IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CELEBRATE INTERNATIONAL, LLC, Plaintiff; v. LEAPFROG ENTERPRISES, INC., et al., Defendants.	Civil Action No. 14-261-RGA

MEMORANDUM OPINION

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ANDREWS, U.S. DISTRICT JUDGE:

Pending before the Court is the issue of claim construction for the disputed terms found in U.S. Patent Nos. 6,256,398 ("the '398 patent") and 6,819,776 ("the '776 patent").[1] On February 26, 2014, Plaintiff Celebrate International, LLC filed the present action for patent infringement against Defendants (collectively, "LeapFrog"), alleging infringement of the '398 and '776 patents. (D.I. 1). The Court has considered the parties' joint claim construction brief (D.I. 84), joint appendix (D.I. 85), and held oral argument on January 22, 2015. (D.I. 89).

I. BACKGROUND

The abstract of the '776 patent describes the invention as "[a] method for decoding a message embedded in a pattern of pixels." (D.I. 1-2 at 2). Claim 1 of the '776 patent is a representative claim:

> A device for loading address information into a data communication application, comprising:
>
> (a) a reader for sensing light from a selected pattern of pixels and determining pixel values of pixels in said pattern of pixels, said pattern of pixels constituting a foreground visual image that conveys recognizable information to an observer and having embedded address information; and
>
> (b) processor that is adapted to recover embedded address information from the pattern of pixels, said processor being adapted to determine the embedded address information by determining binary values via comparing pixel values of selected pixels to the pixel values of pixels neighboring thereto in the pattern of pixels and for loading the address information onto the data communication application for communicating according to the address information.

(*Id.* at 36, col. 24:53–25:2).

[1] The '776 patent is a continuation of the '398 patent, and both have identical specifications. For purposes of simplicity, all citations to the specification are to the '776 patent.

II. LEGAL STANDARD

"It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal quotation marks omitted). "'[T]here is no magic formula or catechism for conducting claim construction.' Instead, the court is free to attach the appropriate weight to appropriate sources 'in light of the statutes and policies that inform patent law.'" *SoftView LLC v. Apple Inc.*, 2013 WL 4758195, at *1 (D. Del. Sept. 4, 2013) (quoting *Phillips*, 415 F.3d at 1324). When construing patent claims, a court considers the literal language of the claim, the patent specification, and the prosecution history. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977–80 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). Of these sources, "the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Phillips*, 415 F.3d at 1315 (internal quotation marks and citations omitted).

"[T]he words of a claim are generally given their ordinary and customary meaning. . . . [Which is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1312–13 (internal quotation marks and citations omitted). "[T]he ordinary meaning of a claim term is its meaning to [an] ordinary artisan after reading the entire patent." *Id.* at 1321 (internal quotation marks omitted). "In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Id.* at 1314 (internal citations omitted).

When a court relies solely upon the intrinsic evidence—the patent claims, the specification, and the prosecution history—the court's construction is a determination of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). The court may also make factual findings based upon consideration of extrinsic evidence, which "consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Phillips*, 415 F.3d at 1317–19 (internal quotation marks and citations omitted). Extrinsic evidence may assist the court in understanding the underlying technology, the meaning of terms to one skilled in the art, and how the invention works. *Id.* Extrinsic evidence, however, is less reliable and less useful in claim construction than the patent and its prosecution history. *Id.*

"A claim construction is persuasive, not because it follows a certain rule, but because it defines terms in the context of the whole patent." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that "a claim interpretation that would exclude the inventor's device is rarely the correct interpretation." *Osram GmbH v. Int'l Trade Comm'n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (internal quotation marks and citation omitted).

III. CONSTRUCTION OF DISPUTED TERMS

A. The '398 and '776 Patents

1. "pixel value(s)"

a. *Plaintiff's proposed construction*: Plain and ordinary meaning, or in the alternative, "Values relating to a characteristic of a pixel, including greyscale, brightness, color, size, or dimensions."

b. *Defendants' proposed construction*: Measurable characteristics of a pixel, such as greyscale, brightness, color, size, or dimensions.

c. *Court's construction*: Value(s) derived from measurable characteristics of a pixel, including greyscale, brightness, color, size, or dimensions.

During oral argument, Celebrate proposed the alternative construction: "Values relating to a characteristic of a pixel, including greyscale, brightness, color, size, or dimensions." (D.I. 89 at 23:24–24:1). LeapFrog was amenable to this construction, so long as the word "measurable" was included before "characteristic." (*Id.* at 37:19–22). The parties agree that the "characteristics of a pixel" used to determine "pixel value(s)" include "greyscale, brightness, color, size, or dimensions." Thus, the key issue is whether the pixel characteristics must be "measurable." (*Id.* at 37:23–25).

Celebrate argues that using "measurable characteristics" improperly limits the claim language because the asserted claims refer to "determining" pixel values, which "may include measuring, calculating or otherwise assigning such value." (D.I. 84 at 23). Celebrate notes that the specification discloses two different types of pixel values—"measured pixel values" and "transformed pixel values." (*Id.*). The specification states, "To create the glyph map, pixel transformation on the glyph image is performed calculating the transformed pixel value from the measured pixel value with an equation." (D.I. 1-2 at 32, col. 15:14–16). During oral argument, Celebrate cited "transformed pixel values" as an example of pixel values that may be determined using "unmeasurable characteristics." (D.I. 89 at 24:15–24). Celebrate conceded, however, that a "transformed pixel value" must start as a "measured pixel value." (*Id.* at 25:6–12). The specification does not disclose a scenario where the pixel value is determined using anything but a "measurable characteristic." Thus, the intrinsic record supports a construction that requires "pixel value(s)" to be determined using "measurable characteristics." Therefore, I add "measurable" to Celebrate's alternative proposed construction.

Additionally, the phrase "relating to" in Celebrate's alternative proposed construction is broader than the claim language and specification allow. During oral argument, I proposed the construction "[values] derived from measurable characteristics of a pixel," instead. (*Id.* at 27:1–3). Celebrate found this construction to be "superior" to LeapFrog's proposed construction as well. (*Id.* at 29:7–21). I agree. I also think "derived from" is a more accurate way of stating how the values are determined from the measurable characteristics. Thus, I replace the phrase "relating to" with "derived from" in Celebrate's alternative proposed construction.

2. "said pattern of pixels constituting a foreground visual image that conveys [recognizable]/[understandable] information to an observer"

a. *Plaintiff's proposed construction*: Said pattern of pixels including a foreground visual image that conveys [recognizable]/[understandable] information to an observer.

b. *Defendants' proposed construction*: The pixels for which pixel values are determined form, make up, or compose a foreground visual image that conveys recognizable/[understandable] information to a human observer.

c. *Court's construction*: Said pattern of pixels composing, at least a portion of, a foreground visual image that conveys [recognizable]/[understandable] information to an observer.

During oral argument, Celebrate identified two issues in dispute with respect to this term: (1) what the "pattern of pixels" refers to; and (2) what "constituting" means. (*Id.* at 41:12–21). The language of claim 1 immediately preceding the disputed term provides an antecedent basis for "said pattern of pixels," stating "a reader for sensing light from a selected pattern of pixels and determining pixel values of pixels in said pattern of pixels." (D.I. 1-2 at 36, col. 24:55–57).

Celebrate argues that the "pattern of pixels" refers to both the pixels making up the foreground image and the pixels that are embedded in the image whose values are determined. (D.I. 84 at 25). LeapFrog, on the other hand, argues that the "pattern of pixels" refers only to the pixels whose values are determined. (*Id.* at 29).

Celebrate asserts that the pixels that make up the encoded message do not have to be the same pixels that make up the foreground image. (*Id.* at 26). Celebrate cites Figures 7 and 8A of the specification for support. (D.I. 1-2 at 9, figs.7 & 8A). The specification explains, "FIG. 7 is the image of pixels displaying the word 'Webstar' (i.e., the foreground image) without any embedded message," and Figure 8A is the same image "[a]fter embedding the message according to a method of the present invention." (*Id.* at 29, col. 9:56–60). In Figure 8A, "[t]he presence of the encoded message is indicated by the presence of dots, i.e., black pixels in the white area and white pixels in the black area." (*Id.* at col. 9:64–67). The specification states, "The pixel appearance representing the encoded message data is not obtrusive and is unrecognizable by casual viewing by a viewer under normal lighting." (*Id.* at col. 10:10–12). Thus, Celebrate argues that the "pattern of pixels" includes the pixels making up the foreground image that are discernable to the human eye and the pixels embedded into that image with encoded information that can only be read by the "reader." (D.I. 84 at 28).

LeapFrog contends that the claim language requires the pixels whose values are determined to "constitute" a "foreground visual image," meaning the pixels embedded with information must "form, make up, or compose" the entire foreground image. (*Id.* at 29–30). LeapFrog further asserts that the patentee disclaimed the processing of pixels that do not comprise the foreground visual image during prosecution. LeapFrog cites the prosecution history, where the patentee argued that the prior art references "do[] not process a foreground

image nor do they decode an embedded message from a pattern of pixels by determining binary value via comparing pixel values of neighboring selected pixels." (D.I. 70-7 at 50). The claimed invention processes a foreground image and decodes an embedded message by comparing the pixels whose values are determined with the surrounding foreground pixels. This is consistent with the patentee's statement during prosecution and Celebrate's current position. Thus, the patentee did not disclaim Celebrate's proposed construction.

I agree with Celebrate that the "pattern of pixels" refers to both the foreground and embedded pixels. The specification makes clear that the claimed invention has two purposes: "[O]n a visual level, images and words can be displayed for a human to appreciate and read, yet on a less obvious level, a message embedded in the image can be read by a machine." (D.I. 1-2 at 25, col. 2:31–34). Figure 8A shows a foreground image that is made of both foreground pixels and pixels containing encoded information. The encoded pixels are embedded into the foreground image in order to make the image readable to the decoding device. The embedded pixels, however, do not make up the entire foreground image. Thus, the "pattern of pixels" refers to both foreground and embedded pixels, which together "constitute" the "foreground visual image." Therefore, I reject LeapFrog's proposed construction, and adopt a construction closer to the one proposed by Celebrate.

3. "binary value(s)"

a. *Plaintiff's proposed construction*: Logical value(s) expressed in one or more bits (0s and/or 1s).

b. *Defendants' proposed construction*: Values that are expressed as either '1' or '0.'

c. *Court's construction*: Values that are expressed using only 0s and/or 1s.

The parties stipulated to this construction. (D.I. 87).

4. "determining binary values via comparing pixel values of selected pixels to the pixel values of pixels neighboring thereto"[2]

a. *Plaintiff's proposed construction*: Plain and ordinary meaning, and "via" "by way of" or "no further construction is necessary"

b. *Defendants' proposed construction*: The binary value is determined by and depends upon comparing the relative pixel values of selected pixels with the pixel values of pixels neighboring thereto.

c. *Court's construction*: No construction is necessary.

The terms "pixel value(s)" and "binary value(s)" have already been construed above. The parties agree that "[t]he claims containing the phrase 'determining binary values' call for either a comparison of pixel[ ] values or brightness values." (D.I. 84 at 49). LeapFrog highlights that "[t]he only disclosed method for decoding an embedded message is to compute the 'cell contrast (CC) for each pixel, *i.e.*[,] the absolute difference of that pixel value from the average of those pixels surrounding it." (*Id.*). LeapFrog's proposed construction, however, adds limitations that are not supported by the intrinsic record. The claim language makes clear how binary values are determined. The remaining words in the disputed terms, including "determining," "via," and

[2] This exact term appears in claims 1 and 2 of the '776 patent. Similarly worded terms appear in claims 10 ("determine binary value of a pixel using contrast of brightness to compare pixel values of selected pixels to the pixel value of said pixel"), 15 ("determining binary values . . . via contrasting the brightness of selected pixels to the brightness of pixels neighboring thereto"), and 18 ("determining binary values using contrast of brightness to compare pixel values of selected pixels to the pixel values of pixels neighboring thereto") of the '776 patent and claim 20 ("determining binary values . . . via contrasting the brightness of selected pixels to the brightness of pixels neighboring thereto") of the '398 patent. The Court's construction applies equally to all of these terms.

"using," are ordinary English words that a juror would have no trouble understanding. Thus, the disputed terms may be given their plain and ordinary meaning. No construction is necessary.

5. "receiving light from a display"

a. *Plaintiff's proposed construction*: Surface, such as a monitor or printed paper, having a visual image.

b. *Defendants' proposed construction*: An electronic device, such as a cathode ray tube monitor, liquid crystal display or printer, which generates text or images that can be viewed by a human observer.

c. *Court's construction*: An electronic device, such as a cathode ray tube monitor, liquid crystal display or printer.

The term "display" only appears in claim 9, describing "[a] method for loading information into a data communication application, comprising . . . receiving light from a display that shows a pattern of pixels." (D.I. 1-2 at 37, col. 25:49–51). The specification provides explicit examples of "displays," including a "CRT monitor, liquid crystal display, printer, and the like." (*Id.* at 35, col. 22:18–20). The specification goes on to state, "In the case of a printer, a hard copy 2010 with the visual image, which includes an embedded message can be obtained by printing on a medium such as paper." (*Id.* at col. 22:20–22). Thus, there is a distinction between the "printer" itself serving as the "display," and the "paper" serving as a medium to print the "visual image." Figure 20A provides clear evidence of this distinction:

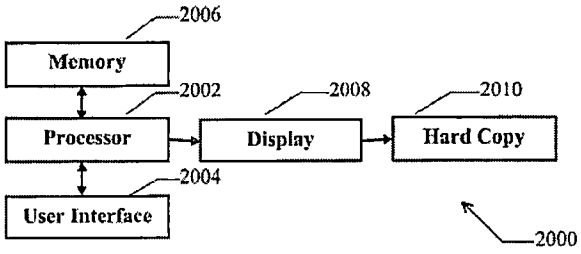

FIG. 20A

(*Id.* at 22, fig.20A). The specification also provides that "a user interface 2004 can be connected to the display 2008 for controlling the display." (*Id.* at 35, col. 22:22–25). This statement would not make sense if a "display" could be printed paper. Thus, printed paper is not a "display."

6. "address information"

a. *Plaintiff's proposed construction*: Information relating to/identifying location.

b. *Defendants' proposed construction*: Information for connecting to a web site, URL or Internet address.

c. *Court's construction*: Information identifying (electronic) location.

The term "address information" appears in claims 1 and 2, but does not appear at all in the specification. The specification states, "[T]he present invention provides a technique to embed a message in a visual image without obtrusive features that draw attention from the visual image." (D.I. 1-2 at 26, col. 3:66–4:2). "An example of such is embedding a hyperlink address such as a URL address ("web-site address["]) in an image printed on paper." (*Id.* at col. 4:2–5). The specification also teaches that "[t]he present technique provides a process, as well as a device to enable a web site to be printed to retain the visual image, yet allowing an electronic reader to read the image and direct the web browser to connect to that web site." (*Id.* at 25, col. 2:19–23). Every time the word "address" is used in the specification it is referring to a website,

URL, or Internet address. Thus, the embedded "address information" generally identifies an electronic location.

7. "data communication application"

a. *Plaintiff's proposed construction*: Plain and ordinary meaning.

b. *Defendants' proposed construction*: An application that communicates data from one device to another.

c. *Court's construction*: No construction is necessary.

LeapFrog's proposed construction adds a limitation that the data must communicate "from one device to another," which is not supported by the specification. The term "data communication application" does not appear at all in the specification. The term is made of ordinary English words that a jury would not have trouble understanding. Therefore, no construction is necessary.

IV. CONCLUSION

Within five days the parties shall submit a proposed order consistent with this memorandum opinion suitable for submission to the jury.