music Publishers' Ass'n); *id.* at 105 (remarks of Sidney M. Kaye, BMI); CLR PART 3, *supra* note 203, at 168-69 (remarks of Bella Linden).

[238] For example, a proposal for a broad exemption for educational institutions evolved into a request for a narrow photocopying privilege. Representatives of educational institutions were included on the panel, but sat through early panel meetings with few comments. *See* CLR PART 2, *supra* note 6, at 42 (remarks of William Fidler, American Ass'n of University Professors). Others suggested a broad exemption for nonprofit use. *See, e.g., id.* at 223 (written comments of Eugene Aleinikoff). When it appeared that the panel was unlikely to endorse a nonprofit exemption, representatives of educators proposed a broad educational exemption. *See* CLR PART 3, *supra* note 203, at 150-51 (remarks of Harry N. Rosenfield). Confronted with intense opposition from publishers of textbooks, the panelists drafted a narrower, conditional educational exemption. *See* HOUSE COMM. ON THE JUDICIARY, 88TH CONG., 2D SESS., COPYRIGHT LAW REVISION PART 4: FURTHER DISCUSSIONS AND COMMENTS ON PRELIMINARY DRAFT FOR REVISED U.S. COPYRIGHT LAW 217-25 (Comm. Print 1964) [hereinafter CLR PART 4] (remarks of Harry N. Rosenfield, Nat'l Education Ass'n); CLR PART 5, *supra* note 205, at 222-23 (written comments of Ad Hoc Committee of Educational Institutions and Organizations on Copyright Law Revision). By the time of the first congressional hearings on the revision bill, educators focused their request on a privilege for limited educational photocopying. *See 1965 Senate Hearings*, *supra* note

For example, the performance right developed through the conferences into something much broader than the Register had initially proposed, with much narrower exceptions. The 1909 Act gave the owner of the copyright in a musical work the exclusive right to perform the work publicly for profit, subject to the jukebox exemption.[239] A 1952 amendment extended the right of public performance for profit to lectures, sermons, and other nondramatic literary works.[240] Dramatic works had had a public performance right without a for-profit limitation since 1856, while motion pictures had no explicit performance right at all.[241] The Register's 1961 Report recommended that musical and nondramatic literary works continue to have a public performance for profit right and that motion pictures be given a public performance right with no for-profit qualification.[242] Representatives of authors and composers, however, insisted that the for-profit limitation be discarded;[243] composers and motion picture producers argued for a broader definition of public performance.[244] The Copyright Office drafted a provision granting copyright owners the exclusive right to perform the work publicly, subject to express exceptions for educational and religious performances, charitable benefits, and retransmissions of television and radio broadcasts.[245]

The response from the panelists was guardedly positive; they shifted their emphasis to requesting that the exceptions be radically narrowed.[246] Representatives of industries that performed copyrighted works were willing to go along so long as the exemptions and privileges set forth in the bill continued to address their con-

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234, at 85 (testimony of Harold Wigren, Ad Hoc Committee of Educational Institutions and Organizations on Copyright Law Revision).

[239] *See supra* note 62.

[240] *See supra* note 173.

[241] *See generally* CLR PART 1, *supra* note 196, at 22-23, 27-32.

[242] *See id.* at 27-32. The Register also recommended the repeal of the jukebox exemption. *Id.*

[243] *See, e.g.*, CLR PART 2, *supra* note 6, at 286-88 (written comments of Herman Finklestein); CLR PART 3, *supra* note 203, at 135-36 (remarks of Barbara Ringer, Assistant Register for Examining).

[244] *See, e.g.*, CLR PART 2, *supra* note 6, at 404-07 (written comments of John F. Whicher); CLR PART 3, *supra* note 203, at 148 (remarks of Herman Finklestein, ASCAP); *see also id.* at 155 (remarks of Douglas Anello, Nat'l Ass'n of Broadcasters).

[245] *See* CLR PART 3, *supra* note 203, at 4-14 (Preliminary Draft §§ 5(c), 8, 13); *id.* at 135-40 (remarks of Barbara Ringer, Assistant Register for Examining).

[246] *See, e.g, id.* at 149 (remarks of Herman Finklestein, ASCAP); *id.* at 152-53 (remarks of Irwin Karp, Authors' League of America); *id.* at 241 (remarks of James A. Stabile, Nat'l Broadcasting Co.).

cerns.[247] Industry representatives got together in meetings sponsored by the Copyright Office or subcommittees of the bar associations and tried to come to terms on the scope of exceptions to the performance right.

In 1964, the Copyright Office circulated a draft bill with a more expansive definition of public performance and further restrictions and conditions on specifically worded exemptions and privileges.[248] Panelists insisted that the exemptions and privileges were still too broad, general, and ambiguous.[249] Claimants of privileges and exemptions complained that the language of the bill was still unclear.[250] Another round of meetings produced an even more conditional and restrictively worded series of exemptions and privileges. By the time the 1965 bill was ready for Congressional hearings, the broadly defined public performance right had become encumbered with specifically worded conditional exceptions for classroom teaching, educational television transmissions within educational institutions, religious services, charitable benefits, cable retransmissions at no charge, transmission to private hotel rooms, and reception of broadcasts in public places.[251] By the time Congress enacted a revision bill in 1976, these exceptions and privileges had grown still more numerous, more narrowly worded, and more detailed.[252]

That pattern of evolution pervaded the revision bill. Copyright owners wanted the broadest possible rights with the narrowest possible exceptions.[253] Many representatives of interests that used

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[247] *See, e.g., id.* at 145 (remarks of Eugene N. Aleinikoff, National Educational Television and Radio Center); *id.* at 241-44 (remarks of George Schiffer, Schiffer & Cohen); *id.* at 433 (written comments of George Schiffer).

[248] *See* CLR PART 5, *supra* note 205, at 4-9 (S. 3008, §§ 5, 6, 8, 12, 13); *id.* at 94-96 (remarks of Abe Goldman, Copyright Office General Counsel).

[249] *See, e.g., id.* at 59 (remarks of Edward A. Sargoy, ABA); *id.* at 96 (remarks of Phillip B. Wattenberg); *id.* at 105 (remarks of Sidney M. Kaye, BMI); *id.* at 224-25 (written comments of American Book Publishers' Council and American Textbook Publisher's Institute).

[250] *See id.* at 60, 75 (remarks of George Schiffer, National Community Television Ass'n); *id.* at 64-65 (remarks of Eugene N. Aleinikoff, Nat'l Education Television and Radio Center).

[251] *See* H.R. 4347, 89th Cong., 1st Sess. § 109 (1965).

[252] *Compare* H.R. 4347, 89th Cong., 1st Sess. § 109 (1965) *with* S. 22, 94th Cong., 2d Sess. §§ 110, 111, 116, 118 (1976).

[253] *See, e.g.*, CLR PART 5, *supra* note 205, at 58-59 (remarks of Edward Sargoy, ABA); *id.* at 78-80 (colloquy); *id.* at 233 (written remarks of American Textbook Publishers' Institute); CLR PART 4, *supra* note 238, at 316 (written comments of Authors' League of America); *id.* at 323 (written comments of Joshua Binion Cahn); CLR PART 3, *supra* note 203, at 112 (remarks of Herman Finklestein, ASCAP); *id.* at 112-14 (re-

copyrighted works were agreeable to such a strategy on the condition that such exceptions explicitly cover their activities.[254] In addition, some insisted that the product of their use of pre-existing copyrighted works itself be copyrightable and entitled to the expansive rights.[255] Thus, the field of copyrightable subject matter grew progressively more inclusive.[256] The Copyright Office had committed itself to seeking a consensus solution, and consensus jelled around a strategy of granting broad rights in an expansive field of copyrightable works and subjecting the rights to specific, narrowly tailored exceptions.[257]

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marks of Edward A. Sargoy, ABA); *id.* at 130-31 (remarks of Irwin Karp, Authors' League of America).

[254] *See, e.g.*, CLR PART 5, *supra* note 205, at 60 (remarks of George Schiffer, Nat'l Community Television Ass'n); *id.* at 77 (remarks of Douglas A. Anello, Nat'l Ass'n of Broadcasters); CLR PART 4, *supra* note 238, at 54 (remarks of Raymond G. Larocca, Midwest Program on Airborne Television); CLR PART 3, *supra* note 203, at 127, 145 (remarks of Eugene N. Aleinikoff, Nat'l Television Educ. and Radio Center); *id.* at 158 (remarks of Barbara Ringer, Assistant Register for Examining); *id.* at 198-99 (remarks of Douglas Anello, Nat'l Ass'n of Broadcasters).

[255] *See, e.g.*, CLR PART 5, *supra* note 205, at 78-80 (colloquy); CLR PART 3, *supra* note 203, at 322-23 (remarks of Eugene N. Aleinikoff, Nat'l Educ. Television and Radio Center); CLR PART 2, *supra* note 6, at 13 (remarks of Thomas J. Robinson, Motion Picture Ass'n of America).

[256] The Register's 1961 Report recommended retaining the 1909 Act's approach to copyrightable subject matter by specifying classes of copyrightable works. The Register suggested specifying all classes mentioned in the 1909 Act, plus any others Congress chose to add, but describing them in somewhat broader language to permit the development of new forms of traditionally copyrightable works. *See* CLR PART 1, *supra* note 196, at 11. Conference participants preferred a more general approach. *See, e.g.*, CLR PART 3, *supra* note 203, at 46-59 (colloquy). The 1965 revision bill defined copyrightable subject matter broadly, declaring that copyright subsisted "in original works of authorship fixed in any tangible means of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device." H.R. 4347, 89th Cong., 1st Sess. § 102 (1965). Accompanying the declaration was a nonexclusive list of categories of works of authorship. The law enacted in 1976 retained the quoted language with a slightly augmented list of categories. *See* 17 U.S.C. § 102(a). The scope of copyrightable subject matter extends copyright protection to most creations fixed in tangible form, including television and radio programs, toys, sound recordings, computer software and video games. The Register of Copyrights anticipated that enactment of the new statute would increase copyright registrations significantly. *See* LIBRARY OF CONGRESS, REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1976, *reprinted in* 3 N. HENRY, COPYRIGHT, CONGRESS AND TECHNOLOGY: THE PUBLIC RECORD 316-17 (1978).

[257] *See, e.g.*, *1965 House Hearings*, *supra* note 233, at 1858-59 (testimony of Abraham Kaminstein, Register of Copyrights); CLR PART 5, *supra* note 205, at 56-58 (remarks of Abe Goldman, Copyright Office General Counsel). Some of my colleagues would quarrel with my characterization of broad rights subject to narrow exceptions. Professor Jane Ginsburg, for example, argues that the fact that the performance and display rights granted by the statute are limited to *public* performance and display makes those rights

The bill introduced in Congress in 1965 followed this scheme. In the first of a long series of congressional hearings on copyright revision, Deputy Register George Cary explained the bill's approach:

> The problem of balancing existing interests is delicate enough, but the bill must do something even more difficult. It must try and foresee and take account of changes in the forms of use and the relative importance of the competing interests in the years to come, and it must attempt to balance them fairly in a way that carries out the basic constitutional purpose of the copyright law.
>
> Obviously, no one can foresee accurately and in detail the evolving patterns in the ways authors' work will reach the public 10, 20, or 50 years from now. Lacking that kind of foresight, the bill adopts a general approach of providing compensation to the author for future as well as present uses of his work that materially affect the value of his copyright. As shown by the jukebox exemption in the present law, a particular use which may seem to have little or no economic impact on the author's rights today can assume tremendous importance in times to come. A real danger to be guarded against is that of confining the scope of an author's rights on the basis of the present technology, so that as the years go by his copyright loses much of its value because of unforeseen technical advances.
>
> For these reasons the bill reflects our belief that authors' rights should be stated in the statute in broad terms and that the specific limitations on them should not go any further than is shown to be necessary in the public interest.[258]

Thus, a strategy born by accident of accretion had acquired its rationale. The revision bill spelled out five expansively defined exclusive rights: the right to reproduce or copy the work, the right to make derivative works or adapt the work, the right to distribute the work, the right to perform the work publicly, and the right to display the work publicly.[259] It then subjected the exclusive rights to a

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narrow indeed in an era of widespread private use. Ginsburg also suggests that the statute's incorporation of the first sale and fair use doctrines, *see infra* notes 338-70 and accompanying text, represents very broad limitation of the copyright owner's bundle of rights. *See also* Brown, *Eligibility for Copyright Protection: A Search for Principled Standards*, 70 MINN. L. REV. 579, 593-94 (1985) (describing exemptions from performance and display rights set forth in 17 U.S.C. § 110 as "the pork-barrel exemptions"). Professors Ginsburg and Brown would, I believe, nonetheless agree that the grant of rights in the 1976 Act is far broader, and that the statutory exceptions are more narrowly worded, than their counterparts in the 1909 Act and the early drafts of a revision bill.

[258] *1965 House Hearings*, *supra* note 233, at 32-33 (prepared testimony of George Cary, Deputy Register of Copyrights).

[259] *See* H.R. 4347, 89th Cong., 1st Sess. § 106 (1965).

variety of narrowly drawn exceptions.[260]

D. Ongoing Negotiations and Narrower Solutions

Not all of the disputes were resolved through the prelegislative process. When Congress held its first hearings on the revision bill in the tenth year of the revision program, several controversies remained,[261] and more disputes arose as the rapid pace of technological change created new players and new problems.[262] Significantly, however, none of the unresolved controversies concerned the overall structure and approach of the bill.[263] Almost all of the disputes involved specific details of particular privileges and exemptions.[264] Members of Congress declined, for the most part, to respond to the controversies by attempting to arrive at policy solutions of their own devising. Instead, Congress involved itself in the mediation process, urging opposing interests to meet, cajoling them to reach agreement, and sometimes sitting down with them and demanding that they compromise.[265] During the eleven additional years that it

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[260] *See id.* §§ 107-114. Compare the greater variety of even more narrowly drawn exceptions in 17 U.S.C. §§ 107-118.

[261] *See 1965 Senate Hearings, supra* note 234, at 68-72 (testimony of Abraham Kaminstein, Register of Copyrights).

[262] The entry of computer programs and computer databases into the arena, for example, significantly complicated already difficult disputes. *See, e.g., 1967 Senate Hearings, supra* note 210, at 192-201 (testimony of Arthur Miller, Ad Hoc Committee of Educ. Insts. and Orgs. on Copyright Law Revision); *1965 House Hearings, supra* note 233, at 74-79 (testimony of Len Deighton, American Textbook Publishers Inst.).

[263] *See 1965 House Hearings, supra* note 233, at 1857-73 (testimony of Abraham Kaminstein, Register of Copyrights).

[264] According to Register Kaminstein, the controversies that remained unresolved as of the 1965 Hearings were the fate of the jukebox exemption, the scope of privileges or exemptions to be provided for education and educational broadcasting, the scope of privileges or exemptions for cable television, the statutory rate for the compulsory license for mechanical reproductions of music, and the retention of the manufacturing clause, which required some books to be printed from type set within the United States. *See 1965 Senate Hearings, supra* note 234, at 68-72. All but the last of these disputes involved the conditions under which uses of copyrighted material would be privileged or exempt. The parties ultimately settled the jukebox, public television, and cable television disputes by agreeing to establish new compulsory licenses. The rate dispute for the mechanical compulsory license settled when the parties agreed to let it be decided by the Copyright Royalty Tribunal, an agency invented to administer the three new compulsory licenses. Interested parties resolved the manufacturing clause dispute with a complicated agreement to limit the scope and duration of the domestic typesetting requirement and reduce the penalties for noncompliance. The Register of Copyrights disapproved of the substance of all of these agreements, but nonetheless recommended that Congress enact them. *See* Litman, *supra* note 15, at 869-78 and sources cited therein.

[265] Litman, *supra* note 15, at 871-79; *see also 1975 House Hearings, supra* note 204, at 237-38 (testimony of Townsend Hoopes, Ass'n of American Publishers); *id.* at 363 (re-

took to produce a bill that every industry representative would be willing to support, the solutions to inter-industry disputes became progressively more complicated and detailed.

1. Reproduction by Broadcasters and Libraries

For example, the 1965 bill included a provision permitting broadcasters licensed to perform a work to make a single ephemeral recording of the work.[266] The privilege, included at broadcasters' insistence as a condition for supporting the expanded performance right,[267] to which it had no direct relation, would have allowed a broadcaster to make a temporary tape of a copyrighted work for convenience in broadcasting the work. Thus, a radio station could have taped a program of copyrighted songs, broadcast the songs, and then destroyed the tape or retained it solely for archival purposes.[268] After testimony revealing that the privilege was controversial, the House Judiciary Committee reported out a version of the privilege that excluded motion pictures, imposed further limitations and conditions on the use of the recording, and prohibited the copyrighting of the recording without the consent of the owner of the copyright in the underlying work.[269] In 1969, the Senate expanded the privilege for educational broadcasters, but not other broadcasters, in order to permit up to twelve ephemeral recordings and delay their destruction for up to five years.[270] Later, Congress expanded the twelve recordings to thirty, lengthened the five years

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marks of Rep. Drinan); *id.* at 890-91 (testimony of Eric Smith, Public Broadcasting Sys.); *id.* at 971 (testimony of Edward Cramer, BMI); *id.* at 1840, 1847 (testimony of Barbara Ringer, Register of Copyrights); *1965 House Hearings*, *supra* note 233, at 591 (remarks of Rep. Poff); LIBRARY OF CONGRESS, REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1969, *reprinted in* 2 N. HENRY, *supra* note 256, at 154; LIBRARY OF CONGRESS, REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1968, *reprinted in* 2 N. HENRY, *supra* note 256, at 3-4; 122 CONG. REC. 3824 (1976) (remarks of Sen. Hollings); *id.* at 31,980-81 (remarks of Rep. Kastenmeier); *id.* at 31,985 (remarks of Rep. Drinan); 113 CONG. REC. 8585, 8592 (1967) (remarks of Rep. Celler).

[266] *See* H.R. 4347, 89th Cong., 1st Sess. § 110 (1965).

[267] *See, e.g.*, CLR PART 3, *supra* note 203, at 127 (remarks of Eugene N. Aleinikoff, Nat'l Educ. Television and Radio Center); *id.* at 198-99 (remarks of Douglas Anello, Nat'l Ass'n of Broadcasters).

[268] *See* HOUSE COMM. ON THE JUDICIARY, 89TH CONG., 1ST SESS., COPYRIGHT LAW REVISION PART 6: SUPPLEMENTARY REPORT OF THE REGISTER OF COPYRIGHTS ON THE GENERAL REVISION OF THE U.S. COPYRIGHT LAW: 1965 REVISION BILL 44-47 (Comm. Print 1965) [hereinafter CLR PART 6].

[269] *See* H.R. 4347, 89th Cong., 2d Sess. § 112 (1966); H.R. REP. No. 2237, 89th Cong., 2d Sess. 36 (1966).

[270] *See* S. 543, 91st Cong., 1st Sess. (1969).

to seven years, added a separate privilege with its own conditions for distribution of an ephemeral recording of religious music, and finally, incorporated a distinct ephemeral recording privilege (limited to ten copies with no firm destruction date) for nonprofit educational broadcasts of nondramatic literary works to blind or deaf audiences.[271]

Also unsettled at the time of the initial congressional hearings was the issue of library photocopying. The 1961 Register's Report proposed that the statute permit nonprofit libraries to supply their patrons with single photocopies of articles or out-of-print books.[272] It proved impossible to reconcile the positions of authors, publishers, and librarians during the conferences. The Copyright Office drafted an elaborate provision setting forth the conditions under which libraries could make photocopies; authors, publishers, and library groups demanded its deletion.[273] Thus, the bill introduced in Congress contained no provision addressing library copying. At the request of historians and archivists, the House subcommittee added a provision in 1967 permitting nonprofit institutions to make archival copies of unpublished works. During the next round of hearings, library associations pressed for their own express exemption.[274] The Senate subcommittee expanded the archival privilege into a complicated provision permitting libraries to reproduce works or portions of works under specific conditions and restrictions.[275] In 1974, the Senate added additional conditions and restrictions. The 1974 provision specified the kinds of libraries entitled to the privilege, the nature of the works that could be reproduced, the amount of the works that could be copied, the number of copies that could be made, and the extent of the investigation the library must undertake before making any reproductions in an as-

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[271] *See* H.R. REP. NO. 1476, 94th Cong., 2d Sess. 101-05, *reprinted in* 1976 U.S. CODE CONG. AND ADMIN. NEWS 5659, 5715-20.

[272] *See* CLR PART I, *supra* note 196, at 25-26.

[273] *See* CLR PART 6, *supra* note 268, at 26. Authors and publishers argued that the provision would legalize copying prohibited under current law and, thus, open the door to wholesale abuse. Librarians argued that the provision would prohibit copying legal under current law and, thus, curtail established services and impede legitimate scholarship. *See id.*

[274] *See* U.S. COPYRIGHT OFFICE, (DRAFT) SECOND SUPPLEMENTARY REPORT OF THE REGISTER OF COPYRIGHTS ON THE GENERAL REVISION OF THE U.S. COPYRIGHT LAW: 1975 REVISION BILL 57-103 (1975) [hereinafter REGISTER'S SECOND SUPPLEMENTARY REPORT].

[275] *See* S. 543, 91st Cong., 1st Sess. § 108 (1969).

sortment of situations.[276]

While authors, publishers, and libraries sought to reach an agreement,[277] the House added some refinements of its own, including provisions to treat interlibrary loans more explicitly and to require the Register of Copyrights to prepare periodic reports to Congress on the section's practical success.[278] Efforts to mediate the continuing dispute finally bore fruit on the day the House passed the 1976 bill and referred it to the conference committee. Organizations representing authors, publishers, and libraries agreed to accept the provision passed by the House, as interpreted by a series of complicated guidelines on which they had concurred. The guidelines specified further conditions and restrictions, adopted definitions of disputed statutory language, and imposed record keeping requirements. The conference committee approvingly incorporated the guidelines in the Conference Report.[279]

2. *Cable Television*

Another, even more complex example is the way the bill accommodated cable television. When the cable television issue first surfaced in the conferences,[280] the cable television industry had just begun commercial development. In the 1950s and early 1960s, cable operators erected community antenna systems that amplified and transmitted broadcast signals to private homes in communities unable to receive satisfactory television signals by conventional

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[276] *See* S. 1361, 93d Cong., 2d Sess. § 108 (1974). Register Ringer's report to the House subcommittee in 1975 described the amended Senate provision this way:

> Note that the conditions set out in subsection (a) are only a general starting point. For a library activity to be exempt, it must also qualify under one of the conditions laid out in subsections (b) through (f) and must not run afoul of subsection (g) and must involve copying of a work that is not mentioned in subsection (h).

REGISTER'S SECOND SUPPLEMENTARY REPORT, *supra* note 274, at 74.

[277] *See 1975 House Hearings*, *supra* note 204, at 193 (testimony of Edmon Low, Representative of six Library Associations); *id.* at 219 (testimony of Irwin Karp, Authors' League of America); *id.* at 225 (testimony of Charles Lieb, Ass'n of American Publishers); *Copyright Law Revision: Hearings on S. 1361 Before the Subcomm. on Patents, Trademarks and Copyrights of the Senate Comm. on the Judiciary*, 93d Cong., 1st Sess. 103 (1973) [hereinafter *1973 Senate Hearings*] (testimony of Edmon Low, American Library Ass'n).

[278] *See* H.R. REP. NO. 1476, *supra* note 271, at 74-79, *reprinted in* 1976 U.S. CODE CONG. & ADMIN. NEWS at 5688-92.

[279] H.R. CONF. REP. NO. 1733, 94th Cong., 2d Sess. 70-74 (1976), *reprinted in* 1976 U.S. CODE CONG. & ADMIN NEWS 5810, 5811-15.

[280] *See* CLR PART 3, *supra* note 203, at 238-41 (remarks of Barbara Ringer, Assistant Register for Examining).

means. Under the 1909 Act, whether cable retransmissions triggered copyright liability depended upon whether the retransmissions would be deemed a "public performance," at that juncture an unsettled question.[281] As the conferences struggled to redefine the exclusive performance right, panelists had to confront the issue of cable television's liability. Cable television companies argued that the copyright law should exempt their community antenna systems from its coverage. Broadcasters and copyright owners[282] insisted that community antenna operators were collecting fees for cable service, and should not be able to use copyrighted material free of charge. In addition, they argued, the proliferation of community antenna systems discouraged the development of UHF stations within the community antenna systems' service areas. The Copyright Office devoted much energy to trying to promote agreement.[283] Compromise proved elusive, however, because the ground kept shifting in response to technological and regulatory developments and judicial decisions.

In the 1965 bill, the Copyright Office included a provision that exempted cable retransmissions if made without charge and without any alteration of the broadcast signal content or transmission of original programming.[284] Any other retransmission exposed the cable operator to copyright liability. Meanwhile, however, microwave transmission technology had developed, enabling cable systems to import television signals from distant cities to augment available programming. Broadcasters began to perceive cable as a

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[281] The Supreme Court ultimately determined that cable retransmission was public, but was not a performance. *See* Teleprompter Corp. v. Columbia Broadcasting Sys., 415 U.S. 394 (1974); Fortnightly Corp. v. United Artists Television, 392 U.S. 390 (1968).

[282] Broadcasters did not then and do not now, as a rule, own the copyright in the programs that they broadcast. Independent producers create the programs and secure licenses from underlying copyright owners. The producers then lease the programs to network or non-network broadcasting companies for a fee that, typically, does not cover the expenses of producing the program. After broadcasting the programs under the terms of the lease, the network has no further rights in the programs, and the producers can then try to make up the rest of their costs and perhaps make a profit by reselling the programs to others. In addition to the fee paid to the program's producers, broadcasters pay a separate royalty entitling them to perform any copyrighted music incorporated in the program. Thus, the most significant copyright owners in television programs are the producers of the programs and the composers of the music in the programs. However, broadcasters do own the copyright in programs, such as news programs, that they produce in-house.

[283] *See* CLR PART 6, *supra* note 268, at 40-43.

[284] H.R. 4347, 89th Cong., 1st Sess. § 109(5) (1966); *see* CLR PART 6, *supra* note 268, at 40-43.

serious threat. Also, during this time, a motion picture studio brought the first copyright infringement suit against a cable television system for unauthorized retransmissions of the studio's movies. On both sides of the controversy, parties' positions hardened. In the House and Senate hearings, broadcasters and copyright owners argued that all cable television was copyright infringement; cable companies insisted that they were entitled to a complete exemption from copyright liability for retransmissions.[285]

While the congressional committees struggled with the problem, the Federal Communications Commission (FCC) had already entered the dispute in order to protect broadcasters from the competition it perceived that cable television threatened. The FCC promulgated regulations requiring cable systems to carry signals of all local television stations and greatly restricting the importation of distant signals.[286] Two months later, a district court in the Southern District of New York held a cable system liable for copyright infringement on the ground that its retransmission of local television signals was a public performance for profit.[287] The Copyright Office continued to urge the parties to negotiate an agreement, and the FCC added its voice of encouragement. Representative Kastenmeier, chairman of the House subcommittee, proposed a compromise provision, while the Senate subcommittee scheduled special hearings to consider the cable television issue. Under the Kastenmeier provision, transmission of local signals with no alteration would be exempt from copyright liability.[288] Transmission of imported distant signals would expose the cable operator either to full liability or to limited liability, depending on variables such as the reception of broadcast signals in the community and the presence within the local service area of a broadcast station licensed to carry the programs in the imported signal.[289]

The Kastenmeier proposal received more opposition than support.[290] Representatives of cable television companies presented

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[285] *See, e.g., 1965 House Hearings, supra* note 233, at 1243-55 (testimony of Frederick Ford, Nat'l Community Television Ass'n); *id.* at 1288-90 (testimony of Thomas J. Whyte, West Virginia and Middle Atlantic Community Television Ass'n); *id.* at 1332-53 (testimony of Arthur Krim, United Artists Corp.); *id.* at 1722-24 (testimony of Douglas Anello, Nat'l Ass'n of Broadcasters).

[286] *See* United States v. Southwestern Cable, 392 U.S. 157, 165-67 (1968).

[287] United Artists Television v. Fortnightly Corp., 255 F. Supp. 177 (S.D.N.Y. 1966), *aff'd*, 377 F.2d 872 (2d Cir. 1967), *rev'd*, 392 U.S. 390 (1968).

[288] *See* H.R. REP. No. 2237, 89th Cong., 2d Sess. 77-88 (1966).

[289] *See id.* at 85-87.

[290] *See* REGISTER'S SECOND SUPPLEMENTARY REPORT, *supra* note 274, at 121-22;

their own compromise proposals, which exempted local signals, provided a compulsory license entitling cable operators to import any distant signal for a statutory fee, and released cable operators from the obligation to pay any royalties for the performance of copyrighted music.[291] The House Judiciary Committee adopted the Kastenmeier proposal rather than the cable industry's request for a compulsory license and reported the copyright revision bill incorporating the provision to the full House.[292] Acrimonious debate ensued over the cable provision. After intense, last minute negotiation, the House adopted an amendment deleting the cable provision entirely before passing the bill and referring it to the Senate.[293] Parties resumed their negotiations, but the ground soon shifted again.

In 1967, the Supreme Court agreed to review lower court decisions subjecting cable television operators to copyright liability, and efforts to reach agreement stalled in the expectation of judicial resolution. The following year, the Court issued a decision reversing the lower courts' determination that cable retransmissions of local signals was copyright infringement; the Court held that cable retransmissions did not "perform" the copyrighted work within the meaning of the 1909 copyright statute.[294] In another decision, the Court upheld the FCC's jurisdiction to regulate cable television;[295] the FCC responded by imposing more stringent regulations prohibiting the importation of distant signals into major television markets without prior permission from the originating stations.[296] Under these conditions, representatives of broadcasters and cable television companies finally negotiated an agreement in 1969,[297] but the National Association of Broadcasters proved unable to persuade its membership to ratify it.[298] The Senate, nonetheless, used some of

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LIBRARY OF CONGRESS, REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1967, *reprinted in* 2 N. HENRY, *supra* note 256, at 1-2.

[291] *See Copyright Law Revision—CATV: Hearings on S. 1006 Before the Subcomm. on Patents, Trademarks and Copyrights of the Sen. Comm. on the Judiciary*, 89th Cong., 2d Sess. 86-89 (1966) [hereinafter *1966 Senate Hearings*] (testimony of Frederick Ford, Nat'l Cable Television Ass'n); *id.* at 248-52 (written comments of Westinghouse Broadcasting Co.)

[292] *See* H.R. REP. NO. 83, 90th Cong., 1st Sess. (1967).

[293] *See* 113 CONG. REC. 8990-9022 (1967); REGISTER'S SECOND SUPPLEMENTARY REPORT, *supra* note 274, at 122.

[294] Fortnightly Corp. v. United Artists Television, 392 U.S. 390 (1968).

[295] United States v. Southwestern Cable, 392 U.S. 157 (1968).

[296] *See* REGISTER'S SECOND SUPPLEMENTARY REPORT, *supra* note 274, at 124-26.

[297] *See id.* at 127.

[298] *See id.* at 128.

the provisions in the aborted 1969 agreement as the basis for its own compromise provision, establishing a compulsory license for cable retransmissions of local and distant signals under conditions established in the private agreement.[299]

The FCC, however, had in the interim been formulating its own new approach.[300] The FCC announced a plan of its own, which interested parties found completely unacceptable.[301] At this point, the FCC and the Senate Committee invited Clay Whitehead, director of the White House Office of Telecommunications Policy, to become involved in the effort to move private negotiations forward.[302] Whitehead's initial efforts at mediation were unsuccessful. Eventually, however, he came up with a proposal and presented it to the interested parties on a take-it-or-leave-it basis. Whitehead's plan contemplated a compulsory license for such cable television retransmissions as the FCC's regulations permitted, but envisioned the FCC's using the regulations to protect programmers' exclusivity from competition by imported signals. In essence, the copyright owners would agree to cede control of their programs' retransmissions in return for a statutory compensation for cable use and on the condition that the FCC's regulations protect copyright owners and broadcasters from cable importation of signals that duplicated their programs. The parties grudgingly accepted the "consensus agreement," as it came to be called, and the FCC then promulgated regulations permitting cable systems to import distant signals under the agreement's terms.[303]

Before the Senate could act on the consensus agreement, however, the Supreme Court issued its decision in *Teleprompter Corp. v.*

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[299] *See* S. 543, 91st Cong., 1st Sess. § 111 (1969).

[300] *See* LIBRARY OF CONGRESS, REPORT OF THE LIBRARIAN OF CONGRESS FOR THE FISCAL YEAR ENDING JUNE 30, 1970, *reprinted in* 2 N. HENRY, *supra* note 256, at 156-57.

[301] The FCC proposed a plan permitting importation of a limited number of independent (non-network-affiliated) commercial signals, and an unlimited number of Public Broadcasting System signals, in return for a healthy fee to be used as a subsidy for PBS. Cable operators located in areas that did not receive all three network signals would also have been permitted to import a distant signal affiliated with the absent network. A particularly bizzare feature of the proposal required cable systems to delete advertisements from commercial distant signals and substitute advertisements provided by local broadcast stations. Nobody liked this proposal except the Public Broadcasting Corporation, and the FCC never implemented it.

[302] *See* REGISTER'S SECOND SUPPLEMENTARY REPORT, *supra* note 274, at 134; *1973 Senate Hearings*, *supra* note 277, at 278-80 (prepared statement of Jack Valenti, Motion Picture Ass'n of America).

[303] *See* REGISTER'S SECOND SUPPLEMENTARY REPORT, *supra* note 274, at 131-40.

Columbia Broadcasting System,[304] holding the importation of distant signals to be completely exempt from copyright liability under the 1909 Act. Cable operators began to disavow the portion of the consensus agreement that outlined mutually agreeable principles of copyright revision.[305] The Senate Committee nonetheless modified its copyright bill to incorporate many of the copyright principles contained in the consensus agreement.[306] The new provision established a compulsory license for retransmission of local signals and of distant signals that the FCC's regulations permitted cable systems to import, set statutory fees on the basis of cable systems' gross receipts, and provided for a Copyright Royalty Tribunal to resolve controversies among claimants to the royalty payments and to revise the statutory royalty rates in response to changes in conditions or in applicable FCC regulations. Broadcasters, copyright owners, and cable operators remained dissatisfied with the provision and continued their private negotiations. Ultimately, cable operators and copyright owners reached a different agreement, and the House incorporated that agreement into the copyright bill that Congress finally enacted in 1976.[307]

Broadcasters were not party to the agreement reflected in the House bill.[308] As might be expected, that agreement disadvantaged them in comparison with the provisions of the consensus agreement incorporated in the Senate bill. Where the Senate bill had established a compulsory license for the broadcast of local signals and distant network signals, the House bill provided a copyright exemption for local and distant network signal retransmission and retained the compulsory license only for distant non-network signal retransmission.[309] Where the Senate bill presumptively entitled net-

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[304] 415 U.S. 394 (1974).

[305] *See 1975 House Hearings*, *supra* note 204, at 485 (testimony of Rex Bradley, Nat'l Cable Television); *id.* at 598-613 (testimony of David Wicks, Community Antenna Television Ass'n); *id.* at 656-66 (testimony of George Barco, Pennsylvania Community Antenna Ass'n); *see also 1973 Senate Hearings*, *supra* note 277, at 397-411 (testimony of David Foster, Nat'l Cable Television Ass'n); *id.* at 512-55 (testimony of Amos Hostetter, Nat'l Television Ass'n).

[306] *See* S. 1361, 93d Cong., 2d Sess. § 111 (1974). The consensus agreement began to break down almost immediately, and witnesses before both subcommittees disputed whether the Senate provision accurately incorporated its key provisions.

[307] *See* H.R. REP. 1476, *supra* note 271, at 88-101, *reprinted in* 1976 U.S. CODE CONG. & ADMIN. NEWS at 5702-16.

[308] *See id.* at 90, 1976 U.S. CODE CONG. & ADMIN NEWS at 5705; 122 CONG. REC. 31,979 (1976) (remarks of Rep. Kastenmeier); *id.* at 31,984 (remarks of Rep. Railsback).

[309] *See* H.R. REP. 1476, *supra* note 271, at 90, 1976 U.S. CODE CONG. & ADMIN. NEWS at 5704.

work and local broadcasters to recover royalties from the compulsory license royalty fund, the House bill excluded them from the pool of royalty claimants.[310] Where the Senate bill calculated the statutory royalty as a percentage of gross receipts, the House bill calculated the royalty on the basis of the number of distant signals imported by the cable system.[311]

It took eleven years and the combined efforts of the Copyright Office, the bar associations, the House and Senate Subcommittees, the FCC, and the White House Office of Telecommunications Policy to force interested parties to reach an agreement on the revision bill's treatment of cable television. The ultimate provision enacted contained pieces of the Copyright Office's 1965 revision bill, pieces of the unratified 1969 agreement between the National Association of Broadcasters and the National Cable Television Association, pieces of the 1971 consensus agreement, and pieces of the last minute accord between the National Cable Television Association and the Motion Picture Association of America. It is the copyright statute's longest provision, and its least comprehensible piece of prose. It became obsolete before its effective date.[312]

Negotiations over the rest of the bill's provisions reflect much the same story. From the inclusive group conferences, negotiations evolved into interlocking bilateral and trilateral deals. The deals themselves worked to the advantage of the interests party to them and to the comparative disadvantage of others. The longer the negotiations on a particular dispute continued, the narrower and more specific was the resulting solution.

E. Flexible Limitations

In 1976 Congress finally enacted the modern copyright statute it had labored over so long, and the Senate optimistically dissolved its Subcommittee on Patents, Trademarks and Copyrights.[313] For

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[310] *See id.* at 97, 1976 U.S. CODE CONG. & ADMIN. NEWS at 5712.

[311] *Compare* S. REP. 473, 94th Cong., 1st Sess. 80-82 (1975) *with* H.R. REP. 1476, *supra* note 271, at 97-98, 1976 U.S. CODE CONG. & ADMIN. NEWS at 5710-11.

[312] *See infra* notes 373-96 and accompanying text; *see also Copyright Issues: Cable Television and Performance Rights: Hearings before the Subcomm. on Courts, Civil Liberties and the Administration of Justice of the House Comm. on the Judiciary*, 96th Cong., 1st Sess. 2 (1980) [hereinafter *1979 House Hearings*] (remarks of Rep. Kastenmeier); *id.* at 2-14 (testimony of Henry Geller, U.S. Dep't of Commerce).

[313] *See Oversight of the Copyright Office and the Copyright Royalty Tribunal: Hearing Before the Subcomm. on Patents, Copyrights and Trademarks of the Sen. Comm. on the Judiciary*, 98th Cong., 1st Sess. 1-2 (1983) [hereinafter *1983 Senate Hearings*] (statement of Sen. Mathias).

those familiar with the struggles to apply the 1909 Act to developing technology, however, the 1976 Act should have seemed designed to fail the future in predictable ways. Broadly phrased general provisions have inherent flexibility. Narrow, specific provisions do not. In order to answer the questions that the future will present, a statute needs flexible language embodying general principles.

General, flexible statutory language need not confer uncabined discretion on the courts, nor consign affected industries to case-by-case determinations of liability. Flexible provisions that invoke principles rather than fact-specific conditions will give courts and industry actors more guidance, rather than less, as to the statute's application to situations that arise after the law's enactment. Indeed, it is the language tailored to reflect specific factual conditions that gives the courts nothing to work with once the predicate facts have grown outdated.[314]

New players that technological change will introduce into the game have a particularly compelling need for flexible statutory provisions. The representatives of yet-to-develop technology cannot be present in a bargaining room filled with current stakeholders. They must, therefore, rely on such general and flexible provisions as the statutory scheme includes. The narrower and more specific the prose is, the less likely it is that a statutory provision will be sufficiently flexible to be responsive to technological change, and the more quickly the provision will be outdated.

A process that relies upon negotiated bargains among industry representatives, however, is ill-suited to arrive at general, flexible limitations. The dynamics of inter-industry negotiations tend to encourage fact-specific solutions to inter-industry disputes.[315] The participants' frustration with the rapid aging of narrowly defined rights has inspired them to collaborate in drafting rights more broadly. No comparable tendency has emerged to inject breadth or flexibility into the provisions limiting those rights. The only general limitations reflected in the current copyright statute were devised by courts in the nineteenth century, before Congress turned to a revision strategy resting upon meetings among affected interests.

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[314] *See supra* notes 152-59 and accompanying text (application of 1909 Act to motion pictures and radio broadcasts); *infra* notes 373-93 and accompanying text (application of 1976 Act to satellite technology); *accord Copyright and Technological Change*, *supra* note 2, at 23-29 (testimony of Benjamin Compaign, Harvard University).

[315] *See supra* notes 131-52 and accompanying text.

Although these provisions have survived the press of technological change better than the narrow and specific limitations that pervade the 1976 Act, they have not been equal to the task of providing the flexibility necessary to respond to the developments that have arrived with the future.

The courts developed several general limitations on the copyright owners' bundle of rights in interpreting the 1909 Act and the copyright statutes that preceded it. Four of these court-crafted doctrines found their way into the revision bill, typically in response to particular disputes.[316] It is these more general limitations that have born the brunt of supplying the flexibility that the statute requires to adjust to technological change. The narrow disputes that engendered these doctrines' inclusion in statutory text, however, have distorted their application and limited their usefulness. Before discussing the role of these limitations in adapting to the future, I would like to describe each doctrine briefly, and explain how it came to be included in the 1976 Act.

1. Idea/Expression Distinction

The most fundamental of these court-made limitations is the idea/expression distinction. The doctrine dates back at least to the 1879 case of *Baker v. Selden*,[317] in which the Supreme Court held that a copyright on a book describing a bookkeeping system conferred no exclusive rights in the system itself. Copyright protects only expression and not the ideas expressed.[318] Where idea and expression are inseparable, copyright law permits others to use as much of the expression as is necessary to convey the unprotected idea.[319] Similarly, copyright does not protect facts, systems, or methods, but only the form in which they are described.[320] The

[316] Other limitations survived because the statute failed to overrule them expressly. *See, e.g.*, Cohen, *Masking Copyright Decisionmaking: The Meaninglessness of Substantial Similarity*, 20 U.C. DAVIS L. REV. 719 (1987). That the statute's few general limiting principles derive from judge-made law is no accident. The legislative process that I have described is an unlikely source of broad, general limitations. If these doctrines had been born in the revision process rather than in judicial decisions, they would not have been general.

[317] 101 U.S. 99 (1879).

[318] *E.g.*, Peter Pan Fabrics v. Martin Weiner Corp., 274 F.2d 487, 489 (2d Cir. 1960); Nichols v. Universal Pictures, 45 F.2d 119, 121 (2d Cir. 1930), *cert. denied*, 282 U.S. 902 (1931); *see* OTA REPORT, *supra* note 3, at 62-63.

[319] *E.g.*, Herbert Rosenthal Jewelry v. Kalpakian, 446 F.2d 738 (9th Cir. 1971); Continental Casualty v. Beardsley, 253 F.2d 702 (2d Cir.), *cert. denied*, 358 U.S. 816 (1958).

[320] *E.g.*, Rosemont Enterprises, v. Random House, 366 F.2d 303, 309 (2d Cir. 1966),

1961 Register's Report began with a description of the idea/expression distinction:

> Copyright does not preclude others from using the ideas or information revealed by the author's work. It pertains to the literary, musical, graphic or artistic form in which the author expresses intellectual concepts. It enables him to prevent others from reproducing his individual expression without his consent. But anyone is free to create his own expression of the same concepts, or to make practical use of them, as long as he doesn't copy the author's form of expression.[321]

The revision bill that emerged from the conferences made no mention of the idea/expression distinction. In the 1967 Senate Subcommittee hearings, however, representatives of educational organizations voiced strong opposition to the broad language of the subject matter and exclusive rights provisions of the bill, on the ground that the language could be interpreted to extend protection to the functional processes embodied in computer software.[322] Educational organizations proposed a broad restatement of the idea/expression distinction;[323] publishers and authors registered their opposition.[324] The Senate Subcommittee drafted a more narrowly worded provision and inserted it into the section on copyrightable subject matter.[325] The Subcommittee added language to

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cert. denied, 385 U.S. 1009 (1967). *See* Denicola, *Copyright in Collections of Facts: A Theory for the Protection of Nonfiction Literary Works*, 81 COLUM. L. REV. 516 (1981); Ginsburg, *Sabotaging and Reconstructing History: A Comment on the Scope of Copyright Protection in Works of History After Hoehling v. Universal City Studios*, 29 J. COPYRIGHT SOC'Y U.S.A. 647 (1982); Gorman, *Fact or Fancy? The Implications for Copyright*, 29 J. COPYRIGHT SOC'Y 560 (1982).

[321] CLR PART 1, *supra* note 196, at 3.

[322] *See 1967 Senate Hearings*, *supra* note 210, at 196-200 (testimony of Arthur Miller, Ad Hoc Committee of Educ. Insts. and Orgs. on Copyright Law Revision); *id.* at 550 (testimony of Edison Montgomery, Interuniversity Communications Council); *id.* at 1058-59 (testimony of W. Brown Morton, Interuniversity Communications Council).

[323] *See id.* at 1058 (testimony of W. Morton Brown, Interuniversity Communications Council). Professors Arthur Miller and Benjamin Kaplan drafted a proposed amendment to section 106:

> *Provided, however,* That nothing in this title shall be construed to give the owner of copyright the exclusive right to any idea, process, plan or scheme embodied or described in the copyrighted work or the right to prevent the preparation of any copy or derivative work that is necessary to the use of any idea, process, plan, or scheme embodied or described in the copyrighted work as an incident of such use.

Id.

[324] *See id.* at 1109 (written comments of American Book Publishers' Council); *id.* at 1155-56 (written comments of Authors' League of America).

[325] *See* S. 543, 91st Cong., 1st Sess. § 102(b) (1969):

> In no case does copyright protection for an original work of authorship extend

the Committee Report, explaining that the purpose of the subsection was to clarify the debate over computer programs and "make clear that the expression adopted by the programmer is the copyrightable element in a computer program, and that the actual processes or methods embodied in the program are not within the scope of the copyright law."[326]

2. *Useful Articles Doctrine*

A second longstanding doctrine, prohibiting copyright protection of utilitarian articles, also derives from *Baker v. Selden*.[327] The Copyright Office refused to accept utilitarian articles for registration, and courts upheld the determination that utilitarian articles were ineligible for protection.[328] In a 1954 decision, *Mazer v. Stein*,[329] the Supreme Court took some of the teeth from the limitation by holding that an otherwise copyrightable work incorporated into a utilitarian design remained copyrightable.[330] As interpreted by the Copyright Office in succeeding years, the decision permitted the copyrighting of the nonutilitarian features of utilitarian articles.[331] The Copyright Office was flooded with applications for registration of objects of industrial design with ornamental features, such as jewelry, textiles, toys, and dinnerware.[332] Meanwhile, the Register urged Congress to enact a bill giving industrial designs sui generis protection.[333]

Extended discussions with industry representatives during the period preceding the copyright revision effort produced a compromise in 1957, which dictated the substance of both an ultimately unsuc-

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to any idea, plan, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.

The provision enacted by Congress omitted the word "plan." *See* 17 U.S.C. § 102(b).

[326] S. REP. NO. 983, 93d Cong., 2d Sess. 107 (1974). *See* REGISTER'S SECOND SUPPLEMENTARY REPORT, *supra* note 274, at 10.

[327] *See, e.g.*, Taylor Instrument v. Fawley-Brost Co., 139 F.2d 98, 100-01 (7th Cir. 1943), *cert. denied*, 321 U.S. 785 (1944); Amberg File & Index v. Shea Smith & Co., 82 F. 314, 315 (7th Cir. 1897).

[328] *See, e.g.*, *Amberg File & Index*, 82 F. at 314; Kemp & Beatley, Inc. v. Hirsch, 34 F.2d 291 (E.D.N.Y. 1929).

[329] 347 U.S. 201 (1954).

[330] *Id.* at 214-15. *See* Denicola, *supra* note 180, at 711-17.

[331] *See* CLR PART 1, *supra* note 196, at 12-16; Brown, *Design Protection: An Overview*, 34 U.C.L.A. L. REV. 1341, 1352-53 (1987); Samuelson, *Contu Revisited: The Case Against Copyright Protection for Computer Programs in Machine-Readable Form*, 1984 DUKE L.J. 663, 728-36.

[332] *See* CLR PART 1, *supra* note 196, at 12.

[333] *See id.* at 13.

cessful sui generis design bill and the copyright revision bill's approach to protection of industrial designs.[334] The compromise called for continuing the current level of industrial design protection under the copyright law; the Register obligingly incorporated the substance of his extant regulations on utilitarian articles into the revision bill. When the conferences produced provisions greatly broadening the scope of copyrightable subject matter and expanding the extent of exclusive rights, the Register added a provision purporting to freeze current law relative to the protection of useful articles.[335] These provisions were placed in portions of the statute applicable solely to copyright in pictorial, graphic, and sculptural works.[336] Although other limitations in the statute were drafted to have general application to particular exclusive rights rather than to particular classes of works,[337] the limitations on copyright in useful articles remained, by accident of placement, relevant only to pictorial, graphic, and sculptural works.[338]

Both the idea/expression distinction and the useful articles doctrine are subject matter limitations on what aspects of a copyrighted work may be protected.[339] By excluding ideas, facts, or utilitarian features from the realm of copyrightable subject matter, the statute puts them into the public domain, where they may be copied with impunity. The copyright in a work that is largely factual, for example, may be described as thinner than the copyright in a work that is entirely fictional. Similarly, the copyright in a functional work is thinner than the copyright in an entirely ornamental work.[340] Two additional general limiting principles made their way into the statute. In contrast to the subject matter limitations, these principles restrict the extent of the copyright owner's rights rather than the scope of copyrightable subject matter.

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[334] *See* REGISTER'S SECOND SUPPLEMENTARY REPORT, *supra* note 274, at 194-96; CLR PART 2, *supra* note 6, at 189-94 (various witnesses).

[335] *See* CLR PART 3, *supra* note 203, at 67 (remarks of Abraham Kaminstein, Register of Copyrights).

[336] *See* 17 U.S.C. §§ 101, 113.

[337] *See, e.g., id.* § 110. *But see id.* § 114(b) (limitations on exclusive rights in sound recordings).

[338] *See, e.g.*, E.F. Johnson Co. v. Uniden Corp. of Am., 623 F. Supp. 1485, 1498 (D. Minn. 1985) ("The Court cannot accept defendant's characterization of plaintiff's programs as 'a useful work.' Congress has clearly defined computer programs as 'literary works.' . . . Accordingly, the limitations placed on the copyrightability of useful articles by section 101 of the Act are simply not applicable here." (citations omitted)).

[339] *See* Brown, *supra* note 257, at 581.

[340] *See, e.g.*, Goldstein, *Infringement of Copyright in Computer Programs*, 47 U. PITT. L. REV. 1119, 1120-21 (1986).

3. *First Sale Doctrine*

The third doctrine developed by the courts is the first sale doctrine.[341] Under the first sale doctrine, the copyright owner's exclusive control over the public distribution of copies of a work is exhausted, as to a particular copy of a work, upon the first authorized sale of that copy.[342] It is the first sale doctrine that permits the operation of lending libraries and second hand book stores notwithstanding the copyright owner's exclusive right of distribution. Cases made clear that the first sale doctrine terminated the copyright owner's distribution right with respect to a particular copy;[343] the 1909 Act incorporated that principle in terms.[344] It was less clear whether the first sale doctrine had any effect on the rest of the rights in the copyright bundle.[345] The majority view appeared to be that the copyright owner lost any right to display a particular copy in public along with the distribution right, but retained the rights of reproduction, adaptation, and public performance for profit.[346]

Two controversies led to the inclusion of a modified first sale doctrine in the copyright revision bill. First, representatives of authors requested an explicit rental and lending right, which would in essence have repealed the first sale doctrine entirely.[347] Second, when the Register responded to requests to redraft a proposal that embodied broader rights with specific exceptions,[348] the Copyright Office draft included an express right of public display for pictorial, graphic, and sculptural works only. No display right appeared in

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[341] *See, e.g.*, Samuelson, *Modifying Copyrighted Software: Adjusting Copyright Doctrine to Accommodate a Technology*, 28 JURIMETRICS J. 179, 195-97 (1988).

[342] *See, e.g.*, Bobbs-Merrill Co. v. Straus, 210 U.S. 339 (1908); Harrison v. Maynard, Merrill & Co., 61 F. 689, 690-91 (2d Cir. 1894); Fawcett Publications v. Elliot Publishing, 46 F. Supp. 717 (S.D.N.Y. 1942).

[343] *See, e.g.*, *Fawcett Publications*, 46 F. Supp. at 717.

[344] *See* 1909 Act, *supra* note 10, § 27.

[345] *See* Samuelson, *supra* note 341, at 196-98 & n.84.

[346] *See, e.g.*, National Geographic Soc'y v. Classified Geographic, 27 F. Supp. 655 (D. Mass. 1939). One factor complicating the inquiry was the fact that during the early part of the century, music publishers licensed the right to perform music as part and parcel of the sale of copies. The purchaser of sheet music thus bought the right to perform the music publicly for profit. *See Arguments on H.R. 11943 Before the House Comm. on Patents*, 59th Cong., 1st Sess. 11-16 (1906), *reprinted in* 4 E.F. BRYLAWSKI AND A. GOLDMAN, *supra* note 6, at pt. F (colloquy). Another complication was the widely held, but never tested in the courts, view that fair use permitted the owner of a copy to reproduce it. *See 1965 House Hearings*, *supra* note 233, at 1497-1510 (testimony of Ralph Dwan, Minnesota Mining and Mfg. Co.).

[347] *See* CLR PART 2, *supra* note 6, at 20-21 (colloquy); *id.* at 255-57 (written comments of Authors' League of America); *id.* at 313-14 (written comments of Irwin Karp).

[348] *See supra* notes 236-48 and accompanying text.

the 1909 Act, and the 1961 Register's report made no mention of one.[349] The Copyright Office's proposal called for a display right severely limited by the first sale doctrine: the right to display a copy, which included both display in a public place and television broadcast or motion picture exhibition, would terminate completely upon that copy's sale.[350] Artists' representatives responded with dismay.[351] Book publishers echoed the objections.[352]

The Copyright Office held meetings with artists' and publishers' representatives and interested ABA members and then drafted a broad display right subject to a more limited first sale doctrine.[353] Under the new first sale provision, sale of a copy of a work entitled the purchaser to resell or lend it and to display it to people located in the same room. The copyright owner retained the right to television or other remote display.[354] Moreover, while the privilege codified in the 1909 Act could be exercised by anyone in lawful possession of a copy,[355] the revision bill's narrower first sale provision applied only to owners of copies and persons acting with the owners' authority.[356] This mollified artists' and publishers' representatives. Authors' representatives initially continued to press for a public lending right[357] but abandoned their request in view of other concessions. The display right and the first sale doctrine received some further tinkering in Congress. The display right was expanded to vest in literary, musical, dramatic, and choreographic works, pantomimes, and the individual images of motion pictures or other audio-visual works, as well as pictorial, graphic, and sculp-

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[349] *See* CLR PART 3, *supra* note 203, at 157 (remarks of Barbara Ringer).

[350] *See id.* at 6.

[351] *See id.* at 184-85 (remarks of Harriet Pilpel); CLR PART 4, *supra* note 238, at 323 (written comments of Joshua Binion Cahn) ("If the proposed provision with respect to the right to exhibit means what I think it does, I find it repugnant and shocking.").

[352] *See* CLR PART 3, *supra* note 203, at 185-87 (colloquy).

[353] *See* CLR PART 5, *supra* note 205, at 56-59, 66 (remarks of Abe Goldman and Barbara Ringer, Copyright Office).

[354] *See id.* at 66 (remarks of Barbara Ringer, Copyright Office).

[355] *See* 1909 Act, *supra* note 10, § 27 ("[N]othing in this title shall be deemed to forbid, prevent, or restrict the transfer of any copy of the copyrighted work the possession of which has been lawfully obtained . . . .").

[356] The 1964 draft of the revision bill restricted the privileges of transfer and display under the first sale doctrine to owners of lawfully made copies, expressly excluding renters and borrowers. *See* CLR PART 5, *supra* note 205, at 5. The Copyright Office's draft of the 1965 Revision bill extended the privileges to persons authorized by the purchaser of the copy. *See* H.R. 4347, 89th Cong., 1st Sess. § 108 (1965).

[357] *See* CLR PART 5, *supra* note 205, at 61 (remarks of Irwin Karp, Authors' League of America).

tural works.[358] Congress revised the first sale doctrine to limit the display privilege to displays involving the actual copy or the projection of no more than one image at a time.[359]

4. Fair Use

The fourth general limitation was the controversial doctrine of fair use. Fair use originated as a judicially created, implied limitation on copyright owners' rights. One of its earliest American expressions came in the 1841 case of *Folsom v. Marsh*.[360] Fair use evolved in the case law into a privilege to use a reasonable portion of a copyrighted work for a reasonable purpose, but the privilege eluded precise definition.[361] Defendants commonly invoked the privilege in cases involving parody, biography, or scholarly research.[362] The Copyright Office's study on fair use concluded that the courts assessed a variety of factors in determining whether an allegedly infringing use was fair.[363]

The 1961 Register's Report suggested that the revision bill give explicit recognition to the fair use doctrine.[364] The proposal proved controversial; conference participants disagreed on the scope of fair use under extant law and also disagreed on the wisdom of reducing their understanding to statutory text.[365] The Copyright Office's efforts to negotiate a compromise before presenting a bill to Congress failed when the issue of fair use became tangled with the issue of educational use.[366]

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[358] *See* 17 U.S.C. § 106(5); S. 543, 91st Cong., 1st Sess. § 106(5) (1969).

[359] *See* 17 U.S.C. § 109; H.R. 2512, 90th Cong., 1st Sess. § 109 (1967).

[360] 9 F. Cas. 342 (C.C.D. Mass. 1841) (No. 4901). *See generally* W.F. PATRY, THE FAIR USE PRIVILEGE IN COPYRIGHT LAW 3-64 (1985). *Folsom v. Marsh* involved a suit by a biographer of George Washington against a second biographer who had incorporated material from the plaintiff's work in a later biography of Washington.

[361] *See generally* Latman, *Fair Use of Copyrighted Works, reprinted in* SUBCOMM. ON PATENTS, TRADEMARKS AND PATENTS OF THE SENATE COMM. ON THE JUDICIARY, 86TH CONG., 1ST SESS., COPYRIGHT LAW REVISION (Comm. Print 1960).

[362] *See, e.g.*, Rosemont Enters. v. Random House, 366 F.2d 303 (2d Cir. 1966), *cert. denied*, 385 U.S. 1009 (1967); Columbia Pictures v. National Broadcasting Co., 137 F. Supp. 348 (S.D. Cal. 1955).

[363] *See* Latman, *supra* note 361, at 14-18.

[364] *See* CLR PART 1, *supra* note 196, at 25.

[365] *See 1965 House Hearings*, *supra* note 233, at 37-40 (prepared statement of George Cary, Deputy Register of Copyrights); *id.* at 74-79 (testimony of Lee Deighton, American Textbook Publisher's Inst.); *id.* at 315-18 (testimony of Harold Wigren, Ad Hoc Comm. of Educ. Insts. and Orgs. on Copyright Law Revision); *id.* at 342-44 (prepared statement of Harry Rosenfield, Ad Hoc Comm. of Educ. Insts. and Orgs. on Copyright Law Revision); *id.* at 364-65 (colloquy); *id.* at 1451-53 (colloquy).

[366] *See* Litman, *supra* note 15, at 875-77, 886-88.

Representatives of educational institutions requested a statutory exemption for educational use.[367] Authors and publishers refused; they insisted that educators were already abusing the copyright law and should receive no further privileges beyond those the fair use doctrine already permitted.[368] Educators responded that fair use was too unpredictable a doctrine for them to rely on;[369] moreover, because most fair use cases arose in commercial contexts, they gave little guidance to the doctrine's application in a nonprofit educational setting.[370] The Register and the House Subcommittee's general counsel convened several series of meetings; members of Congress urged further negotiations. Ultimately a compromise emerged, encompassing both the language of a statutory fair use section and the language of the House and Senate Reports to accompany it.[371] The resulting statutory provision combined language from the Register's initial proposal with examples of educational use. The accompanying passages in the House and Senate Reports grew by accretion to include the authors' and publishers' early demand that the goal of the statutory provision was "to restate the present judicial doctrine of fair use, not to change, narrow or enlarge it in any way"; the educators' demand for an extensive discussion of photocopying for classroom use; and the text of letters from representatives of affected interests together with exceedingly detailed guidelines on classroom reproduction that the representatives had negotiated among themselves.[372]

Each of these general limitations originated in judicial opinions of the nineteenth century. Each appeared in the 1976 Act in response to particular concerns. The codification process introduced its own distortions. The useful articles doctrine, for example, ceased to be a general limitation and became instead a peculiarity of copyright in pictorial, graphic, and sculptural works. The fair use doctrine be-

[367] *See* CLR PART 5, *supra* note 205, at 116 (remarks of Harry Rosenfield, Ad Hoc Comm. of Educ. Insts. and Orgs. on Copyright Law Revision); *id.* at 125 (remarks of Robert Shafer, Nat'l Council of Teachers of English); CLR PART 3, *supra* note 203, at 150-51 (remarks of Harry Rosenfield).

[368] *See* CLR PART 5, *supra* note 205, at 96 (remarks of Phillip Wattenberg, Music Publishers Ass'n); *id.* at 103 (remarks of Irwin Karp, Authors' League of America).

[369] *See 1965 House Hearings*, *supra* note 233, at 351-53 (testimony of Harry Rosenfield, Ad Hoc Comm. on Copyright Law Revision); *id.* at 364-65 (colloquy); CLR PART 5, *supra* note 205, at 98-100 (Statement of Ad Hoc Comm. on Copyright Law Revision).

[370] *See, e.g.*, *1973 Senate Hearings*, *supra* note 277, at 193 (testimony of Richard J. Schoeck, Modern Language Ass'n).

[371] *See* Litman, *supra* note 15, at 876-77.

[372] *See* H.R. REP. NO. 1476, *supra* note 271, at 65-74, *reprinted in* 1976 U.S. CODE CONG. & ADMIN. NEWS at 5678-88; S. REP. 473, 94th Cong., 1st Sess. 61-67 (1975).

came encumbered with the idiosyncratic needs of educational users. These doctrines are, however, the most flexible limitations the statute offers in order to balance its expansive rights and broad subject matter.

V

THE FUTURE OF THE 1976 ACT

The 1976 Act's strategy has caused it difficulties in adjusting to technological development. The specificity of the statute's prose renders its detailed provisions increasingly irrelevant, while its few more general provisions are not elastic enough to compensate for the specific provisions' weaknesses. Although the statute is a relatively young one, its inability to adjust to the changes in the world it was designed to order has already become manifest. I will review two of the 1976 Act's most troublesome failures. First, I will illustrate the pitfalls of reliance on too-specific language by examining the fate of the statute's cable television provision. I will then explore the inadequacy of the law's few general provisions in a discussion of the problems posed by private use.

A. Cable Television and its Competitors

Under the 1976 Act's broad definition of public performance,[373] any transmission of a radio or television signal is a public performance and can trigger copyright liability unless it comes within a privilege or license spelled out in the statute. For example, one subsection of the statute privileges the behavior of individuals who merely turn on a radio or television in a public place;[374] without that exemption, a clerical worker's use of a transistor radio at the

[373] *See* 17 U.S.C. § 101:

> To perform or display a work "publicly" means—
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> (1) To perform or display it at a place open to the public or at any place where a substantial number of persons outside of a normal circle of a family and its social acquaintances is gathered; or
>
> (2) To transmit or otherwise communicate a performance or display of the work to a place specified by clause (1) or to the public, by means of any device or process, whether the members of the public capable of receiving the performance or display receive it in the same place or in separate places and at the same time or at different times.

[374] *See id.* § 110(5). Subsection 110(5) establishes a conditional privilege for the "public reception of the transmission on a single receiving apparatus of a kind commonly used in private homes," but prohibits charging anyone to see or hear the transmission or any further transmission of the signal. The statute defines transmission as communication "by any device or process whereby images are received beyond the place from which they are sent." *Id.* § 101.

office would infringe the copyright owner's exclusive right "to perform the copyrighted work publicly."[375]

The cable television section includes an exemption for passive common carriers with "no direct or indirect control over the content or selection of the primary transmission or over recipients of the secondary transmission, and whose activities with respect to the secondary transmission consist solely of providing wires, cables, or other communications channels for the use of others."[376] It includes a complicated group of privileges and compulsory licenses for some, but by no means all, cable television transmissions.[377] The complex provisions of the cable section were drawn to accommodate industry practices in the mid-1970s and to incorporate the substantive regulatory structure that the FCC had put in place, much of which was integral to the deal. Neither the industry practices of the mid-1970s nor the FCC's regulations, however, survived very long.

The development of satellite technology soon made satellite transmission preferable to microwave transmission for delivery of cable signals. The copyright status of satellites and satellite transmissions, however, was murky. Could a communications satellite come within the statutory exemption for passive common carriers? Nobody was sure.[378] The use of satellite technology spurred the growth of original cable programming, which offered an attractive alternative to the importation of distant signals. Pay cable programming companies, such as Home Box Office, began to offer programs directly to cable systems. The FCC imposed stringent restrictions on pay cable programming, but, in 1977, the Court of Appeals for the D.C. Circuit struck those regulations down.[379] Shortly thereafter, the FCC decided to re-examine the rest of its cable television regulations,[380] and ultimately dismantled much of

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[375] *Id.* § 106.

[376] *Id.* § 111(a)(3).

[377] *Id.* § 111(c).

[378] *See 1979 House Hearings, supra* note 312, at 23 (prepared statement of Barbara Ringer, Register of Copyrights). Ultimately, the courts concluded that communications satellites operating as common carriers were entitled to the passive carrier exemption in § 111(a)(3). *See* Hubbard Broadcasting v. Southern Satellite Systems, 777 F.2d 393 (8th Cir. 1985), *cert. denied*, 479 U.S. 1005 (1986); Eastern Microwave v. Doubleday Sports, 691 F.2d 125 (2d Cir. 1982), *cert. denied*, 459 U.S. 1226 (1983).

[379] *See* Home Box Office v. FCC, 567 F.2d 9 (D.C. Cir.), *cert. denied*, 434 U.S. 829 (1977).

[380] *See 1979 House Hearings, supra* note 312, at 3 (prepared statement of Henry Geller, U.S. Dep't of Commerce).

the regulatory structure on which the copyright statute's language had been based.[381] Some of the remaining regulations were later held unconstitutional by the courts.[382] The newly established Copyright Royalty Tribunal attempted to compensate for the FCC's deregulation with a radical recalibration of compulsory license royalty fees;[383] copyright owners, broadcasters, and cable operators came running to Congress demanding that it revise the balance.[384] Members of Congress again applied pressure to encourage a privately negotiated solution.[385] Tentative deals emerged from private negotiations but dissolved before final agreements could be reached.[386]

At the same time, the playing field grew more crowded. Alternatives to cable television systems sprung up. Apartment complexes installed Satellite Master Antenna Systems, which combined satellite dishes and conventional antennas to provide a range of programming to residents. The Register of Copyrights concluded that the application of the compulsory license provision to Satellite Master Antenna systems was unclear.[387] Further complications arose in 1982 when the FCC authorized low-power television stations.[388] Was a low-power television station located in the same community as a cable system a "local" station within the meaning of the statute and thus "entitled to insist upon its signal being retransmitted by a cable system pursuant to the rules, regulations, and authorizations of the Federal Communications Commission in effect on April 15, 1976"?[389] Alternatively, was the station to be deemed a "distant" one, and entitled to royalties if the cable system

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[381] *See 1983 Senate Hearings, supra* note 313, at 5 (testimony of David Ladd, Register of Copyrights).

[382] *See* Quincy Cable TV v. FCC, 768 F.2d 1434 (D.C. Cir. 1985), *cert. denied*, 476 U.S. 1169 (1986).

[383] *See* National Cable Television Ass'n v. Copyright Royalty Tribunal, 724 F.2d 176 (D.C. Cir. 1983).

[384] *See Copyright/Cable Television: Hearings on H.R. 1805, H.R. 2007, H.R. 2108, H.R. 3528, H.R. 3530, H.R. 3560, H.R. 3940, H.R. 5870 and H.R. 5949 Before the Subcomm. on Courts, Civil Liberties and the Administration of Justice of the House Comm. on the Judiciary*, 97th Cong., 1st & 2d Sess. 2 (1982) (remarks of Rep. Kastenmeier).

[385] *See, e.g., id.* at 1266-67 (testimony of Thomas Wheeler, Nat'l Cable Television Ass'n); *id.* at 1335 (testimony of Jack Valenti, Motion Picture Ass'n of America).

[386] *See, e.g., id.* at 1357 (testimony of Vincent T. Wasilewski, Nat'l Ass'n of Broadcasters).

[387] *See Copyright and New Technologies, supra* note 2, at 53-54 (prepared statement of Ralph Oman, Register of Copyrights).

[388] *See* 47 Fed. Reg. 21,468 (1982), *on recon.*, 48 Fed. Reg. 21,478 (1983).

[389] 17 U.S.C. § 111(f).

chose to carry it? Low-power television stations asked the Copyright Office for a ruling on their status; the Copyright Office held a public hearing on the issue and concluded that the statute was ambiguous.[390]

As with the 1909 Act, linguistic fortuity appeared to control the legal status of developing technology. The increasing use of satellites led to the marketing of the home satellite dish, which enabled viewers to intercept satellite transmissions without paying a cable system to deliver them. Was the use of a satellite dish an infringement of copyright? The answer depended in part on whether the satellite dish could appropriately be characterized as a "single receiving apparatus of a kind commonly used in private homes."[391] In response to home satellite dish purchases, cable programmers began scrambling their signals. Cable services sought to scramble the broadcast signals they obtained via satellite, but the copyright statute posed a problem. Both the exemptions and the compulsory licenses in the statute prohibited signal alteration. If the satellite systems performed either the scrambling or unscrambling themselves, they could no longer claim that they had no control over the signal's content but merely provided "wires, cables, or other communications channels for the use of others."[392] If a cable system scrambled or unscrambled the signal itself, it would run afoul of the statutory provision that prohibited willful alteration of the signal "through changes, deletions, or additions."[393]

The essence of the problem for all of the newly developed entertainment technologies was that the 1976 Copyright Act gave copyright owners a very broad public performance right subject only to enumerated exceptions. The definition of performance was designed to encompass future technological developments; the privileges and limitations were not. The legality of a new entertainment service, therefore, depended entirely upon whether its activities fit within specifically worded exceptions negotiated without it in mind.[394] This severely disadvantaged newcomers to the market-

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[390] *See Copyright and New Technologies*, *supra* note 2, at 7-10 (prepared statement of Ralph Oman, Register of Copyrights). In 1986, Congress enacted a narrow amendment to § 111, clarifying low-power television's status for the purpose of the cable compulsory license. *See* Pub. L. No. 99-397 (1986).

[391] 17 U.S.C. § 110(5). *See* Entertainment and Sports Programming Network v. Edinburg Community Hotel, 623 F. Supp. 647 (S.D. Tex. 1985); *Copyright and New Technologies*, *supra* note 2, at 122 (colloquy).

[392] 17 U.S.C. § 111(a)(3).

[393] *Id.* § 111(c)(3).

[394] *See Copyright and New Technologies*, *supra* note 2, at 4 (testimony of Ralph

place, since, at best, their legal status remained uncertain until Congress or the courts could speak. A new medium's only secure course was to pursue negotiated licenses with the innumerable copyright owners whose works appeared in the signals, at prohibitive transaction costs.

I pick on the cable compulsory license provision because it is a particularly easy target, and because the unsuccessful effort to clarify its ambiguities has occupied Congress throughout the past decade.[395] The problems with the cable television provisions, however, are symptomatic of problems that pervade the 1976 Act. Defining very broad rights subject to very specific exceptions creates a systemic bias: the exceptions will quickly grow obsolete, while the increasingly less qualified rights will endure. The lesson that emerges from the rapid obsolescence of the cable provisions is that a statute needs more than a discernible strategy to adjust to technological change; it must also incorporate some flexibility.[396]

B. Private Use

Technological progress has gradually upset the overall balance that the statute struck when it was enacted by making the law's specific limitations trivial. The few more elastic limitations have been insufficiently powerful to restore the law's balance. In the

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Oman, Register of Copyrights). In *Pacific & Southern Co. v. Satellite Broadcast Networks*, for example, the operator of a direct broadcast satellite, which made secondary transmissions of broadcast programming directly to home satellite dishes, argued that it was entitled to a cable compulsory license. The court held that defendant could not use a cable compulsory license because it was not a cable system within the meaning of the statutory language. "[T]he definition of a cable system . . . requires the cable system to be facility, located in any state, which makes secondary transmissions of signals. SBN's satellite which orbits the earth is not a facility located in any state." Pacific & Southern Co. v. Satellite Broadcast Networks, 694 F. Supp. 1565, 1570 (N.D. Ga. 1988).

[395] Extensive inter-industry negotiations have yielded only partial, piecemeal solutions. In 1988, Congress clarified the rules for a subgroup of satellite systems operators by adding a complicated new compulsory license to the statute. *See Satellite Home Viewer Act of 1988*, Pub. L. No. 100-667, 102 Stat. 3935 (1988) (codified at 17 U.S.C. § 119); Olson, *supra* note 2, at 121-22; *supra* note 16.

[396] In theory, courts could supply the flexibility that the statute lacks. Courts could attempt to interpret the 1976 Act in a manner that would give greater flexibility to its limitations. They could go further and use the statute's specific privileges as bases for generalization. The ephemeral recording privileges in 17 U.S.C. § 112, for example, might suggest a more general privilege to make temporary copies (or indeed other incidental use) of a copyrighted work in connection with a use that has already been licensed. Most contemporary courts, however, would view such an undertaking as within Congress's exclusive preserve.

years since the statute's enactment, these general doctrines have themselves come under attack.

In the decade since the 1976 Act took effect, the most vexing problems posed by new technology have involved new communications media, computer databases and software, and private use. Other, potentially more serious problems appear on the horizon, but have yet to manifest themselves in concrete disputes.[397] I have already discussed some of the problems posed by new communications media.[398] Computer software problems[399] have generated an extensive literature of their own.[400] I will not take time here to go back over that ground, except to note in passing that courts struggling with computer database and software cases have given the idea/expression distinction short shrift.[401] I would, however, like to devote some attention at this point to private use.

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[397] *See generally* OTA REPORT, *supra* note 3, at 102-16, 138-54; *see also* Fleischmann, *supra* note 3 (problems threatened by digital technology); Kost, *supra* note 3 (problems threatened by integrated digital network systems); Note, *Digital Sound Sampling, Copyright and Publicity: Protecting Against the Electronic Appropriation of Sounds*, 87 COLUM. L. REV. 1723 (1987).

[398] *See supra* notes 373-95 and accompanying text.

[399] In 1980, Congress amended the copyright statute to add provisions to clarify the scope of copyright in computer programs. Pub. L. No. 96-517, 94 Stat. 3028 (1980) (codified at 17 U.S.C. §§ 101, 117). These provisions were drafted, not by agreement of industry representatives, but by a blue ribbon commission appointed by Congress to formulate solutions to copyright problems posed by technology. *See* NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT (1979). The resulting amendments are widely, if not universally, acknowledged to have been disastrous. They have failed to meet the legitimate needs of either software proprietors or software users. *See, e.g.*, OTA REPORT, *supra* note 3, at 59-85; Derwin & Siegel, *Microcode Copyright Infringement*, 4 COMPUTER LAW., April, 1987, at 1; Haynes & Durant, *Patents and Copyrights in Computer Software Based Technology: Why Bother With Patents?*, 4 COMPUTER LAW., Feb., 1987, at 1; Samuelson, *supra* note 331; sources cited *infra* note 400. Their most obvious flaw appears to be that the Commission had only superficial understanding of computers and less understanding about processes of software design and use.

[400] *See, e.g.*, Karjala, *Copyright, Computer Software and the New Protectionism*, 28 JURIMETRICS J. 33 (1987); Menell, *Tailoring Legal Protection for Computer Software*, 39 STAN. L. REV. 1329 (1987); Nimmer & Krauthaus, *Copyright and Software Technology Infringement: Defining Third Party Development Rights*, 62 IND. L.J. 13 (1986); Oman, *supra* note 7; Samuelson, *supra* note 331; Samuelson, *supra* note 341; Staines, *Idee or Idee Fixe?*, 50 MOD. L. REV. 368 (1987); *The Future of Software Protection*, 47 U. PITT. L. REV. 903 (1986); Comment, *A Rose by any Other Name: Computer Programs and the Idea-Expression Distinction*, 34 EMORY L.J. 741 (1985).

[401] *See, e.g.*, Whelan Assoc. v. Jaslow Dental Laboratory, 797 F.2d 1222 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987); National Business Lists v. Dun & Bradstreet, 552 F. Supp. 89 (N.D. Ill. 1982); Karjala, *supra* note 400; Reback & Hayes, *Copyright Gone Astray: The Misappropriation Alternative*, 3 COMPUTER LAW., April, 1986, at 1; Staines, *supra* note 400. The courts have also rejected arguments based on the useful articles doctrine. *See, e.g.*, Apple Computer v. Franklin Computer Corp., 714 F.2d

Private use is the unauthorized use of copyrighted works by individuals in private, at home or otherwise.[402] The 1976 Act accords no exclusive rights in private performances or displays. Singing in the shower is not yet copyright infringement. The statute does, however, give exclusive reproduction and adaptation rights and exclusive distribution rights qualified by the first sale doctrine.[403] The Act includes no broad private use exception; unauthorized private copying and adaptation, and private distribution of unauthorized copies of a work, infringe the work's copyright except to the extent that they come within a statutory exception, express or implied. The copyright owners' exclusive rights with respect to private use, however, have been essentially unenforceable.

As recently as 1965, when the revision bill emerged from the conferences, the unenforceability of rights against private use may not have been the source of much concern. The economic impact of private use seemed insignificant. Institutional photocopying appeared to dwarf aggregate individual copying; photocopy machines were, after all, not cheap. Record pirates selling bootlegged records seemed a greater threat than the throng of teenagers taping music from the radio. Videocassette recorders had yet to be marketed as a consumer product; home computers had not been invented.

Times change. Markets developed that made all sorts of copyrighted works available to consumers in their homes.[404] Technology made copying cheap and convenient.[405] Instead of going to the movies, a family might subscribe to a movie channel on cable television. Instead of watching the transmission, it could program its videocassette recorder to record the film; when it finished watching it, the family could trade the videotape to friends for another. Instead of purchasing software, a computer user could use a modem to download programs from computer bulletin boards through the

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1240, 1249 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984). *See generally* Samuelson, *supra* note 331, at 741-49.

[402] The OTA Report defines private use as "the unauthorized, uncompensated, noncommercial and noncompetitive use of a copyrighted work by an individual who is a purchaser or user of that work." OTA REPORT, *supra* note 3, at 194. I have not adopted the OTA definition because it evades controversial questions about the commercial or competitive nature of private use by excluding commercial or competitive use from the term it defines.

[403] 17 U.S.C. §§ 106, 109.

[404] *See* OTA REPORT, *supra* note 3, at 105-11, 194-95; *Copyright and Technological Change*, *supra* note 2, at 79-84 (testimony of Frederick Weingarten, Office of Technology Assessment).

[405] *See* OTA REPORT, *supra* note 3, at 99-103.

telephone lines. Computer hackers could make cheap, easy copies of their programs on diskettes and trade them with their colleagues. By the time Congress enacted the 1976 Act, the contours of the economic threat posed by private use had begun to emerge. Copyright owners began to worry about enforcing the hitherto unenforceable rights over private use that the 1976 Act appeared to give them.

Less than a month after Congress passed the 1976 Act, two motion picture studios filed an infringement action against the manufacturer, distributors, retailers, and a user of the Sony Betamax videocassette recorder.[406] The suit posed the following problem for the courts: the language of the 1976 Act discouraged the courts from discovering implied privileges, by couching its multiplicity of express privileges in such specificity and detail. A conclusion that the 1976 Act ruled out implied exemptions and privileges, however, compelled the conclusion that the statute also prohibited any unauthorized copying or adaptation unless it fit within an express exemption. Or unless an express exemption could be stretched to encompass it.

In *Sony*, the Supreme Court responded to the problem by stretching fair use. Influenced, perhaps, by the copious references to nonprofit education in the legislative history, the Court established a presumption that all unauthorized noncommercial use was fair. Conversely, all unauthorized commercial use would be presumptively infringing.[407] This reformulation permitted the Court to hold that the sale and use of videocassette recorders did not infringe the rights of copyright owners. It also introduced distortions and rigidity into the fair use doctrine.[408] The most troubling aspect of the reformulation for copyright owners is that it makes most private use of copyrighted works presumptively fair.[409] The reformulation's most troubling aspect for users of developing technology is that it makes fair use, a doctrine developed in the context of unauthorized commercial use of copyrighted works, presumptively unavailable for any commercial endeavor.[410]

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[406] Universal City Studios v. Sony Corp. of Am., 480 F. Supp. 429 (C.D. Cal. 1979), *aff'd in part, rev'd in part*, 659 F.2d 963 (9th Cir. 1981), *rev'd*, 464 U.S. 417 (1984). *See* Lardner, *Annals of Law: The Betamax Case—I*, NEW YORKER, Apr. 6, 1987, at 45, 50.

[407] *See* Sony Corp. of Am. v. Universal City Studios, 464 U.S. 417, 451 (1984).

[408] *See* Litman, *supra* note 15, at 897-99.

[409] *See, e.g.*, Adelstein & Perez, *supra* note 223 (arguing for restriction of fair use privilege); Fleischmann, *supra* note 7 (arguing for repeal of fair use).

[410] *See, e.g.*, Harper & Row Publishers v. Nation Enters., 471 U.S. 539, 562 (1985);

The Court's twin presumptions have drawn widespread criticism.[411] Participants in the revision effort agree that the Court's interpretation turned fair use on its head. The statute's structure, however, presented the Court with an intolerable dilemma. Consumer videocassette recorders did not yet exist at the time the statutory language was drafted. The consumers who owned and used videocassette recorders could hardly have participated in the drafting process. The legislative record indicated that the generic problem of private copying, as distinguished from copying by libraries and schools, had received little attention during the drafting process. But the negotiated deals embodied in the statutory language called for imposing liability on millions of users of videocassette recorders. Such a result seemed intolerable; indeed, even the plaintiffs in the lawsuit declined to seek it.[412] Instead, the plaintiffs sought to enjoin the sale of a machine that permitted individual users to record copyrighted works, something that the legislative record indicated had never even been mentioned during the revision effort. The only palatable result seemed to require privileging the use, but the statute offered no reasonable route to that destination. Faced with a single flexible limitation that could conceivably apply, the Court used it.

The result of the dilemma was to stretch fair use until it lost its flexibility. Commercial actors—authors, news reporters, legal database publishers, and parodists—now face a copyright statute whose fair use privilege is, absent disingenuous inventions by the lower courts,[413] presumptively unavailable.[414] Copyright owners, who find that their works are increasingly being delivered to and

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West Publishing Co. v. Mead Data Cent., 799 F.2d 1219 (8th Cir. 1986), *cert. denied*, 479 U.S. 1070 (1987); Bourne Co. v. Speeks, 670 F. Supp. 777 (E.D. Tenn. 1987).

[411] *See, e.g.*, Adelstein & Perez, *supra* note 223; Oman, *supra* note 223, at 32; *The Supreme Court, 1984 Term: Leading Cases*, 99 HARV. L. REV. 120, 299 (1985); Note, *When "Fair is Foul": A Narrow Reading of the Fair Use Doctrine in Harper & Row Publishers, Inc. v. Nation Enterprises*, 72 CORNELL L. REV. 218 (1986).

[412] *See* Lardner, *supra* note 406, at 48-50.

[413] *See* Litman, *supra* note 15, at 899; *infra* note 438 and accompanying text.

[414] *See, e.g.*, United Tel. Co. of Mo. v. Johnson Publishing, 855 F.2d 604 (8th Cir. 1988); Original Appalachian Artworks v. Topps Chewing Gum, 642 F. Supp. 1031 (N.D. Ga. 1986); Lakedale Tel. Co. v. Fronteer Directory Co. of Minn., 230 U.S.P.Q. 694 (D. Minn. 1986). Both presumptions may be rebutted with evidence as to a particular use's actual and potential effect on the market for the copyrighted work. The burden of proof on rebuttal has proved heavy as a practical matter, and conclusions about market effect are invariably circular. *See, e.g.*, Clemmons, *Author v. Parodist: Striking a Compromise*, 46 OHIO ST. L.J. 3, 8 (1985).

used by individuals in their homes,[415] face a copyright statute that presumptively privileges many unauthorized uses. Unauthorized reception of satellite signals for home television viewing, unauthorized home taping of copyrighted music and films, and unauthorized adaptation or copying of computer programs on floppy disks seem potentially within the new fair use privilege.[416] In the aggregate, the economic impact of these uses is substantial, and copyright proprietors would prefer that they be viewed as consumer theft. But much of the pain that friends of copyright insist they feel over *Sony* is self-inflicted. Representatives of copyright owners resisted the incorporation of broad privileges into the revision bill throughout the revision process. The courts turned to fair use because the statute left them no alternative; a statute that incorporated more general, flexible limitations might have weathered *Sony* with significantly less damage.[417] The application of a statute granting broad rights with narrow exceptions to new technology forces courts to reach peculiar results.

Although copyright owners lost a significant battle in court, they did not abandon the fight to assert the rights they believed they had bargained for in the 1976 Act. They have continued to insist that the 1976 Act gives them the right, albeit unenforceable, to prohibit private use and have campaigned to close the statutory loopholes that permit the widespread unauthorized use of their works by individuals in private. Even while *Sony* was pending, representatives of copyright owners peppered Congress with legislative proposals. Efforts to prohibit private use by millions of consumers directly, they recognized, would be politically unpopular and impossible to enact. Instead, copyright owners proposed indirect methods, beginning with an assault on the first sale doctrine.[418]

The immediate targets of the audio and video first sale bills were

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[415] *See* OTA REPORT, *supra* note 3, at 193-95.

[416] *See, e.g.*, Brown, *supra* note 257, at 595.

[417] A statutory privilege to make temporary incidental copies similar to the privilege described *supra* note 393, for example, would have permitted timeshifting of television programs but would not have privileged many of the multiplicity of private uses that seem to come within the *Sony* formulation.

[418] *See Audio and Video First Sale Doctrine: Hearings on H.R. 1027, H.R. 1029, and S. 32 before the Subcomm. on Courts, Civil Liberties and the Administration of Justice*, 98th Cong., 1st & 2d Sess. (1985). The effort began as a proposal by industry representatives to amend the definition of public performance to encompass rental of copyrighted works. The Copyright Office responded to a request to draft such a bill by suggesting that a more appropriate tactic would be to revise the first sale doctrine. *See id.* at 378 (testimony of Dorothy Schrader, General Counsel, U.S. Copyright Office).

businesses that rented videocassette tapes or phonograph records for profit. The proposed legislation modified the first sale doctrine by prohibiting owners of copies of audiovisual works[419] or phonorecords[420] from renting, leasing, or lending them for commercial advantage. After negotiations between representatives of copyright owners and representatives of educational institutions yielded language removing educators' objections by exempting nonprofit libraries and educational institutions completely,[421] Congress enacted the Record Rental Amendment, prohibiting the commercial rental of phonorecords.[422] The video first sale bill stalled, as did a computer software first sale bill[423] drafted in similar language.[424]

Another phase of the effort attacked the home copying problem through the manufacturers of copying equipment. One sort of proposal would have required manufacturers to install devices in retail

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[419] *See* H.R. 1029, 98th Cong., 1st Sess. (1984).

[420] *See* H.R. 1027, 98th Cong., 1st Sess. (1984).

[421] *See Audio and Video First Sale Doctrine*, *supra* note 418, at 338-41 (testimony of August Steinhilber, Chairman of Educators' Ad Hoc Committee on Copyright Law).

[422] Pub. L. No. 98-450, 98 Stat. 1727 (1984) (codified at 17 U.S.C. §§ 109(b), 115(c)(3)). The law, as amended in 1988, has a 13 year sunset provision. *See* Pub. L. No. 100-617, 102 Stat. 3194 (1988). Evidence of the commercial rental of phonorecords to facilitate unauthorized private copying assisted copyright owners in securing the Record Rental Amendment. *See Home Audio Recording Act*, *supra* note 2, at 28 (testimony of Ralph Oman, Register of Copyrights). Although copyright owners have offered similar evidence about the rental of videocassettes, *see, e.g., Home Video Recording*, *supra* note 2, at 2-32 (testimony of Jack Valenti, Motion Picture Ass'n of Am.), they have not been successful in securing an amendment to prohibit videocassette rental.

[423] *See* S. 3074, 98th Cong., 2d Sess. (1984). The software first sale bill has been reintroduced in successive sessions of Congress. *See* S. 198, 101st Cong., 1st Sess. (1989); S. 2727, 100th Cong., 2d Sess. (1988); H.R. 1743, 100th Cong., 1st Sess. (1987).

[424] In another ring of the circus, proprietors of copyright in computer software mounted another assault on the first sale doctrine. In 1980, Congress amended the statute to clarify the scope of copyright in computer software and included a sui generis first sale doctrine for computer programs. The provision gave owners of copies of computer programs the privilege to make backup copies and limited adaptations of the programs, on the condition that when the owner sold, leased, or otherwise transferred her copy of the program, she destroy any adapted copy and either destroy any backup copies or transfer them along with the original copy. 17 U.S.C. § 117. In order to defeat the privilege, which was limited in terms to "owners" of copies of programs, software manufacturers purported to stop selling computer software. They devised a "shrink-wrap license" that advised purchasers of off-the-shelf software that the transaction whereby they paid money in return for a copy of a computer program was not a "sale" at all, but rather a "license." The terms of the license, which the would-be purchaser was deemed to accept upon opening the cellophane shrink-wrap, provided that the software manufacturer retained ownership of the copy of the software, and, typically, restricted the licensee's use, copying, adaptation, and transfer of the copy much more narrowly than the statute restricted owners. *See generally* Samuelson, *supra* note 341. *See also* Vault Corp. v. Quaid Software, 847 F.2d 255 (5th Cir. 1988) (holding shrink-wrap license unenforceable).

audiotape and videocassette recorders that prevented unauthorized copying.[425] A second variety of bill would have imposed a surcharge on recording equipment and blank tape, to be distributed as a royalty fund for home taping.[426] Neither approach has acquired the consensus required for enactment.

Copyright owners have gradually realized that the unenforceability of the rights they claim in private uses is itself a threat, because it breeds disrespect for copyright among potential infringers and clouds the marketplace with confusion.[427] They have not, however, been able either to resolve their differences with opponents of private use legislation or to abandon the fight.[428]

Hearings on these proposals have consumed a lot of congressional time, as have hearings on other private use issues. The Copyright Office has for several years suggested that Congress must make a policy determination on the treatment of private use.[429] Legal academics and the Office of Technology Assessment have endorsed the recommendation.[430] Representatives of affected interests insist that Congress made that policy determination when it enacted the 1976 Act, although the witnesses disagree about what Congress determined. Those who represent motion picture producers and record companies, for example, insist that the 1976 Act gives them the exclusive right of reproduction, including private reproduction in the home.[431] Those who represent manufacturers and retailers of

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[425] *See Copyright Issues Presented by Digital Audio Tape*, *supra* note 2; *Home Video Recording*, *supra* note 2, at 2-50 (various witnesses).

[426] *See Home Audio Recording Act*, *supra* note 2; *Video and Audio Home Taping: Hearing on S. 31 and S. 175 Before the Subcomm. on Patents, Copyrights and Trademarks of the Senate Comm. on the Judiciary*, 98th Cong., 1st Sess. (1984).

[427] *See, e.g., Copyright and Technological Change*, *supra* note 2, at 267-80 (materials from Feb., 1984 Congressional Copyright and Technology Symposium in Fort Lauderdale, FL).

[428] *See, e.g., Home Video Recording*, *supra* note 2, at 77 (remarks of Sen. Thurmond).

[429] *See, e.g., Copyright and New Technologies*, *supra* note 2, at 11-13 (prepared statement of Ralph Oman, Register of Copyrights); *Copyright Issues Presented by Digital Audio Tape*, *supra* note 2, at 142-44 (testimony of Ralph Oman, Register of Copyrights); *Home Audio Recording Act*, *supra* note 2, at 85 (testimony of Ralph Oman, Register of Copyrights); *Audio and Video First Sale Doctrine*, *supra* note 418, at 379-80 (testimony of Dorothy Schrader, General Counsel, Copyright Office); *Video and Audio Home Taping*, *supra* note 426, at 51 (testimony of David Ladd, Register of Copyrights).

[430] *See* OTA REPORT, *supra* note 3, at 288-90; *see, e.g., Home Audio Recording Act*, *supra* note 2, at 952-55 (written comments of Prof. Paul Goldstein, Stanford Law School); *Copyright Infringements (Audio and Video Recorders): Hearings on S. 1758 Before the Senate Comm. on the Judiciary*, 97th Cong., 1st & 2d Sess. 20-25 (1982) (testimony of Prof. Leon Friedman, Hofstra Law School).

[431] *See, e.g., Home Video Recording*, *supra* note 2, at 3 (testimony of Jack Valenti,

audio and video tape recorders, in contrast, claim that the 1976 Act establishes the public's right to make home recordings.[432] Representatives of both interests, however, agree that Congress settled the issue in 1976. Perhaps members of Congress have found this testimony of industry representatives persuasive. They have, in any event, demonstrated little eagerness for grappling with the general problems that private use poses. If the history of copyright revision is a guide, we should not expect answers to be forthcoming any time soon: the problems of private use do not seem amenable to negotiated solution.

VI

NEGOTIATED STATUTES AND TECHNOLOGICAL POLICY

Not all of the suggested amendments to the 1976 Copyright Act have been of the close-the-loophole variety. Many others have been more in the nature of widen-the-loophole bills.[433] Bills of both types have mired Congress in more minutia than did the twenty-one year revision effort that culminated in the 1976 Act. Meanwhile, the 1976 Act's few general limitations have suffered serious erosion.

Ten years after the effective date of the Act, the idea/expression distinction has received progressively more narrow construction from the courts.[434] Fewer aspects of copyrighted works are held unprotected facts and ideas. More courts are conferring broad copyright protection on works that are primarily factual;[435] more

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Motion Picture Ass'n of America); *Audio and Video First Sale Doctrine*, *supra* note 418, at 4 (testimony of Stanley Gortikov, Recording Industry Ass'n of America).

[432] *See, e.g.*, *Home Video Recording*, *supra* note 2, at 84-94 (prepared statement of Charlie Ferris, Home Recording Rights Coalition).

[433] *See, e.g.*, Pub. L. No. 97-366, § 3, 96 Stat. 1759 (1982) (codified at 17 U.S.C. § 110(10)) (establishing exemption for performances by veterans and fraternal organizations); S. 2881, 100th Cong., 1st Sess. (1988) (bill to create exemption for public performance of videotapes in hospitals and nursing homes); S. 1980, 99th Cong., 1st Sess. (1985) (bill to restrict right of public performance in musical works used in syndicated television programs); S. 1734, 98th Cong., 1st Sess. (1983) (bill to remove various restrictions and annual royalty payments from jukebox compulsory license); S. 175, 98th Cong., 1st Sess (1983) (bill to create exemption for noncommercial videotaping of any copyrighted work); H.R. 8098, 95th Cong., 1st Sess. (1978) (bill to expand exemption for transmissions of performances of literary works to blind and handicapped audiences).

[434] *See, e.g.*, Karjala, *supra* note 400.

[435] *See, e.g.*, National Business Lists v. Dun & Bradstreet, 552 F. Supp. 89 (N.D. Ill. 1982).

courts are protecting systems and methods of operation.[436] The useful articles doctrine remains limited to buildings, bicycle racks, clothing, clothing mannequins, and articles of the same sort.[437] Fair use remains presumptively unavailable to commercial endeavors, although courts have found the twin presumptions so unworkable that they have begun crafting ways to sidestep them.[438] The modified first sale doctrine has become increasingly irrelevant as greater proportions of copyrighted works are disseminated to the public by methods that involve no purchase of tangible copies.[439] Interests that were involved in the drafting process have been insulated from this erosion, because they received the benefit of specifically tailored privileges. The narrowness of those privileges, however, has caused them to age rapidly. Although the interests that participated in the legislative process have fared better under the statute than some of their upstart competitors who did not, the aging of the narrow privileges may have brought home to some of them that drafting a statute with too few exceptions to balance the breadth of the rights it confers may not have been in their long term best interests. Or perhaps not. If such a realization is indeed dawning, industry representatives have yet to translate it into action.

Representatives of affected industries have inundated Congress with narrow legislative proposals to respond to technological change. Some members of Congress have recently expressed almost unprecedented[440] interest in considering such bills within the context of the larger picture. Representative Kastenmeier, who has chaired the House Subcommittee responsible for copyright legislation since 1966, has called hearings on the general issue of copyright and technological change, and held a symposium for the general

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[436] *See, e.g.*, Whelan Assoc. v. Jaslow Dental Laboratory, 797 F.2d 1222 (3d Cir. 1986), *cert. denied*, 429 U.S. 1031 (1987).

[437] *See, e.g.*, E.F. Johnson Co. v. Uniden Corp. of Am., 623 F. Supp. 1485, 1498 (D. Minn. 1985). *See generally* Brown, *supra* note 257, at 600-06.

[438] *See, e.g.*, Hustler Magazine v. Moral Majority, 796 F.2d 1148 (9th Cir. 1986); Fisher v. Dees, 794 F.2d 432 (9th Cir. 1986); New Era Publications Int'l, ApS v. Henry Holt and Co., 695 F. Supp. 1493 (S.D.N.Y. 1988), *aff'd on other grounds*, 873 F.2d 576 (2d Cir. 1989); Salinger v. Random House, 650 F. Supp. 413 (S.D.N.Y. 1986), *rev'd on other grounds*, 811 F.2d 90 (2d Cir.), *cert. denied*, 108 S. Ct. 213 (1987).

[439] *See* OTA REPORT, *supra* note 3, at 206-08.

[440] Most copyright hearings during the past century have focused on particular problems or on pending legislation. In 1932, however, Rep. Sirovich scheduled general hearings on copyright matters with a view to educating fellow committee members on copyright issues as a prelude to the introduction of any legislation. *See supra* note 120 and accompanying text.

education of subcommittee members.[441] The House and Senate Judiciary Committees commissioned a report from the Office of Technology Assessment to examine the pressures of technological development on copyright law.[442] The House Subcommittee has listened to far ranging and even radical proposals,[443] proposals that have gone largely unnoticed in academic legal scholarship. Both House and Senate Subcommittees, however, have retained their commitment to negotiated solutions. The course of recent negotiations among affected interests reveals little possibility of a consensus on any major proposal.

Suggestions for radical re-examination of Congress's approach to copyright law have inspired little enthusiasm among industry representatives. The Office of Technology Assessment floated a proposal for complete restructuring of the copyright law.[444] Industry representatives responded to the proposal with distrust.[445] One witness recommended replacing the current copyright statute with an administrative agency charged with responding to technological development with substantive regulations;[446] the proposal received no

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[441] *See Copyright and Technological Change*, *supra* note 2.

[442] OTA REPORT, *supra* note 3. *See generally OTA Report on Intellectual Property Rights in an Age of Electronics and Information*, *supra* note 2.

[443] *See, e.g., Copyright and Technological Change*, *supra* note 2, at 29-55 (testimony of Joseph Coates, J.F. Coates, Inc.) (suggesting, inter alia, removing copyright jurisdiction from courts); *id.* at 129-38 (prepared statement of Richard Stern, Washington, D.C.) (suggesting variety of intellectual property systems tailored to particular technologies); *CRT Reform and Compulsory Licenses: Hearings on H.R. 2752 and H.R. 2784 Before the Subcomm. on Courts, Civil Liberties, and the Administration of Justice of the House Comm. on the Judiciary*, 99th Cong., 1st Sess. 206-44 (1986) (testimony of Daniel W. Toohey, Dow, Lohnes & Albertson) (suggesting federal copyright regulatory agency).

[444] The OTA Report is a brilliant critique of current law and policy and has been controversial among those who have reviewed it. The Report's major thrust is that recent technological developments are having a profound effect on intellectual property law, and have rendered many of the assumptions on which the law is based obsolete. *See* OTA REPORT, *supra* note 3, at 3-15, 31. The Report suggests several possible approaches to reform. One of the Report's most provocative proposals calls for a wholesale revision of the copyright law that would set forth different rules for protection of works of art, works of fact and works of function.

[445] *See* Garcia, *The OTA Report on Intellectual Property Rights*, Network Planning Paper No. 16, *supra* note 3, at 9, 11-12; *see, e.g.*, Baumgarten & Meyer, *supra* note 4.

[446] *See CRT Reform and Compulsory Licenses*, *supra* note 443, at 206-44 (testimony of Daniel Toohey, Dow, Lohnes & Albertson); *see also* OTA REPORT, *supra* note 3, at 282 (suggesting federal intellectual property agency). The few witnesses and the occasional commentator, *see, e.g.*, Stern, *The Bundle of Rights Suited to New Technology*, 47 U. PITT. L. REV. 1229, 1262-67 (1986), who support the idea of a federal copyright agency cite the speed with which it could respond to problems posed by technological change as its most attractive feature. Mr. Toohey, the attorney who testified in favor of

support.[447] Every proposal to change the status quo has received opposition from some camp on the ground that it would remove a perceived advantage enjoyed under current law.[448]

Members of Congress have continued to encourage negotiated solutions.[449] Interested parties meet with each other but cling to provincial negotiating postures. Current stakeholders are unwilling to part with short term statutory benefits in the service of long term legal stability.[450] Those disfranchised by current law lack the bargaining chips to trade for concessions. Thus, the process is unlikely to produce any legislative proposals that would reduce the imbalance in the current act.

Furthermore, the process is securely entrenched. The inquiry relevant to copyright legislation long ago ceased to be "is this a good bill?" Rather, the inquiry has been, and continues to be "is this a bill that current stakeholders agree on?" The two questions are not the same.

Negotiations among current stakeholders tend to produce laws that resolve existing inter-industry disputes with detailed and specific statutory language, which rapidly grows obsolete. Such laws consign the disputes of the future to resolution under models biased in favor of the status quo.[451] A copyright law cannot make sensible

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such an approach, seems especially impressed with an agency's ability to craft narrow solutions to narrow problems. *See* Toohey, *supra* note 7, at 568. Giving responsibility for formulating substantive copyright law to a federal administrative agency would require abandoning a longstanding tradition, animated largely by first amendment concerns, of distrust for such a solution. The Copyright Office, for example, is not viewed as administrative agency and has no adjudicatory and only very limited rulemaking authority. The Copyright Royalty Tribunal, in contrast, is an agency but its jurisdiction is limited to the setting of rates and division of fees for compulsory licenses. Concerns about issues such as capture loom large when one is considering entrusting to the government the authority for regulating a wide variety of expression protected by the first amendment. The FCC's performance in this regard has not been reassuring.

[447] *See, e.g., CRT Reform and Compulsory Licenses, supra* note 443, at 74 (testimony of Irwin Karp, Authors' League of America); *id.* at 153 (testimony of Prof. Paul Goldstein, Stanford Law School).

[448] *See, e.g., id.* at 491-93 (testimony of Stephen R. Effros, President, Community Antenna Television Ass'n, Inc.).

[449] *See, e.g., id.* at 259-61 (colloquy); *Copyright and Technological Change, supra* note 2, at 27 (remarks of Rep. Sawyer); *Home Video Recording, supra* note 2, at 77 (remarks of Sen. Thurmond).

[450] *See, e.g., U.S. Adherence to the Berne Convention, supra* note 16, at 212 (prepared statement of Carol Risher, Ass'n of American Publishers); *id.* at 388 (testimony of Elroy Wolff, Amusement & Music Operators Ass'n).

[451] Fledgling technologies faced with uncertainty about their status under copyright law encounter barriers to doing business and difficulty securing funding. *See, e.g., Oversight of the Copyright Act of 1976 (Cable Television): Hearings Before the Senate Comm.*

provision for the growth of technology unless it incorporates both the flexibility to make adjustments and the general principles to guide courts in the directions those adjustments should take. The negotiation process that has dominated copyright revision throughout this century, however, is ill-adapted to generate that flexibility. It cannot, therefore, be expected to produce statutes that improve with age.

CONCLUSION

I have thus far criticized the pitfalls of a legislative process that relies heavily on negotiations among affected interests without acknowledging its strengths. Although I believe that the process's advantages are outweighed by its disadvantages, those strengths are not trivial. Indeed, this legislative process continues to outlive the legislation that it has produced because its advantages are significant.

The process brings together the real copyright experts, and allows Congress to exploit their accumulated expertise. The participants are the people who will have to order their day-to-day business relations with one another around the provisions of the legislation. They can bring their perspective on the real world in which they interact to bear on the law with which they will have to live.

The process permits a give and take among a wide field of players whose competing interests are exceedingly complex. The universe of current stakeholders does not divide easily into monolithic camps.[452] There may be no simple, overarching principles that can

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on the Judiciary, 97th Cong., 1st Sess. 29-33 (1981) (testimony of Barbara Ringer, former Register of Copyrights). Users of new technology confront formidable obstacles to their efforts to exploit the new products or services within the confines of a cloudy copyright law. *See, e.g.*, Kost, *supra* note 3, at 23-24. A law whose application to new technology depends on linguistic fortuity will, at best, distort technological policy in a haphazard fashion. At worst, it will skew technological policy in favor of current stakeholders and away from technological development.

[452] It may once have been possible to talk about interests affected by copyright as if some were creators of copyrighted works and others were users of copyrighted works. By the turn of the twentieth century, that dichotomy was too simple to describe the array of players in the game. It is now a nearly meaningless distinction. Composers compose music, but the music uses sounds that they have heard in other music. Directors make movies, but much of what they do comes down to choosing what aspects of other people's work to incorporate into their films. Television networks assemble a combination of independently-produced and in-house programs to create a broadcast day. Network affiliates choose from items available on the network feed and programming syndicated by other sources to create their own compilations of programs. Cable systems select among available broadcast and non-broadcast programming to assemble

easily define how all of these actors should order their interactions with one another. Putting all of them into a room and asking them not to come out until they have agreed to be bound by the same rules may be the most efficient approach to formulating law that will work well enough for each of them.

The process also makes copyright revision politically feasible. If one could overcome the difficulties in educating members of Congress in a technical legal field with little publicity value, and find ways to impart enough knowledge about the complex inner workings of the myriad affected industries, one would still face daunting obstacles to coming up with enactable legislation. Every adjustment to the copyright statute will disadvantage some current stakeholder, who will be someone's constituent. Perhaps a statute might be enacted over that stakeholder's pitched opposition; but efforts to accomplish that in the past have not succeeded. If the stakeholder will instead agree to accept the disadvantage in return for an advantage conceded by another stakeholder, there will be no pitched opposition and the bill will be much more likely to go through.

The need to balance concessions in order to achieve such agreement, of course, imposes constraints on the sort of legislation that is likely to emerge from the process. Unless the participants become convinced that the new legislation gives them no fewer benefits than they currently enjoy, they are likely to press for additional concessions. It must, therefore, be expected that any successful copyright legislation will confer advantages on many of the interests involved in hammering it out, and that those advantages will probably come at some absent party's expense. But nobody need take the responsibility for making difficult political choices associated with selecting the interests that the legislation will disadvantage. Indeed, the process is almost tailor-made to select those interests thoughtlessly and automatically, as a byproduct of ongoing negotiations.

It is the seeming inevitability of bias against absent interests, and of narrow compromises with no durability, that makes such a process so costly. Each time we rely on current stakeholders to agree on a statutory scheme, they produce a scheme designed to protect themselves against the rest of us. Its rigidity leads to its breakdown; the statute's drafters have incorporated too few general principles to guide courts in effecting repairs.

Reliance on the real copyright experts has led to Congress's en-

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an anthology of signals for subscribers. The copyright law defines authorship broadly enough to include all of these activities within its purview.

actment of laws that few of its members understand.[453] Nobody would quarrel with the statement that political expediency sometimes causes Congress to enact legislation its members have not thought through. The entrenched nature of the process for developing copyright legislation, however, works to foreclose any possibility that Congress will enact copyright laws that its members have framed, or at least comprehend.

It would seem naive to suggest that Congress simply reclaim its legislative responsibilities and write a revised copyright statute embodying general principles instead of negotiated deals. Current stakeholders have controlled the playing board for more than eight decades, and would doubtless prefer to keep it that way. Although they squabble with one another over specifics, they have managed to unite in fierce opposition to copyright revision bills drafted without their participation.[454] They are unlikely to support a movement to divest them of responsibility for drafting copyright legislation.[455]

But perhaps the current stakeholders would be receptive to a cautionary note. Those involved in the process of copyright legislation complain about widespread disregard of the copyright law enacted in 1976.[456] Copyright owners bemoan unenforceable statutory rights.[457] Participants and commentators complain that courts misinterpret the bargains embodied in the statute.[458] It is hardly surprising, however, that a statute too long, complex, and technical for

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[453] *See, e.g., 1975 House Hearings, supra* note 204, at 1285-95 (various witnesses); *id.* at 1358-60 (colloquy); *id.* at 1578 (remarks of Rep. Pattison); *id.* at 1713-14 (colloquy); *id.* at 1748-49 (colloquy); *id.* at 1753 (colloquy); 122 CONG. REC. 31,985-86 (1976) (remarks of Rep. Drinan); 43 CONG. REC. 3853-54 (1909). *See generally* Litman, *supra* note 15, at 865-82.

[454] *See supra* notes 119-30, 197-200 and accompanying text.

[455] In any event, such a movement is unlikely to arise. The public has become increasingly cynical about the legislative process. Highly publicized criticisms in recent years have inured most constituents to the fact that the way Congress actually goes about its job diverges sharply from the model presented in high school civics courses.

[456] *See, e.g., Home Video Recording, supra* note 2, at 3-52 (testimony of Jack Valenti, Motion Picture Ass'n of America).

[457] *See, e.g., Copyright and Technological Change, supra* note 2, at 271, 280 (Congressional Copyright And Technology Symposium, Panel on the Administration of Rights in Copyrighted Works in the New Technologies).

[458] *See, e.g., Civil and Criminal Enforcement of the Copyright Laws: Hearings on the Authority and Responsibility of the Federal Government to Protect Intellectual Property Before the Subcomm. on Patents, Copyrights and Trademarks of the Senate Comm. on the Judiciary*, 99th Cong., 1st Sess. 89-95 (testimony of Barbara Ringer, former Register of Copyrights); Abrams, *Who's Sorry Now? Termination Rights and the Derivative Works Exception*, 62 U. DET. L. REV. 181 (1985); Adelstein & Perez, *supra* note 223, at 228-33; Karp, *Reflections on the Copyright Revision Act*, 34 J. COPYRIGHT SOC'Y U.S.A. 53, 61-68 (1986); Litman, *supra* note 15, at 896-903; Oman, *supra* note 223, at 32, 35-37.

members of the Congress that enacted it to understand confounds the courts. It is even less surprising that members of the public will behave in accord with their sense of what the rules ought to be in preference to deciphering an entire volume of the United States Code. If the private parties who negotiate copyright legislation among themselves cannot come up with bills that look as if they were drafted by members of Congress to embody general principles rather than like a web of interdependent bilateral and trilateral deals, the bills they do come up with are unlikely to work very well in practice. Technology will develop, and statutory provisions will grow obsolete with breathtaking speed.

Current stakeholders may prefer today's world or, indeed yesterday's world, to tomorrow's. They may, understandably, prefer a copyright law that forces tomorrow's players to order their business by today's rules. They may even be the beneficiaries of a legislative process that allows them to create a copyright law that meets that specification. They cannot, however, force time to stop. Representatives of affected interests insist that they want a workable copyright law. They could use the familiar process to produce one. They need only do what Congress seems to be unable to do for them: draft a law that balances elastic rights with comparably elastic, flexible limitations.

APPENDIX 4.—TECHNICAL REFERENCE DOCUMENT FOR THE AUDIO HOME RECORDING ACT OF 1991

Introduction

This Technical Reference Document is provided to facilitate the implementation of legislation relating to digital audio recording ("DAR") devices, known as the "Audio Home Recording Act of 1991" ("the Act").

This Technical Reference Document establishes the standards and specifications that are necessary to implement the Serial Copy Management System ("SCMS") under the Act. It draws in part from specifications proposed to the International Electrotechnical Commission ("IEC") in "IEC 958: Digital Audio Interface" (First edition 1989-03) and "Amendment No. 1 to IEC 958 (1989): Digital Audio Interface, Serial Copy Management System" (Reference 84(CO)126 submitted on June 21, 1991) (collectively, "IEC 958"), and "IEC 60A(CO)136 Part 6: Serial copy management system for consumer audio use DAT recorders". The standards and specifications set forth herein relate only to the implementation of SCMS via digital audio interface signals, DAR devices and digital audio interface devices. The standards and specifications set forth herein, as they may be amended pursuant to an order of the Secretary of Commerce under Section 1022(b) of Subchapter C of the Act, shall be considered determinative under the Act, regardless of any future action by the IEC or by a manufacturer or by an owner of a proprietary technology.

SCMS is intended to prohibit DAR devices from recording "second-generation" digital copies from "first-generation" digital copies containing audio material over which copyright has been

asserted via SCMS. It does not generally restrict the ability of such devices to make "first-generation" digital copies from "original" digital sources such as prerecorded commercially available compact discs, digital transmissions or digital tapes.

Currently, the predominant type of DAR device offered for sale in the United States is the DAT recorder, which records and sends digital signals in accordance with the IEC 958 nonprofessional digital audio interface format. Additional types of DAR devices and interface formats are being or may be developed. The standards and specifications in this Technical Reference Document are not intended to hinder the development of such new technologies but require, in accordance with Section 1021(a)(1)(A)-(C) of Subchapter C of the Act, that they incorporate the functional characteristics of SCMS protection. In order for a DAR device to be "compatible with the prevailing method of implementing SCMS", to the extent DAR devices are capable of recording signals sent in a particular digital audio interface signal format, the SCMS information must be accurately received and acted upon by the DAR device so as to correctly implement the same level of SCMS protection provided by that format. "Compatibility" does not require direct bit-for-bit correspondence across every interface signal format; indeed, particular interface signal formats may be recordable by some, but not all, DAR devices. To the extent that any digital audio interface device translates and sends signals in a form that can be recorded by a particular DAR device, however, "compatibility" requires that the SCMS information also be accurately translated

and sent by the interface device, and accurately read and acted upon by the DAR device.

This document is in three parts. Part I Section A sets forth standards and specifications constituting the functional characteristics for implementing SCMS in digital audio interface signals. Sections B and C then apply these standards and specifications in a specific reference for implementing SCMS in the IEC 958 nonprofessional digital audio interface format. Part II Section A similarly first sets forth standards and specifications constituting the functional characteristics for implementing SCMS in DAR devices. Sections B and C then apply these standards and specifications in a specific reference for implementing SCMS with respect to the recording and play-back functions of non-professional model DAT recorders. Part III contains a series of charts that apply and correlate those codes that are mandated for implementation in DAT recorders by Parts I-C and II-C of this document.

The terms "digital audio interface device," "digital audio recording device," "digital audio recording medium," "distribute," "professional model," and "transmission" as used in this document have the same meanings as in the Act. "Generation status" means whether the signal emanates from a source that has been produced or published by or with the authority of the owner of the material, such as commercially released pre-recorded compact discs or digital tapes or a digital transmission (referred to herein as "original");

or whether the signal emanates from a recording made from such "original" material.

PART I. IMPLEMENTATION OF SCMS IN DIGITAL AUDIO INTERFACE FORMATS

Various consumer devices are capable of producing digital audio signals. Currently, for example, compact disc players, DAT recorders and analog-to-digital converters can send digital audio signals; future devices may include digital microphones or recordable compact disk devices. To enable communication between these different types of devices and a DAR device, it is necessary and desirable to establish common protocols or "interfaces" that mandate specific information in the digital audio output signal of each device. Digital signal interfaces may enable communication of different types of data. A "digital audio interface signal" communicates audio and related interface data as distinguished from, for example, computer or video data. Digital audio interface signal formats may be established for particular types of devices or uses. For example, interface protocols may exist for broadcast use, or for users of professional model products ("professional interface") or for nonprofessional model products ("nonprofessional interface"). One such set of protocols already has been established in the document IEC 958. Sections B and C of Part I summarize and mandate the implementation of SCMS in the IEC 958 nonprofessional interface.

Section A sets forth the standards and specifications for implementing SCMS in digital audio interface signals and devices.

A. Digital Audio Interface Standard

To implement the functional characteristics of SCMS in nonprofessional digital audio interface signal formats, whether presently known or developed in the future, the following conditions must be observed:

1. The digital audio interface format shall provide a means to indicate:

(a) Whether or not copyright protection is being asserted via SCMS over the material being sent via the interface; and,

(b) Whether or not the generation status of the material being sent via the interface is original.

2. If the digital audio interface format has discrete professional and nonprofessional modes, the interface format and digital audio interface devices shall indicate accurately the professional or nonprofessional status of the interface signal. Such indication is referred to generically as a "channel status block flag".

3. If the interface format has a discrete mode for sending data other than audio material, the interface format shall indicate accurately whether or not the interface signal contains audio material.

4. If a digital audio interface device is capable of combining more than one digital audio input signal into a single digital audio output signal, and if copyright is asserted via SCMS over the material being sent in at least one of the input signals,

then the device shall indicate in the output signal that copyright is asserted over the entire output signal. If copyright protection is asserted via SCMS over any of the input signals, and the generation status of that copyright-asserted signal is not original, then the entire output signal shall indicate that copyright is asserted and that the generation status is not original.

5. Devices that are capable of reading original recordings and/or DAR media, and that are capable of sending digital audio signals that can be recorded by a DAR device, shall accurately read the copyright and generation status information from the media and accurately send that information.

6. Devices having a nonprofessional digital audio interface shall receive and accurately send the copyright and generation status information.

7. Professional devices that are capable of sending audio information in a nonprofessional digital audio interface format shall send SCMS information as implemented for that format. However, nothing shall prevent professional devices and/or recording professionals engaged in a lawful business from setting SCMS information according to the needs of recording professionals.

8. If the audio signal is capable of being recorded by a DAR device and the interface format requires an indication of the type of device sending the signal via the interface, then the device shall send the most accurate and specific designation applicable to

that device; for example, "Category Codes" as set forth in Part I with reference to the IEC 958 nonprofessional interface.

9. Devices that receive digital audio transmissions sent without copyright and generation status information shall indicate that copyright is asserted over the transmitted audio material and that the generation status is original. If the transmitting entity wishes to transmit copyright status information it shall do so accurately, and the information shall accurately be received and sent unaltered by the receiving device. In the case of Electronic Audio Software Delivery signal transmissions, the receiver shall accurately receive generation status information as sent by the transmitting entity so as to permit or restrict recording of the transmitted signals. "Electronic Audio Software Delivery" refers to a type of transmission whereby the consumer interactively determines what specific work(s) and/or event(s) are received. This includes, for example, "audio on demand" (electronic selection and delivery of sound recordings for copying) or "pay-per-listen" reception, as distinguished from regular broadcast or comparable cable radio programming services.

10. (a) If the digital audio portion of an interface signal format is recordable by a "pre-existing" type of DAR device, i.e., one that was distributed prior to the distribution of the interface signal format, then the signal format shall implement the rules of SCMS so that the pre-existing DAR device will act upon the rules of SCMS applicable to that DAR device.

(b) If a type of DAR device is capable of recording the digital audio portion of signals sent by a pre-existing digital audio interface device, then the DAR device shall implement the rules of SCMS so that the DAR device will act upon the rules of SCMS applicable to that pre-existing digital audio interface device's format.

(c) If a digital audio interface device is capable of translating a signal from one interface format to another, then the device also shall accurately translate and send the SCMS information.

B. Summary of SCMS Implementation in the IEC 958 Digital Audio Interface

Under IEC 958, SCMS is implemented via inaudible information, known as "channel status data", that accompanies a digital audio signal being sent to or by a DAR device via a nonprofessional digital audio interface. Like all digital data, channel status data consist of numerical information encoded as a series of zeros and ones. Each zero or one constitutes a "bit" of data in which both zero and one may impart information concerning the composition of the audio signal being sent to or by a DAR device. Bits represented in this Technical Reference Document as "X", rather than as zero or one, indicate that those bits may be either zero or one without affecting the specifications set forth herein.

Channel status data bits are organized into units of information, known as "blocks," relating to both the left and right stereo audio channels. Each block contains 192 bits of information, numbered consecutively from 0 to 191. Those channel

status bits that are significant to the implementation of SCMS via the IEC 958 interface are included within channel status bits 0 through 15. Certain of these 16 bits identify professional or nonprofessional interfaces; some specify copyright assertion; and some identify the generation number of a recording. The remaining bits are "Category Codes" that describe the type of device sending the digital audio signal. More complete descriptions of these channel status bits are set forth in the remaining sections of this Part I.

IEC 958 defines professional and nonprofessional interface formats for digital audio signals. An IEC 958 professional interface contains particular types of channel status data for such digital audio recording devices as would be used in professional model products. An IEC 958 nonprofessional interface contains different types of channel status data. The channel status data sent in a nonprofessional interface are incompatible with the channel status data in a professional interface; a DAR device cannot correctly read the channel status data sent in a professional interface.

The specifications summarized herein and mandated in Section C apply only to devices that send or read an IEC 958 nonprofessional interface signal. To the extent that a professional device also may have a IEC 958 nonprofessional interface, such a professional device must be capable of sending channel status data via its nonprofessional interface in accordance with the standards set forth herein. However, nothing in this

Technical Reference Document shall be interpreted to prevent a professional device having an IEC 958 nonprofessional interface and/or recording professionals engaged in a lawful business from permitting such channel status data bits to be set in accordance with the needs of recording professionals.

All devices having a digital audio output capable of supplying a digital audio signal to a DAR device through an IEC 958 nonprofessional interface must implement five types of codes located between Channel Status Bits 0 and 15. For the IEC 958 interface format, Channel Status Bits 0 through 15 are supplied in a digital audio output signal to a DAR device as follows:

1. Bit 0. Bit 0 (the "Channel Status Block Flag"), one of the "Control" bits, shall identify whether the channel status bits are for a professional or nonprofessional interface. Where Bit 0 is set as "1", the signal contains the channel status data required for a professional interface. Where Bit 0 is set as "0", the channel status data is suitable for a nonprofessional interface. The remaining bit assignments are mandated only with respect to a nonprofessional interface, i.e., where Bit 0 is set as "0".

2. Bit 1. Bit 1, another of the "Control" bits, shall identify whether the signal being sent to or by the DAR device is a digital audio or a digital data signal. Where Bit 1 is set as "0", the signal is a digital audio signal. Where Bit 1 is set as "1", the signal is a digital data signal.

3. Bit 2. Bit 2 (the "C" Bit), another of the "Control" bits, shall identify whether copyright protection is asserted for

the audio material being sent via the digital audio signal. Where the C Bit is set as "0", copyright protection has been asserted over the material being sent to the digital audio input of the DAR device. Where the C Bit is set as "1", either that material is not protected by copyright or no copyright protection has been asserted by the owner of that material.

There are specific applications of the C Bit for three types of devices, as follows:

-- Compact disc players compatible with the standards set forth in IEC 908 (compact disc standard, Category Code 10000000) in effect as of the date of enactment of the Act indicate in the C Bit both the copyright and generation status of the signal. (See description of "Bit 15", infra.) Where the signal is original and copyright protection has been asserted, the C Bit = "0". Where no copyright protection has been asserted, the C Bit = "1". Where the signal is first-generation and copyright protection has been asserted, the C Bit will fluctuate between "0" and "1" at a rate of between 4-10 Hz.

-- Digital Receivers (Category Codes 001XXXXL and 0111XXXL) shall set the C Bit as "0", except that these devices shall send the C Bit as "1" only where the cable operator, broadcaster or other entity specifically transmits information indicating that no copyright protection has been asserted over the material.

-- Devices that combine digital audio input signals into one digital audio output signal (e.g., digital signal mixing

devices) shall reflect whether copyright protection has been asserted in the C Bit for at least one of the input signals by setting the C bit as "0" in the resulting digital audio output signal.

Devices in the Category Codes for General ("00000000") and Present A/D Converters ("01100XXX") are not capable of sending copyright status information in the C Bit. The C Bit in the channel status data sent by these devices has no meaning.

There is no existing legal requirement that a copyright owner must assert protection over its material (and, therefore, set the C Bit as "0"). However, except as provided herein with respect to implementation in Digital Receivers (category codes 001XXXXL and 0111XXXL), a copyright owner may not set the C Bit as "0" for material that is not copyrighted or is in the public domain.

4. Bits 3-7. These bits are sent to and read by a DAR device, but specific bit settings for Bits 3-7 are not necessary for the implementation of SCMS. (Bits 6-7 are Music Production Program Block ("MPPB") flag bits.)

5. Bits 8-14. Bits 8-14 shall specify a "Category Code" that identifies the type of device that produces the digital audio signal sent to or by a DAR device. Using various combinations of zeros and ones, Bits 8-14 can define Category Codes for as many as 128 different devices that can provide digital audio signals to a DAR device. According to IEC 958, the first three to five Category Code bits (numbered Bits 8-10 through 8-12) describe general product groups, and the remaining Category Code bits specify

particular devices within each product group. IEC 958 has assigned particular Category Codes to existing and anticipated product groups and devices, and has reserved additional Category Codes for future devices.

The Category Code issued by each particular device must reflect the most specific code applicable to that device, with the following exceptions:

-- Digital signal processing and mixing products receive digital audio signals from one or more sources and either process or combine them with other incoming digital audio signals. If all input signals come from analog-to-digital converters having a Category Code "01100XXX", these devices should issue the Category Code of an analog-to-digital converter rather than of the digital signal processing or mixing device.

-- Sampling rate converters and digital sound samplers come under the Category Codes for digital-to-digital converters. If an input signal to a sampling rate converter or digital sound sampler comes from an analog-to-digital converter having a Category Code "01100XXX", the sampling rate converter or digital sound sampler should issue the Category Code of the analog-to-digital converter.

These exception cases will permit two generations of digital copies from analog recordings, which currently is permitted under SCMS.

The relevance of these Category Codes to SCMS as implemented for devices having the IEC 958 nonprofessional interface is

described in Section C and, specifically as to DAT recorders, in Part II Sections B and C.

6. Bit 15. Bit 15 (the "L" Bit) shall indicate the "generation status" of the digital audio signals being sent to or by a DAR device. "Generation status" means whether the signal emanates from a source that has been produced or published by or with the authority of the owner of the material, such as commercially released pre-recorded compact discs or digital tapes or a digital transmission (referred to herein as "original"); or whether the signal emanates from a recording made from such "original" material. In the latter case, a recording made directly from an "original" source is known as a "first-generation" copy; a recording made from a first-generation copy is a "second-generation" copy; and so forth. Because there is no restriction on the number of copies that can be made from material over which no copyright protection has been asserted, generation status is relevant only where copyright protection has been asserted over the signal.

For most products, if the L Bit is set as "0", the source is a recording that is first-generation or higher. If the L Bit is set as "1", the source is "original." There are four specific categories of products which indicate generation status differently, as follows:

-- Compact disc players compatible with the specifications in IEC 908 (Category Code 10000000) are incapable of

controlling the L Bit. These products signal generation status solely by means of the C Bit (Bit 2).

-- Digital audio output signals from all other laser-optical products (Category Code 100XXXXL) shall send the L Bit as "0" for "original" material and the L Bit as "1" for first-generation or higher recordings.

-- Digital Receivers (Category Codes 001XXXXL and 0111XXXL) shall set the L Bit as "0"; except in the case of receivers for Electronic Audio Software Delivery, which receivers shall send the L Bit as "1" only where the entity specifically transmits information indicating that the material should be treated as if it were first-generation or higher.

-- Devices that combine more than one digital audio input signal into one digital audio output signal, such as digital signal processors or mixers, shall reflect in the L Bit of the output signal the highest generation status of any input containing material over which copyright protection has been asserted. Thus, where one or more of the constituent input signals contains material that is not original (i.e., a first-generation copy) and over which copyright protection is asserted, then the device must reflect in the L Bit of the digital audio output signal a non-original generation status. In all other cases, the device shall reflect in the L Bit that the output signal is original.

c. Mandatory Specifications for Implementing SCMS in the IEC 958 Digital Audio Interface

The following bit assignments for channel status data, as referenced in the provisions of IEC 958 ¶ 4.2.2 "Channel status

data format for digital equipment for consumer use", shall be mandatory for devices implementing the IEC 958 interface:

1. Bits 0-2 of the "CONTROL" Bits:

   a. Bit 0 (the "Channel Status Block Flag")

      Bit 0 = "0" Nonprofessional interface

      Bit 0 = "1" Professional interface

   b. Bit 1

      Bit 1 = "0" Digital audio signals

      Bit 1 = "1" Non-audio (data) signals

   c. Bit 2 (the "C" Bit)

      i. Case 1

         Bit 2 = "0" Copyright protection asserted

         Bit 2 = "1" No copyright protection asserted or not under copyright

      ii. Case 2 -- Compact Disc Players

         For compact disc players compatible with IEC 908 (Category Code 10000000), the C Bit shall indicate:

         Bit 2 = "0" Copyright protection asserted and generation status is "original"

         Bit 2 = "1" No copyright protection asserted.

         Where the Bit 2 fluctuates between "0" and "1" at a rate between 4-10 Hz, copyright protection has been asserted and the signal is first-generation or higher.

iii. Case 3 -- Digital Receivers

For Digital Receivers (Category Codes 001XXXXL and 0111XXXL), the C Bit shall indicate, where copyright information is transmitted to the digital receiver:

Bit 2 = "0"	Copyright protection asserted
Bit 2 = "1"	No copyright protection asserted

Where no copyright information is transmitted to the receiver, the digital receiver shall set the C Bit as "0".

iv. Case 4 -- Digital Signal Mixers

Where a single digital audio output signal results from the combination of more than one digital audio input signal:

Bit 2 = "0"	Copyright protection asserted over at least one of the constituent digital audio input signals
Bit 2 = "1"	For all of the constituent digital audio input signals, no copyright protection asserted or not under copyright

v. Exception Case

The C Bit has no meaning for A/D converters for analog signals that do not include status information concerning the C Bit and the L Bit (i.e., A/D converters in Category Code 01100XXX).

2. Bits 3-7:

Specific bit settings for Bits 3-7 are not necessary for the implementation of SCMS.

3. CATEGORY CODE Bits 8 - 15:

a. Bits 8-15

The Category Codes that follow are established for particular product groups. Where Bit 15 is represented by "L" rather than a zero or one, Bit 15 (the "L" Bit) can be either a zero or one without affecting the Category Code. Where Bit 15 is represented by "X" rather than a zero or one, the device is not capable of issuing status information concerning the L Bit.

00000000	General. This category applies to products that are capable of sending channel status data but are not programmed to send such data in accordance with the specifications set forth in this Technical Reference Document because the products were manufactured before the effective date of the Act. This General Category Code shall not be used for products manufactured after the effective date of the Act.
0000001L	Experimental products not for commercial sale
100XXXXL	Laser-optical products, such as compact disc players (including recordable and erasable compact disk players) and videodisc players with digital audio outputs
010XXXXL	Digital-to-digital ("D/D") converters and signal processing products
110XXXXL	Magnetic tape or disk based products, such as DAT players and recorders
001XXXXL and 0111XXXL	Receivers of digitally-encoded audio transmissions with or without video signals
101XXXXL	Musical instruments, microphones and other sources that create original digital audio signals
01100XXX	Analog-to-digital ("A/D") converters for analog signals without status information concerning the C Bit and the L Bit ("Present A/D converters")

01101XXL	A/D converters for analog signals which include status information concerning the C Bit and the L Bit ("Future A/D converters")
0001XXXL	Solid state memory based media products

Particular devices within each product group defined above shall be assigned specific Category Codes in accordance with IEC 958. Manufacturers of any device that is capable of supplying a digital audio input to a DAR device must use the most specific Category Code applicable to that particular device. However, digital signal processing or digital signal mixing products in Category Code product group "010XXXXL" shall issue the Category Code for Present A/D converters where all the input signals have the Category Code for a Present A/D converter. Similarly, sampling rate converters in Category Code "0101100L" and digital sound samplers in Category Code "0100010L" shall issue the Category Code for Present A/D converters where the input signal comes from a Present A/D converter.

b. Bit 15 (the "L" Bit):

The L Bit shall be used to identify the generation status of the digital audio input signal as emanating from an "original" source or from a non-original (i.e., first-generation or higher) recording.

1. Case 1 -- General Case

For all Category Codes (except as explicitly set forth below), the L Bit shall indicate:

Bit 15 = "0"	First-generation or higher recording

Bit 15 = "1"	"Original" source, such as a commercially released pre-recorded digital phonorecord

2. Case 2 -- Laser Optical Products

The reverse situation is valid for laser optical products (Category Code 100XXXXL), other than compact disc players compatible with IEC 908 (Category Code 10000000). For laser optical products in Category Code 100XXXXL, the L Bit shall indicate:

Bit 15 = "1"	First-generation or higher recording
Bit 15 = "0"	"Original" recording, such as a commercially released pre-recorded compact disc

3. Case 3 -- Digital Receivers

For Digital Receivers (Category Codes 001XXXXL and 0111XXXL), Bit 15 always shall be set as "0"; except for receivers for Electronic Audio Software Delivery, for which the L Bit shall indicate:

Bit 15 = "0"	Generation status information transmitted as "original" material
Bit 15 = "1"	Generation status information transmitted as for non-original material, or no generation status information transmitted

4. Case 4 -- Digital Signal Mixers

Where a single digital audio output signal results from the combination of more than one digital audio input signal:

Bit 15 = "0"	One or more of those constituent digital audio input

	signals over which copyright protection has been asserted is first-generation or higher
Bit 15 = "1"	All other cases.

5. Exception Case

The L Bit has no meaning for A/D converters for analog signals that do not include status information concerning the C Bit and the L Bit (i.e., A/D converters in Category Code 01100XXX) and compact disc players in Category Code 10000000.

II. SERIAL COPY MANAGEMENT SYSTEM FOR DAR DEVICES AND NON-PROFESSIONAL MODEL DAT RECORDERS

The intention of SCMS is generally to prevent DAR devices from making second-generation or higher "serial" digital recordings of "original" digital audio material over which copyright protection has been asserted through SCMS. SCMS does not prevent the making of a first-generation recording of such "original" digital audio material. As future technologies permit, SCMS may limit the digital recording by a DAR device of analog audio material over which copyright protection has been asserted to the making of only first-generation digital copies. However, because present technology does not identify whether analog audio material is protected by copyright, SCMS will not prevent the making of first and second-generation digital copies of such material. SCMS will not restrict digital recording of material carrying an indication through SCMS that copyright protection has not been asserted. SCMS does not apply to professional model products as defined under the Act.

A. General Principles for SCMS Implementation in DAR Devices

To implement the functional characteristics of SCMS in DAR devices, whether presently known or developed in the future, the following conditions must be observed:

1. A digital audio recording medium shall be capable of storing an indication of:

(a) Whether or not copyright protection is being asserted over the audio material being sent via the interface and stored on the DAR medium; and,

(b) Whether or not the generation status of the audio material being sent via the interface and stored on the DAR medium is original.

2. If the digital audio interface format being sent to and read by a DAR device has discrete modes for professional as well as nonprofessional purposes, the DAR device shall distinguish accurately the professional or nonprofessional status of the interface signal.

3. If the interface format has a discrete mode for sending data other than audio material, the DAR device shall distinguish accurately whether or not the interface signal contains audio material.

4. A DAR device capable of receiving and recording digital audio signals shall observe the following rules:

(a) Audio material over which copyright is asserted via SCMS and whose generation status is original is permitted to be recorded. An indication that copyright is asserted over the audio material contained in the signal and that the generation status of the recording is first generation shall be recorded on the media.

(b) Audio material over which copyright is not asserted via SCMS may be recorded, without regard to generation status. An indication that copyright is not asserted shall be recorded on the media.

(c) Audio material over which copyright is asserted via SCMS and whose generation status is not original shall not be recorded.

5. DAR media shall store the copyright and generation status information as described herein during recording in a manner that the information can be accurately read.

6. Devices that are capable of reading original recordings and/or DAR media, and that are capable of sending digital audio signals that can be recorded by a DAR device, shall accurately read the copyright and generation status information from the media and accurately send the information.

7. DAR devices shall not be capable of recording digital audio signals transmitted in a professional digital audio interface format.

8. DAR devices having a nonprofessional digital audio interface shall receive and accurately send the copyright and generation status information.

9. Professional devices that are capable of sending audio information in a nonprofessional digital audio interface format shall send SCMS information as implemented for that format. However, nothing shall prevent professional devices and/or recording professionals engaged in a lawful business from setting SCMS information according to the needs of recording professionals.

10. Digital audio signals that are capable of being recorded by a DAR device but that have no information concerning copyright and/or generation status shall be recorded by the DAR device so that the digital copy is copyright asserted and original generation status.

11. If the signal is capable of being recorded by a DAR device and the interface format requires an indication of the type of device sending the signal via the interface, then the device shall send the most accurate and specific designation applicable to that device; for example, "Category Codes" as set forth in Part I with reference to the IEC 958 nonprofessional interface.

12. Except as may be provided pursuant to Section 1022(b)(4) of Subchapter C of the Act, a DAR device that is capable of converting analog input signals to be recorded in digital format shall indicate that the digital copy is copyright asserted and original generation status.

13. (a) If the digital audio portion of an interface signal format is recordable by a "pre-existing" type of DAR device, i.e., one that was distributed prior to the distribution of the interface signal format, then the signal format shall implement the rules of SCMS so that the pre-existing DAR device will act upon the rules of SCMS applicable to that DAR device.

(b) If a type of DAR device is capable of recording the digital audio portion of signals sent by a pre-existing digital audio interface device, then the DAR device shall implement the rules of SCMS so that the DAR device will act upon the rules of SCMS applicable to the format of that pre-existing digital audio interface device.

(c) If a digital audio interface device is capable of translating a signal from one interface format to another, then the

device also shall accurately translate and send the SCMS information.

B. Summary of Mandatory SCMS Specifications for DAT Recorders

SCMS, to be implemented for DAT machines, requires that a DAT machine must play-back and/or record specific inaudible data in a particular location on a DAT tape. According to IEC documents "IEC 60A(CO)130 Part 1: Digital Audio Tape Cassette System (DAT) Dimensions and Characteristics" and "IEC 60A(CO)136 Part 6: Serial copy management system for consumer audio use DAT recorders", that particular location on the digital audio tape consists of two bits known as "subcode ID6 in the main ID in the main data area" ("ID6").

1. SCMS Operation When Playing a DAT Tape

With respect to the play-back function, a DAT machine that is connected to a DAT recorder can provide digital audio output signals via a nonprofessional interface. In that circumstance, the DAT play-back machine functions as a digital audio interface device that must provide channel status data conforming to the general principles and specifications set forth in Part I. SCMS as implemented for the IEC 958 nonprofessional interface format requires that when a DAT tape is played back, the DAT play-back machine reads the information from ID6 on the tape and then sends the corresponding channel status data (concerning Bit 2 "the C Bit" and Bit 15 "the L Bit"), along with the Category Code for a DAT machine, in its digital audio output signal. The channel status

data to be sent in response to the various settings of ID6 are as follows:

1. Where ID6 is set as "00", copyright protection has not been asserted over the material under SCMS. In response to ID6, the digital audio signal output of the DAT will provide the C Bit set as "1" and the L Bit set as "0".

2. Where ID6 is set as "10", copyright protection has been asserted over the material under SCMS and the recording is not "original". In response to ID6, the digital audio output signal of the DAT will provide the C Bit set as "0" and the L Bit set as "0".

3. Where ID6 is set as "11", copyright protection has been asserted over the material under SCMS and the recording is "original". In response to ID6, the digital audio output signal of the DAT will provide the C Bit set as "0" and the L Bit set as "1".

2. SCMS Operation When Recording on DAT Tape

With respect to the recording function, SCMS governs the circumstances and manner in which a DAT recorder may record a digital audio input signal. A DAT recorder implementing SCMS information being sent in the IEC 958 nonprofessional interface format must be capable of acknowledging the presence or absence of specific channel status information being sent to the DAT recorder via its digital audio input. The DAT recorder then responds to that channel status information by either preventing or permitting the recording of that digital audio input signal. If recording is permitted, the DAT machine records specific codes in ID6 on the tape, so that when the tape is played back, the DAT machine will

issue the correct channel status data in its digital audio output signal. The settings of ID6 to be recorded in response to particular IEC 958 channel status bit information are as follows:

1. Where the C Bit of the digital audio input signal is set as "0" (copyright protection asserted), the DAT recorder shall not record the input, except in three circumstances: (a) where the input is original material and the digital audio input signal comes from one of the products on the "Category Code White List" (section D below); (b) where the digital audio input signal contains an undefined Category Code (in which case only one generation of recording is permitted); or, (c) where the digital audio input signal comes from a product with a defined Category Code but the product currently is not capable of transmitting information regarding copyright protection (in which case, two generations of copying are possible). In circumstances (a) and (b) above, the DAT recorder will record "10" in ID6 to prevent further copying. In circumstance (c) above, the DAT recorder will record "11" in ID6 for the first-generation copy.

2. Where the C Bit of the digital audio input signal is set as "1" (no copyright protection asserted or not copyrighted), the DAT recorder will record "00" in ID6, and unlimited generations of copying will be permitted.

3. Where the C Bit of the digital audio input signal fluctuates between "0" and "1" at a rate of between 4-10 Hz, the signal is coming from a compact disc player compatible with IEC 908 (Category Code 10000000) which plays back a compact disc that is

not an "original" and that contains material over which copyright protection has been asserted. The DAT recorder shall not record in this circumstance.

4. The condition "01" in ID6 has been assigned no meaning within SCMS. Therefore, to prevent circumvention of SCMS, the DAT recorder shall not record "01" in ID6 on the tape.

C. Mandatory Specifications for Implementing SCMS in DAT Recorders In the IEC 958 Format

1. Mandatory Standards for Digital Audio Output Signals

a. Category Code Bit 15 (the "L" Bit)

All non-professional model DAT recorders having a IEC 958 interface shall provide the Category Code "1100000L" in the channel status bits of the IEC 958 digital audio output signal. The status of the L Bit of the Category Code shall be provided in the digital audio output signal of the DAT recorder as follows, in accordance with the status of ID6:

-- When ID6 is "00", the digital audio output signal shall indicate in the L Bit of the Category Code that the output source is either a first-generation or higher DAT tape recorded from an "original" source, or an "original" commercially released prerecorded DAT tape of material over which copyright protection is not being asserted under SCMS. In either of these cases, the L Bit shall be set as "0", and the complete Category Code would be "11000000".

-- When ID6 is "10", the digital audio output signal shall indicate in the L Bit of the Category Code that the output source is a first-generation or higher DAT tape recorded from an "original" source (i.e., L Bit = "0"). The complete Category Code in this case would be "11000000".

-- When ID6 is "11", the digital audio output signal shall indicate in the L Bit of the Category Code that the output source is an "original" source, such as a commercially released prerecorded DAT tape (i.e., L Bit

= "1"). The complete Category Code in this case would be "11000001".

b. Bit 2 (the "C" Bit)

All non-professional model DAT recorders having an IEC 958 nonprofessional interface shall provide an output code in the C Bit in the channel status bits of the IEC 958 digital audio output signal. The C Bit shall be applied in the digital audio output signal as follows, in accordance with the status of ID6:

-- When ID6 is "00", the C Bit shall be set as "1".

-- When ID6 is "10" or "11", the C Bit shall be set as "0".

2. Mandatory Specifications for Recording Functions

SCMS with respect to recording functions performed by a nonprofessional model DAT recorder receiving digital audio input signals in the IEC 958 nonprofessional interface format shall be implemented as follows:

1. Digital audio input signals in which the C Bit is set as "0" shall not be recorded, except for the cases specified below in paragraphs 2, 4 and 5.

2. A DAT recorder may record a digital audio input signal in which the C Bit is set as "0", where the Category Code of the signal is listed in the "Category Code White List." The DAT recorder shall record "10" in ID6 on the tape in this case.

3. For digital audio input signals in which the C Bit is set as "1", the DAT recorder shall record "00" in ID6 on the tape except for those cases specified below in paragraphs 4 and 5.

4. For digital audio input signals that contain Category Code information that is not defined in this document, the DAT recorder shall record "10" in ID6, regardless of the status of the C Bit or the L Bit.

5. For digital audio input signals originating from a source identified as an A/D converter with the Category Code "01100XXL", or from other sources such as from A/D converters with the Category Code for "General" ("00000000"), the DAT recorder shall record "11" in ID6, regardless of the status of the C Bit or the L Bit. This requirement shall be applied to digital input signals that do not contain source information of the original signal before digitization, e.g., an A/D converter that does not deliver source information.

6. For digital input signals originating from an A/D converter with the Category Code "01101XXL", which can deliver original source information concerning the C Bit and L Bit even if the source is in analog format, the requirement stated above in paragraph 5 shall not be applied. The "Category Code White List" includes this Category Code.

7. A DAT tape of "original" generation status over which copyright protection has been asserted shall contain "11" in ID6. A DAT tape of "original" generation status over which no copyright protection has been asserted shall contain "00" in ID6.

8. A DAT recorder shall not record digital audio input signals where the C Bit alternates between "0" and "1" at a frequency of between 4 and 10 Hz and the Category Code is for a

Compact disc digital audio signal ("10000000"), as in the case of digital audio input signals from recordable or erasable compact discs that are not "original" and that contain material over which copyright protection has been asserted.

9. A non-professional model DAT recorder shall not record digital audio input signals sent from a professional interface, i.e., where channel status Bit 0 is set as "1".

10. The condition "01" in ID6 is not to be used.

11. Category codes and the C Bit included in the channel status information of digital audio input signals being sent to or by a DAT recorder shall not be deleted or modified and shall be monitored continuously and acted upon accordingly.

D. "CATEGORY CODE WHITE LIST"

100XXXX0	Laser optical product
010XXXX1	Digital-to-digital converter and signal processing devices
110XXXX1	Magnetic tape and disk based product
001XXXX0 and 0111XXX0	Receivers of digitally encoded audio transmissions with or without video signals
101XXXX1	Musical instruments
01101XX1	Future A/D converter (with status information concerning the C Bit and L Bit)
0001XXX1	Solid state memory based media products
00000011	Experimental products not for commercial sale

PART III. APPLICATION OF SCMS IN DAT RECORDERS IMPLEMENTING THE IEC 958 INTERFACE

The following charts apply and correlate those codes that are mandated under the Act to implement SCMS in non-professional model DAT recorders having an IEC 958 nonprofessional interface, in those situations contemplated by these standards. The columns in each of these charts identify the following information:

The "Signal Source" column describes the type of product sending the digital audio signal to a DAT recorder.

The three columns under the heading "Digital Audio Input Signal," i.e., the signal sent to the DAT recorder, identify the correct channel status information in the C Bit, Category Code Bits 8-14 and the L Bit, respectively, which correspond to each product. (In each case, Bit 0 will be "0" to indicate that the signal is being sent in the IEC 958 nonprofessional interface format, and Bit 1 will be "0" to indicate that the signal consists of audio data.)

The next three columns under the heading "DAT Recorder Response" identify the response of the DAT recorder to the corresponding digital audio input signal. The column "ID6" specifies the code that the DAT recorder will record on the tape in ID6 in response to the digital audio input signal. The last two columns set forth the correct channel status information in the C Bit and L Bit that are sent in the digital audio output signal of a DAT recorder in response to the setting of ID6.

Each of the appropriate codes is set forth in the cases described below:

Case 1: Where copyright protection has been asserted over the digital audio input, and the source of the input is "original" materia (Only first-generation recording permitted):

Signal Source	Digital Audio Input Signal			DAT Recorder Response		
	C Bit (Bit 2)	Category code (Bits 8-14)	L bit (Bit 15)	ID6	C Bit (Bit 2)	L bit (Bit 15)
Laser Optical	0	100XXXX	0	10	0	0
D/D converter	0	010XXXX	1	10	0	0
Magnetic prod.	0	110XXXX	1	10	0	0
Musical Instrum.	0	101XXXX	1	10	0	0
Future A/D conv.	0	01101XX	1	10	0	0
Digital Receiver	0	001XXXX	0	10	0	0
Digital Receiver	0	0111XXX	0	10	0	0
Experimental	0	0000001	1	10	0	0
Solid state dev.	0	0001XXX	1	10	0	0

Case 2: Where copyright protection has not been asserted over the digital audio input, and the source of the input is "original" material (First-generation and above recording permitted):

Signal Source	Digital Audio Input Signal			DAT Recorder Response		
	C Bit (Bit 2)	Category code (Bits 8-14)	L bit (Bit 15)	ID6	C Bit (Bit 2)	L bit (Bit 15)
Laser Optical	1	100XXXX	0	00	1	0
D/D converter	1	010XXXX	1	00	1	0
Magnetic prod.	1	110XXXX	1	00	1	0
Musical Instrum.	1	101XXXX	1	00	1	0
Future A/D conv.	1	01101XX	1	00	1	0
Digital Receiver	1	001XXXX	0	00	1	0
Digital Receiver	1	0111XXX	0	00	1	0
Experimental	1	0000001	1	00	1	0
Solid state dev.	1	0001XXX	1	00	1	0

Case 3: Where copyright protection has been asserted over the digital audio input, and the source of the input to the DAT recorder is not "original" material (No recording permitted):

Signal Source	Digital Audio Input Signal			DAT Recorder Response		
	C Bit (Bit 2)	Category code (Bits 8-14)	L bit (Bit 15)	ID6	C Bit (Bit 2)	L bit (Bit 15)
Laser Optical	0	100XXXX	1	--	-	-
D/D converter	0	010XXXX	0	--	-	-
Magnetic prod.	0	110XXXX	0	--	-	-
Musical Instrum.	0	101XXXX	0	--	-	-
Future A/D conv.	0	01101XX	0	--	-	-
Experimental	0	0000001	0	--	-	-
Solid state dev.	0	0001XXX	0	--	-	-

Case 4: Where copyright protection has not been asserted over the digital audio input, and the source of the input to the DAT recorder is not "original" material (Second-generation and abov recording permitted):

Signal Source	Digital Audio Input Signal			DAT Recorder Response		
	C Bit (Bit 2)	Category code (Bits 8-14)	L bit (Bit 15)	ID6	C Bit (Bit 2)	L bit (Bit 15)
Laser Optical	1	100XXXX	1	00	1	0
D/D converter	1	010XXXX	0	00	1	0
Magnetic prod.	1	110XXXX	0	00	1	0
Musical Instrum.	1	101XXXX	0	00	1	0
Future A/D conv.	1	01101XX	0	00	1	0
Experimental	1	0000001	0	00	1	0
Solid state dev.	1	0001XXX	0	00	1	0

Case 5: Where the digital audio input signal includes Category Code information, but cannot provide information concerning copyright protection of the source (First- and second-generation recording permitted):

Signal Source	Digital Audio Input Signal			DAT Recorder Response		
	C Bit (Bit 2)	Category code (Bits 8-14)	L bit (Bit 15)	ID6	C Bit (Bit 2)	L bit (Bit 15)
General	X	0000000	0	11	0	1
Present A/D Con.	X	01100XX	X	11	0	1

Case 6: Where the digital input signal does not include a defined Category Code (First-generation recording permitted):

Signal Source	Digital Audio Input Signal			DAT Recorder Response		
	C Bit (Bit 2)	Category code (Bits 8-14)	L bit (Bit 15)	ID6	C Bit (Bit 2)	L bit (Bit 15)
Undefined	X	-------	X	10	0	0

Case 7: Where copyright protection has been asserted over the digital audio input from a compact disc that is not an "original" by fluctuating the C Bit at a rate between 4-10 Hz (No recording permitted):

Signal Source	Digital Audio Input Signal			DAT Recorder Response		
	C Bit (Bit 2)	Category code (Bits 8-14)	L bit (Bit 15)	ID6	C Bit (Bit 2)	L bit (Bit 15)
CD Player	0/1	1000000	X	--	-	-

Case 8: Where the digital signal transmitted to a Digital Receiver does not include information concerning copyright protection (Only first-generation recording permitted):

Signal Source	Digital Audio Input Signal			DAT Recorder Response		
	C Bit (Bit 2)	Category code (Bits 8-14)	L bit (Bit 15)	ID6	C Bit (Bit 2)	L bit (Bit 15)
Digital Receiver	0	001XXXX	0	10	0	0
Digital Receiver	0	0111XXX	0	10	0	0

Case 9: Where the digital signal transmitted to a receiver for Electronic Audio Software Delivery provides generation status information as if the status were first-generation or higher (No recording permitted):

Signal Source	Digital Audio Input Signal			DAT Recorder Response		
	C Bit (Bit 2)	Category code (Bits 8-14)	L bit (Bit 15)	ID6	C Bit (Bit 2)	L bit (Bit 15)
Digital Receiver	0	001XXXX	1	--	-	-
Digital Receiver	0	0111XXX	1	--	-	-

APPENDIX 5.—OWEN C.B. HUGHES, "DIGITAL AUDIO RECORDING: A LOOK AT PROPOSED LEGISLATION," NEW YORK LAW JOURNAL, OCTOBER 1, 1991

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By Owen C.B. Hughes

Digital Audio Recording: A Look at Proposed Legislation

CONGRESS is considering a ground-breaking amendment to the Copyright Act[1] that will open the consumer marketplace to digital audio recording technology (DART). Because DART systems allow users to make virtually perfect copies of source music, it is billion-dollar news for the stagnant consumer electronics business. It has already attracted considerable attention. At least three DART formats have emerged — Sony is pushing both a tape-based system (Rotary Head Digital Audio Tape or R-DAT) and a newer one based on compact disks (the Mini-Disk), while Philips has countered with a tape-based system (Digital Compact Cassette or DCC).

The pending legislation reflects the real news about DART — that it has finally won the blessing of the music publishing industry after years of opposition. Fearing DART as a formidable tool for piracy, most music publishers had refused to release titles in the new format. And Sony was sued for contributory infringement[2] when, last year, it began the U.S. distribution of its R-DAT system, although the machines included an anti-piracy circuit (the Serial Copy Management System or SCMS) that allows the user to make only first-generation copies of copyrighted source material.

The music industry's sudden change of heart occurred this July, in a compromise announced by leading groups in the music and consumer electronics industries.[3] The DART system vendors agreed to pay royalties to music copyright owners on sales of DART equipment and blank media, and to include the SCMS circuit in consumer DART equipment. In return, all home audio recording will be exempt from copyright infringement challenge.

The sponsors of DART quickly translated this compromise into companion bills S.1623[4] and H.R. 3204.[5] The bills' prompt appearance, their strong bipartisan sponsorship and their scope and detail, all reflect the importance of Congressional action. It is the last, pivotal step in opening up

markets of gigantic proportion.

This article summarizes the design of the draft legislation,[3] and then discusses why Congress will need to refine it to avoid harming other industries dependent on digital information-handling technologies.

The proposed legislation would amend the Copyright Act of 1976[4] by adding a new Chapter 10 containing four subchapters.

Definitions

Subchapter A[5] contains the prize sought by the consumer electronics industry: a provision that prohibits infringement actions against the makers and distributors of audio recording devices and media, and against those who use such devices and media either than for "direct or indirect commercial advantage." The provision is generously phrased to include analog recording systems as well as digital ones.

The subchapter also contains definitions. Some describe the groups primarily affected by the new law, like "interested copyright party" and "interested manufacturing party." Others, fundamental to the amendment's scope, identify the kinds of hardware and media that it will regulate. For hardware, the relevant terms are "digital audio recording device"[6] and "digital audio interface device."[7] For media, it is "digital audio recording medium."[8]

The current wording of these three terms reflects a drafting dilemma. They must not encroach unfairly on neighboring digital information-handling systems such as camcorders and computer diskettes. But they must address all present and future technologies that permit digital recording of music.

The bills' drafters have favored a strategy of broad inclusion with exceptions for categories of products such as computer data storage media, and audio recording devices whose primary aim is recording "nonmusical" sounds. This strategy, while understandable, is not yet successful. Some of its shortcomings are discussed below.

Royalty System

The proposed royalty system is implemented in Subchapter B.[9] Blank media will pay a one-time royalty equal to 3 percent of the "transfer price."[10] Recording devices will pay a royalty equal to 2 percent, subject to a minimum of $1 and a maximum of $8 per device ($12 where one package contains two or more distinct recording devices). During the sixth year after the new law takes effect, and annually thereafter, any "interested copyright party" may petition to increase these caps on the device royalty rate.

As with existing compulsory licensing programs,[11] the DART royalty system will be administered by the Copyright Register and the Copyright Royalty Tribunal. Royalty-paying parties will file notices and send quarterly and annual reports and payments to the Register. "Interested copyright parties" will file claims with the Tribunal, who will make disbursements once a year.

The royalty pool will be allocated among claimants based on the prior year sales or airtime of their musical works or sound recordings. The pool is actually pre-allocated, with two-thirds being reserved to the Sound Recordings Fund and the rest earmarked for the Musical Works Fund; within each Fund there are further pre-allocations.

Claimants within a Fund are supposed to agree on work-by-work allocations of the Fund's royalties, and will enjoy antitrust immunity for this limited purpose; if they don't agree, the Tribunal will set the per-work royalty. And, while parties can negotiate different administrative systems, they cannot vary the statutory notice requirements, the royalty rates, or the pre-allocation of the royalties between and within the two Funds.

Subchapter C[12] requires SCMS copy-limiting circuitry in every "digital audio recording device or interface device" made, imported or distributed in the United States. To determine whether a given device complies with SCMS, the legislation refers to a "technical reference document."[13]

The technical reference document does not yet exist, but is to be developed during the committee process. The Secretary of Commerce will publish the technical reference document when the new law takes effect, and will also issue orders for special compliance problems, for new devices, and for updating SCMS standards.

To protect the SCMS regime from "end runs," Subchapter C forbids any traffic in devices or services whose "primary purpose or effect" is to bypass or disable the SCMS circuitry in any digital audio recording or interface device, and prohibits anyone from encoding or publicly transmitting any sound recording with inaccurate information about its copyright status.

Remedies

Subchapter D[14] offers a variety of civil remedies ranging from the recovery of unpaid royalties and interest, through awards of actual and statutory damages, to injunctive and other equitable relief. In appropriate cases, the court can award costs and reasonable attorneys' fees.

These remedies are available through actions brought in the appropriate federal district court. Potential plaintiffs include not only interested copyright or manufacturing parties, but also the U.S. Attorney General. To streamline multiple actions, the Copyright Register will act as a clearinghouse by publishing notices of actions in the Federal Register, whereupon any other interested copyright and manufacturing parties can move to intervene.

The statutory damage remedies put real teeth into the program. They count each offending device, medium, recording or transmission as a separate violation, and no awards can skyrocket.

Royalty violations will trigger statutory damage awards between "a nominal level" and $100 for each recording device (and between $100 and $500 where the violation was "committed willfully and for purposes of direct or indirect commercial advantage"). For recording media, awards can range between a "nominal level" and $4 for each item (and from $4 to $15 in "willful" cases).

Violations of the SCMS require would threaten the integrity of the entire program, and accordingly trigger much harsher statutory damages. They run from $1,000 to $10,000 per device, from $10 to $100 per phonorecord, and from $10,000 to $100,000 per transmission. For "willful" violations, the court can tack on an additional award of up to $3,000,000.

Instead of statutory damages for SCMS violations, a plaintiff can elect actual damages, and can then recover both its actual damages and the violator's profits. The legislation presumes that a violator's profits equal its gross revenues; the violator bears the burden of proving that its expenses are deductible, and of showing that its profits arose from non-infringing activity.

Will It Work?

This legislation is nothing if not ambitious. Not only does it seek to entrench on entire new market; but the market itself rests on quickly evolving technology with far-reaching effects. The legislation's success will depend heavily on how well Congress can clarify its scope. Critical importance therefore attaches to the legislation's fundamental definitions — "digital audio recording device," "digital audio recording medium" and "digital audio interface device." But these terms are not yet adequate to their task.

The problem in each case stems from a simple and inescapable fact: DART uses the same technology that drives all digital processing systems, computers being the most obvious and important instance. The brain of a digital audio recording system is dedicated computer.

Conversely, computers equipped with the right peripherals and software can act as digital audio record-

ing systems. Increasingly they are so equipped and used. There is no need to rehearse here the trends in plug-in boards and related software for personal computers that allow them to sample, generate, edit, store and replay sounds; in multimedia systems that allow all kinds of input and output to be manipulated and packaged; in CD-ROM and other massive data storage systems for which vendors are rushing to offer libraries brimming with text, images, speech and music.

Between the most humble PC and the most feature-rich, purpose-built DART device, there is a continuous price/performance curve, populated by a growing number and variety of products. Personal computers and audiovisual entertainment systems may ultimately converge; whether or not that convergence occurs in a formal sense, there is no principled basis for distinguishing between the two technologies.

Yet in order to work, the legislation must express that very distinction in the definitions that establish its scope. As the following analysis should make clear, it has yet to do so.

Recording Device

"Digital Audio Recording Device" means "any machine or device, now known or later developed," whose recording function "is designed or marketed for the primary purpose of, and that is capable of, making a digital audio copied recording."[9] The definition pointedly includes such devices "whether or not included with or as part of some other machine or device."

A "digital audio copied recording" means a reproduction in a "digital recording format" of a "phonorecord ."[10] The subsidiary term, "digital recording format," is not defined but its accepted meaning would seem to be very broad indeed. And "phonorecord," as defined in the existing Copyright Act,[11] means virtually anything containing a retrievable record of sounds (other than audiovisual and movie soundtracks). It need not be "music" at all.

Thus — before analyzing the definition's two exclusions — a DART "recording device" is anything that is primarily designed and marketed to let consumers encode and store, in digital form, information that when decoded will produce sound (other than audiovisual works or soundtracks).

The trouble with this definition is that it would embrace virtually every consumer — level device that converts audio information between analog and digital form and stores it in digital form. Such devices are abundant and various. For example, a computer with a plug-in sound board (particularly one incorporating the MIDI interface),[12] would qualify. So too would a modem, which converts audio-spectrum information between digital form (the computer's message file) and analog form (telephone line signals).

To exclude such equipment, the definition contains two provisions. One is a narrow exemption, not relevant here, for "professional model products."[13] The second covers "dictating machines, answering machines and other audio recording equipment that is designed and marketed primarily to create nonmusical sound recordings."[14] The wording of this exclusion raises two questions.

First, it introduces an impossible aesthetic issue. Equipment that is aimed primarily at recording "musical" sounds is to be regulated; equipment not so aimed is exempt. And "musical" is not defined, probably because it can't be. One listener's Beethoven is another's noise.

Second, even if the meaning of "musical" were clear, there are no criteria by which to judge whether a given device has, as its "primary" design and marketing focus, the recording of musical sounds. Take the case of a sound board. To satisfy the exclusion, its maker could simply rephrase claims about the board's ability to record music in neutral terms such as its dynamic range, frequency response, and so on.

Controlling this tactic would require looking at the board itself, and not just what is (or isn't) said about it. When does a board's engineering pedigree become so refined that we must presume it is primarily aimed at recording music? This repeats, in different terms, the problem of subjectivity that surrounds the idea of "musicality." Whose ear, tin or gold, will judge the fidelity of a device?

In any case, such an analytical approach could become irrelevant fairly soon. If improvements in data compression and storage techniques keep pace with those in sound boards, then personal computers with onboard sound-handling systems will prove the functional match for true DART devices. If they do, the exclusion will shrink almost to nothing. But the statute provides no guidelines for applying the exclusion to any particular computer, sound board or sound chip.

It seems that at best the definition of "device" casts doubt on the legality of computers, sound boards, modems and so on. At worst, it will force them to pay royalties and include SCMS circuits. However inadvertent, this result would doom the legislation. The computer industry can ill afford the cost and administrative burden that the royalty system would impose. And an industry-wide redesign of hardware and software to incorporate SCMS would impose retooling costs, and force compromises in machine architecture, that are difficult to contemplate, let alone implement. This legislation was never designed to address such issues, and it would be prohibitively difficult to adapt it to accommodate them.

Recording Medium

The term "digital audio recording medium" has its own difficulties. It means anything primarily marketed to consumers, or most commonly used by them, for making "digital audio copied recordings" with a "digital audio recording device."[15]

As discussed above, "digital audio recording device" and "digital audio copied recording" are broadly defined. Computers with sound boards would seem to be "devices" making "recordings"; by extension, their storage media would meet the definition of "medium" and face a royalty.

But the definition excludes two categories of media. One, not relevant here, covers legitimate prerecorded media.[16] The second covers media "primarily marketed and most commonly used" by consumers to copy either "motion pictures or other audiovisual works" or, alternatively, to copy "nonmusical literary works" among which the definition includes computer programs or databases. As it applies to software, this exclusion may need work.

First, it seems to classify software as a kind of "nonmusical literary work." That may be appropriate for traditional software consisting of alphanumeric strings, which might fit the Copyright Act's definition[17] of a "literary work" as a work expressed in words, numbers or symbolic equivalents. But the trend in software is toward graphic and multimedia forms which seem not at all "literary."

If, as is likely, such software eventually predominates, the "literary work" exclusion will fade out, leaving only the "audiovisual work" exclusion for media used to record software. But "audiovisual works"[18] is a generously-phrased concept developed almost 20 years ago, when current technologies (and their copyright implications) were little more than science fiction. Both conceptual and political difficulties may hamper its extension to powerful multimedia software.

The result would be an environment dominated by software no longer qualifying as "nonmusical literary works" but denied status as "audiovisual works." This would trigger royalty obligations on all media used to record software: floppy disks, hard disks, tape drives, even nonvolatile memory boards. The value of such data storage systems is astronomical and they would generate royalties at a level that the legislation's architects probably never imagined.

There is a second problem. Whether or not the exclusion will long con-

tinue to cover media used only for software, it does not protect dual-use media whose "primary" marketing emphasis and "most common" actual use is to record and play music. Thus, a royalty will be owed on DAT media used for tape backup of computer disk memory. Perhaps this is a necessary evil, but it seems ironic that analog audio recording tapes — whose only real use is copying music — will escape the royalty, while innocent uses of digital audio recording media will not.

Interface Device

Of the three, this definition has perhaps the most distressing implications. It means "any machine or device . . . that supplies a digital audio signal through a nonprofessional interface."[25] This is so broad that, unless it is somehow restricted by the constituent phrases "digital audio signal" and "nonprofessional interface," it would extend not only to every computer, but to every motherboard, every bus and every cable that can carry a digital signal about audio-spectrum information. Surely Congress does not intend to regulate every piece of wire as a "digital audio interface device"?

But a search for the needed restrictions is discouraging. The legislation does not define "digital audio signal," but on any reasonable reading it is not sufficiently restrictive. Defining it as, say, "a signal that contains information encoded in digital form that, when decoded and played through appropriate transducers, is perceived as sound," is no answer. This doesn't limit the definition of the "interface" through which such signals pass.

As for "nonprofessional interface," the legislation merely states that it will be defined and described in the yet-unwritten "technical reference document." This is not reassuring, and not just because it is a loose thread to be tidied up in the Congressional committee process. Rather, it is very possible that the definition, when it appears, will do nothing to narrow the reach of "interface."

Let's take an educated guess at how "nonprofessional interface" will be defined. The qualifier "nonprofessional" suggests that only "professional" interfaces will escape the SCMS regime. If the technical reference document uses the restrictive approach taken by the legislation for digital audio recording devices seeking the "professional model product" exemption,[26] a small set of interfaces will be classified as "professional" and by default, all others will need to include the SCMS circuits.

Any current attempt to understand "digital audio recording interface" therefore ends either in a question mark or with the real possibility that the SCMS regime will govern everything but an elite class of "professional" interfaces. It is disappointing and disquieting that our best hope for acceptably limiting the scope of "interface" is that a technical fix for the term might emerge as a by-product of describing the difference between "professional" and "nonprofessional" versions.

Summary

The impressive superstructure of the legislation rests, it seems, on half-developed and perhaps intractable ideas. It will take time and expertise to refine them into a form acceptable to groups such as the computer industry, whose livelihood the legislation would otherwise inadvertently affect. Thus, even if the legislation faces no other obstacle, the need to develop fair and precise definitions could lock the bills in committee for some time

That gives us little reason to hope for DART systems under the Christmas tree.

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(1) Digital audio recording technologies rely on analog/digital conversion devices to convert musical information from the traditional analog form into digital form and back again. Analog forms of music are manifested in continuously varying wave forms, for example as voltages in audio electronic circuits. By contrast, music in digital form consists of discrete samples of the analog waveform that are taken at a frequency well above the limit of human hearing — usually 32 KHz, 44.1 KHz or 48 KHz — and stored in binary code form. Because digital coding allows error correction messages to be included along with the information about the music, the original signal can be reconstructed perfectly. This allows digital systems to eliminate the "noise" and other signal degradation to which analog systems are vulnerable.

(2) *Cahn v. Sony Inc.*, SDNY 90-Civ. 4537 (July 9, 1990). This case was brought as a class action by Hal David, Sammy Cahn, Fort Knox Music, Trio Music Co. and Peer International Inc., on behalf of 40,000 songwriters and music publishers. It was dismissed without prejudice as part of the July 11, 1991 "peace treaty" between the electronics and music industries.

(3) See the July 11, 1991 press release of National Music Publishers Association and other trade groups. See also the Wall Street Journal, July 12, 1991 at B5 ("Electronics, Music Industries Set Pact on Digital Recording Use in Home").

(4) S. 1623, 102d Cong., 1st Sess. (1991). The Senate bill was introduced by Senator Dennis DeConcini (D-Ariz.) on August 1, 1991 and referred to the Senate Judiciary Committee. In addition to Senator DeConcini, its sponsors are: Daniel K. Inouye (D-Hawaii); Orrin G. Hatch (R-Utah); Conrad Burns (RMontana); John B. Breaux (D-Louisiana); Edward M. Kennedy (D-Massachusetts); Albert Gore, Jr. (DTennessee); Slade Gorton (R-Washington); Alfonse D'Amato (R-New York); Patrick J. Leahy (D-Vermont); and Alan Cranston (D-California).

(5) H.R. 3204, 102d Cong., 1st Sess. (1991). The House bill was introduced by Congressmen Jack Brooks (D-Texas) and Bill Hughes (D-N.J.) on August 2, 1991 and referred jointly to the House Committees on the Judiciary, Energy and Commerce and Ways and Means.

(6) The Senate and House bills, having just been introduced, do not differ in any material respect. The following discussion references S. 1623.

(7) U.S.C. Title 17.

(8) S. 1623, 102d Cong., 1st Sess. (1991). §§1001-1003.

(9) Id. §1001(3).

(10) Id. §1001(2).

(11) Id. §1001(4).

(12) Id. §1011 through 1016.

(13) Id. §1012(b). See also §1001(14) which defines "transfer price" for imports as their actual entered value at U.S. customs (exclusive of freight, insurance and duty), and for domestic goods, the manufacturer's transfer price (FOB the manufacturer and exclusive of direct sales or excise taxes).

(14) See, for example 17 U.S.C. §111 (compulsory license of secondary transmissions); §115 (compulsory mechanical license to make and distribute phonorecords); §116 (compulsory license for jukebox performances); and §118 (compulsory license for noncommercial broadcasting).

(15) S. 1623, 102d Cong., 1st Sess. (1991). §§1021 and 1022.

(16) Id. §1021(a) (1) (A) and §1022(a). The "technical reference document" is defined at 1001(13) as the document bearing that name "as such document appears in the report of the Committee on the Judiciary to the Senate reporting favorably the bill" that becomes enacted as Chapter 10 of 17 U.S.C.

(17) Id. §§1031 and 1032.

(18) Id §1001(3).

(19) Id. §1001(1).

(20) 17 USC §01.

(21) The acronym for Musical Instrument Digital Interface, the industry standard that establishes the sampling rate and other technical parameters needed for digital musical devices (like synthesizers and samplers) to communicate.

(22) S. 1623, 102d Cong. 1st Sess. (1991) §1001(3) (A). See also §1001(10) which establishes the technical criteria for determining whether a device is a "professional model product." These criteria include "a data collection and reporting system of error codes during recording and playback" (§1001(10) (B) (i) (I)); "a record and reproduce format providing 'read after write' and 'read after read' " (§1001(10) (B) (i) (II)); a "time code reader and generator" conforming to [professional society standards] (§1001(10) (B) (i) (III)); and "a professional input/output interface, both digital and analog, conforming to [audio engineering society standards]" (§1001(10) (B) (i) (IV)).

(23) Id. §1001(3) (B).

(24) Id. §1001(4) (A).

(25) Id. §1001(4) (B) (i).

(26) 17 USC 101 defines "literary works" as "works, other than audiovisual works, expressed as words, numbers or other verbal or numerical symbols or indicia" regardless of the material form in which they are embodied.

(27) 17 USC §101 defines "audiovisual works" as "works that consist of a series of related images which are intrinsically intended to be shown by the use of machines or devices such as electronic equipment together with accompanying sounds, if any" regardless of the material from in which they are embodied.

(28) S. 1623, 102d Cong. 1st Sess. (1991) §1001(2).

(29) Id. §1001(3) (A). See also Footnote 22 supra.

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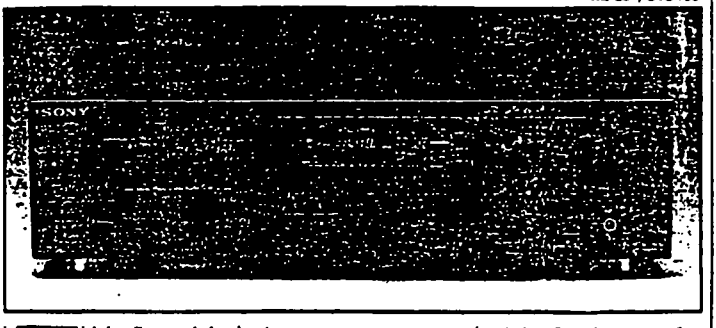
APPENDIX 6.—"DIGITAL AUDIO TAPE DECKS," CONSUMER REPORTS, OCTOBER 1990, AT 660–661

DIGITAL AUDIO TAPE DECKS

The Sony DTC-700



After years of political and legal battles, the pie comes down from the sky.

Digital audio tape decks have begun to show up in audio showrooms at the fancy prices that usually accompany audio equipment new to the market. If you can afford to become the first on your block to take your tape collection digital, you'll find the two *Sony* decks tested for this report everything digital tape decks are cracked up to be. They make perfect copies of compact discs and offer a host of features not usually found on conventional analog recorders, like random track selection and track programming.

The *Sony DTC-700*, a mass-market product sold through Sony's usual retailers, lists for $900. The nearly identical *Sony DTC-75ES*, part of Sony's deluxe line that's sold in audio salons, lists for $950. Street prices as we went to press were down to $750 or so, but that's still two to three times the cost of a good analog deck.

What took so long?

DAT decks have been available overseas for some years now. Their arrival in America—the premier marketplace—was stalled by the recording industry's fears of the new medium's power. Since digital recordings introduce none of the distortion and hiss that degrade conventional tape recordings, especially in succeeding generations of copies, DAT could theoretically give tape counterfeiters a field day.

A few months ago, a compromise between tape-deck manufacturers and the recording industry ended years of battling over the music owners' right to be protected.

The solution is a copy-protection scheme called the Serial Copy Management System (SCMS), which inserts a code on the tape that indicates how many generations away the tape is from the original. DAT recorders would be built with a protective circuit that allows them to copy first-generation material, like a compact disc, but would prevent them from making copies of a digital copy.

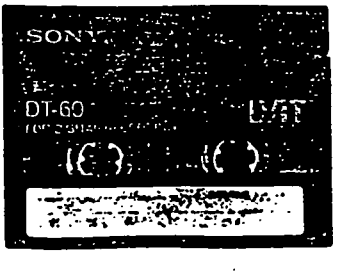
Even though use of the protection system has not yet been mandated (Congress is still debating the issue), Sony started shipping decks with SCMS in late June. Soon after the *Sony* decks landed on American shores, several music publishers filed suit to halt sales. But there seems to be only a slight risk that the courts will take action to stop people from buying them. Other manufacturers have promised their own models, also with SCMS, sometime this year.

Does DAT sound better?

There's no question that digital taping produces high-quality, CD-like sound. In tests we made with electronic instruments, the *Sonys* copied the digital output of a compact disc perfectly. In playback, these tapes are essentially free of the limitations common to analog recordings.

LPs, cassette tapes, and radio broadcasts all represent their sound in analog form. To record those analog signals in digital form, you must use the *Sonys'* analog inputs. In taping those music sources, the *Sonys* outperformed any analog deck we have tested. There was essentially no flutter, the speed variation that makes music sound wavery on traditional cassette decks, and very lit-

Tale of the tape
A digital audio tape looks like a miniature videocassette (the photo is actual size). Two-hour tapes, the longest, cost $14 or $15. They have a reusable safety tab to prevent accidental recording and don't have to be turned over during use.



the background noise. The decks reproduced high frequencies so well that you would not be able to hear any degradation.

Indeed, we made 10 successive generations of a test tape through the analog inputs, and the dynamic range and frequency response of the 10th tape still bested a first-generation tape made on a conventional cassette deck. Since the SCMS protection applies only to copies made via the digital inputs, not the analog inputs, our finding renders the fuss over digital copying ludicrous.

We made those tests in standard mode, which plays a tape up to two hours long. The decks also have a long-play mode, which someone converting a tape or LP collection to DAT might appreciate. It turns a two-hour tape into a four-hour one with little sacrifice in sound quality.

The features and controls on a DAT deck resemble those of a video cassette recorder more than those of a cassette deck. Perhaps the most useful features for those frustrated by the limitations of analog taping are the ability to go directly to a particular track and to program selections to play in any order. The *Sonys* couldn't go from track to track quite as fast as a CD player, but they could locate any selection on a two-hour tape in well under a minute. One related feature lets you go forward or back a specific number of minutes, instead of by selection. Another, Music Scan, lets you browse by playing a few seconds of every selection on the tape.

Since there's only one type of digital tape, you don't have to set the tape type, as you do with most conventional decks. Nor do you have to worry much about setting a recording level. When digitally copying a CD, the decks follow the CD's levels perfectly. And few analog sources would tax the dynamic range available on a digital tape.

DAT decks also introduce a concept that has no equivalent in the world of analog recording—that of inserting electronic editing "codes." Traditional tape decks record an audio signal and nothing else. But these machines let you add and remove various commands without affecting the recording itself.

For example, you can put a "skip" command at any point on a tape you've already recorded. When the tape plays, the deck will skip over the rest of that selection and go to the start of the next selection. If you change your mind, you can always remove the command. Inserting codes takes a fair amount of time and concentration, but for those with the determination, this electronic splicing offers a whole new way to customize recordings.

There is one glitch in the coding system that Sony acknowledges. The deck may mistake quiet passages in a musical piece for the end of that piece and mark that spot as a separate selection. That wouldn't affect the selection itself when you play it, but it could create problems when going from track to track. In any case, you can remove these inadvertent marks.

Most of the *Sonys'* functions are duplicated on the remote control that comes with the unit. If you have a *Sony* CD player, you can also use the remote control to synchronize the CD player and the DAT deck.

Recommendations

Electronic measurements are precise, but they don't necessarily tell you whether human ears can hear or appreciate the difference between two sounds. Good as the instruments say the sound of DAT is, chances are that many people would find the sound of a good conventional tape deck good enough. For undemanding listeners of prerecorded tapes, there's little reason to give up the old technology. In addition, the superior sound of DAT can be undone by a number of factors, such as the acoustics and background noise of a room or the quality of receiver and speakers.

Even people who are determined to take the DAT plunge may wish to hold off a while, until prices drop. That seems a virtual certainty, especially if consumer demand is sufficient to stimulate mass-production of DAT decks.

As anyone who's bought a CD player knows, the costs of a new technology don't end with the machine itself. Moving to digital tape may make you want to upgrade other parts of your sound system (including the CD player, if your player lacks digital output jacks). Blank digital tapes cost up to $14 or $15 apiece. The few prerecorded DAT tapes currently available cost about twice as much (although Sony promises a library of classical recordings for $15 each). And if you plan to play your new high-tech recordings in the family car soon, plan on spending upward of $1000 on a car DAT deck. ■