

BI 12

INFRINGEMENT SUIT

Mr. Merriam had been invited to the meeting to present recommendations concerning additional infringement suits to be filed in connection with the Foundation's antenna inventions.

He reported that he and William A. Marshall, of the Foundation's patent law firm, had held a conference with representatives of JFD Electronics Corporation, a licensee, concerning eleven firms who allegedly are infringing the Foundation's patents. Mr. Merriam said that of the eleven, seven had been selected for legal action. The first of these is the Winegard Company of Des Moines, Iowa, which he said was plainly copying the University's patent. The other six infringers are in the Chicago area and the Foundation plans to file against the local distributors in the Chicago area who are selling the products of the following six companies:

1. Jerrold Electronics Corp.
2. Blonder-Tongue Laboratories, Inc.
3. Channel Master Corporation
- 4.
- 5.
- 6.

Mr. Thomas moved that legal actions be taken as outlined and carried.

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE MORGAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Ex 102

FROM UNIVERSITY OF ILLINOIS FOUNDATION
University of Illinois

Immediate Release
Mailed 3/25/66

URBANA, Ill.--Hjalmar W. Johnson, President of the University of Illinois Foundation, revealed today that the Foundation had filed a civil action in the Federal District Court of Iowa against the Winegard Company, charging infringement of the Foundation's Log Periodic Antenna patents.

Mr. Johnson stated that the Log Periodic Antenna Inventions constitute one of the most important new developments in the antenna industry and that the Foundation Antenna licensing programs is one of the most important income sources for the Foundation.

The JFD Electronics Corporation of Brooklyn, New York, has an exclusive license under the patents in the field of receiving antennas for television and FM broadcasting stations, and antennas for amateur and citizens band transmission and reception. All other fields are licensed non-exclusively by the Foundation.

-jac-

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN
DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

120/sms

A00344

Ex B 312

FROM UNIVERSITY OF ILLINOIS FOUNDATION
University of Illinois

Immediate Release
Mailed 4/14/66

Patents file

URBANA, Ill.--Hjalmar W. Johnson, President of the University of Illinois Foundation, revealed today that the Foundation had filed civil actions in the Federal District Court in Chicago against Blender-Tongue Laboratories, Inc., Allied Radio Corporation, Channel Master Corporation, and Electronic Distributors, Inc., charging infringement of one of the Foundation's Log Periodic Antenna patents.

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-jc-

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

66/sms

A00345

WELLER ELECTRONIC SALES, INC.

DATE: May 2, 1966

INTER-OFFICE CORRESPONDENCE

TO: Mr. Dick Helhoski, Blonder-Tongue Labs.

FROM: Bill Weller

SUBJECT: Main Line Cleveland
1260 E. 38th Street
Cleveland, Ohio

Dear Dick:

I am forwarding to you a copy of the JFD mailing which was received by Main Line.

Would you please write to Mr. Adolph Friedman at Main Line informing him that you will protect his company against any patent infringement suit that JFD will bring against them due to their handling our Ranger antennas.

Thanks.

Sincerely yours,

Bill
Bill Weller

BW:ts
encl:

14
Henry
Please check labels on Ranger antennas I want you to handle them
Bill
135

R. Reiter
trip file
Send photo copies to R. Reiter

135AE

TO: ALL JFD DISTRIBUTORS

April 19, 1966

FROM: ED FINKEL

SUBJECT: UNIVERSITY OF ILLINOIS FOUNDATION SUES:

BLONDER-TONGUE LABORATORIES, INC.

CHANNEL MASTER CORPORATION

JERROLD ELECTRONICS CORP.

FOR LOG PERIODIC ANTENNA BASIC PATENT
INFRINGEMENT

The above firms now join Finney Company and Winegard Company in the list of manufacturers being sued by the University of Illinois Foundation for patent violations.

A reprint of the official press release, and the article from Home Furnishings Daily of April 18, 1966, specify the actions taken against the patent violators.

The Foundation is taking vigorous action in the courts to sue all violators of the basic Log Periodic Patents. JFD is the EXCLUSIVE licensee of the Foundation authorized to manufacture antennas under these basic patents.

If emulation is the sincerest form of flattery, then JFD and its Franchised Distributors must be selling the finest TV and FM antennas on the market today. The fantastic acceptance and success of the whole JFD LPV antenna line attests to the validity of this conclusion.

UNIVERSITY OF ILLINOIS FOUNDATION

April 7, 1966

Hjalmar W. Johnson, President of the University of Illinois Foundation, revealed today that the Foundation had filed civil actions in the Federal District Court in Chicago against Blonder-Tongue Laboratories, Inc., Allied Radio Corporation, Channel Master Corporation, and Electronic Distributors, Inc., charging infringement of one of the Foundation's Log Periodic Antenna patents.

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X B 5.0 d

HOME FURNISHINGS DAILY, MONDAY, APRIL 18, 1966

Antenna Patent Suit Hits Jerrold

CHICAGO. — The University of Illinois Foundation, Urbana, charged in Federal Court that Jerrold Electronics Corp., Philadelphia, and R. Cooper, Jr., Inc., here, make or cause manufacture and sale of radio and TV antennas that infringe two of its patents.

The patents are Nos. 3,150,376, for a multiband, log-periodic antenna, and 3,210,767, for a frequency-independent, unidirectional antenna.

The suit asks for injunctions and an accounting and award of damages.

Merriam, Matshall, Shapiro & Klose represents the foundation.



WHOLESALE
TELEVISION AND RADIO
SUPPLIES; WEBCOR STEREO,
FONOS, TAPE RECORDERS.

13

**SACRAMENTO ELECTRONICS
SUPPLY CO.**

Handwritten file

1219 S Street Gilbert 1-4821
SACRAMENTO 6, CALIFORNIA

May 18, 1966

to Mr. Gilbert

Mr. Dick Helhoski
Blonder Tongue Labs, Inc.
9 Alling Street
Newark, New Jersey 07102



Dear Dick:

Per our telephone conversation regarding
antennas, I have enclosed copies of the in-
formation that we received from JFD.

See you at the show!

Yours truly,

SACRAMENTO ELECTRONIC SUPPLY CO.

C. E. Bohmbach, Jr. (ex)

C. E. Bohmbach, Jr. (Skip)
Manager

Encls.

cc: Rines & Rines
10 Post Office Square
Boston, Mass.

JAB-a

TO: ALL JFD DISTRIBUTORS

April 19, 1966

FROM: ED FINKEL

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BLONDER-TONGUE LABORATORIES, INC.

CHANNEL MASTER CORPORATION

JERROLD ELECTRONICS CORP.

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134-6-10

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JFD SALES BULLETIN

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. 39

DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

April 19, 1966

12

TO: ALL JFD DISTRIBUTORS

FROM: ED FINKEL

SUBJECT: UNIVERSITY OF ILLINOIS FOUNDATION SUES:

BLONDER-TONGUE LABORATORIES, INC.

CHANNEL MASTER CORPORATION

JERROLD ELECTRONICS CORP.

FOR LOG PERIODIC ANTENNA BASIC PATENT
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RECEIVED
MAY 23 1966
RINES AND RINES
NO. TEN POST OFFICE SQUARE, BOSTON

28

UNIVERSITY OF ILLINOIS FOUNDATION

RECEIVED

MAY 23 1966

RINEY AND RINEY
NO. TEN POST OFFICE SQUARE, BOSTON

April 7, 1966

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X B7C

U. of I. INFORMATION
FEB 5 '64

LAW OFFICES

MERRIAM, SMITH & MARSHALL
THIRTY WEST MONROE STREET
CHICAGO 3

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
ALVIN D. SHULMAN
R. JONATHAN PETERS
EDWARD M. O'TOOLE
ALLEN H. GERSTEIN
OWEN J. MURRAY
DONALD H. ELLIOTT

TELEPHONE
FINANCIAL 6-5750

February 4, 1964

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Mr. Oliver Swan
Swan TV Antenna Company
626 North Union Street
Stockton, California

Re: U. S. Patent No. 3,108,280

Dear Mr. Swan:

An apology is indeed due you for having committed an error in the identification of your antenna construction about which I have recently written you. Through some inadvertence in this office there was a misfiling of the antenna identifications.

I received a letter from Mr. William H. Atkinson of San Francisco, a man with whom I have been well acquainted for a good many years, and he mentioned that the matter had been turned over to him. He also called my attention to the fact that the antenna models listed were in error and I quite agree with this fact.

I believe the antenna which you were manufacturing and which we consider infringes the Mayes and Carrel patent is that which is known as the "Starfire" series. If I am correct in my understanding, these antennas are sold directly by you and not through distributors.

We believe, after having checked the matter, that the antenna which you are making infringes the Mayes and Carrel patent and we would appreciate very much having that infringement promptly discontinued.

Sincerely,

Original Signed by
SAMUEL B. SMITH
Samuel B. Smith

SBS:ss

cc: Mr. William H. Atkinson
✓ Mr. James C. Colvin

A00087

x B84

RECEIVED
FEB 5 '64

LAW OFFICES

MERRIAM, SMITH & MARSHALL

THIRTY WEST MONROE STREET
CHICAGO 3

TELEPHONE
FINANCIAL 6-5750

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
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R. JONATHAN PETERS
EDWARD M. O'TOOLE
ALLEN H. GERSTEIN
OWEN J. MURRAY
DONALD H. ELLIOTT

February 4, 1964

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Thorow Electronics, Inc.
121 South Water Street
Tampa, Florida

Attention: Mr. H. M. Carpenter
President

Re: U. S. Patent No. 3,108,280

Dear Mr. Carpenter:

We believe that you are distributing the "ALP" series of log periodic antennas manufactured by Kay-Townes Antenna Company of Rome, Georgia. We have previously advised the Kay-Townes company that this product constitutes an infringement of the Mayes and Carrol patent above identified, which patent is owned by the University of Illinois Foundation.

May we take this opportunity to advise you that in any sale of the identified antenna you will be infringing this patent and ask that you immediately cease such sale and distribution in order that any litigation which would otherwise result shall be avoided. We would appreciate having you acknowledge receipt of this notice with some promptness.

Sincerely,

Original Signed by
SAMUEL B. SMITH

Samuel B. Smith

SBS:ss

cc: ✓ Mr. James C. Colvin

A00091

LAW OFFICES

MERRIAM, SMITH & MARSHALL

THIRTY WEST MONROE STREET
CHICAGO 3

TELEPHONE
FINANCIAL 6-5750

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
ALVIN D. SHULMAN

February 12, 1964

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Mr. J. C. Kay
Kay-Townes Antenna Company
P. O. Box 593
Rome, Georgia 30162

Re: Mayes, et al. Patent No. 3,108,280

Dear Mr. Kay:

Thank you for your February 10, 1964, letter concerning the subject patent. If you know of any prior art antedating the patent in question, we would appreciate having you call that to our attention. We have made a very extensive investigation of prior art but know of no anticipations.

On the matter of Patent No. 3,086,206 of Channel Master Corporation, I must advise you that, in our opinion, it does not in any respect relate to the antenna of the Mayes and Carrel patent. Patent No. 3,086,206 is not owned by the University of Illinois Foundation but rather is owned by the group with which you have identified it.

JFD Electronics Corporation holds an exclusive license under the patent above named as well as others in the same broad field owned by the University of Illinois Foundation. Under the circumstances, of course, the Foundation is not in any position to grant any license rights to your company. Again, we state that we believe the antennas which you are manufacturing and selling comes clearly within the scope of the Mayes, et al. patent above identified.

Sincerely,

Samuel B. Smith

SBS:gam

cc: Mr. James C. Colvin
Executive Director
University of Illinois
Foundation
University of Illinois
Urbana, Illinois

A00085

X B. 10/12

December 27, 1965

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Jerold Electronics Corporation
15th and Lehigh Avenues
Philadelphia 32, Pennsylvania

Re: U. S. Patent No. 3,150,376
U. S. Patent No. 3,210,767

Gentlemen:

On behalf of the patent owner, the University of Illinois Foundation, we call your attention to the subject U. S. patents, which we believe are infringed by certain antennas made by your Taco subsidiary.

Specifically, we believe that Patent No. 3,150,376 is infringed by your Pathfinder series of antennas, as exemplified by Model PAB-70, and possibly others, while Patent No. 3,210,767 is infringed by your Paralag series, as exemplified by JTP-190, and possibly others.

We ask that you immediately refrain from further infringement of these patents. Failure on your part to cease and desist manufacture of all antennas infringing the subject patents will result in litigation which we desire to avoid, if possible.

Copies of the two patents identified above are attached for your information. Also included is a third patent, No. Re. 25,740, which is closely related and may be of interest.

We would appreciate a prompt acknowledgment of this notice and an assurance that you will cease infringement.

Very truly yours,

A00351

BPM/mt
Enclosures

Basil P. Mann

LAW OFFICES

MERRIAM, SMITH & MARSHALL

THIRTY WEST MONROE STREET
CHICAGO 3

TELEPHONE
FINANCIAL 6-5750

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
ALVIN D. SHULMAN

April 29, 1964

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Mr. Edward Finkel
Vice President-Sales
JFD Electronics Corporation
1462 Sixty-Second Street
Brooklyn 19, New York

Re: University of Illinois Foundation and
JFD Electronics Corporation License

Dear Ed:

In accordance with the telephone discussion had with you Tuesday, it is agreeable to the University of Illinois Foundation that all matters relating to previously released trade and consumer ads of JFD Electronics Corporation will be considered as bygones. There obviously was misunderstanding, by all parties, as to what was intended by paragraph 10 of the original license agreement. If the suggestions presented in my April 15, 1964 letter concerning future advertising are carried out, we think there should be no problem. If the suggested time-table of 15 days for consideration of advertising material proves inadequate, we undoubtedly could, under special occasions, accelerate the consideration, although you realize that this might be difficult because of the number of people involved.

On the matter of patent markings and the identification of any apparatus as being related to the patents in question, may we ask that you will please submit full details of all contemplated structures sufficiently soon so that we can make a review and advise you whether or not the contemplated structure is, in our opinion, actually covered by one or more of the patents listed in your grouping. Special comments by yourself, your Engineering Department and engineers at the University of Illinois, of course, will be helpful in reaching

A00065

12-11-64

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Mr. Edward Finkel
April 29, 1964
Page Two

this consideration, but the question of whether or not any structure is covered by any particular patent is one upon which this office will have to pass. Thus, here again, we ask you to please give us adequate time to make that review.

In the matter of enforcing the patents of the University of Illinois Foundation, we hope that you will recognize that this will be done to the best of the ability of the Foundation. But, of course, before any final decision can be made it will necessitate a careful review of possible infringing structures being made by this office and the engineers connected with the development program. Any decision would then be made by the executors of the Foundation, following a submission of such recommendations to the Board of Directors. The only way that we can take steps to enforce the patents would be after having had directions from the Board of Directors to proceed.

Lastly, in connection with matters of the type with which we are dealing, perhaps I should advise you that the general rules concerning University organization and procedures provide that in connection with research gifts, grants and contracts: "The sponsoring agent shall not use the name of the University in any advertisement whether with reference to a cooperative investigation or otherwise, without the prior approval of the President of the University." This regulation is generally strictly interpreted and perhaps a desire to construe the license agreement in the most favorable fashion caused the Foundation and this office to have been a bit too liberal, but we have had a great deal of interest in our endeavor to cooperate with you to the utmost. If we follow the plans outlined here and in my previous letter of April 15, I believe you will find that the liberal attitude is continued but in a more closely regulated pattern.

Should you have any questions about this matter, of course, we expect that you will call us.

Sincerely,



Samuel B. Smith

SBS/fh
cc: Mr. S. Faber
Mr. J. Colvin

A00068

Copy sent Va. Co. in

X B122

7/27/64

Never officially
mailed but handed
to me by Finkelsa
draft. 7/27/64

Dear Sam:

Your letter of July 17, 1964, comes as a surprise. The uncordial sentiments and threats therein expressed would be consistent only with a claim for non-payment of royalties. We have worked with you and talked with you about this; but there seems to be no will on your part to understand our problems.

Advertisements must frequently break fast, literature and mats must be revised and re-edited on very short notice.

We want your review and approval; but these must be realistic and made with a realistic view to the exigencies and deadlines of the always immediate situation.

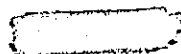
Delay and extended consideration in review can amount to a review in which "...authorization..." is "...unreasonably withheld..."

Also, when the Foundation decided to commercialize on some of its developments, the decision necessarily entailed at least a partial entry into the commercial world where advertising and the exploitation of ideas help to produce income.

It has been our impression that the advertising mention of the source of a concept, idea or development has always been of material benefit to the source and the advertiser. Whether it was the University of Wisconsin Vitamin D or Armour Research, everyone has gained. Even "by appointment to her Majesty..." is not unknown. And we are not unmindful of the many advertisements which give credit to Government agencies such as NASA or boast of the use of principles developed by other agencies and universities. In our system, there is nothing evil about advertising. Our one concern is that the advertising be absolutely true.

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER



I have an idea which will answer both our problems:

Can we agree, in advance, on a series of legends which may be used on advertising of antennae made by us under the license--even to the extent of agreeing on the relative size and location of the legends.

We see nothing wrong with the legend:

"Brings the acknowledged Log-Periodic design of the Antenna Research Laboratories of the University of Illinois to a new peak of performance".

Every word in it is absolutely true. The only apparent "puffing" is the phrase "new peak" which we believe to be exactly correct. We are the licensee; we are spending our own money on commercial development; and we are paying substantial royalties.

The license agreement envisioned advertising. The basic operative provision is that "authorization will not be unreasonably withheld."

So far, we have heard nothing but complaints or refusal

Since authorization is not to be unreasonably withheld and since our advertising must often be revised and break fast, we ask you to supply us with a series of "authorized" legends which we may thereafter use without further complaint from you on this score.

If, thereafter, we find it desirable to use a new legend, we will submit it to you together with the copy, if that is ready, for fast action,--asking again that you keep in mind that proper commercial operation and deadlines often require that reasonable action be rapid action.

Sincerely yours,

cc: Mr. James C. Colvin

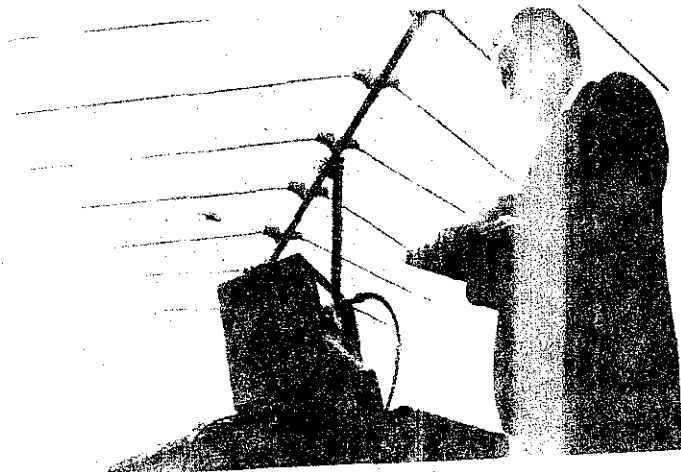
UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

AOL210

8

DEFENDANTS EXHIBIT



Developed at the JFD Antenna Research Laboratories, Champaign, Illinois under the direction of Dr. Paul E. Mayes, co-inventor of the acclaimed LPV Log Periodic concept.

the REMARKABLE NEW

JFD[®]

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN
DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

CLR
LOG PERIODIC

for channels 2 to 13 — in magnificent
color, better-than-ever black/white
— plus FM/Stereo



JFD

BX13a
 STATES DISTRICT COURT
 NORTHERN DISTRICT OF ILLINOIS
 BEFORE JUDGE HOFFMAN
 DEFENDANT EX. NO.
 DOROTHY L. BRACKENBURY
 OFFICIAL COURT REPORTER

**CLR
 LOG PERIODIC**

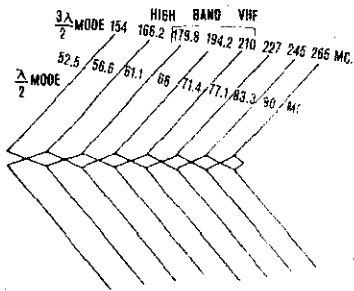


Figure 1.

Log Periodic Antenna without capacitor-coupled dipoles. Note that whereas each dipole has a fundamental resonant frequency in the low VHF band, only three of the eight dipoles have resonant frequencies in the high VHF band.

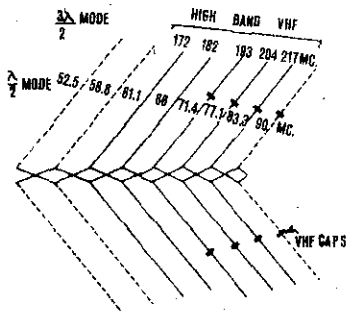


Figure 2.

Increased high band directivity and gain are obtained by adding capacitors of predetermined values at proper locations along the dipoles to shift their second resonance into the VHF (174 mc-216 mc) band. Five of the eight dipoles now resonate in the VHF band instead of the previous three.

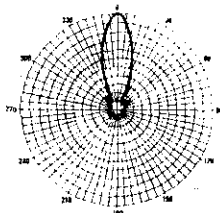


Figure 3.

Typical "E" Horizontal Plane Polar Pattern (channel 7-13)

■ New capacitor-coupled Cap-Electronic elements that respond in the third harmonic mode for highest effective gain. More harmonically resonant elements mean higher signal-to-noise ratios, better ghost rejection, sharper response in the high VHF band—where it's most needed, especially in color.

■ Lo-impedance twin-boom feeder that insures optimum impedance match to dipoles for increased signal transfer.

■ Flat frequency response that insures consistent performance for studio-quality color regardless of channel.

incorporates new capacitor-coupled element concept for improved response, especially in color, on channels 2 to 13.

The outstanding results of the original JFD LPV log periodic antenna series are well known to everyone who has used these picture-proved performers. We thought we had found a winner but we kept going through continued research and experimentation. The result of these efforts is a new Log Periodic antenna family—the LPV-TV—whose major innovation is the use of capacitor-coupled dipoles and directors which enhance third harmonic mode performance. By introducing unique parallel-plate capacitors into the elements and carefully adjusting their capacitance and location, JFD has created a new antenna design far ahead of its model, than those previously available in the long history log periodic series.

In the original JFD Log Periodic series, the element lengths varied from those resonant on channel 6 (88 mc) to those resonant on channel 2 (54 mc). These same elements are resonant in the 3/2 wavelength mode at approximately three times the frequency. But the 3/2 wavelength mode frequencies of some of these dipoles falls *outside* of the usable VHF spectrum.

Fig. 1 shows how a VHF log periodic with eight conventional V-dipoles might look. The resonant frequencies of the dipole elements in the low VHF band are indicated near midpoint of each dipole. The 3/2 wavelength resonant frequencies are indicated near the ends of each dipole. (Note that only *three* dipoles resonate at frequencies in the high VHF band.)

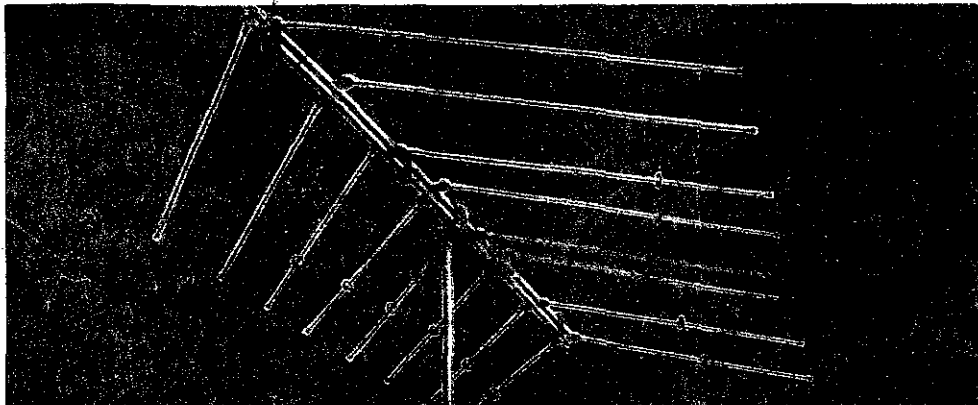
However, by introducing parallel-plate capacitors into the dipoles and by carefully adjusting the value of this capacitance and its position on the dipole, as shown in Figure 2, the resonant frequencies of *two* of the dipoles can be shifted in the 3/2 wavelength mode. In this way the dipoles can be made to resonate at 204-217 mc as well as at 172-182 mc.

Result: the active antenna in the high band includes *five* of the eight original dipoles instead of three, as in Fig. 2, with performance improvement of 66% percent. Low-band performance is also improved, because there is no longer any need to compromise low-band design in advance to accommodate high-band performance. Capacitor-coupling has also made possible dual-band directors that can be accurately tuned for narrower beamwidths and more gain on channels 2 to 6, then accurately and independently retuned for the same characteristics on channels 7 to 13. The new capacitor-coupled LPV-TV Log Periodic not only offers *higher and more uniform* gain in both the high and low bands, but also *lower side lobe levels, narrower beamwidths* and consequently *greatly improved ghost rejection* as evidenced in Fig. 3.

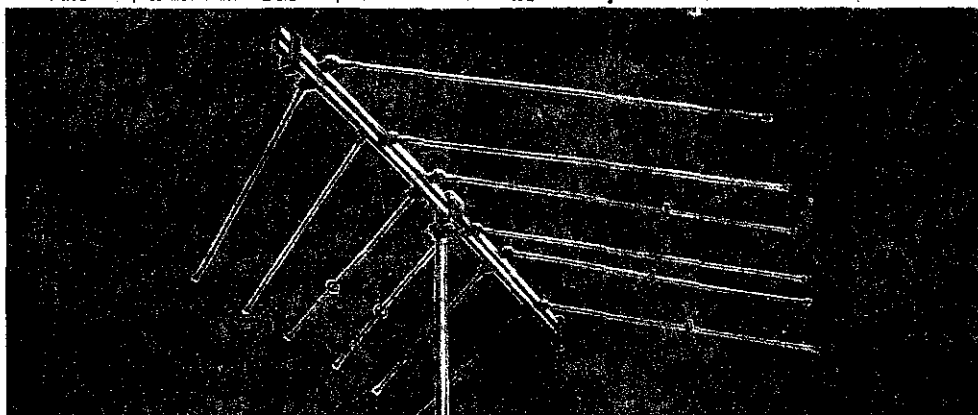
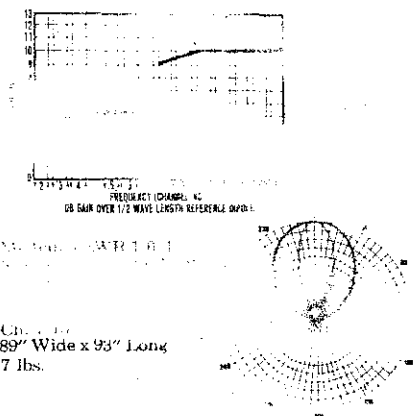
An additional feature of this new series is the use of new low impedance twin crossarms which function as a crossed feeder harness for maximum improved signal transfer on all VHF channels. However, it was not feasible to use this twin boom arrangement on the small LPV-TV3 model.

22

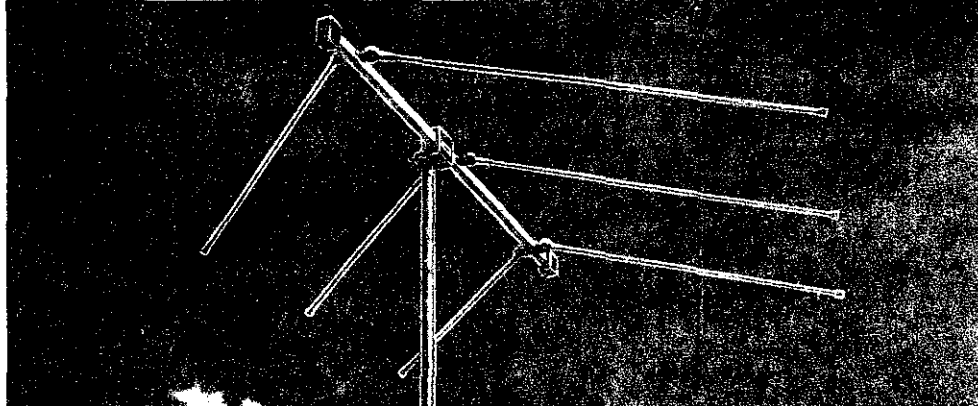
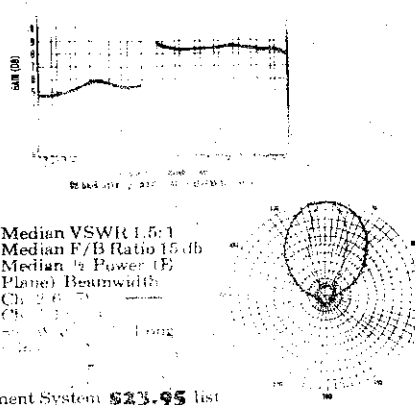
BX13-OLD



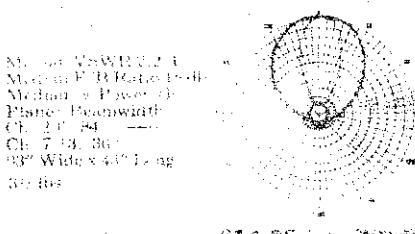
VHF - up to 100 miles. FM - up to 50 miles. Model LPV-TV7 8 Active Cell & Director Cap Electronic Element System \$51.95



VHF - up to 75 miles. FM - up to 40 miles. Model LPV-TV6 6 Active Cell & Director Cap-Electronic Element System \$23.95 list



VHF - up to 50 miles. FM - up to 30 miles. Model LPV-TV3 3 Active Cell System \$14.95



CODE NAME: WIFLECH

While our LPV-TV series was undergoing development in Chicago, Ill., it was assigned the code name: WIFLECH.

For good reason.

Its assigned performance objectives were to surpass every competitive make, model for equivalent model in gain, sensitivity, response, VSWR & F/B ratio.

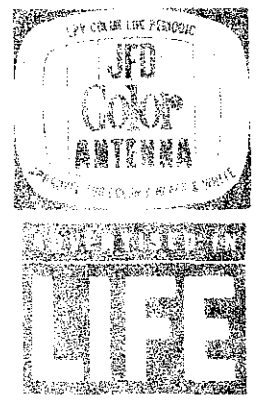
Did the new LPV-TV come through?

-All the way! Its performance is the proof!

Now at your JFD LPV distributor.

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER



JFD ELECTRONICS CORPORATION
15th Avenue East, Minneapolis, Minn. 55412
JFD International, 400 West 4th Ave., Los Angeles, Calif. 90017
JFD Canada, 100 West Beaver Creek, Richmond Hill, Ontario, Canada

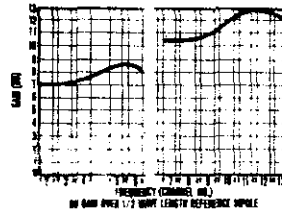
BY 13-6-62

UNITED STATES DISTRICT COURT
 NORTHERN DISTRICT OF ILLINOIS
 BEFORE JUDGE HOFFMAN

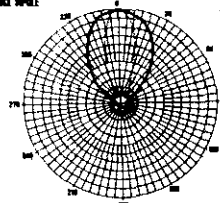
DEFENDANT EX. NO. _____

DOROTHY L. BRACKENBURY

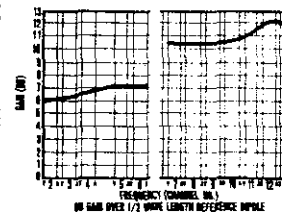
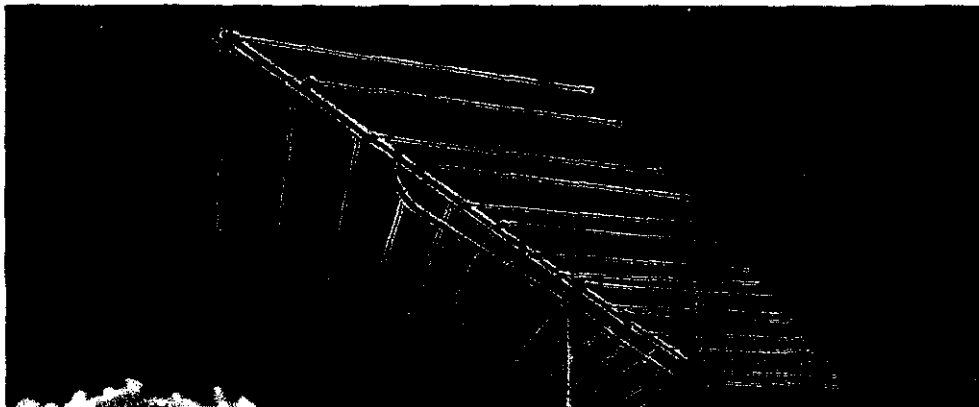
Don't be misled by "blue-sky" claims of log-periodic "look-alikes" or imitations. Only the JFD LPV with patented Log Periodic design, derived from research performed at the University of Illinois Antenna Research Laboratories, fully realizes the superb potential of this remarkable Log Periodic concept.



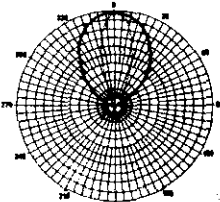
Median VSWR 1.6:1
 Median F/B Ratio 23 db
 Median 1/2 Power (E Plane) Beamwidth
 Ch. 2-6: 55°
 Ch. 7-13: 24°
 89" Wide x 200" Long
 19 lbs.



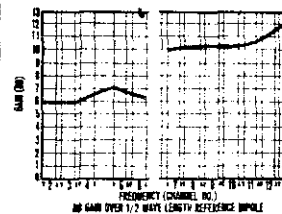
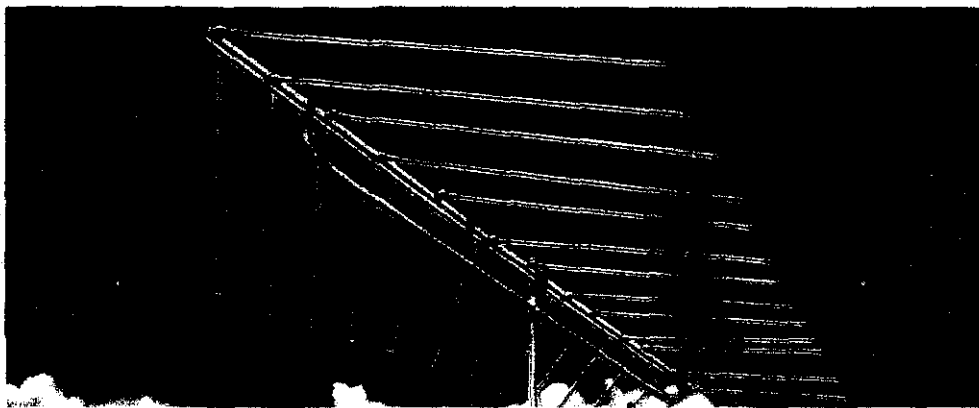
VHF - up to 200 miles. Model LPV-TV19 19 Active Cell & Director Cap-Electronic Element System \$79.95 list



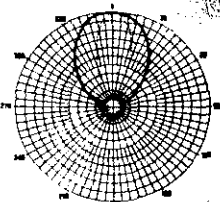
Median VSWR 1.7:1
 Median F/B Ratio 19 db
 Median 1/2 Power (E Plane) Beamwidth
 Ch. 2-6: 60°
 Ch. 7-13: 26°
 89" Wide x 181" Long
 16 1/2 lbs.



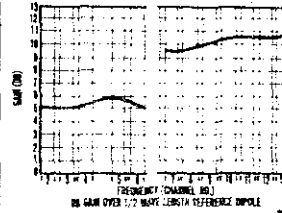
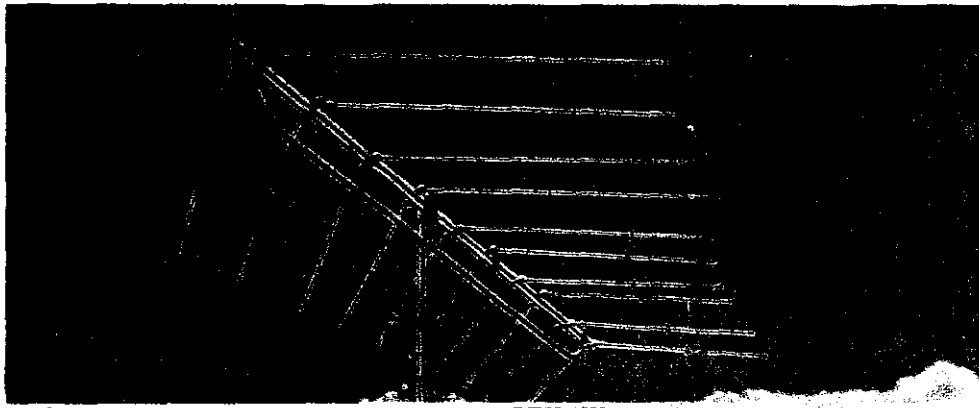
VHF - up to 175 miles. Model LPV-TV16 16 Active Cell & Director Cap-Electronic Element System \$59.95 list



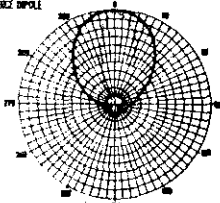
Median VSWR 1.8:1
 Median F/B Ratio 19 db
 Median 1/2 Power (E Plane) Beamwidth
 Ch. 2-6: 69°
 Ch. 7-13: 28°
 94" Wide x 150" Long
 14 1/2 lbs.



VHF - up to 150 miles. Model LPV-TV13 13 Active Cell & Director Cap-Electronic Element System \$49.95 list



Median VSWR 2.2:1
 Median F/B Ratio 16 db
 Median 1/2 Power (E Plane) Beamwidth
 Ch. 2-6: 74°
 Ch. 7-13: 30°
 90" Wide x 118" Long
 11 1/2 lbs.

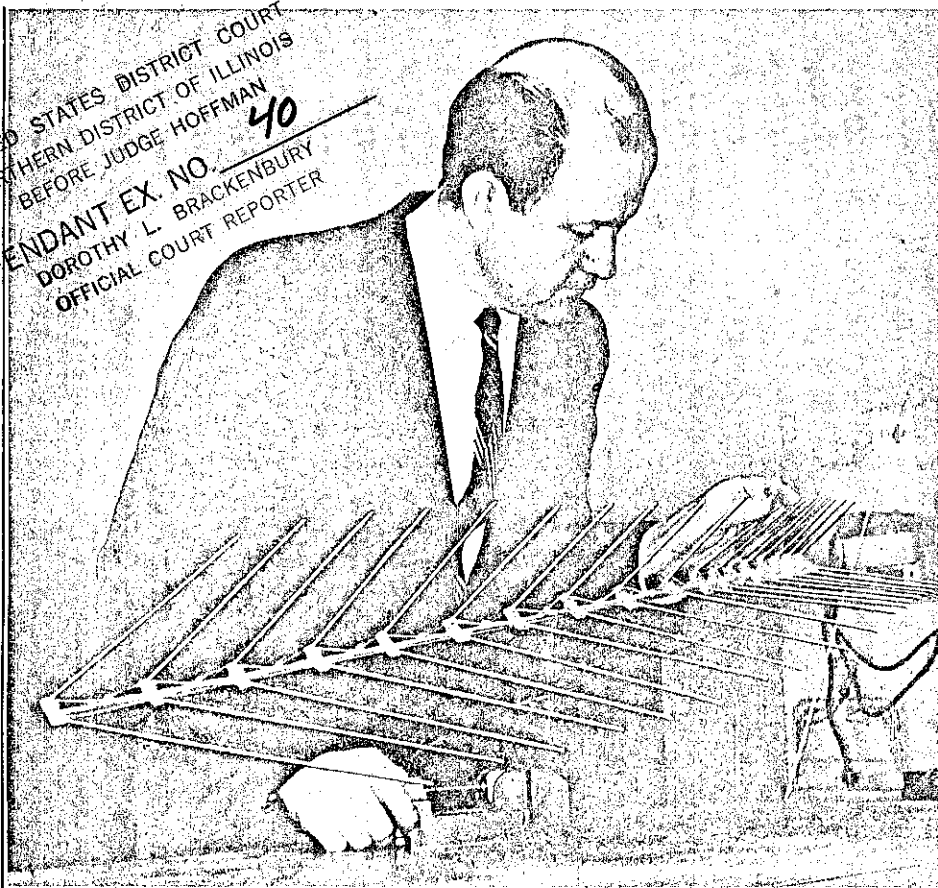


VHF - up to 125 miles. FM - up to 50 miles. Model LPV-TV10 10 Active Cell & Director Cap-Electronic Element System \$41.95 list

XB.16

3

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN
DEFENDANT EX. NO. 40
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER



News-Gazette Photo by Ian Ingalls

Dr. Paul E. Mayes inspects and checks out one of log-periodic family.

UI's Mayes, Team Develop Better TV Antennas

By HANK HOKAMP
News-Gazette Staff Writer

Remember how you used to shake and pound your radios, trying to "get the darn things" playing again? That was then ... but how about now?

Yes, you've found a new culprit to cuss and perhaps shake ... and to top things off, it's usually the most popular piece of furniture in the house ... the television set.

Thanks to the efforts of such men as Dr. Paul E. Mayes, professor of electrical engineering at the University of Illinois, and his associates, this situation may well become a rarity instead of commonplace.

"For many years no attempt was made to achieve a constant pattern regarding the development of VHF, UHF, VHF-UHF, and FM antennas," Dr. Mayes said. "Today there exists a need for antennas which will cover a number of isolated frequency bands rather than covering continuously the entire spectrum between the lowest and highest frequencies of interest," he said.

Dr. Mayes and his colleagues have done just this .. developed

a number of TV antennas which are presently being sold to the consumer public by electronic parts companies throughout the nation.

Another series of antennas, this time a family of four designed for FM Stereo radios, were released for production July 1. These antennas were developed by Mayes and Ron Grant, chief engineer at the JFD Antenna Laboratories located at 714 So. Randolph, C.

The JFD Electronics Corporation, Brooklyn, N.Y., manufactures these antennas and is licensed by the UI Foundation. JFD extends exclusive rights to the UI Foundation for its patented log - periodic - antenna concept.

Regarding the TV antennas developed by Mayes and his associates the largest log-periodic antenna in this family is the JFD Log-Periodic LPV antenna. This antenna can conquer the super fringe area up to 175 miles from a transmitter. It's considered to be the best for color and black and white reception regarding the capabilities

of the "family"

The smallest LPV antenna reaches out to 50 miles from the transmitter. This is all one needs to attain local reception.

The second antenna in this family is the LPV-U, or the first UHF antenna design based upon the patented LPV formula by the laboratories at the UI. This antenna is used for high band performance on channels 14 to 83. Four models are now available and range up to 80 miles regarding reception.

No commercial antenna has had uniform high gain over the complete VHF television band. The log-periodic V, the third antenna available in this series, takes care of this unique situation. Out of various experiments led by Prof. V. H. Rumsey and Prof. J. D. Dyson, both members of the electrical engineering department at the UI, this log spiral antenna became available.

What is called the strongest antenna developed for UHF is the Zig-A-Log antenna, a new concept for local or long distance reception on channel 14 to 83.

This Zig-A-Log antenna is said to offer much less wind resistance, much less ice and snow loading area, and better directive gain.

Log-periodic or logarithmic antennas make-up a family that have a unique fundamental design. These designs have been developed by Mayes and his associates since 1954 at the UI and include the presence of a three-fold purpose.

These antennas have been and are presently being used for satellite tracking at missile range locations at points along the Atlantic and Pacific Oceans as well as at Cape Kennedy.

Secondly, the log-periodic antennas are used by communication networks of the Armed Forces. These new type designs can be made to cover any range of frequencies.

The third use of the antennas are found in commercial circles mentioned before. The TV log-periodic antennas have been developed since 1954 with the four FM Stereo antennas to be placed on the market in the near future.

Where does this antenna research take place? Largely at the JFD Laboratories where 12 undergraduate, graduate and post-graduate students are engaged in this basic research in log-periodic type antennas for television, FM, amateur and military application.

The new JFD Antenna Laboratory is located in the Interstate Research Park northwest of Champaign with the construction scheduled to be completed by Sept. 1. Operations at the new laboratory will not begin until Oct. 1. The facilities will be used for the development of new antenna designs for all-channel VHF and UHF reception.

According to a survey paper recently published by Prof. E. C. Jordan, G. A. Deschamps, J. D. Dyson and Mayes, it was noted that some of the earliest broadband antennas were long wire types designed to operate in the high frequency or short-wave band or perhaps in the low frequency band. Among these antennas the well-known rhombic or equilateral parallelogram shaped antenna has held a high place since the days of radio. The log-periodic antenna is a revolutionary development in design.

Other information gathered during the survey was presented for the express purpose of providing the nonspecialist with a basic understanding of the remarkable advances which have taken place over the past decade in the field of broadband antennas.

Since the law now requires all TV sets to come from the factory with a UHF "hook-up", perhaps this need for antennas to cover a number of isolated frequency bands could open more interesting doors to interested parties such as Dr. Mayes and his associates.

Form No. 837 litho in U. S. A. 11-64

14

XB 176
RECEIVED
AUG 13 1964

MERRIAM, SMITH & MARSHALL

JFD

JFD ELECTRONICS CORP.

August 12, 1964

University of Illinois Foundation
University of Illinois
Champaign, Illinois

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Attention: Mr. James Colvin

Re: Copy Clearance for
LPV Antennas

Dear Jim:

A few weeks ago, when Sam Smith was in town, I met with him at Mr. Faber's office and amongst the things we discussed was the question of clearance of copy material used in our selling campaign on LPV antennas.

At that meeting I proposed to Sam a plan whereby we could save a lot of time and avoid problems in preparing our advertisements and catalog brochures and also avoid the risk of having you object to the phrases and copy content therein. I suggested that we submit to you a list of statements that we have used in all of our past literature referencing the University of Illinois and the University of Illinois Antenna Laboratories and have you review them and agree in advance on this series of legends that we may be free to include in any advertising or catalog work on LPV antennas made by us under the license.

Once we have these authorized legends, we will thereafter work our ads and literature around them so that we can expect a submitted proof to clear without any problem or delay. I believe that within the scope of the approved legends, we will be able to still retain enough of a variety so as not to make our literature or ads stereotyped or repetitive.

X B17-a ed

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JFD ELECTRONICS CORP.

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN
DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Mr. James Colvin (Cont.)

We have four (4) areas in which we have prepared material:

1. World's Fair Literature
2. Catalog and Price List Literature
3. Commercials, Magazines, Trade Papers
4. JFD Product Literature

We would like you to review the phrases used in the first and second categories as follows:

1. World's Fair Literature

Developed by the University of Illinois Antenna Research Laboratories

Produced by JFD Electronics Corporation under Exclusive License from the University of Illinois Foundation.

The JFD LPV is designed according to the patented Log-Periodic geometric formula of the famous Antenna Research Laboratories of the University of Illinois.

Only JFD is licensed exclusively by the University of Illinois Foundation to make the patented Log-Periodic LPV and all other Log-Periodic type TV and FM antennas.

No other so-called Log-Periodic antenna can work like the JFD LPV because only JFD uses the original patented Log Periodic formula of the Antenna Research Laboratories of the University of Illinois.

JFD

JFD ELECTRONICS CORP.

X B17-8 cd
UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO.
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Mr. James Colvin (Cont.)

2. Catalogs and Price List Literature

Formulated according to the patented geometrically derived logarithmic-periodic scale of the Antenna Research Laboratories of the University of Illinois.

X Developed at the University of Illinois Antenna Research Lab.

X Developed by the University of Illinois Antenna Research Lab.

This new concept has been related to TV-FM antennas exclusively for JFD by Prof. Paul E. Mayes of the Antenna Research Laboratory, University of Illinois.

Our advertising department is reviewing the remaining literature and some time next week I will send you the information on the third category to be followed shortly thereafter by the last.

Would you please review the above phrases and indicate which we can continue to use in the preparation of our advertising material.

Time is always important to us Jim, and we would like to avoid any delay in getting clearance from you on the above material.

Sincerely,

Ed Finkel

EF/ss

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advertising

At Work in the New Frontiers of Electronics

JFD ELECTRONICS CORPORATION

15th Avenue at 62nd Street, Brooklyn N. Y. 11219 • Phone 212 DE 1-1000 • TWX-NY25040

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

September 14, 1964

U.S. DISTRICT COURT
SEP 16 '64

University of Illinois Foundation
University of Illinois
Champaign, Illinois

Attention: Mr. James Colvin

Re: Copy Clearance for LPV
Antennas

Dear Jim:

Following up my letter of August 12, 1964, listed below are the phrases used in our commercials, magazines and trade papers.

I would appreciate your reviewing them and clearing these so they can be used in any future ads we will prepare.

Commercials, Magazines and Trade Papers

Developed from Research Performed at the Antenna Laboratories of the University of Illinois

Developed from Research Performed at the University of Illinois Antenna Laboratories.

Adapted from the Famous Satellite Tracking Antenna Design of the Antenna Research Laboratories of the University of Illinois.

No

JFD ELECTRONICS ANTENNA LABORATORY EMPLOYS INDUSTRY'S HIDDEN RESOURCE -- Forms Alliance with the University of Illinois; New Laboratory Established under the Direction of Professor Paul E. Mayes, an Antenna Authority.

A00219

(1)

UNIVERSITY OF ILLINOIS FOUNDATION

Mr. Ed Finkel
JFD Electronics Corporation
15th Avenue at 62nd Street,
Brooklyn, New York 11219

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Dear Ed:

I regret that I have not answered your September 14 letter sooner.

Under "Commercials, Magazines and Trade Papers" we approve the first three paragraphs. These are as follows:

"Developed from Research Performed at the Antenna Laboratories of the University of Illinois."

"Developed from Research Performed at the University of Illinois Antenna Laboratories."

"Adapted from the Famous Satellite Tracking Antenna Design of the Antenna Research Laboratories of the University of Illinois."

We object to the fourth paragraph because, although you have been working in cooperation with the University, I think this slogan gives the wrong impression. The paragraph I refer to is the following:

"JFD ELECTRONICS ANTENNA LABORATORY EMPLOYS INDUSTRY'S HIDDEN RESOURCE -- Forms alliance with the University of Illinois; New Laboratory Established under the Direction of Professor Paul E. Mayes, an Antenna Authority."

So far as the next paragraph is concerned the one which begins: "In fact, the LPV . . ." we do not believe this is quite accurate and would like to have you change it as follows:

"In fact, the LPV concept was developed at the Antenna Research Laboratories of the University of Illinois which has given birth to such other space-age designs as the spiral antenna used on the Transit Satellite."

A00223

X B19-a

Mr. Ed Finkel

2

September 25, 1964

The next paragraph is perfectly satisfactory. It reads:

"For more than 8 years, a group of antenna scientists at the Antenna Research Laboratory of the University of Illinois has been experimenting with vhf and uhf antennas that have no theoretical limitations on bandwidth - are frequency-independent."

With all good wishes,

Cordially yours,



James C. Colvin
Executive Director

JCC:pw

cc: Professor Paul Mayes
Mr. Samuel B. Smith

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

A00224