**IN THE UNITED STATES DISTRICT COURT**
**FOR THE DISTRICT OF DELAWARE**

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| TECHNO VIEW IP, INC., | ) | |
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| Plaintiff, | ) | |
| | ) | |
| v. | ) | Civil Action No. 17-386-VAC-CJB |
| | ) | |
| OCULUS VR, LLC and FACEBOOK, INC., | ) | |
| | ) | |
| | ) | |
| Defendants. | ) | |

**REPORT AND RECOMMENDATION**

In this action filed by Plaintiff Techno View IP, Inc. ("Techno View" or "Plaintiff") against Oculus VR, LLC ("Oculus") and Facebook, Inc. ("Facebook" and collectively with Oculus, "Defendants"), Plaintiff alleges infringement of United States Patent Nos. 7,666,096 (the "'096 patent") and 8,206,218 (the "'218 patent" and collectively with the '096 patent, "the asserted patents"). Presently before the Court is the matter of claim construction. The Court recommends that the District Court adopt the constructions as set forth below.

## I. BACKGROUND

### A. The Parties

Plaintiff is a California corporation, and the exclusive licensee of the asserted patents. (D.I. 8 at ¶¶ 1-2) Defendant Oculus is a Delaware limited liability company with its principal place of business in Menlo Park, California. (*Id.* at ¶¶ 3, 6; D.I. 12 at ¶¶ 3, 6) Defendant Facebook is a Delaware corporation with its principal place of business in Menlo Park, California. (D.I. 8 at ¶¶ 8, 10; D.I. 12 at ¶¶ 8, 10)

Defendants are in the business of making, using, and selling the Oculus Rift product. (D.I. 8 at ¶ 30; D.I. 17 at 1) In this action, Plaintiff alleges that Defendants directly and

indirectly infringe the asserted patents by the manufacture, use, sale, and offers to sell of products, including their Oculus Rift product. (D.I. 8)

**B. The Asserted Patents**

The '096 patent is entitled "Method for Generating the Left and Right Perspectives in a 3D Videogame[,]" and was issued on February 23, 2010. (D.I. 8, ex. A (hereinafter, the "'096 patent")) The '218 patent is entitled "3D Videogame System" and was issued on June 26, 2012. (*Id.*, ex. B (hereinafter, the "'218 patent")) The '218 patent is a continuation of the '096 patent, and the patents therefore share a specification. (*See* '218 patent; D.I. 53 at 1) Both patents claim priority to application No. PCT/MX03/00112, filed on December 19, 2003. ('096 patent; '218 patent; D.I. 56, Slide 1)

The patents relate to "the display of three-dimensional [hereinafter, '3D'] television images, more specifically to a hardware and software design for viewing [] 3D[] images, easy to be integrated to the existing television, personal computer and videogame system equipment." ('096 patent, col. 1:14-18; *see also* D.I. 73 at 8 (Plaintiff's counsel explaining that the patents "describe ways to efficiently process information for the generation and display of 3D images used in video game applications, whether on [personal computers], televisions, or virtual and augmented reality systems")) The Abstract of the patents describes the invention as a "3D videogame system capable of displaying a left-right sequences through a different, independent VGA or video channel, with a display device sharing a memory in an immerse manner." ('096 patent, Abstract)

**C. Procedural History**

Plaintiff filed the instant case on April 6, 2017. (D.I. 1) The case was assigned to the Vacant Judgeship docket on April 12, 2017, and referred to the Court on that date "for handling through case-dispositive motions[,]" including "making recommendations as to the resolution of dispositive matters[.]"

The parties filed simultaneous opening claim construction briefs on April 20, 2018 and simultaneous responsive briefs on May 18, 2018. (D.I. 52, 53, 57, 59) The Court held a *Markman* hearing on June 19, 2018. (D.I. 73 (hereinafter, "Tr.")) Following the hearing, Plaintiff submitted a supplemental letter brief to address caselaw newly disclosed by Defendants during the *Markman* hearing. (D.I. 69)

## II. STANDARD OF REVIEW

It is well-understood that "[a] claim in a patent provides the metes and bounds of the right which the patent confers on the patentee to exclude others from making, using, or selling the protected invention." *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989). Claim construction is a generally a question of law, although subsidiary fact finding is sometimes necessary. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 837-38 (2015).

The Court should typically assign claim terms their "'ordinary and customary meaning[,]'" which is "the meaning that the term[s] 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." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (citations omitted). However, when determining the ordinary meaning of claim terms, the Court should not extract and isolate those terms from the context of the patent; rather it should endeavor to

reflect their "meaning to the ordinary artisan after reading the entire patent." *Id.* at 1321; *see also Eon Corp. IP Holdings LLC v. Silver Spring Networks, Inc.*, 815 F.3d 1314, 1320 (Fed. Cir. 2016).

In proceeding with claim construction, the Court should look first and foremost to the language of the claims themselves, because "[i]t 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*, 415 F.3d at 1312 (internal quotation marks and citations omitted). For example, the context in which a term is used in a claim may be "highly instructive." *Id.* at 1314. In addition, "[o]ther claims of the patent in question, both asserted and unasserted, can . . . be valuable" in discerning the meaning of a particular claim term. *Id.* This is "[b]ecause claim terms are normally used consistently throughout the patent, [and so] the usage of a term in one claim can often illuminate the meaning of the same term in other claims." *Id.* Moreover, "[d]ifferences among claims can also be a useful guide[,]" as when "the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." *Id.* at 1314-15.

In addition to the words of the claims, the Court should look to other intrinsic evidence. For example, the Court should analyze the patent specification, which "may reveal a special definition given to a claim term . . . that differs from the meaning [that term] would otherwise possess" or may reveal an intentional disclaimer of claim scope. *Id.* at 1316. Even if the specification does not contain such revelations, it "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." *Id.* at 1315 (internal quotation marks and citation omitted). That said, however,

the specification "is not a substitute for, nor can it be used to rewrite, the chosen claim language." *SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004). And a court should also consider the patent's prosecution history, if it is in evidence, because it "can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution[.]" *Phillips*, 415 F.3d at 1317.

Extrinsic evidence, "including expert and inventor testimony, dictionaries, and learned treatises[,]" can also "shed useful light on the relevant art[.]" *Id.* (internal quotation marks and citations omitted). Overall, while extrinsic evidence may be useful, it is "less significant than the intrinsic record in determining the legally operative meaning of claim language." *Id.* (internal quotation marks and citations omitted); *accord Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 981 (Fed. Cir. 1995).

In utilizing these resources during claim construction, courts should keep in mind that "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998).

## III. DISCUSSION

The parties currently have disputes regarding eight terms or sets of terms (hereafter, "terms").[1] This Report and Recommendation addresses the first four terms, in the order in which the parties addressed them at the *Markman* hearing. The other four terms will be addressed in a forthcoming Report and Recommendation.

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[1] The parties originally submitted an additional term for claim construction:

At the outset, the Court notes that following the submission of claim construction briefing (but prior to the *Markman* hearing) the parties continued to meet and confer about the appropriate construction for many of the disputed terms at issue, in an effort to narrow the issues in dispute. (*See* Tr. at 5-6)[2] Accordingly, at the beginning of the *Markman* hearing, Defendants' counsel handed up to the Court a June 18, 2018 e-mail containing a chart of the parties' most recent updated proposed constructions for the relevant terms. (*Id.* at 6) The Court will refer to this e-mail below as the "June 18 e-mail." Further, during the *Markman* hearing, as the nature of certain of their disputes was brought into further relief, the parties continued to amend certain of their proposed constructions. Where applicable, then, the Court will focus below on these updated proposed constructions in resolving the parties' disputes.

**A. "buffer"**

The claim term "buffer" (or "buffers") appears in, *inter alia*, claims 8, 9, 10, 11, 13, 14,

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"storing [an] . . . image in[to] the . . . [back]buffer[,]" found in claims 1, 8 and 16 of the '096 patent and claims 1, 7 and 12 of the '218 patent. (*See, e.g.*, D.I. 52 at 7) Following the *Markman* hearing, however, the parties agreed to the following construction for the term: "placing into and then temporarily holding an image in the buffer/backbuffer." (D.I. 68 at 1)

[2] This further work was likely necessitated by the fact that in Plaintiff's opening claim construction brief, it posited "[n]ewly [p]roposed" constructions, for the first time, for several terms. (*See, e.g.*, D.I. 52 at 1, 8, 11, 14, 15, 17) And as this brief was filed simultaneously with Defendants' opening claim construction brief, the parties did not have the opportunity to fully hash out the disputed issues pertaining to the relevant terms in their briefing. (*See, e.g.*, D.I. 57 at 1 (Defendants noting in their answering claim construction brief that "it has been difficult for Defendants to know the constructions to which it should respond to help the Court understand the true disputes")) Accordingly, for many of the disputed terms, the Court's discussion will largely focus on the transcript from the *Markman* hearing, where a number of these disputes crystallized.

16, 17, 18 and 19 of the '096 patent, and claims 7, 8, 11, 12 and 13 of the '218 patent. The use of the disputed term in claims 8 and 13 of the '096 patent is representative. Accordingly, these claims are reproduced below, with the disputed term highlighted:

> **8.** A method in a videogame system for displaying videogame images to a user, comprising the computer implemented steps of:
> opening first and second *buffers* in a memory of the videogame system;
> storing a videogame image in the first *buffer*;
> determining when the videogame image is a two-dimensional image or a three-dimensional image, wherein when the videogame image is a two-dimensioned image, displaying the videogame image stored in the first *buffer* to a user, and
> wherein the videogame image is a three-dimensional image, calculating a second camera position view image from the videogame system,
> storing the second camera position view image in the second *buffer*, and
> simultaneously displaying the images in the first and second *buffers* to create a three dimensional perspective of the image to the user.

('096 patent, col. 14:12-32 (emphasis added))

> **13.** The method of claim **8**, wherein the first and second *buffers* are backbuffers.

(*Id.*, col. 14:50-51 (emphasis added))

The parties' current competing proposed constructions for "buffer" are set out in the chart below:

| **Term** | **Plaintiff's Construction** | **Defendants' Construction** |
|---|---|---|
| buffer | memory location for temporary storage of data | memory location for temporary storage of image-related data |

(June 18 e-mail; Tr. at 12, 36) As reflected in these proposals, the crux of the parties' dispute with respect to "buffer" is whether, in the context of the inventions disclosed in the asserted

patents, the term refers to a memory location that temporarily stores: (1) any kind of data; or (2) image-related data. (*See* Tr. at 12-13; D.I. 59 at 1)[3]

Although Plaintiff's original proposed construction for the term reflected that a "buffer" was associated with storing images,[4] Plaintiff now argues that the person of ordinary skill in the art at the time of the invention would have understood "buffer" to mean a memory location that may "store any type of data[.]" (D.I. 59 at 1; *see also* D.I. 52 at 15; Tr. at 12, 14, 17, 22, 37; Plaintiff's Markman Presentation Slides, Slide 15) In support, Plaintiff primarily cites to a dictionary definition of "buffer" that defines the term as a "region of memory reserved for use as an intermediate repository in which *data* is temporarily held while waiting to be transferred between two locations or devices." (D.I. 59 at 1 & n.1 (emphasis added) (quoting *Microsoft Computer Dictionary* (5th ed. 2002) at 76); *see also* Plaintiff's Markman Presentation Slides, Slide 15)

Plaintiff points out that certain claims of the asserted patents recite, in addition to a "buffer," other memory-related buffer terms—i.e., "backbuffer" and "frontbuffer." (D.I. 59 at 1) Plaintiffs contend that while "buffers" may store any kind of data, it is these other specialized forms of buffers (backbuffers and frontbuffers) that are specifically configured to temporarily store image-related data. (*Id.*; Tr. at 14-15, 17, 22) These terms are not meant to be synonyms,

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[3] While "any kind of data" could encompass text documents, images, audio clips, software programs, or other types of data, (*see* Plaintiff's Markman Presentation Slides, Slide 20; Tr. at 23, 39), image-related data, on the other hand, refers to the data that essentially makes up an image, such as header information, pixel array information, and descriptors for color and brightness, (*see* Plaintiff's Markman Presentation Slides, Slide 20; Tr. at 23, 36).

[4] Plaintiff's original proposed construction for "buffer" was "[a]ny memory location where the *image* to be displayed is temporarily 'drawn' without outputting it to the video card." (D.I. 52 at 14 (emphasis added))

Plaintiff insists, and thus "buffer" must be construed more broadly than backbuffer and frontbuffer. (D.I. 59 at 1) To demonstrate that these terms should not be construed synonymously, Plaintiff points to, for example, dependent claim 13 of the '096 patent, which limits the type of buffer being utilized to a backbuffer. (Tr. at 15-16, 37)

For their part, Defendants assert that while it may be true that, as a general matter, a "buffer" is a memory location for the storage of data, in the context *of the asserted patents*, the term "buffer" is used only in relation to the storage of images and image-related data. (D.I. 57 at 16 ("Whether [the claimed] buffers theoretically could store other types of 'data' other than images is irrelevant, and not discussed by the specification or recited in the claims."); Tr. at 32, 35-36) During the *Markman* hearing, Defendants clarified that while their proposal does not necessarily preclude the claimed buffers from storing additional data, such buffers *must* contain image-related data. (Tr. at 41)

The Court agrees with Defendants. In each and every claim that includes the term "buffer," that component is utilized to store an *image*. (*See, e.g.*, '096 patent, cols. 14:12-43, 53-56, 15:11-16:21; '218 patent, col. 14:18-42, 52-65; Tr. at 34 (Defendants' counsel noting that "in the claims" it is "images" that are stored in the buffers)) Indeed, Plaintiff itself acknowledges that in representative claim 8, the "buffers" recited therein "are fully functional as independent temporary storage locations for the data specified in the claim—an '*image*' temporarily stored in the 'first buffer' and the 'second camera position view *image*' temporarily stored in the 'second buffer.'" (D.I. 59 at 2 (emphasis added)) Yet Plaintiff's briefing did not point to any portions of

the intrinsic record that support the notion that—in the context of these claims—buffers could store *any* kind of data (other than, or to the exclusion of, image-related data).[5] (*See* D.I. 57 at 3)

During the *Markman* hearing, when pressed on the question of whether any portions of the patents' specifications describe the storage in a buffer of anything other than image-related data, Plaintiffs' counsel cited to three portions thereof. (Tr. at 20-21) However, the Court has reviewed these citations, and none of them support the notion that the "buffer" recited in the claims stores something other than image-related data. (*See* '096 patent, col. 5:50 (explaining that Figure 5 depicts the graphical adapter that "allows the information handling of the data associated with the images set"); *id.*, col. 6:7-9 ("Typically, the central processing unit processes software in order to generate geometric data referring to the image to be displayed[.]"); *id.*, col. 6:67 (referring to the transfer of "backbuffer data to the screen"); *see also* Tr. at 32 (Defendants' counsel noting that "the portions of the specification cited by [P]laintiff do not actually discuss storage of any kind of non-image-related data in a buffer"))[6] When read in the context of the

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[5] During the *Markman* hearing, Plaintiff's counsel seemed to essentially acknowledge that Plaintiff's proposed construction for "buffer" was geared to the term in the abstract, isolated from the context of the patent. To that end, when the Court asked if a buffer could only include the kind of data that has nothing to do with an image, Plaintiff's counsel responded that it could "[w]ithout question" but added whether a buffer can do so "in the video game concept, particularly as these claims are related[,] [i]t may or may not. That's not for us to say, but it has potential for including different types of information[.]" (Tr. at 38) The Court's goal in construing claim terms, however, must be to reflect their "meaning to the ordinary artisan *after reading the entire patent.*" *Phillips*, 415 F.3d at 1321 (emphasis added).

[6] With respect to Plaintiff's argument that its proposal must be adopted in order to distinguish between the various buffer terms, in the Court's view, the usage of the buffer-related terms in the relevant claims would not be inconsistent with Defendants' proposed construction. For instance, while claim 8 of the '096 patent can be read as broadly allowing for the image to be stored in a "buffer" in general, claim 13 of that patent can be read as narrowing the claim to require storage in a particular kind of "buffer"—a backbuffer (as opposed to, for example, disclosing storage in a frontbuffer, which is claimed in claim 14 of the '096 patent).

asserted patents, the term "buffer" clearly serves as a memory location for the temporary storage of image-related data. *See, e.g., Trs. of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1363 (Fed. Cir. 2016) ("The only meaning that matters in claim construction is the meaning in the context of the patent.").

For these reasons, the Court recommends that the term "buffer" be construed as "memory location for temporary storage of image-related data."

**B. "backbuffer"**

The claim term "backbuffer" appears in claims 1, 2, 3, 6, 7 and 13 of the '096 patent, and claims 1 and 6 of the '218 patent. The use of the disputed term in claims 1 and 13 of the '096 patent is representative. Claim 13 is reproduced above, and claim 1 recites:

> 1. A method of displaying images in a videogame system that supports two-dimensional and three-dimensional display of the images, said method comprising the computer implemented steps of:
> clearing left and right *backbuffers* in the videogame system;
> storing an image into the left *backbuffer*;
> determining if the image is in a two-dimensional format or a three-dimensional format, wherein when the image is in a three-dimensional format, calculating the coordinates of a second view position of the image and storing a second view position image into the right *backbuffer*;
> displaying the image stored in the left *backbuffer* onto one or more displays when the image is in a two-dimensional format; and
> simultaneously displaying the images stored in the left and right *backbuffers* onto the one or more displays to create a three dimensional perspective of the image to a user when the image is in a three-dimensional format.

('096 patent, col. 13:39-58 (emphasis added)) The parties' current competing proposed constructions for "backbuffer" are set out in the chart below:

| Term | Plaintiff's Construction | Defendants' Construction |
|---|---|---|
| backbuffer | memory location for temporary storage of an image before being transferred to a frontbuffer | memory location for temporary storage of an image without being transferred to the display<br><br>or<br><br>memory location for temporary storage of an image without outputting to the display, before being transferred to a front buffer |

(June 18 e-mail; Tr. at 29-30, 43-44)

In support of its proposal, Plaintiff explains that: (1) a backbuffer is not actually responsible for *outputting* data stored therein; and (2) that the memory contents of a backbuffer are always *transferred to a frontbuffer before they are displayed* on a screen. (Tr. at 27-28, 39-40) Thus, any construction for the term "backbuffer," in Plaintiff's view, should get across these two points. (*Id.* at 28, 39-40) Plaintiff criticized Defendants' respective proposals in the above chart as failing to make one or the other of these points clearly enough.[7]

In response, Defendants' counsel clarified Defendants' view that the backbuffer's memory contents are not transferred directly to a display, and that instead, the memory contents are transferred to a frontbuffer, where they are then pulled out to a display. (*Id.* at 42) Accordingly, Defendants explained that they would not object to modifying their proposal to make clear that data is transferred from a backbuffer to a frontbuffer—i.e., construing

[7] As to the first of these two issues, Defendants confirmed that their proposals were not intended to convey that the backbuffer itself is the thing responsible for transferring or outputting an image to the frontbuffer. (Tr. at 30) The Court agrees that neither of Defendants' proposals convey this, and will thus not discuss the issue further.

"backbuffer" as "memory location for temporary storage of an image without outputting to the display, before being transferred to a front buffer" (the second of Defendants' two proposals above). (*See id.* at 43-44) When pressed as to why they found Plaintiff's proposal wanting, Defendants' counsel explained that the construction for "backbuffer" should make clear the difference between a "backbuffer" and a "frontbuffer." That is, a frontbuffer is the location from where the memory contents are output to the display, while the backbuffer does not have its memory contents output to the display. (*Id.* at 43) Defendants also noted that their proposed language aligns more closely with that in the patent specification, (*id.* at 42-43), which states that "[a] backbuffer is used, which is a memory location where the image to be displayed is temporarily 'drawn' without outputting it to the video [display][,]" ('096 patent, col. 6:40-42).[8]

It appears undisputed that a backbuffer temporarily stores an image to be displayed: (1) without outputting it to the display and (2) before that image is transferred to a frontbuffer. In light of this, and the parties' arguments regarding this term, the Court recommends that "backbuffer" be construed to mean "memory location for temporary storage of an image without it being outputted to the display, and before being transferred to a frontbuffer."

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[8] Although this portion of the specification actually states "without outputting it to the video *card*," ('096 patent, col. 6:41-42 (emphasis added)), Defendants' counsel believes that the patentee actually meant without outputting it to the video "display[,]" (Tr. at 42-43). The Court agrees with Defendants in light of the fact that the specification next states: "If this is done directly on the video memory screen, a flicker on the screen would be observed; therefore the information is drawn and processed quickly in the backbuffer. *This backbuffer is usually located within the physical RAM memory of the video or graphics acceleration card.*" ('096 patent, col. 6:40-47 (emphasis added)) Plaintiff acknowledges that the specification's definition of "backbuffer," with its reference to "without outputting it to the video card," "is not true in every instance" given the language in the specification just emphasized, as "an image cannot be output to something—the video card—when it is already located on the video card." (D.I. 59 at 3; *see also* Tr. at 68-69 (Plaintiff's counsel suggesting that the patentee meant without outputting it to the "video screen"))

### C. "left backbuffer" and "right backbuffer"

The claim terms "left backbuffer" and "right backbuffer" appear in claims 1, 2, 3, 6 and 7 of the '096 patent, and claims 1 and 6 of the '218 patent. The use of the disputed terms in claim 1 of the '096 patent, reproduced above, is representative. Generally, the left backbuffer stores an image that is displayed to a user's left eye or the left camera view, whereas the right backbuffer stores an image that is displayed to a user's right eye or the right camera view; these images can ultimately be simultaneously displayed onto a display to create a 3D perspective of the image to a user. (*See* '096 patent, col. 13:45-57; Tr. at 52, 54-55) The parties' current competing proposed constructions for "left backbuffer" and "right backbuffer" are set out in the chart below:

| **Term** | **Plaintiff's Construction** | **Defendants' Construction** |
|---|---|---|
| left/right backbuffer | a memory location where the (left or right) image is temporarily stored | backbuffers that are separate from, and not connected to, each other |

(June 18 e-mail; Tr. at 44)

Thus, coming into the *Markman* hearing, the crux of the dispute between the parties with respect to these claim terms was whether a left backbuffer and a right backbuffer are required to be "separate from" each other (and relatedly, what exactly such "separateness" connotes). (*See* D.I. 53 at 4; D.I. 59 at 5 (Plaintiff asserting that Defendants' proposed "separate from . . . each other" limitation is flawed and inherently ambiguous—"Are the backbuffers in different physical memory locations on the same memory circuit, or are they totally different circuits? Or do Defendants mean the backbuffers are merely programmatically separated?"); Tr. at 45)

Defendants' proposed "separate" limitation is derived from arguments the patentee made during prosecution of the '096 patent. (D.I. 53 at 4; D.I. 57 at 5; Tr. at 53) Specifically, in a

December 11, 2008 Office Action, the Examiner rejected pending claims as obvious over, *inter alia*, United States Patent No. 5,801,717 ("Engstrom"). (D.I. 54, ex. 2 at 7-8) This rejection led to a telephonic interview between the Examiner and the applicant on September 18, 2009, in which they discussed the applicant's arguments as to why Engstrom was distinguishable from the pending claims. (*Id.*, ex. 3) The Examiner's Interview Summary notes that:

> Applicants argued that the two back buffers disclosed in Engstrom were connected and not separate therefrom such that [two] left and right independent images could be generated and stored therein. Examiner argued that even though the backbuffers of Engstrom were connected in that data could be transferred therebetween, the buffers were still independent buffers. Applicants described the invention as providing images [] in the left backbuffer only for 2-D views and providing left images in the left backbuffer for left eye 3-D views and right images in the right backbuffer for right eye 3-D views.

(*Id.* at TVIP 000251) Thus, Defendants contend that this portion of the prosecution history demonstrates that "the separateness of backbuffers was a critical basis for the applicant's attempt to distinguish Engstrom" and that the construction for "left backbuffer" and "right backbuffer" must take this into account. (D.I. 53 at 5; *see also* D.I. 57 at 5)

During the *Markman* hearing, the parties' positions regarding the "separateness" issue were further explored. As it turns out, the parties appear to be on the same page.

For their part, Defendants explain that what they mean by "separate from, and not connected to, each other" is that at any given point in time, if the left and right backbuffers are both being used to store images, then at that point in time these respective left and right backbuffers cannot and will not be storing the *same* images. Instead, at such a point in time, the two backbuffers constitute separate memory locations that store images separately. (Tr. at 50-53) And Defendants' view of separateness does not exclude the concept of "buffer swapping,"

whereby left and right backbuffers could be located in the same physical memory location, i.e., a left backbuffer could become a right backbuffer and vice versa. (*Id.* at 52-53)

Likewise, Plaintiff agrees that at a given time, programmatically, the left and right backbuffers constitute separate memory locations, meaning they cannot be storing the same image at that point in time. (*Id.* at 47-48, 54, 55; D.I. 52 at 5 (Plaintiff acknowledging that the "right and left backbuffers are separate memory locations")) The left backbuffer stores images for a left view or left camera position, while the right backbuffer stores images for right view or right camera position. (Tr. at 55) Yet Plaintiff explained that it is possible that the right and left backbuffers could be located in exactly the same physical memory location, meaning they could swap, such that a right backbuffer could at some later point become a left backbuffer. (*Id.* at 48-49)

The parties' ultimately consistent view of what it means for the left and right backbuffers to be "separate" makes sense in terms of the cited portion of the prosecution history. There, the applicants suggested that the left and right backbuffers provide separate images for the left and right eye views, while in Engstrom, the left and right images could be stored together in backbuffers that were connected and not separated. (D.I. 54, ex. 3 at TVIP 000251)

Beyond the separateness issue, Plaintiff identified an additional concern with Defendants' proposed construction during the *Markman* hearing. Plaintiff asserted that Defendants' construction is silent with respect to the purposes of the right and left backbuffers—that is, that the construction does not adequately convey that the backbuffers' respective purposes are to store right and left images (i.e., an image displayed to the right eye/camera view and an image displayed to the left eye/camera view). (Tr. at 54-55) Defendants responded that they had no objection to a construction that includes this concept. (*Id.* at 55)

For these reasons, the Court concludes that the construction for these terms should reflect: (1) the undisputed "separateness" characteristic described above; and (2) the fact that these components store right and left images, respectively. Therefore, the Court recommends that "left backbuffer" be construed to mean "memory location where the left image is temporarily stored, and that, at a given point in time, stores a separate image from any stored in the right backbuffer" and that "right backbuffer" be construed to mean "memory location where the right image is temporarily stored, and that, at a given point in time, stores a separate image from any stored in the left backbuffer."

**D. "frontbuffer"**

The claim term "frontbuffer" appears in claim 14 of the '096 patent, which is reproduced below:

> **14**. The method of claim **8**, wherein simultaneously displaying the images in the first and second buffers comprises storing the images in the first and second buffers to first and second *frontbuffers*, and wherein the images in the first and second *frontbuffers* are simultaneously displayed to the user.

('096 patent, col. 14:52-56 (emphasis added)) The parties' current competing proposed constructions for "frontbuffer" are set out in the chart below:

| **Term** | **Plaintiff's Construction** | **Defendants' Construction** |
|---|---|---|
| frontbuffer | a memory location for temporary storage of an image to be displayed | memory location for temporary storage of an image to be output to the display<br><br>or<br><br>memory location for temporary storage of an image received from the backbuffer to be displayed |

(June 18 e-mail; Tr. at 60-62) For the following reasons, the Court finds that Defendants' alternative proposed construction ("memory location for temporary storage of an image received from the backbuffer to be displayed") is the most appropriate construction.

During the *Markman* hearing, the parties agreed on three key features of the "frontbuffer." First, as discussed above in connection with "backbuffer," it is undisputed that an image to be displayed, that is temporarily stored in the frontbuffer, arrives there from the backbuffer. (Tr. at 56-57, 61-62) Defendants' alternative proposal makes this clear, while Plaintiff's proposal does not. Second, both parties agree that the image coming from the backbuffer to the frontbuffer is "to be displayed." (*Id.* at 57, 62) Defendants' alternative proposal reflects this concept. And third, the parties agree that the frontbuffer is not itself responsible for outputting the image to a display (instead, Plaintiff's counsel asserted that the frontbuffer obeys a command from a display driver device that pulls the image therefrom to a display). (*Id.* at 58-59, 60-61)[9] Defendants' alternative construction conveys that the image temporarily stored in the frontbuffer is to be displayed to the user, without suggesting that the frontbuffer itself accomplishes that.

Therefore, the Court recommends that "frontbuffer" be construed to mean "memory location for temporary storage of an image received from the backbuffer to be displayed."

## IV. CONCLUSION

For the foregoing reasons, the Court recommends that the District Court adopt the

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[9] The extrinsic evidence supports this undisputed feature of the frontbuffer as well, with one 1995 article regarding stereoscopic displays for virtual reality systems explaining that "[t]he display driver reads from only the 'front' buffer and this information is displayed on the monitor." (D.I. 54, ex. 6 at 170)

following constructions:

1. "buffer" should be construed to mean "memory location for temporary storage of image-related data"

2. "backbuffer" should be construed to mean "memory location for temporary storage of an image without it being outputted to the display, and before being transferred to a frontbuffer"

3. "left backbuffer" should be construed to mean "memory location where the left image is temporarily stored, and that, at a given point in time, stores a separate image from any stored in the right backbuffer" and "right backbuffer" should be construed to mean "memory location where the right image is temporarily stored, and that, at a given point in time, stores a separate image from any stored in the left backbuffer"

4. "frontbuffer" should be construed to mean "memory location for temporary storage of an image received from the backbuffer to be displayed"

This Report and Recommendation is filed pursuant to 28 U.S.C. § 636(b)(1)(B), Fed. R. Civ. P. 72(b)(1), and D. Del. LR 72.1. The parties may serve and file specific written objections within fourteen (14) days after being served with a copy of this Report and Recommendation. Fed. R. Civ. P. 72(b)(2). The failure of a party to object to legal conclusions may result in the loss of the right to de novo review in the district court. *See Henderson v. Carlson*, 812 F.2d 874, 878-79 (3d Cir. 1987); *Sincavage v. Barnhart*, 171 F. App'x 924, 925 n.1 (3d Cir. 2006).

The parties are directed to the Court's Standing Order for Objections Filed Under Fed. R. Civ. P. 72, dated October 9, 2013, a copy of which is available on the District Court's website, located at http://www.ded.uscourts.gov.

Dated: August 15, 2018

Christopher J. Burke
UNITED STATES MAGISTRATE JUDGE