United States District Court,
D. Delaware.

ADOBE SYSTEMS INCORPORATED,
Plaintiff.
v.
MACROMEDIA, INC,
Defendant.

No. CIV.A.00-743-JJF

May 3, 2002.

Action was brought for infringement of two patents for computer sound editing system and third patent for computer graphics system. Construing claims, the District Court, Farnan, J., held that: (1) "sound waveform" meant pattern of pressure variation; (2) phrase "changing the stored sound waveform" in accordance with changes made by editing meant overwriting stored waveform stored in computer RAM memory to reflect change in sound characteristics of waveform in accordance with changes made in visually displayed waveform; (3) phrase "defining element" meant element that could be used to calculate essential information required to construct other elements; (4) phrase "derived element" meant element which was calculated from defining element or elements via preset mathematical relationship; (5) references to displaying elements as "plurality of pixels" on display screen did not limit elements to pixel-based representations; and (6) structure for various control, modification and storage means was computer programmed with algorithm described in specification and its equivalents.

Claims construed.

Court-Filed Expert Resumes

5,546,528, 6,084,597. Cited.

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MEMORANDUM OPINION

FARNAN**, District Judge.**

This action was brought by Plaintiff, Adobe Systems Incorporated (hereinafter "Adobe") against Defendant, Macromedia, Inc. (hereinafter "Macromedia") alleging infringement of United States Patent Nos. 5,546,528 (the " '528 Patent") and 6,084,597 (the " '597 Patent"). Macromedia counterclaimed, alleging infringement of United States Patent Nos. 5,151,998 (the " '998 Patent"), 5,204,969 (the " '969 Patent"), and 5,467,443 (the " '443 Patent"). The issue currently before the Court is the claim construction of the patents in suit. The parties briefed their respective positions on claim construction, and Adobe withdrew its claims of infringement of the '597 Patent. The Court held a *Markman* hearing on February 21, 2002, and a pretrial conference on April 3, 2002. During the pretrial conference, the Court determined that the claims of infringement by Adobe and Macromedia should be separated for trial. This Memorandum Opinion sets forth the Court's construction of the disputed terms and phrases in Macromedia's '998, '969, and '443 Patents.

I. BACKGROUND

A. The '998 and '969 Patents

The '998 and '969 Patents are directed to a computer sound editing system using a control line for altering specified sound characteristics. Specifically, the '998 and '969 Patents teach a technique for editing sounds by manipulating a displayed sound characteristics control line adjacent to a displayed sound waveform. The sound characteristics of a particular sound, such as amplitude, pitch, or panning, can be changed according to these patents by adjusting the displayed sound characteristics control line. The novel features of these inventions include the ability to visually display several waveforms and synchronize them in time so the waveforms can be mixed into a new composite waveform, and the ability to change the pitch and amplitude of portions of a waveform by means of an easy to use visual display.

B. The '443 Patent

The '443 Patent relates to a graphics system and method for blending shapes, colors and other graphical attributes between two paths. Specifically, the '443 Patent claims and discloses a method and system for automatically regenerating "blends" in computer graphical illustration programs. This "blend" feature is used to create smooth gradations between the shape, color, line size or other graphical attribute of the "defining element(s)." The intermediate colors, shapes, etc. that are created from the use of this "blend" feature are called "derived elements."

Prior to the invention disclosed in the '443 Patent, an artist who wished to edit a "blend" or a "defining element" would have had to manually delete all of the "derived elements." The '443 Patent allows the artist instead to edit "blends" or "defining elements" without having to delete all of the "derived elements," thereby saving an artist tedious re-work. The '443 Patent further avoids redundant and time-consuming regeneration of "derived elements" by waiting until an artist has made all desired changes to the graphical attributes of the "defining elements" before regenerating a new "blend."

II. DISCUSSION

A. The Legal Principals Of Claim Construction

[1] [2] [3] [4] [5] Claim construction is a question of law. Markman v. Westview Instruments, Inc., 52 F.3d 967, 977-78 (Fed.Cir.1995), *aff'd,* 517 U.S. 370, 388-90, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). When construing the claims of a patent, a court considers the literal language of the claim, the patent specification

and the prosecution history. Markman, 52 F.3d at 979. A court may consider extrinsic evidence, including expert and inventor testimony, dictionaries, and learned treatises, in order to assist it in construing the true meaning of the language used in the patent. Id. at 979-80 (citations omitted). A court should interpret the language in a claim by applying the ordinary and accustomed meaning of the words in the claim. Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759 (Fed.Cir.1984). However, if the patent inventor clearly supplies a different meaning, the claim should be interpreted accordingly. Markman, 52 F.3d at 980 (noting that patentee is free to be his own lexicographer, but emphasizing that any special definitions given to words must be clearly set forth in patent). If possible, claims should be construed to uphold validity. In re Yamamoto, 740 F.2d 1569, 1571 & n. * (Fed.Cir.1984) (citations omitted).

B. The Meaning Of The Disputed Terms And Phrases Of The '998 And '969 Patents

The '998 and '969 Patents share the same disputed terms and phrases. Because the parties agree that the disputed terms and phrases should be consistently construed, the Court will construe the disputed terms and phrases in the context of the claims of the '998 Patent.

Macromedia asserts Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 34, and 35 of the '998 Patent. Claims 16, 20, and 35 are independent method claims, and Claims 1, 18, and 34 are independent apparatus claims. Claims 21, 22, 25, 26, 27, 28, 29, and 30 depend ultimately from Claim 20, and Claims 2, 3, 4, 7, 8, 9, 10, 11, 12, 13, 14, and 15 depend ultimately from Claim 1. For the purposes of construing the disputed terms and phrases in the asserted method and apparatus claims, independent Claim 20 and independent Claim 34 are representative. Claim 20 provides:

20. A method for editing sounds comprising the steps of:

[1] storing a sound waveform;

[2] visually displaying the waveform;

[3] editing the appearance of the visually displayed waveform by manipulation of said visually displayed waveform; and

[4] changing the stored sound waveform in accordance with changes made in the visually displayed waveform by the step of editing; and

wherein the step of storing comprises storing a digital representation of the waveform, and the step of displaying comprises displaying an analog representation of the waveform; and

wherein the step of displaying comprises displaying the amplitude of the waveform along a first associated axis and time along a second associated axis;

wherein the step of editing comprises:

displaying a sound characteristics control line adjacent to the displayed waveform; and

displacing at least one segment of the sound characteristics control line adjacent to a portion of the displayed waveform;

wherein the step of editing comprises altering a specified characteristic of a portion of the stored waveform corresponding to the portion of the displayed waveform adjacent to the displaced line segment.

(D.I. 248, Ex. B, '998 Patent, Col. 119, lines 30-57). Claim 34 provides:

34. A device for editing sounds comprising:

[1] means for storing a sound waveform;

[2] means for visually displaying the stored waveform;

[3] means for editing the appearance of a predetermined portion of the visually displayed waveform by manipulation of said visually displayed waveform; and

[4] means for changing the sound waveform stored in the means for storing in accordance with changes made in the visually displayed waveform by the means for editing; and

wherein the means for editing comprises:

means for displaying a sound characteristics control line adjacent to the displayed waveform; and

means for displacing at least one segment of the sound characteristics control line adjacent to a portion of the displayed waveform;

wherein the means for editing comprises means for altering a specified characteristic of a portion of the stored waveform corresponding to the portion of the displayed waveform adjacent to the displaced line segment.

(D.I. 248, Ex. B, '998 Patent, Col. 121, line 3-Col. 122, line 2). The Parties have raised paragraphs (1), (2), (3), and (4) in Claim 20, as well as paragraphs (1), (2), (3), and (4) in Claim 34, in their claim construction arguments. FN1

FN1. Macromedia also raises claim construction contentions with respect to various terms and phrases in Claims 5, 6, 23, and 24 of the '998 Patent, which relate to the sound mixing features of the claimed invention. (D.I. 243 at 14, 19; D.I. 248, Ex. B, '998 Patent). Claims 5 and 6 are means plus function claims which ultimately depend from Claim 1, and Claims 23 and 24 are method claims which ultimately depend from Claim 20. (D.I. 248, Ex. B, '998 Patent). Because Adobe does not dispute the constructions offered by Macromedia with respect to the various terms and phrases in these claims, the Court will adopt the definitions proposed by Macromedia. "Mixing" means "combining several separate sounds into a single sound." The structure corresponding to the "means for mixing the independent waveforms" is the "mixer 14A installed in the computer 12, and equivalents thereof." The recited function of the "means for mixing the independent waveforms" is "combining several separate sounds into a single sound." The structure corresponding to the "means for moving each independent displayed waveform relative to the associated time axis" is the "mixer 14A installed in the computer 12, and equivalents thereof." The recited function of the "means for moving each independent displayed waveform relative to the associated time axis" is "repositioning and aligning a displayed sound waveform along the direction of its time axis independent of

the other displayed sound waveforms." The structure corresponding to the "means for combining the independently displayed waveforms wherein a stored waveform the visual representation of which has been moved relative to the associated time axis is correspondingly shifted in time relative to the other independent waveforms by the means for editing" is the "mixer 14A installed in the computer 12, and equivalents thereof." The recited function of the "means for combining the independently displayed waveforms wherein a stored waveform the visual representation of which has been moved relative to the associated time axis is correspondingly shifted in time relative to the other independent waveforms by the means for editing" is "bringing together or associating independent sound waveforms according to their position on the time axis."

1. Paragraph (1) of Claim 20 of the '998 Patent**-"Storing A Sound Waveform"**

[6] Macromedia contends that the phrase "sound waveform" must be construed before the phrase "storing a sound waveform" can be addressed. Macromedia contends that it is well recognized in the art that sound is a vibration transmitted in a medium, such as air. (D.I. 243 at 9). When sound is transmitted in air, Macromedia contends that the energy in a sound produces small regions in which the air pressure is lower than average (rarefactions) and small regions in which it is higher than average (condensations). (D.I. 243 at 9). According to Macromedia, these regions of rarified and condensed air propagate in the form of an air pressure wave, comprising of both positive (condensation) and negative (rarefactions) pressure variation. (D.I. 243 at 9). In light of these well recognized principles of sound, Macromedia contends that the phrase "sound waveform" is used in the art to describe a "pattern of pressure variation." (D.I. 243 at 9).

In response, Adobe contends that a "sound waveform" can be either one of pressure (amplitude) or frequency (pitch). (D.I. 305 at 13). Adobe contends that frequency is typically represented as an absolute value representation (i.e. positive) of the pitch of the waveform. (D.I. 305 at 13). Because a "sound waveform" can be used to describe a pattern of pressure or frequency, and because frequency does not necessitate the positive/negative variation requirement, Adobe contends that Macromedia's attempt to limit the meaning of "sound waveform" to a "pattern of pressure variation" is improper. (D.I. 305 at 13). According to Adobe, the phrase "sound waveform" should be construed to mean "an auditory impression of a sound represented as a waveform." (D.I. 305 at 13).

In construing the term "sound waveform," the Court has considered the phrase's ordinary and accustomed meaning, as well as the specification and prosecution history of the '998 Patent. (*See* D.I. 248, Ex. B, '998 Patent, Col. 1, lines 24-26, 48-50, 54-58; D.I. 248, Ex. C; D.I. 244, Roads Opening Decl. at para.para. 21-23). Based on this review, the Court concludes that a sound waveform as described in the '998 Patent is not one of either pitch (i.e. frequency) or amplitude as suggested by Adobe. Rather, pitch (i.e. frequency) and amplitude are merely characteristics of a sound waveform by which the '998 Patent teaches a means to alter. (D.I. 248, Ex. B., '998 Patent, Col. 1, lines 48-50 (stating "the system provides means to alter the pitch (i.e. frequency) or amplitude of a particular part of any waveform by moving a segment of a line adjacent to the waveform on the screen, which line corresponds to the pitch or amplitude for the adjacent part of the waveform")). Because the Court also concludes that the ordinary and accustomed meaning of sound waveform is a pattern of pressure variation, the Court will construe the phrase "sound waveform" to mean a "pattern of pressure variation." The Court will now turn to the phrase "storing a sound waveform."

Macromedia contends that the phrase "storing a sound waveform" should be construed to mean "storing a pattern of pressure variation in an electronic device (such as memory) from which the information can be

obtained as needed." (D.I. 243 at 10). Adobe contends that the proper construction is "storing an auditory impression of a sound in a computer memory (i.e. RAM) from which the information can be obtained." (D.I. 305 at 16). Because the Court has construed the phrase "sound waveform," the only remaining issue with respect to the construction of the phrase "storing a sound waveform" is whether a sound waveform should be construed to be stored in "a computer memory (i.e. RAM)" or "an electronic device (such as memory)."

Macromedia contends that the phrase "storing a sound waveform" is presented in a method claim that recites a combination of steps or acts. (D.I. 311 at 2). Because method claims should be construed according to their ordinary and accustomed meaning and should not be limited to any particular structure described in the specification, Macromedia contends that Adobe, by its proposed construction, is attempting to improperly read the structure described in the specification (i.e. "a computer memory (i.e. RAM)") into method claims at issue in the '998 and '969 Patents. (D.I. 311 at 2-4).

In opposition, Adobe contends that the phrase "storing a sound waveform," while presented in the form of a method claim, nonetheless implicates 35 U.S.C. s. 112 because it recites a step plus function limitation without defining a specific act. (D.I. 305 at 15). Specifically, Adobe contends that the steps and structure disclosed in the specification of accomplishing the act of "storing" must be considered in construing the phrase "storing a sound waveform." (D.I. 305 at 15). Because the specification discloses that sound waveforms are stored in a computer memory, and because computer memory, as it was understood by those of skill in the art in the relevant time frame, refers only to the random access memory (RAM) of a computer, Adobe contends that a sound waveform should be construed to be stored in "a computer memory (i.e. RAM)." (D.I. 305 at 16).

[7] Means-plus-function and step-plus-function limitations are governed by 35 U.S.C. s. 112, para. 6. In pertinent part, Section 112, para. 6 provides:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claims shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereto.

In determining whether a claim element is subject to Section 112, para. 6, a court considers the phrasing of the element at issue. For example, when determining whether a claim element contains a step plus function limitation, if the claim element uses the phrase "step for," then a step plus function limitation is presumed to exist, and thus, Section 112, para. 6 is presumed to apply. On the other hand, the term "step" alone and the phrase "steps of" tend to show that Section 112, para. 6 does not govern that element. *See* Seal-Flex, Inc. v. Athletic Track & Court Constr., 172 F.3d 836, 849 (Fed.Cir.1999).

[8] In the present case, Claim 20 of the '998 Patent uses the phrase "steps of" in the preamble to introduce several "steps." The specific element at issue recites the step of "storing a sound waveform." Because the phrase "step for" is lacking in both the preamble and the disputed claim element, this language tends to show that the verb "storing" recites an act rather than a function. Accordingly, the Court concludes that the phrase "storing a sound waveform" is not drafted in step plus function form, and therefore, will construe this phrase in accordance with the normal principles of claim construction.

[9] In construing the disputed phrase "storing a sound waveform," the Court has considered the specification

and prosecution history of the '998 Patent. (*See* D.I. 248, Ex. B, '998 Patent, Col. 1, lines 33-36; D.I. 248, Ex. C). Based on this review, the Court concludes that the phrase "storing a sound waveform" requires storing a sound waveform in a computer memory. (*See* D.I. 248, Ex. B, '998 Patent, Col. 1, lines 33-36 (stating "[t]he system of this invention provides means for entering and storing sound waveforms in a computer memory ...")). The Court also concludes that a computer memory, as understood by one of ordinary skill in the art during the relevant time period, is limited to RAM memory. (*See* D.I. 307 at 3-4). Accordingly, the Court construes the phrase "storing a sound waveform" to mean "storing a pattern of pressure variation in a computer memory (i.e. RAM) from which the information can be obtained."

2. Paragraph (1) of Claim 34 of the '998 Patent**-"Means For Storing A Sound Waveform"**

[10] The parties agree that this element of Claim 34 is drafted in means plus function format. The only portion of this element that is in dispute is the structure corresponding to the "means for storing a sound waveform." Macromedia contends that structure corresponding to the "means for storing a sound waveform" is "memory 13 and equivalents thereof." (D.I. 243 at 17). Adobe contends that Macromedia's proposed construction is over-broad insofar as Macromedia's proposal contains the phrase "equivalents thereof." (D.I. 305 at 17). As indicated above, Adobe contends that a computer memory, as understood by one of ordinary skill in the art during the relevant time period, is limited to RAM memory and does not include disk drives or CD ROM. (D.I. 305 at 17). Accordingly, Adobe contends that the structure corresponding to the "means for storing a sound waveform" is a "computer memory (i.e. temporary storage, such as RAM) and equivalents thereto." (D.I. 305 at 17).

In construing the structure corresponding to the "means for storing a sound waveform," the Court has considered the specification and prosecution history of the '998 Patent. (*See* D.I. 248, Ex. B, '998 Patent, Col. 1, lines 33-36; D.I. 248, Ex. C). As indicated above, the Court finds that a computer memory, as understood by one of ordinary skill in the art during the relevant time period, is limited to RAM memory. (*See* D.I. 307 at 3-4). Accordingly, the Court concludes that the structure corresponding to the "means for storing a sound waveform" is a "computer memory (i.e. temporary storage, such as RAM) and equivalents thereto."

3. Paragraph (2) of Claim 20 of the '998 Patent**-"Visually Displaying The Waveform"**

[11] Macromedia contends that the phrase "visually displaying the waveform" should be construed to mean "providing a graphical pattern of pressure variation, both positive and negative, along time and amplitude axes on a programmable display or computer screen." (D.I. 243 at 10). Adobe contends that a sound waveform can be graphically depicted as either a positive and negative pressure variation or an absolute value representation (i.e. positive) of this variation. (D.I. 305 at 18-19). Because there is no indication in the '998 Patent that the display of the waveform requires positive and negative pressure variation, Adobe contends that the phrase "visually displaying the waveform" should be construed to mean "displaying a graphical representation of a sound waveform." (D.I. 305 at 19).

In construing the phrase "visually displaying the waveform," the Court has considered the specification and prosecution history of the '998 Patent. (*See* D.I. 248, Ex. B, '998 Patent, Col. 1, lines 9-64; D.I. 248, Ex. B, '998 Patent, Col. 119, Claim 20, lines 30-56; D.I. 248, Ex. C). Because neither the claims, specification, nor prosecution history of the '998 Patent limit the phrase "visually displaying the waveform" to a positive and negative graphical depiction of a sound waveform, the Court construes this phrase to mean "displaying a graphical representation of a sound waveform."

4. Paragraph (2) of Claim 34 of the '998 Patent**-"Means For Visually Displaying The Stored Waveform"**

The parties do not dispute that this element of Claim 34 is drafted in means plus function format. With respect to the structure corresponding to the "means for visually displaying," both parties agree that it should be construed to mean the "display 15 and equivalents thereof." (D.I. 305 at 19; D.I. 243 at 17). Accordingly, the Court will adopt the parties' construction.

The only dispute between the parties relates to the recited function of "visually displaying the stored waveform." (D.I. 305 at 19). The parties make the same arguments as they made with respect to the construction of the phrase "visually displaying the waveform." Because the Court construed the phrase "visually displaying the waveform" above, and because the meaning of the additional term "stored" in the phrase at issue is not in dispute, the Court concludes that the function of "visually displaying the stored waveform" does not require construction.

5. Paragraph (3) of Claim 20 of the '998 Patent**-"Editing The Appearance Of The Visually Displayed Waveform By Manipulation Of Said Visually Displayed Waveform"**

[12] Macromedia contends that this phrase (hereinafter the "editing phrase") should be construed to mean "altering, adapting or refining how the displayed waveform looks on the computer screen, for example, by selecting a portion of the waveform by highlighting it, cutting, pasting or deleting a selected portion, displacing the waveform along the time axis, or overlaying the waveform with a sound characteristics control line and displacing the line." (D.I. 243 at 13).

Adobe contends that Macromedia's proposed construction is not supported by the express language of Claim 20. (D.I. 305 at 21). Specifically, Adobe contends that Claim 20 defines the editing phrase as displaying a sound characteristics control line, displacing it in segments, and altering the stored waveform accordingly, but *not* performing any of the conventional functions such as cutting, pasting, or deleting. (D.I. 305 at 21). Adobe contends that these conventional editing functions are only supported by method Claims 31-33. (D.I. 305 at 21). Because Macromedia is no longer asserting these Claims against Adobe, Adobe contends that Macromedia is improperly attempting to reclaim the scope of Claims 31-33 by broadly construing the editing phrase in Claim 20. (D.I. 305 at 21). Additionally, Adobe contends that Macromedia's proposed construction ignores the language of Claim 20 and the specification of the '998 Patent, which require that the *appearance* of the visually displayed waveform be changed. (D.I. 305 at 22). Adobe contends that, according to Macromedia's construction, sliding or displacing the sound characteristics control line up and/or down in linear segments suffices to edit the appearance of the visually displayed waveform, simply because the sound characteristics control line overlays the waveform in a position different from its previous position. (D.I. 305 at 22). According to Adobe, displacing the sound characteristics control line does not "alter the appearance of the waveform" because the '998 Patent specifically provides that the control line and waveform are distinct from one another. For these reasons, Adobe contends that the editing phrase should be construed to mean "altering, adapting or refining how the displayed waveform looks on the computer screen by direct manipulation of a sound characteristics control line."

In construing the editing phrase, the Court has considered the specification and prosecution history of the '998 Patent, as well as the express language of the '998 Patent's claims. (D.I. 248, Ex. B, '998 Patent, Col. 1, lines 33-40, Col. 4, lines 19-40, Col. 5, lines 10-46, Col. 119, line 30-Col. 120, line 68; D.I. 248, Ex. C). After a review of these sources, the Court concludes that the editing phrase does not exclude conventional editing functions, such as cutting pasting or deleting. In defining the step of editing, the language of Claim

20 provides "the step of editing comprises ..." While Claim 20 does not go on to specifically define editing to include conventional editing functions, the term "comprises" is a term of art in patent claim drafting which is synonymous with including, containing, or characterized by, and does not exclude additional unrecited elements. MANUAL OF PATENT EXAMINING PROCEDURES s. 2111.03 (8th Ed.2001). Because the term "comprises" is open-ended, and because neither specification nor prosecution history of the '998 Patent specifically define the step of editing to exclude conventional editing functions, the Court will construe the editing phrase to include conventional functions.

The Court also concludes that a plain reading of Claim 20 reveals that sliding or displacing the sound characteristics control line up and/or down in linear segments suffices to "edit the appearance of the visually displayed waveform." Specifically, Claim 20 provides:

wherein the step of editing comprises:

displaying a sound characteristics control line adjacent to the displayed waveform; and

displacing at least one segment of the sound characteristics control line adjacent to a portion of the displayed waveform;

wherein the step of editing comprises altering a specified characteristic of a portion of the stored waveform corresponding to the portion of the displayed waveform adjacent to the displaced line segment.

(D.I. 248, Ex. B, '998 Patent, Col. 119, lines 30-57). Because the Court is persuaded that this language defines editing to include overlaying the waveform with a sound characteristics control line and displacing the line, the Court will not construe the editing phrase to be limited to *direct* manipulation of the visually displayed waveform. In sum, the editing phrase will be construed to mean "altering, adapting or refining how the displayed waveform looks on the computer screen, for example, by selecting a portion of the waveform by highlighting it, cutting, pasting or deleting a selected portion, displacing the waveform along the time axis, or overlaying the waveform with a sound characteristics control line and displacing the line."

6. Paragraph (3) of Claim 34 Of The '998 Patent**-"Means For Editing The Appearance Of A Predetermined Portion Of The Visually Displayed Waveform By Manipulation Of Said Visually Displayed Waveform"**

[13] The parties agree that this element of Claim 34 is drafted in means plus function format, and the construction of both the structure corresponding to the "means for editing" and the "means for editing" function are in dispute. (D.I. 243 at 18; D.I. 305 at 24-25). In support of the construction of the "means for editing" function, the parties make the same arguments as they made with respect to the construction of the phrase "editing the appearance of the visually displayed waveform by manipulation of said visually displayed waveform." (D.I. 243 at 18; D.I. 305 at 24-25). Because the only difference between this phrase and the "means for editing" function at issue is the additional phrase "predetermined portion," and because the meaning of the phrase "predetermined portion" is not in dispute, the Court concludes that, in light of its construction above, the function of "editing the appearance of a predetermined portion of the visually displayed waveform by manipulation of said visually displayed waveform" does not require construction.

With respect to the structure corresponding to the "means for editing," Macromedia contends that it should be construed as "the editor 14 installed in the computer 12 and equivalents thereof." (D.I. 243 at 18). Adobe

contends that the structure corresponding to the "means for editing should be construed as "an editor and equivalents thereof that incorporates a sound characteristics control line to effect manipulation of a displayed sound waveform." " (D.I. 305 at 26).

In construing the structure corresponding to the "means for editing," the Court has reviewed the specification and the prosecution history. (*See* D.I. 248, Ex. B, '998 Patent, Col. 1, lines 29-64; D.I. 248, Ex. C). Based on a review of these sources, the Court concludes that the editor is not limited to incorporating a sound characteristics control line. Accordingly, the Court construes the structure corresponding to the "means for editing" as "the editor 14 installed in the computer 12 and equivalents thereof."

7. Paragraph (4) Of Claim 20 Of The '998 Patent**-"Changing The Stored Sound Waveform In Accordance With Changes Made In The Visually Displayed Waveform By The Step Of Editing"**

[14] Macromedia contends that this phrase (hereinafter the "changing the stored sound waveform phrase") should be construed to mean "making different or modifying the sound characteristics of the stored sound waveform in accordance with changes made in the visually displayed waveform." (D.I. 243 at 14). Adobe contends that the changing the stored sound waveform phrase should be construed to mean "overwriting the stored waveform stored in the computer RAM memory to reflect a change in the sound characteristics of the waveform in accordance with changes made in the visually displayed waveform." (D.I. 305 at 28).

In construing the changing the stored sound waveform phrase, the Court has reviewed the specification and the prosecution history. (*See* D.I. 248, Ex. B, '998 Patent, Col. 1, lines 33-40; D.I. 248, Ex. C). Based on a review of these sources, the Court concludes that changing the stored sound waveform is directed to overwriting the original waveform stored in the computer RAM memory. Accordingly, the Court construes the changing the stored sound waveform phrase to mean "overwriting the stored waveform stored in the computer RAM memory to reflect a change in the sound characteristics of the waveform in accordance with changes made in the visually displayed waveform."

8. Paragraph (4) Of Claim 34 Of The '998 Patent**-"Means For Changing The Sound Waveform Stored In The Means For Storing In Accordance With Changes Made In The Visually Displayed Waveform By The Means For Editing"**

The parties do not dispute that this element of Claim 34 is drafted in means plus function format. With respect to the structure corresponding to the "means for changing the sound waveform," both parties agree that it should be construed to mean the "the editor 14 installed in the computer 12 and equivalents thereof." (D.I. 305 at 28; D.I. 243 at 19). Accordingly, the Court will adopt the parties' construction.

The only dispute between the parties relates to the recited function of "changing the sound waveform stored in the means for storing in accordance with changes made in the visually displayed waveform by the means for editing." (D.I. 305 at 28). The parties, however, make the same arguments as they made with respect to the construction of the changing the stored sound waveform phrase. (D.I. 305 at 28-29; D.I. 311 at 18). Because the Court has construed the changing the stored sound waveform phrase, the Court concludes that the function of "changing the sound waveform stored in the means for storing in accordance with changes made in the visually displayed waveform by the means for editing" does not require construction.

C. The Meaning Of The Disputed Terms And Phrases Of The '443 Patent

The '443 Patent contains both independent and dependent method and systems claims. The independent method claims of the '443 Patent include Claims 25, 39, 40, 41, and 42. Claims 26-31 depend ultimately from Claim 25, and Claims 43-47 depend from Claim 42. The independent system claims of the '443 patent include Claims 1, 12, 13, 14, 15, 21, 22, 23, 24, 32, 33, 34, 35, 36, and 37, of which Claims 1 and 32 are representative for the purposes of the parties' dispute. Claims 2-11 depend ultimately from Claim 1, Claims 16-20 depend from Claim 15, and Claim 38 depends from Claim 37.

Because the meaning of numerous terms and phrases in the '443 Patent are in dispute, the Court will address the meaning of disputed terms and phrases in three separate categories. First, the Court will address the meaning of terms and phrases that are recited or incorporated into every claim of the '443 Patent. Second, the Court will address the meaning of the disputed terms and phrases that are recited throughout the method claims of the '443 Patent. Finally, the Court will address the meaning of the terms and phrases that are recited in the system claims of the '443 Patent.

1. The Meaning Of Terms And Phrases That Are Recited Or Incorporated Into Every Claim Of The '443 Patent

a. "Pixel"

[15] The parties agree the term "pixel" should be construed to mean "the smallest possible area that can be modified in a computer image." (D.I. 470 at 5; D.I. 479 at 9). Accordingly, the Court will adopt the parties' construction.

b. "Elements"

[16] Macromedia contends that the term "elements" should be construed to mean "a representation of a shape, including attributes such as color, line width, and fill properties, that could be displayed on a computer screen." (D.I. 470 at 6). Adobe contends that the term "elements" should be construed in accordance with the definition expressly provided in the specification, namely "a shape together with its graphical attributes, such as color, line width, fill properties, and line properties." (D.I. 479 at 12).

In construing the term "elements," the Court has considered the specification of the '443 Patent. ('443 Patent, Col. 2, lines 32-34). Because the specification expressly defines the term "elements" as Adobe contends, the Court construes the term "elements" to mean "a shape together with its graphical attributes, such as color, line width, fill properties, and line properties."

c. "Defining Element"

[17] Macromedia contends that the phrase "defining element" should be construed to mean "an element from which derived elements are generated." (D.I. 470 at 6). Adobe contends that the phrase "defining element" should be construed in accordance with the definition expressly provided in the specification, namely "an element that can be used to calculate the essential information required to construct other elements." (D.I. 479 at 12).

In construing the phrase "defining element," the Court has considered the specification of the '443 Patent. ('443 Patent, Col. 2, lines 37-39). Because the specification expressly defines the phrase "defining element" as Adobe contends, the Court construes the phrase "defining element" to mean "an element that can be used to calculate the essential information required to construct other elements."

d. "Derived Element"

[18] Macromedia contends that the phrase "derived element" should be construed to mean "an element that is generated based on one or more defining elements." (D.I. 470 at 6). Adobe contends that the phrase "derived element" should be construed in accordance with the definition expressly provided in the specification, namely "an element which is calculated from the defining element(s) via a preset mathematical relationship." (D.I. 479 at 13).

In construing the phrase "derived element," the Court has considered the specification of the '443 Patent. ('443 Patent, Col. 2, lines 39-43). Because the specification expressly defines the phrase "derived element" as Adobe contends, the Court construes the phrase "derived element" to mean "an element which is calculated from the defining element(s) via a preset mathematical relationship."

e. The Preamble-Derived And Defining Elements Being Displayed "As A Plurality Of Pixels On A Graphics Display Screen"

[19] The parties agree that all of the preambles of the claims of the '443 Patent set forth relationships among elements of the claims that are not explicitly described in the body of the claims, yet are necessary to give the claims meaning. Accordingly, the preambles of the claims of the '443 Patent should be separately construed. *See* Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615 (Fed.Cir.1995) (holding that where the preamble contributes to the definition of the claimed invention, the preamble may limit the scope of the claim).

[20] Each of the preambles, though using different words, sets forth a relationship between the graphics display screen and the derived and defining elements. Essentially, each preamble recites that the derived and defining elements are "displayed as a plurality of pixels on a graphicsdisplay screen." FN2 Macromedia contends that this preamble language should be construed in accordance with its plain and ordinary meaning-i.e. that derived and defining elements are "shown on the computer screen as a collection of one or more pixels." (D.I. 470 at 7). Adobe contends that the derived and defining elements recited in the preamble language are limited to "pixel-based representations." Specifically, Adobe contends that images can either be vector-based or pixel-based, and a review of the prosecution history illustrates that Macromedia has limited the scope of its claims to pixel-based representations.

FN2. While all preambles do not use this exact language, each preamble uses similar language with the same meaning.

In construing the preamble language "displayed as a plurality of pixels on a graphics display screen," the Court has considered the specification and prosecution history. ('443 Patent, Cols. 1-3, lines 5-35; D.I. 250, Ex. 3, Tab 8 at 14). Based on a review of these sources, the Court concludes that Macromedia did not limit the derived and defining elements to "pixel-based representations." Accordingly, the Court interprets the preamble language in accordance with its ordinary and accustomed meaning-i.e. that derived and defining elements are "shown on the computer screen as a collection of one or more pixels."

2. The Meaning Of The Disputed Terms And Phrases That Are Recited Throughout The Method Claims Of The '443 Patent

The following five phrases recited throughout the method claims of the '443 Patent are in dispute: FN3

FN3. In its revised opening claim construction brief, Macromedia set forth proposed constructions for the following five other phrases contained throughout the method claims of the '443 Patent:
1. "accepting at least one new parameter while said derived elements are still displayed" ('443 Patent, Claim 25)
2. "internal reference" ('443 Patent, Claims 39-42)
3. "making a plurality of changes in one or more of said defining elements" ('443 Patent, Claim 40)
4. "using said internal reference to rederive any derived elements without manually reestablishing any unchanged parameters" ('443 Patent, Claim 42)
5. "wherein the derived elements are modified in accordance with established parameters" ('443 Patent, Claim 42)

(*See* D.I. 470 at 9-11). Because these phrases were not addressed in either Adobe's opposition brief or Macromedia's reply brief, the Court will assume that these phrases are no longer in dispute. (*See* D.I. 479; D.I. 491).
1. "modifying a characteristic of said display of said derived elements in accordance with said accepted at least one new parameter without respecification of all said parameters, said characteristic selected from a group consisting of display shape and display color of said derived elements" ('443 Patent, Claim 25)
2. "monitoring said at least one defining element for changes thereto" ('443 Patent, Claim 25)

3. "maintaining an internal reference between said derived elements and said at least one defining element" ('443 Patent, Claims 39-42)

4. "editing at least one of said defining element in one operation without the regeneration of said derived elements until all of said at least one defining element has been modified" ('443 Patent, Claim 39)

5. "using said internal reference to identify and discard all derived elements associated with a modified definingelement" ('443 Patent, Claim 41)

Because the dispute with respect to these phrases centers on the same issue, the Court will combine its interpretation of these phrases.
Adobe construes each of these five phrases in accordance with 35 U.S.C. s. 112 para. 6, contending that they are drafted in means-plus-function form. Specifically, Adobe contends that each of these phrases defines a function without defining a structure, material, or act sufficient to produce that function. According to Adobe, the structure corresponding to the function recited in these phrases is the algorithm of Figure 9 of the '443 Patent. Adobe thus construes each of these phrases to be limited to the algorithm of Figure 9 and equivalents thereof.

Macromedia contends that 35 U.S.C. s. 112 para. 6 should not apply because they are not drafted in means-plus-function form. According to Macromedia, these phrases should construed in accordance with their ordinary and accustomed meaning without regard to any particular structure.

The Court has reviewed each of these five phrases in the context of their respective claims and concludes that they are not drafted in means-plus-function form. Accordingly, 35 U.S.C. s. 112 para. 6 does not apply, and the Court will construe these phrases in accordance with the standard principles of claim construction.

[21] [22] [23] [24] [25] In construing these phrases, the Court has reviewed the specification and prosecution history. ('443 Patent; D.I. 250, Ex. 3). Based on a review of these sources, the Court concludes that there is no reason to construe these phrases in a manner inconsistent with their ordinary and accustomed meaning. Therefore, the Court will adopt the constructions proposed by Macromedia. The phrase "modifying a characteristic of said display of said derived elements in accordance with said accepted at least one new parameter without respecification of all said parameters, said characteristic selected from a group consisting of display shape and display color of said derived elements" means "regenerating the derived elements with new colors or with new shapes, based on the one or more new parameters, without all of the parameters having been edited." The phrase "monitoring said at least one defining element for changes thereto" means "monitoring the defining elements for changes entered by a user." The phrase "maintaining an internal reference between said derived elements and said at least one defining element" means "using an internal reference to associate the derived elements with the parent defining element(s)." The phrase "editing at least one of said defining element in one operation without the regeneration of said derived elements until all of said at least one defining element has been modified" means "automatically updating the derived elements only after all of the defining element or elements that a user intends to edit have been edited." The phrase "using said internal reference to identify and discard all derived elements associated with a modified defining element" means "an internal reference is utilized to automatically delete the existing derived elements when a defining element is updated, clearing the way for the subsequent generation of new derived elements."

3. The Meaning Of The Terms And Phrases That Are Recited Throughout The System Claims Of The '443 Patent

a. "Means For Specifying A Shape Of Said At Least One Defining Element"

[26] The parties agree that this phrase is drafted in means-plus-function form. Macromedia contends that the recited function of the "means for specifying a shape of said at least one defining element" is "allowing a user to input or select a shape." (D.I. 470 at 14). Because Adobe does not dispute Macromedia's proposal, the Court will adopt Macromedia's construction with respect to the recited function of this phrase. Macromedia further contends that the structure corresponding to the "means for specifying a shape of said at least one defining element" is "graphics software running on a computer for drawing and/or selecting shapes by a user, as well as input devices of the computer system, such as a keyboard and a mouse." (D.I. 470 at 14). Adobe contends that the structure corresponding to this element should be construed as "a mouse or other input device." (D.I. 479 at 14).

In construing the structure corresponding to the "means for specifying a shape of said at least one defining element," the Court has reviewed the specification and the prosecution history. ('443 Patent, Col. 1, lines 36-38; Col. 3, line 66-Col. 4, line 4; Col. 4, line 66-Col. 5, line 10; D.I. 250, Ex. 3). Based on a review of these sources, the Court concludes that it is not necessary to read the limitation of "graphics software running on a computer for drawing and/or selecting shapes by a user" into this claim element. Accordingly, the Court construes the structure corresponding to the "means for specifying a shape of said at least one defining element" as "a mouse or other input device."

b. "Shape"

[27] Macromedia contends that the term "shape" should be construed to mean "a definition of an open or closed geometric region, made up of curved or straight lines." (D.I. 470 at 14). Adobe contends that the term

"shape" should be construed in accordance with the definition expressly provided in the specification, namely "a mathematical representation of a geometric construct, which can be open or closed, and which is composed of curves or straight lines." (D.I. 479 at 13).

In construing the term "shape," the Court has considered the specification of the '443 Patent. ('443 Patent, Col. 2, lines 30-32). Because the specification expressly defines the term "shape" as Adobe contends, the Court construes the term "shape" to mean "a mathematical representation of a geometric construct, which can be open or closed, and which is composed of curves or straight lines."

c. "Means For Accepting And Storing A Set Of Parameters Pertaining To A Desired Generation Of Said Derived Elements From Said At Least One Defining Element"

[28] The parties agree that this phrase is drafted in means-plus-function form. Macromedia contends that the recited function of this phrase is "receiving as input and storing a set of parameters." (D.I. 470 at 15). Macromedia further contends that the structure corresponding to the "means for accepting and storing a set of parameters pertaining to a desired generation of said derived elements from said at least one defining element" is "graphics software in conjunction with input devices of the computer system (e.g. Keyboard, mouse) for receiving parameters entered by a user, and graphics software for storing the parameters on storage media of the computer system (e.g. random access memory, magnetic memory)." (D.I. 470 at 15). Because this phrase includes multiple functions (i.e. "accepting" and "storing"), Adobe contends that the structure and function of this phrase requires two separate constructions. (D.I. 479 at 15). With regard to the "means for accepting," Adobe contends that the structure and function are properly construed as "a dialog box or equivalent user interface mechanism to allow a user to specify certain blend parameters." (D.I. 479 at 15). With regard to the "means for ... storing," Adobe contends that the structure and function are properly construed as "a blend construct or its equivalent that stores the specified blend parameters." (D.I. 479 at 15-16).

In construing the phrase "means for accepting and storing a set of parameters pertaining to a desired generation of said derived elements form said at least one defining element," the Court has reviewed the specification and the prosecution history. ('443 Patent, Col. 2, lines 34-53; Col. 5, lines 6-10, lines 21-27; D.I. 250, Ex. 3). Based on a review of these sources, the Court concludes that it is not necessary to read the limitation of "graphics software" into this claim element. Accordingly, the Court construes the phrase "means for accepting and storing a set of parameters pertaining to a desired generation of said derived elements form said at least one defining element" to mean "a dialog box or equivalent user interface mechanism to allow a user to specify certain blend parameters, and a blend construct or its equivalent that stores the specified blend parameters."

d. "Regenerating"

[29] Macromedia contends that the term "regenerating" should be construed to mean "automatically recalculating new derived elements, and discarding the old derived elements, without requiring user interaction." (D.I. 470 at 16). Adobe contends that the term "regenerating" should be construed in accordance with the definition expressly provided in the specification, namely "to automatically recalculate the new derived elements and discard the old derived elements." (D.I. 479 at 13).

In construing the term "regenerating," the Court has considered the specification of the '443 Patent. ('443 Patent, Col. 5, line 67-Col. 6, line 2). Because the specification expressly defines the term "regenerating" as Adobe contends, the Court construes the term "regenerating" to mean "to automatically recalculate the new

derived elements and discard the old derived elements."

e. "Means For Displaying On Said Display Screen Shapes Of Each Said Defining Elements"

[30] The parties agree that this phrase is drafted in means-plus-function form. Macromedia contends that the recited function of the "means for displaying on said display screen shapes of each said defining elements" is "displaying the shapes of all defining elements on a computer screen" (D.I. 470 at 20). Because Adobe does not dispute Macromedia's proposal, the Court will adopt Macromedia's construction with respect to the recited function of this phrase.

Macromedia further contends that the structure corresponding to the "means for displaying on said display screen shapes of each said defining elements" is "graphics software running on a computer system for displaying shapes on a monitor." (D.I. 470 at 20). Adobe contends that the structure corresponding to this element should be construed as "a computer display screen." (D.I. 479 at 16).

In construing the structure corresponding to the "means for displaying on said display screen shapes of each said defining elements," the Court has reviewed the specification and the prosecution history. ('443 Patent, Col. 4, line 66-Col. 5, line 15; Col. 6, lines 33-34). Based on a review of these sources, the Court concludes that it is not necessary to read the limitation of "graphics software running on a computer system" into this claim element. Accordingly, the Court construes the structure corresponding to the "means for displaying on said display screen shapes of each said defining elements" as "a computer display screen."

f. All Other Disputed Means-Plus-Function Phrases Recited Throughout The System Claims Of The '443 Patent

[31] The following eleven phrases contained throughout the systems claims of the '443 Patent are in dispute: FN4

FN4. In its revised opening claim construction brief, Macromedia set forth proposed constructions for the following fifteen other terms and phrases recited throughout the systems claims of the '443 Patent:
1. "a set of parameters pertaining to a desired generation of said derived elements" ('443 Patent, Claims 1, 12-15, 21-23)
2. "said regenerating means being enabled by a change to said at least one defining element" ('443 Patent, Claim 1)
3. "blending" ('443 Patent, Claims 32-37)
4. "means for regenerating said derived elements whenever said at least one defining element have been modified" ('443 Patent, Claim 32)
5. "means for changing said stored parameters" ('443 Patent, Claims 12, 21)
6. "wherein said regenerating means is enabled by said change to said parameters" ('443 Patent, Claim 12)
7. "wherein said parameters control a number of said derived elements" ('443 Patent, Claims 13, 21)
8. "means controlled by said stored set of parameters for displaying said derived elements" ('443 Patent, Claims 14-15, 21-23)
9. "said modifying means being enabled by said change to said defining elements" ('443 Patent, Claim 14)
10. "means for controlling said modifying means to be responsive to changes in any of said defining elements" ('443 Patent, Claim 15)
11. "wherein said defining elements are any one of a plurality of shapes" ('443 Patent, Claim 23)
12. "means for generating a number of said at least one derived element to be derived from said at least one defining element" ('443 Patent, Claim 33)

13. "means for generating a number of said at least one derived element to be derived from said at least one defining element" ('443 Patent, Claim 33)
14. "means controlled by said stored information for regenerating said at least one derived element after at least one of said parameters have been modified without explicit invocation of said regenerating means" ('443 Patent, Claims 34-35)
15. "means for utilizing said stored information to discard all derived elements associated with a modified defining element and for regenerating at least one new derived element in one operation" ('443 Patent, Claim 36)

(*See* D.I. 470 at 14-24). Because these phrases were not addressed in either Adobe's opposition brief or Macromedia's reply brief, the Court will assume that these phrases are no longer in dispute. (*See* D.I. 479; D.I. 491).
1. "means controlled by said stored set of parameters for generating said derived elements from said at least one defining element" ('443 Patent, Claims 1, 12-13)
2. "means operational while said derived elements remain derived from said at least one defining element for regenerating new derived elements in accordance with updated parameters" ('443 Patent, Claims 1, 12-13)

3. "means for changing at least one of said at least one defining element" ('443 Patent, Claim 1)

4. "means for determining a select number of derived elements for display as a plurality of pixels to be derived from said at least one defining element" ('443 Patent, Claims 32, 34-37)

5. "means for storing information to identify ones of said derived elements with respect to said at least one defining element" ('443 Patent, Claims 32-37)

6. "means for controlling said regenerating means to be responsive to changes in any of said defining elements" ('443 Patent, Claim 6)

7. "means for modifying a display of said derived elements in accordance with updating of certain of said parameters without specifying all of said parameters" ('443 Patent, Claims 14-15, 21-23)

8. "means for utilizing said stored information to purge all derived elements derived from said at least one defining element that has been modified" ('443 Patent, Claim 33)

9. "means controlled by said stored information for regenerating said at least one derived element after one or more of said defining elements have been modified without explicit invocation of said regenerating means" ('443 Patent, Claim 34)

10. "means for making more than one change in any number of said defining elements in a same operation" ('443 Patent, Claim 37)

11. "means for inhibiting said regenerating means until all of said defining elements associated with said derived elements have been modified" ('443 Patent, Claim 38)

Because the dispute with respect to these phrases centers on the same issue, the Court will address the construction of each of these phrase together.

The parties do not dispute that each of these eleven phrases are drafted in means-plus-function form and are subject to 35 U.S.C. s. 112 para. 6. While the parties agree upon the meaning of the functions recited by each of these phrases, the parties dispute the extent of the corresponding "structure." According to Adobe, the specification of the '443 Patent expressly discloses that structure corresponding to each of these phrases is the algorithm of Figure 9. (D.I. 479 at 14). Macromedia contends that Adobe's construction improperly imports structure that is not necessary for performing the recited functions. (D.I. 491 at 9). Specifically, Macromedia contends that both the specification and Figure 9 of the '443 Patent expressly disclose two distinct data structures, namely the "blend construct" and the "cleanup list." (D.I. 491 at 11). According to Macromedia, Adobe's proposed construction unnecessarily includes the cleanup list as part of the structure corresponding to many of the phrases at issue. (D.I. 491 at 11).

In construing these phrases, the Court has reviewed the specification and prosecution history. ('443 Patent, Cols. 1-5; D.I. 250, Ex. 3). Based on a review of these sources, the Court concludes that the blend construct and the cleanup list are interrelated, and therefore, construing Figure 9 in its entirety as the structure corresponding to the phrases at issue is not improper. (*See* '443 Patent, Col. 5, lines 44-49 (indicating "[o]nce the blend construct receives a message that one of its defining elements has changed, it is configured to regenerate itself later. As an aid to efficiency, the blend construct does not reblend immediately but adds itself into the cleanup list")). Accordingly, the Court will adopt the constructions proposed by Adobe. The phrase "means controlled by said stored set of parameters for generating said derived elements from said at least one defining element" means "a computer programmed with the computer code of Figure 9, and equivalents which generates derived elements from the defining elements according to a predetermined mathematical formula in accordance with user entered parameters." The phrase "means operational while said derived elements remain derived from said at least one defining element for regenerating new derived elements in accordance with updated parameters" means "a computer programmed with the algorithm of Figure 9 and equivalents that aggregate information about user entered changes to blend parameters into a cleanup list such that regeneration of derived elements takes place during a single logical step." The phrase "means for changing at least one of said at least one defining element" means "a computer programmed with the computer code of the algorithm shown in step 906 of Figure 9, and equivalents that permits a defining element to be modified in accordance with a user requested change." The phrase "means for determining a select number of derived elements for display as a plurality of pixels to be derived from said at least one defining element" means "a computer programmed with the computer code of Figure 9, and equivalents which uses a predefined algorithm to generate a user entered number of derived elements (as blend parameters) consisting of a plurality of pixels from one or more defining elements." FN5 The phrase "means for storing information to identify ones of said derived elements with respect to said at least one defining element" means "a blend construct that stores the specified blend parameters in the algorithm of Figure 9 and the equivalents thereof." The phrase "means for controlling said regenerating means to be responsive to changes in any of said defining elements" means "a computer programmed with the computer code of Figure 9, and equivalents which, upon receiving notification that a user has made changes to the attributes of defining elements (i.e. line width, shape, and color), causes modifications to the derived elements based upon those user entered changes." The phrase "means for modifying a display of said derived elements in accordance with updating of certain of said parameters without specifying all of said parameters" means "a computer programmed with the computer code of Figure 9 which aggregate information about user entered changes to blend parameters into a cleanup list such that the modification of the display of derived elements takes place during a single logical step, and its equivalents." The phrase "means for utilizing said stored information to purge all derived elements derived from said at least one defining element that has been modified" means "a computer programmed with the computer code of Figure 9 which first aggregate one or more blend constructs into a cleanup list as shown

in steps 906-909, and then purges the old derived elements in favor of new derived elements during a single logical step as shown in steps 903-904, and its equivalents." The phrase "means controlled by said stored information for regenerating said at least one derived element after one or more of said defining elements have been modified without explicit invocation of said regenerating means" means "a computer programmed with the computer code of Figure 9 which aggregates information about user entered changes to a defining element into a cleanup list as shown in steps 906-909 such that regeneration automatically takes place during a single logical step as shown in steps 903-904, and its equivalents." The phrase "means for making more than one change in any number of said defining elements in a same operation" means "a computer programmed with the computer code of the algorithm depicted in Figure 9 to perform steps 905 and 906-909, and equivalents that permit multiple changes to be made to a defining element." The phrase "means for inhibiting said regenerating means until all of said defining elements associated with said derived elements have been modified" means "a computer programmed with the computer code of Figure 9 that performs the steps of 906-909, and equivalents that prevent regeneration of derived elements until all user entered changes to the individual defining elements have been entered."

FN5. In light of the Court's construction above with respect to the preamble language, the Court has amended Adobe's proposed construction of this phrase to read "derived elements (as blend parameters) consisting of a plurality of pixels," rather than "derived elements (as blend parameters) consisting of bitmap images."

ORDER

At Wilmington this 3rd day of May, 2002, for the reasons set forth in the Memorandum Opinion issued this date;

IT IS HEREBY ORDERED that:

1) The following terms and phrases contained in the '998 and '969 Patents are construed as follows:

a) The meaning of the term "mixing" is combining several separate sounds into a single sound;

b) The structure corresponding to the "means for mixing the independent waveforms" is the mixer 14A installed in the computer 12, and equivalents thereof;

c) The recited function of the "means for mixing the independent waveforms" is combining several separate sounds into a single sound;

d) The structure corresponding to the "means for moving each independent displayed waveform relative to the associated time axis" is the mixer 14A installed in the computer 12, and equivalents thereof;

e) The recited function of the "means for moving each independent displayed waveform relative to the associated time axis" is repositioning and aligning a displayed sound waveform along the direction of its time axis independent of the other displayed sound waveforms;

f) The structure corresponding to the "means for combining the independently displayed waveforms wherein a stored waveform the visual representation of which has been moved relative to the associated time axis is

correspondingly shifted in time relative to the other independent waveforms by the means for editing" is the mixer 14A installed in the computer 12, and equivalents thereof;

g) The recited function of the "means for combining the independently displayed waveforms wherein a stored waveform the visual representation of which has been moved relative to the associated time axis is correspondingly shifted in time relative to the other independent waveforms by the means for editing" is bringing together or associating independent sound waveforms according to their position on the time axis;

h) The meaning of the phrase "sound waveform" is a pattern of pressure variation;

i) The meaning of the phrase "storing a sound waveform" is storing a pattern of pressure variation in a computer memory (i.e. RAM) from which the information can be obtained;

j) The structure corresponding to the "means for storing a sound waveform" is a computer memory (i.e. temporary storage, such as RAM) and equivalents thereto;

k) The meaning of the phrase "visually displaying the waveform" is displaying a graphical representation of a sound waveform;

l) The structure corresponding to the "means for visually displaying the stored waveform" is the display 15 and equivalents thereof;

m) The meaning of the phrase "editing the appearance of the visually displayed waveform by manipulation of said visually displayed waveform" is altering, adapting or refining how the displayed waveform looks on the computer screen, for example, by selecting a portion of the waveform by highlighting it, cutting, pasting or deleting a selected portion, displacing the waveform along the time axis, or overlaying the waveform with a sound characteristics control line and displacing the line;

n) The structure corresponding to the "means for editing the appearance of a predetermined portion of the visually displayed waveform by manipulation of said visually displayed waveform" is the editor 14 installed in the computer 12 and equivalents thereof;

o) The meaning of the phrase "changing the stored sound waveform in accordance with changes made in the visually displayed waveform by the step of editing" is overwriting the stored waveform stored in the computer RAM memory to reflect a change in the sound characteristics of the waveform in accordance with changes made in the visually displayed waveform;

p) The structure corresponding to the "means for changing the sound waveform stored in the means for storing in accordance with changes made in the visually displayed waveform by the means for editing" is the editor 14 installed in the computer 12 and equivalents thereof;

2) The following terms and phrases contained in the '443 Patent are construed as follows:

a) The meaning of the term "pixel" is the smallest possible area that can be modified in a computer image;

b) The meaning of the term "elements" is a shape together with its graphical attributes, such as color, line width, fill properties, and line properties;

c) The meaning of the phrase "defining element" is an element that can be used to calculate the essential information required to construct other elements;

d) The meaning of the phrase "derived element" is an element which is calculated from the defining element(s) via a preset mathematical relationship;

e) The meaning of the preamble language "displayed as a plurality of pixels on a graphics display screen" is shown on the computer screen as a collection of one or more pixels;

f) The meaning of the phrase "modifying a characteristic of said display of said derived elements in accordance with said accepted at least one new parameter without respecification of all said parameters, said characteristic selected from a group consisting of display shape and display color of said derived elements" is regenerating the derived elements with new colors or with new shapes, based on the one or more new parameters, without all of the parameters having been edited;

g) The meaning of the phrase "monitoring said at least one defining element for changes thereto" is monitoring the defining elements for changes entered by a user;

h) The meaning of the phrase "maintaining an internal reference between said derived elements and said at least one defining element" is using an internal reference to associate the derived elements with the parent defining element(s);

i) The meaning of the phrase "editing at least one of said defining element in one operation without the regeneration of said derived elements until all of said at least one defining element has been modified" is automatically updating the derived elements only after all of the defining element or elements that a user intends to edit have been edited;

j) The meaning of the phrase "using said internal reference to identify and discard all derived elements associated with a modified defining element" is an internal reference is utilized to automatically delete the existing derived elements when a defining element is updated, clearing the way for the subsequent generation of new derived elements;

k) The recited function of the "means for specifying a shape of said at least one defining element" is allowing a user to input or select a shape;

l) The structure corresponding to the "means for specifying a shape of said at least one defining element" is a mouse or other input device;

m) The meaning of the term "shape" is a mathematical representation of a geometric construct, which can be open or closed, and which is composed of curves or straight lines;

n) The meaning of the phrase "means for accepting and storing a set of parameters pertaining to a desired generation of said derived elements form said at least one defining element" is a dialog box or equivalent user interface mechanism to allow a user to specify certain blend parameters, and a blend construct or its equivalent that stores the specified blend parameters;

o) The meaning of the term "regenerating" is to automatically recalculate the new derived elements and discard the old derived elements;

p) The recited function of the "means for displaying on said display screen shapes of each said defining elements" is displaying the shapes of all defining elements on a computer screen;

q) The structure corresponding to the "means for displaying on said display screen shapes of each said defining elements" is a computer display screen;

r) The meaning of the phrase "means controlled by said stored set of parameters for generating said derived elements from said at least one defining element" is a computer programmed with the computer code of Figure 9, and equivalents which generates derived elements from the defining elements according to a predetermined mathematical formula in accordance with user entered parameters;

s) The meaning of the phrase "means operational while said derived elements remain derived from said at least one defining element for regenerating new derived elements in accordance with updated parameters" is a computer programmed with the algorithm of Figure 9 and equivalents that aggregate information about user entered changes to blend parameters into a cleanup list such that regeneration of derived elements takes place during a single logical step;

t) The meaning of the phrase "means for changing at least one of said at least one defining element" is a computer programmed with the computer code of the algorithm shown in step 906 of Figure 9, and equivalents that permits a defining element to be modified in accordance with a user requested change;

u) The meaning of the phrase "means for determining a select number of derived elements for display as a plurality of pixels to be derived from said at least one defining element" is a computer programmed with the computer code of Figure 9, and equivalents which uses a predefined algorithm to generate a user entered number of derived elements (as blend parameters) consisting of a plurality of pixels from one or more defining elements;

v) The meaning of the phrase "means for storing information to identify ones of said derived elements with respect to said at least one defining element" is a blend construct that stores the specified blend parameters in the algorithm of Figure 9 and the equivalents thereof;

w) The meaning of the phrase "means for controlling said regenerating means to be responsive to changes in any of said defining elements" is a computer programmed with the computer code of Figure 9, and equivalents which, upon receiving notification that a user has made changes to the attributes of defining elements (i.e. line width, shape, and color), causes modifications to the derived elements based upon those user entered changes;

x) The meaning of the phrase "means for modifying a display of said derived elements in accordance with updating of certain of said parameters without specifying all of said parameters" is a computer programmed with the computer code of Figure 9 which aggregate information about user entered changes to blend parameters into a cleanup list such that the modification of the display of derived elements takes place during a single logical step, and its equivalents;

y) The meaning of the phrase "means for utilizing said stored information to purge all derived elements

derived from said at least one defining element that has been modified" is a computer programmed with the computer code of Figure 9 which first aggregate one or more blend constructs into a cleanup list as shown in steps 906-909, and then purges the old derived elements in favor of new derived elements during a single logical step as shown in steps 903-904, and its equivalents;

z) The meaning of the phrase "means controlled by said stored information for regenerating said at least one derived element after one or more of said defining elements have been modified without explicit invocation of said regenerating means" is a computer programmed with the computer code of Figure 9 which aggregates information about user entered changes to a defining element into a cleanup list as shown in steps 906-909 such that regeneration automatically takes place during a single logical step as shown in steps 903-904, and its equivalents;

aa) The meaning of the phrase "means for making more than one change in any number of said defining elements in a same operation" is a computer programmed with the computer code of the algorithm depicted in Figure 9 to perform steps 905 and 906-909, and equivalents that permit multiple changes to be made to a defining element;

bb) The meaning of the phrase "means for inhibiting said regenerating means until all of said defining elements associated with said derived elements have been modified" is a computer programmed with the computer code of Figure 9 that performs the steps of 906-909, and equivalents that prevent regeneration of derived elements until all user entered changes to the individual defining elements have been entered.