

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

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WI-LAN INC.,	:	
	:	
Plaintiff,	:	
	:	
v.	:	
	:	C.A. No. 15-379-LPS
SHARP ELECTRONICS CORPORATION,	:	
	:	
Defendants.	:	
	:	

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WI-LAN INC.,	:	
	:	
Plaintiff,	:	
	:	
v.	:	
	:	C.A. No. 15-788-LPS
VIZIO, INC.,	:	
	:	
Defendant.	:	
	:	

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Brian E. Farnan and Michael J. Farnan, FARNAN LLP, Wilmington, DE,

Monte M. Bond, Jeffrey R. Bragalone, Patrick J. Conroy, Terry Saad, and James R. Perkins,  
BRAGALONE CONROY P.C., Dallas, TX,

Attorneys for Plaintiff.

Jack B. Blumenfeld and Stephen J. Kraftschik, MORRIS, NICHOLS, ARSHT & TUNNELL  
LLP, Wilmington, DE,  
Gianni Cutri and Joel Merkin, KIRKLAND & ELLIS LLP, Chicago, IL,  
Michael W. De Vries, KIRKLAND & ELLIS LLP, Los Angeles, CA,  
Adam R. Alper and James Beard, KIRKLAND & ELLIS LLP, San Francisco, CA,  
Jared Bárcenas, KIRKLAND & ELLIS LLP, New York, NY,

Attorneys for Sharp Electronics Corporation.

Pilar Gabrielle Kraman, YOUNG, CONAWAY, STARGATT & TAYLOR, LLP, Wilmington,  
DE,

Adrian M. Pruetz and Rex Hwang, GLASER WEIL FINK HOWARD AVCHEN & SHAPIRO  
LLP, Los Angeles, CA,

Attorneys for Vizio, Inc.

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**MEMORANDUM OPINION**

April 27, 2018  
Wilmington, Delaware



STARK, U.S. District Judge:

Plaintiff Wi-LAN Inc. (“Plaintiff”) brought this patent infringement suit against Defendants Sharp Corporation, Sharp Electronics Corporation, and Vizio, Inc. (“Defendants”), alleging that Defendants infringe Plaintiff’s U.S. Patent Nos. 6,359,654 (the “’654 patent”) and 6,490,250 (the “’250 patent”). (*See generally* D.I. 15)<sup>1</sup> The ’654 patent generally relates to methods to display interlaced video on non-interlaced monitors. (’654 patent, Abstract) The ’250 patent generally relates to an integrated multimedia encoding system. (’250 patent, Abstract)

Presently before the Court is the issue of claim construction. The parties submitted technology tutorials (*see* D.I. 252, 256), objections to such technology tutorials (*see* D.I. 267, 270), claim construction briefs (*see* D.I. 253, 254, 266, 269), and expert declarations (*see* D.I. 253-1, 255-3, 255-4, 266-1). The Court held a claim construction hearing on February 26, 2018, at which both sides presented oral argument. (*See* D.I. 272 (“Tr.”))

## I. LEGAL STANDARDS

The ultimate question of the proper construction of a patent is a question of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 837 (2015) (citing *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388-91 (1996)). “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.”

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<sup>1</sup>Docket citations are made to C.A. No. 15-379, but apply equally to corresponding filings in C.A. No. 15-788. Plaintiff also asserted U.S. Patent No. 5,847,774 (*see* D.I. 15), but that patent has since been dismissed from the lawsuit. (*See* D.I. 216) Plaintiff filed similar complaints against ON Corp US, Inc. and ON Corporation, Inc. (C.A. No. 15-786) and Sansui America, Inc., Orion Electric Co., Ltd., and Orion America Inc. (C.A. No. 15-787), but those defendants did not participate in the claim construction process leading to this Memorandum Opinion.

*Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (internal quotation marks omitted).

“[T]here is no magic formula or catechism for conducting claim construction.” *Id.* at 1324. Instead, the Court is free to attach the appropriate weight to appropriate sources “in light of the statutes and policies that inform patent law.” *Id.*

“[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 citations and quotation marks omitted). “[T]he ordinary meaning of a claim term is its meaning to the ordinary artisan after reading the entire patent.” *Id.* at 1321 (internal quotation marks omitted). The patent 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.” *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

While “the claims themselves provide substantial guidance as to the meaning of particular claim terms,” the context of the surrounding words of the claim also must be considered.

*Phillips*, 415 F.3d at 1314. Furthermore, “[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment . . . [b]ecause claim terms are normally used consistently throughout the patent.” *Id.* (internal citation omitted).

It is likewise true that “[d]ifferences among claims can also be a useful guide. . . . For example, 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 (internal citation omitted). This “presumption is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one

party is urging that the limitation in the dependent claim should be read into the independent claim.” *SunRace Roots Enter. Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003).

It is also possible that “the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316. It bears emphasis that “[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.” *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004)) (internal quotation marks omitted).

In addition to the specification, a court “should also consider the patent’s prosecution history, if it is in evidence.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995), *aff’d*, 517 U.S. 370 (1996). The prosecution history, which is “intrinsic evidence,” “consists of the complete record of the proceedings before the PTO [Patent and Trademark Office] and includes the prior art cited during the examination of the patent.” *Phillips*, 415 F.3d at 1317. “[T]he prosecution history 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, making the claim scope narrower than it would otherwise be.” *Id.*

In some cases, “the district court will need to look beyond the patent’s intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period.” *Teva*, 135 S. Ct. at

841. Extrinsic evidence “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman*, 52 F.3d at 980. For instance, technical dictionaries can assist the court in determining the meaning of a term to those of skill in the relevant art because such dictionaries “endeavor to collect the accepted meanings of terms used in various fields of science and technology.” *Phillips*, 415 F.3d at 1318. In addition, expert testimony can be useful “to ensure that the court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field.” *Id.* Nonetheless, courts must not lose sight of the fact that “expert reports and testimony [are] generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence.” *Id.* Furthermore, “statements made by a patent owner during an IPR [inter partes review] proceeding . . . can be considered for claim construction.” *Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1362 (Fed. Cir. 2017). Overall, while extrinsic evidence “may be useful” to the court, it is “less reliable” than intrinsic evidence, and its consideration “is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” *Id.* at 1318-19. Where the intrinsic record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308 (Fed. Cir. 1999) (citing *Vitronics*, 90 F.3d at 1583).

Finally, “[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). 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) (quoting *Modine Mfg. Co. v. U.S. Int’l Trade Comm’n*, 75 F.3d 1545, 1550 (Fed. Cir. 1996)).

## II. CONSTRUCTION OF DISPUTED TERMS

### A. ’654 Patent

1. **“A method for displaying interlaced video data on a non-interlaced monitor, the interlaced video data comprising a plurality of paired fields, each pair of fields being vertically offset relative to each other by one-half of a field line spacing distance, each field comprising a plurality of lines of video data”<sup>2</sup>**

<b>Plaintiff</b> Preamble is not limiting Plain and ordinary meaning No construction necessary
<b>Defendants</b> Preamble is limiting
<b>Court</b> Preamble is limiting

The parties dispute whether the preamble of claim 1 is limiting. “[A] preamble limits the invention if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim.” *Catalina Marketing Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (internal quotation marks omitted). In other words, “when the preamble is essential to understand limitations or terms in the claim body, the preamble limits claim scope.” *Id.* Moreover, “[w]hen limitations in the body of the claim rely upon and derive antecedent basis from the preamble, then the preamble may act as a necessary component of the claimed

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<sup>2</sup>This term appears in the preamble of claim 1 of the ’654 patent.

invention.” *Pacing Techs., LLC v. Garmin Int’l, Inc.*, 778 F.3d 1021, 1024 (Fed. Cir. 2015) (internal quotation marks omitted). “Conversely, a preamble is not limiting where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.” *Catalina Marketing*, 289 F.3d at 808 (internal quotation marks omitted).

Plaintiff argues that the preamble is not limiting, because it “does not contain any steps,” but rather “describes an intended use of the claimed process” – displaying interlaced video data on a non-interlaced monitor – and the “‘features that necessarily exist’ in interlaced video data.” (D.I. 254 at 1-2; *see also* D.I. 266 at 1 (quoting *Schumer v. Lab. Computer Sys., Inc.*, 308 F.3d 1304, 1310 (Fed. Cir. 2002))) Defendants argue that the preamble is limiting, because it “recites the framework essential to understand the remainder of the claim and provides antecedent basis for numerous elements.” (D.I. 269 at 2)

The Court concludes that the preamble is limiting because it is essential to understanding terms in the remainder of the claim. For example, step (c) of the claim requires “correct[ing] the vertical offset;” without the preamble, a person of ordinary skill in the art (“POSA” or “POSITA”) would not know that the vertical offset is precisely “one-half of a field line spacing distance.” (’654 patent, cl. 1)

## 2. “respective buffers”<sup>3</sup>

<p><b>Plaintiff</b></p>
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<p>Plain and ordinary meaning</p>
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<p>No construction necessary</p>
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<p>Plain and ordinary meaning is “a first and second memory space”</p>
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<sup>3</sup>This term appears in claim 1 of the ’654 patent.



<b>Defendants</b>
“separate buffers for the first field and the second field”
<b>Court</b>
“separate buffers for the first field and the second field”

Both sides agree that the term “respective buffers” requires that there be separate buffers for each field. (*See* Tr. at 24, 25, 38, 40) But Plaintiff argues that the claims do not require two separate buffers each with separate memory spaces; rather, the claims permit one buffer that has sufficient memory space to store both fields while “maintain[ing] separateness of the fields.” (Tr. at 29) Defendants argue that the patent teaches there must be two distinct buffers for each of the two fields in the pair of fields. (*See* D.I. 253 at 3; Tr. at 27-28)

The Court agrees with Defendants. In describing the background of the technology, the specification notes that the prior art method of “[d]einterlacing by interleaving two fields into a single buffer . . . gives very objectionable results when viewing video with rapid horizontal action.” (’654 patent at 1:47-53) This suggests that a single buffer, despite having sufficient memory space to store both fields separately without overlap, is not covered by the patent. The patent further provides:

[T]he present invention . . . capture[s] the *two fields into separate buffers, one for the odd field and one for the even field*. When one of the fields has been captured into the buffer, the buffer is displayed, scaled to the requested dimensions on the monitor using some scaling hardware or software. . . . That image is displayed until the next field is captured into *another buffer*, and then the subsequent image is displayed until the third field is captured into *either the original first buffer, or into another (third) buffer*. The *multiple buffering* is to ensure that a video buffer is not being updated while it is being displayed, to avoid “tearing” . . . .

(*Id.* at 4:43-60 (emphasis added)) Moreover, the asserted claims of the ’654 patent specify

“respective buffers” – that is, plural buffers. A POSA would understand that the patent claims completely separate buffers, rather than just separate memory spaces in a single buffer, in order to practice the claimed method.

### 3. “scaling”<sup>4</sup>

<b>Plaintiff</b> Plain and ordinary meaning No construction necessary Plain and ordinary meaning is “changing by a constant factor the number of lines and/or pixels in an image”
<b>Defendants</b> “changing the vertical resolution of the video signal by a constant factor” <sup>5</sup>
<b>Court</b> “changing the vertical resolution by changing by a constant factor the number of lines and/or pixels in a field”

Step (b) of claim 1 requires “scaling each of the first field and second field of each pair of fields to fill vertical resolution of the non-interlaced monitor.” (’654 patent, cl. 1) While the parties agree that scaling involves changing something by a constant factor, they disagree as to what may be changed. (See D.I. 254 at 3; D.I. 269 at 4)

Plaintiff argues that “[t]he term ‘scaling’ is used throughout the specification in its broad sense to describe various scaling methods” – line-by-line, pixel-by-pixel, vertically, and horizontally – “and is not limited to vertical scaling of lines.” (D.I. 254 at 3; *see also* Tr. at 45) Plaintiff further argues that “there is no lexicography that would limit scaling to any one

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<sup>4</sup>This term appears in claim 1 of the ’654 patent.

<sup>5</sup>In their opening brief, Defendants’ proposed construction of “scaling” was “changing by a constant factor the number of lines in the field of video data.” (D.I. 253 at 4) However, in their responsive brief, they proposed a new construction, which is the one reproduced in the table and which the Court has considered to be Defendants’ position. (D.I. 269 at 5)

particular type of scaling,” nor is there anything in the patent “that would rise to the level of a disavowal of any type of scaling.” (Tr. at 44) Defendants counter that the ’654 patent “universally refers to scaling in the context of adding new lines” and does not contemplate scaling solely by changing the number of pixels. (D.I. 253 at 5) While Defendants agree that scaling generally can be accomplished by just adding pixels and widening the horizontal resolution, in Defendants’ view such scaling would not practice claim limitation (b), which requires “scaling . . . to fill vertical resolution of the non-interlaced monitor.” (Tr. at 52; *see also* ’654 patent, cl. 1)<sup>6</sup> Defendants are also concerned that Plaintiff’s construction would improperly permit Plaintiff to contend that there is no requirement that the vertical resolution be *changed*, as long as it is filled. (*See* Tr. at 57) While Plaintiff conceded that simply adding pixels to widen the resolution horizontally would be “scaling” but would not meet the rest of the claim limitation – because it is not scaling to fill vertical resolution – Plaintiff also indicated that performing horizontal scaling would meet the claim limitation as long as it filled the vertical resolution. (*See id.* at 56-57) Separately, Defendants further argue that Plaintiff’s construction is incorrect because “the claimed scaling occurs on fields, not images, of video data.” (D.I. 253 at 4) (emphasis omitted)

While the Court recognizes there may be various types of scaling in general, the Court agrees with Defendants that all references to scaling in the specification of the ’654 patent refer to vertical scaling of lines, rather than just horizontal scaling of pixels. (*See, e.g.*, ’654 patent, at Figs. 4, 5, 6, 1:34-38, 1:63-2:7, 4:51-53, 5:19-64) More importantly, “the plainness of the claim

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<sup>6</sup>Defendants indicated they would be agreeable to dropping “vertical” from their proposed construction as long as the requirement in step (b) that scaling “fill the vertical resolution” of the monitor is not eviscerated. (*See* Tr. at 54)

language necessarily affects what ultimate conclusions about claim construction can properly be drawn based on the specification.” *Straight Path IP Grp., Inc. v. Sipnet EU S.R.O.*, 806 F.3d 1356, 1361 (Fed. Cir. 2015) (“[D]isavowal is required where claim language is plain, lacking a range of possible ordinary meanings in context.”). Here, the claim language – “scaling . . . to fill vertical resolution” – requires an actual *change* in *vertical* resolution. The proper resolution of the parties’ claim construction dispute must ensure that claim limitation (b) is not eviscerated.<sup>7</sup> Further, the Court concludes that the patent refers to scaling in fields rather than scaling in images.

**4. “adjusting”<sup>8</sup>**

<b>Plaintiff</b> “vertically repositioning”
<b>Defendants</b> “vertically repositioning”
<b>Court</b> “vertically repositioning”

At oral argument, the parties indicated that they now agree that “adjusting” should be construed as “vertically repositioning.” (See Tr. at 59-60) Accordingly, the Court will adopt that construction.

**5. “to substantially correct for the vertical offset between the pairs of fields”<sup>9</sup>**

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<sup>7</sup>Plaintiff expressed concern that Defendants will argue that an action was not “intended to fill the vertical resolution” cannot be infringing. (Tr. at 58) But there is no intent requirement in the claim.

<sup>8</sup>This term appears in claim 1 of the ’654 patent.

<sup>9</sup>This term appears in claim 1 of the ’654 patent.

<p><b>Plaintiff</b>  Plain and ordinary meaning  No construction necessary  Plain and ordinary meaning is “to largely or approximately correct for the vertical offset”</p>
<p><b>Defendants</b>  Indefinite</p>
<p><b>Court</b>  “to largely or approximately correct for the vertical offset”</p>

Defendants argue that the phrase “to substantially correct” renders claim 1 indefinite. (D.I. 253 at 6-8) Pursuant to 35 U.S.C. § 112, “a patent’s claims, viewed in light of the specification and prosecution history, [must] inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014); *see also Cox Commc’ns, Inc. v. Sprint Commc’n Co. LP*, 838 F.3d 1224, 1231 (Fed. Cir. 2016) (noting relevant inquiry is “whether the ‘claims,’ not particular claim terms” inform one of scope with reasonable certainty). “Indefiniteness must be proven by clear and convincing evidence.” *Sonix Tech. Co., Ltd. v. Publications Int’l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017).

As an initial matter, the parties dispute whether “to substantially correct for the vertical offset” is limiting. Generally, claim language that “is only a statement of purpose and intended result” that “does not result in a manipulative difference in the steps of the claim” is not limiting. *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1376 (Fed. Cir. 2001); *see also Syntex (U.S.A.) LLC v. Apotex, Inc.*, 407 F.3d 1371, 1378 (Fed. Cir. 2005) (finding clause that “simply describes the intended result” of following steps in claimed method was not limiting). Defendants contend that the language here is limiting, because, as the patent specifies,

“[a]n important aspect of the present invention is the correction of the positional offset of the two interlaced video fields.” (Tr. at 71) (internal quotation marks omitted) Plaintiff responds that the language is not limiting because step (c) merely requires adjusting (that is, vertically repositioning) that must occur concurrently with said scaling, and that the correction language is subsumed within the adjusting step. (*See id.* at 79-81) Plaintiff acknowledges that there has to be some correcting, but contends that such correction need not be substantial, because substantial is an intended result. (*See id.* at 81)

The Court agrees with Defendants that “to substantially correct for the vertical offset” is limiting, and not merely an intended result, because the specification makes clear that “the correction of the positional offset” is “[a]n important aspect of the [] invention.” (’654 patent at 3:42-44) It is, therefore, “material to patentability.” *Javelin Pharms., Inc. v. Mylan Labs. Ltd.*, 2017 WL 4511352, at \*3 (D. Del. Oct. 10, 2017). It is also, therefore, limiting.

Turning to indefiniteness, it is important to note that terms of degree are not inherently indefinite. *See Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370 (Fed. Cir. 2014) (stating that “absolute or mathematical precision is not required”). “Claim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention.” *Id.* “All that is required is some standard for measuring the term of degree.” *Exmark Mfg’g Co. Inc. v. Briggs & Stratton Power Prods. Grp., LLC*, 879 F.3d 1332, 1346 (Fed. Cir. 2018). Whether a limitation defined in functional terms is sufficiently definite “is highly dependent on context (e.g., the disclosure in the specification and knowledge of a person of ordinary skill in the relevant art area).” *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1332-33 (Fed. Cir. 2010) (internal quotation marks omitted).

Defendants assert that the term “substantially correct” is “highly subjective” and that the patent “provides no objective boundaries of how one might know if the claim limitation is met or not.” (D.I. 253 at 6) Plaintiff argues that the phrase “reflects that the adjustment cannot always result in an *exact* correction, in which case substantial (i.e., less than perfect) correction is the objective.” (D.I. 266 at 2) In support, Plaintiff points to the specification, which presents “two ways . . . to deal with the vertical offset of the two fields.” (’654 patent at 5:14-15) With respect to the first way – displaying the odd and even fields in different positions on the display – the specification notes that “exactly correct repositioning” only occurs when even scaling factors are used, and that “the repositioning does not exactly correct for the vertical offset of the original fields” when odd scaling factors are used. (*Id.* at 5:30-41) The specification further provides that “visually more pleasing results” are obtained whenever the vertical offset is less than one half a line. (*Id.* at 5:42-46) Defendants assert that these are just “ways that adjusting may be performed, but [the patent] does not answer the question of whether there is a substantial correction of the offset.” (Tr. at 64-65)<sup>10</sup>

Plaintiff counters that the specification provides that *any* amount of reduction in vertical offset is a “substantial” correction. The reason is that, here, “[t]he term ‘substantially’ is merely a modifier implying ‘approximate’ rather than ‘perfect’” and that “substantially” is used in the claim, for example, to account for when odd scaling factors are used and do not achieve an exact

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<sup>10</sup>Defendants also argue that Plaintiff admitted this first way of dealing with vertical offset was in the prior art and, so, the specification’s discussion of the first way cannot inform the construction of the terms in claim 1. (*See* D.I. 269 at 6) The Court disagrees. This portion of the specification still provides guidance as to the function and boundaries of the claim language. The Court further agrees with Plaintiff that the second way of dealing with vertical offset discussed in the specification, through vertical interpolation, also supports its construction. (*See* ’654 patent at 7:8-42)

correction. (D.I. 254 at 8-9 (citing *Playtex Prods., Inc. v. Procter & Gamble Co.*, 400 F.3d 901, 907 (Fed. Cir. 2005)); *see also Enzo*, 599 F.3d at 1333 (noting “substantially” can denote “either language of approximation or language of magnitude”))

Defendants assert there are no objective boundaries as to when any change that lessens the amount of offset is considered to be a substantial correction. (*See Tr.* at 69) In particular, according to Defendants, “[w]hether an adjustment would ‘substantially’ correct the vertical offset between the relevant pair of fields would depend entirely on the subjective perspective of the viewer.” (*Id.* at 73) For example, according to Defendants, the picture quality could be affected by various other factors, including the content of the video, other technology in the monitor, the type of display screen, and the power supply circuitry. (*See id.* at 75) In Plaintiff’s view, however, the claim language does not depend on the subjective perspective of the viewer because a POSA would know to perform the adjustment whenever it would result in a vertical offset that is less than half a line, which is an objective standard. (*See id.* at 86-87, 93) In other words, when the adjustment would result in any amount of improvement, the patent teaches that such adjustment would still be worth doing, because it will produce “visually more pleasing results than when the data is not adjusted.” (’654 patent at 5:44-45; *see also Tr.* at 96-97)

The Court finds Plaintiff’s arguments persuasive.<sup>11</sup> In the context of the claim and the

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<sup>11</sup>Defendants cite cases finding terms of degree indefinite where, unlike here, the patents’ specifications failed to provide any guidance on the objective boundaries of the term. *See, e.g., Interval Licensing*, 766 F.3d at 1371 (finding “unobtrusive manner” to be highly subjective, where “sufficient guidance is lacking in the written description of the asserted patents”); *Vstream Techs., LLC v. PLR Holdings, LLC*, 2016 WL 6211550, at \*7 (E.D. Tex. Sept. 27, 2016) (finding “sufficiently correct” indefinite, because “[t]he specification does not provide any guidance as to what ‘criteria’ would be appropriate”); *Fairfield Indus., Inc. v. Wireless Seismic, Inc.*, 2015 WL 1034275, at \*15 (S.D. Tex. Mar. 10, 2015) (finding specification did not offer any objective boundaries).



patent’s specification, “substantially” is a modifier used to account for the varying amounts of correction that may occur when the adjusting step is performed, recognizing that the functional goal of the adjusting step is to get as close to exactly correct repositioning as possible. Rather than being a term of magnitude, “substantially” here is a term of approximation. A POSA, when reading the claim in light of the specification, would know with “enough certainty” that it should perform the adjusting step whenever it would result in any amount of correction to the vertical offset, because any reduction in vertical offset would be an improvement. *See Exmark*, 879 F.3d at 1346. Defendants have failed to prove, by clear and convincing evidence, that the claim as a whole, when viewed in light of the specification, does not inform a POSA with reasonable certainty of the scope of the claim. The Court will construe the term as having its plain and ordinary meaning, which is “to largely or approximately correct for the vertical offset.”

**6. “said adjusting is performed concurrently with said scaling”<sup>12</sup>**

<p><b>Plaintiff</b>  “said adjusting is performed at or about the same time as said scaling, and before displaying the fields”</p>
<p><b>Defendants</b>  “the adjusting and scaling steps must overlap, either by interleaving or simultaneous execution, such that one cannot complete before the other begins”</p>
<p><b>Court</b>  “the adjusting and scaling steps must overlap, either by interleaving or simultaneous execution, such that one cannot complete before the other begins”</p>

Plaintiff insists that the adjusting and scaling steps happen “before displaying the fields.” (D.I. 254 at 5) Defendants respond that “[n]othing about the phrase ‘where said adjusting is performed concurrently with said scaling’ leads to the conclusion that the steps need only be

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<sup>12</sup>This term appears in claim 1 of the ’654 patent.

performed ‘before displaying the fields.’” (D.I. 269 at 10-11) The Court agrees with Defendants. Further, Plaintiff’s proposed construction, “about the same time,” is, as Defendants argue, unreasonably broad and vague. (D.I. 253 at 10; *see also* D.I. 269 at 10)

Plaintiff’s reference to claims 6 and 7, which are dependent on claim 1 and add the requirement that the step of scaling must be performed before (cl. 6) or after (cl. 7) the step of adjusting, does not alter the Court’s conclusion. (*See* D.I. 254 at 6-7) “It is axiomatic that a dependent claim cannot be broader than the claim from which it depends.” *Alcon Research, Ltd. v. Apotex Inc.*, 687 F.3d 1362, 1367 (Fed. Cir. 2012). Defendants explain that “claims 6 and 7 are consistent with Defendants’ construction,” because while the steps overlap, claim 6 requires the scaling step to start before the adjusting step and claim 7 requires the adjusting step to start before the scaling step. (D.I. 269 at 11; *see also* Tr. at 123) In other words, claims 6 and 7 do not state that the first step must be completed before the second step begins.

**7. “vertical interpolation between at least adjacent lines”<sup>13</sup>**

<p><b>Plaintiff</b>  Plain and ordinary meaning  No construction necessary  Plain and ordinary meaning is “the process of determining new values using at least known values from vertically adjacent lines”</p>
<p><b>Defendants</b>  “calculating values for new pixels between at least vertically adjacent lines using known values”<sup>14</sup></p>
<p><b>Court</b>  “calculating values for new pixels between at least vertically adjacent lines using known values”</p>

<sup>13</sup>This term appears in claims 4 and 9 of the ’654 patent.

<sup>14</sup>Defendants’ argument that claim 9 of the ’654 patent is indefinite will be considered separately.

The specification contains numerous references to “interpolation” in the context of averaging the pixel in the line above with the pixel in the line below to achieve the pixel data for the missing line between. (*See, e.g.*, ’654 patent at 6:20-31, 6:48-51, 6:56-61) The specification also recognizes that interpolation may be conducted in other ways, such as “by using three or more input lines and using a more complex filter.” (*Id.* at 7:34-36) The Court agrees with Defendants that however interpolation is achieved in the claimed method it involves a calculation to determine the pixel value between the two or more sampled lines.

**8. “the adjusting step is achieved by vertical interpolation between at least adjacent lines”<sup>15</sup>**

<p><b>Plaintiff</b>  Plain and ordinary meaning  No construction necessary  Plain and ordinary meaning is “the adjusting step is achieved by vertically repositioning either the first or second field of the pair of fields using the process of determining new values using at least known values from vertically adjacent lines”</p>
<p><b>Defendants</b>  Indefinite</p>
<p><b>Court</b>  “the adjusting step is achieved by calculating values for new pixels between at least vertically adjacent lines using known values”</p>

Defendants argue that “[u]nequivocal statements made by the patentee during prosecution render this claim indefinite to one of ordinary skill in the art.” (D.I. 253 at 12) In its Office Action rejecting claim 1, the PTO determined that prior art “Bolger teaches correcting line of video information for video information pixels having vertical offset in position” and found the claim obvious. (D.I. 231-3 at 135-36) In response, the patentee proposed an amendment and

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<sup>15</sup>This term appears in claim 9 of the ’654 patent.

stated, “Bolger merely teaches deriving additional lines of video information by ‘repeating previously displayed lines, or interpolating the video information pixels of adjacent lines to form an intermediate line of video information pixels having signal value averaged from adjacent line pixels,” which it stated was “different from the method described in the present claims as amended.” (*Id.* at 158) The patentee further stated, “Bolger does not teach ‘adjusting one of the first field or second field of the pair of fields to substantially correct for the vertical offset between the pairs of fields.’” (*Id.*)

Defendants argue that “the patentee made clear that claim 1’s ‘adjusting step’ does not include vertical interpolation of adjacent lines, which is the very adjusting expressly required by claim 9,” and “[b]ecause the scope of claim 1’s ‘adjusting step’ does not include what claim 9 recites, claim 9 recites an impossibility and is indefinite.” (D.I. 253 at 12-13) Plaintiff responds that the specification teaches that “*scaling* of video data can be performed by interpolation between adjacent lines, *without* performing an adjustment to correct the vertical offset between fields.” (D.I. 266 at 6) Thus, Plaintiff argues that the patentee’s “statements during prosecution are easily reconciled with claim 9 by understanding that scaling by vertical interpolation does not, in itself, result in ‘adjusting’ for the vertical offset between pairs of fields.” (*Id.*)

The Court agrees with Plaintiff. Defendants have failed to establish indefiniteness.

**B. '250 Patent**

**1. “an apparatus for adjusting rates of the input multimedia data streams”<sup>16</sup>**

<b>Plaintiff</b> Preamble is not limiting Plain and ordinary meaning No construction necessary
<b>Defendants</b> Preamble is limiting “an apparatus of the multimedia encoding system that performs rate adjustment of the input multimedia data streams”
<b>Court</b> Preamble is limiting

The parties first dispute whether the preamble of claim 1 is limiting. Plaintiff argues the language is not limiting because it merely provides an intended purpose for the claimed apparatus and does not recite an essential structure or give necessary life, meaning, or vitality to the claim. (D.I. 254 at 11) Defendants counter that the preamble is limiting for four reasons: it ““(1) provides antecedent basis for a claim term, (2) is essential to help understand the claim terms, (3) provides any additional steps or structure that is underscored as important by the specification, [and] (4) was relied on during prosecution.”” (D.I. 253 at 13-15) (quoting *Mayne Pharma Int’l Pty Ltd. v. Merck & Co., Inc.*, 2016 WL 7441069, at \*7 (D. Del. Dec. 27, 2016)).

The Court concludes that the preamble is limiting for at least two reasons. First, the preamble provides antecedent basis for the terms “input multimedia data streams” and “output multimedia data stream,” because those terms are initially introduced in the preamble and referred back to in the following claim limitations. Second, the preamble was relied on during

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<sup>16</sup>This term appears in the preamble of claim 1 of the '250 patent.

prosecution. After the examiner initially rejected claim 1 for “failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention” (D.I. 231-4 at 82), the examiner withdrew its rejection after the applicant amended the preamble to “recite[] inventive elements” and “define the invention” (*id.* at 98, 119).

Turning to the parties’ dispute as to the proper construction of this term, Plaintiff contends that Defendants’ rearrangement of the words “for adjusting rates” to “that performs rate adjustment” provides no definition or helpful clarification. (D.I. 254 at 11-12) The Court agrees. Plaintiff also argues that Defendants’ addition of “multimedia encoding system” “seeks to improperly impose a limitation on the apparatus that is not present in the claim.” (*Id.* at 12) Defendants insist that the claimed apparatus “must be a part of a multimedia encoding system, and cannot exist outside of that system,” because “[t]he specification repeatedly and consistently discloses that the apparatus that performs rate adjustment is part of a multimedia encoding system.” (D.I. 253 at 15) But the Court agrees with Plaintiff that the “system” in claim 1 is already defined as “a system for combining input multimedia data streams to form an output multimedia data stream.” (D.I. 254 at 12) Defendants’ proposed construction is incorrect because the Federal Circuit “has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.” *Liebel-Flarsheim*, 358 F.3d at 906. Moreover, Defendants’ construction would introduce ambiguity by using a term that has no antecedent basis and has not been defined. (*See* Tr. at 127)

Accordingly, the Court finds that the preamble of claim 1 of the ’250 patent is limiting.

2. “input multimedia data streams”<sup>17</sup>  
“output multimedia data stream”<sup>18</sup>

“input multimedia data streams”	“output multimedia data stream”
<b>Plaintiff</b> “individual elementary audio or video streams”	<b>Plaintiff</b> “combined audio and video stream”
<b>Defendants</b> “individual elementary video or audio streams that are input to the apparatus for adjusting rates”	<b>Defendants</b> “a combined video and audio stream that is output from the apparatus for adjusting rates”
<b>Court</b> “individual elementary audio or video streams that are input to the system”	<b>Court</b> “combined audio and video stream that are output from the system”

Defendants agree with Plaintiff’s constructions, except that they include an additional phrase in each construction to demonstrate that each data stream is entering or exiting a “shared common reference point.” (D.I. 253 at 16) Defendants assert that the common reference point is the “apparatus for adjusting rates.” (*Id.*) Defendants argue that “[t]he claim language itself demonstrates the proper relationship between these claim limitations.” (*Id.*) For example, according to Defendants, “the preamble makes clear that the apparatus for adjusting rates specifically adjusts the rates of the input multimedia data streams.” (D.I. 269 at 16) Defendants also point to the specification, which “repeatedly and consistently discloses that the elementary media data streams (*i.e.*, the claimed ‘input multimedia data streams’) are input into the apparatus for adjusting rates, and that those streams are combined to form a single combined multimedia data stream (*i.e.*, the claimed ‘output multimedia data stream’), which is output from

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<sup>17</sup>This term appears in claims 1 and 4 of the ’250 patent.

<sup>18</sup>This term appears in claims 1 and 6 of the ’250 patent.

the apparatus for adjusting rates.” (D.I. 253 at 16-17) (citing ’250 patent at 1:62-67, 2:11-15, 3:44-48, 4:6-9, 4:20-28, 6:14-20, Fig. 2)

Plaintiff argues that “the claim language does not limit the input and output streams to a particular device,” nor does “the specification describe the input and output data streams to be tied directly to an ‘apparatus for adjusting rates.’” (D.I. 254 at 13) In particular, Plaintiff contends that “the ‘apparatus’ of claim 1 is recited to be *part of* a larger system – ‘a system for combining input multimedia streams to form an output multimedia data stream.’” (*Id.* at 14) Additionally, Plaintiff points out that Defendants “do not identify any portion of the specification that describes the elementary data streams and the combined data streams being input or output from an ‘apparatus for adjusting rates,’” and that “[t]o the contrary, the claims explicitly relate the input and output streams to the ‘*system*’ recited in the preamble.” (D.I. 266 at 8)

The Court agrees with Plaintiff that Defendants’ construction would incorrectly limit the input and output multimedia data streams to entering and exiting an apparatus for adjusting rates. The claim language states that the apparatus is just one component of the entire “system for combining input multimedia data streams to form an output multimedia data stream.” (’250 patent, cl. 1) Furthermore, the specification, particularly the portions cited by Defendants, refers to many different components of the system that are involved in adjusting the data rates and combining input streams to form an output stream.

The Court does agree with Defendants to the limited extent that Plaintiff’s construction does not completely account for the “input” and “output” modifiers. The input and output streams are entering or exiting from the “system for combining input multimedia data streams to



form an output multimedia data stream” as a whole. Plaintiff does not dispute this. (See D.I. 266 at 8)

Accordingly, the Court has put together its own constructions, as shown above.

**3. “a multimedia processor, coupled to the data rate analyzer”<sup>19</sup>**

<b>Plaintiff</b> Plain and ordinary meaning No construction necessary Plain and ordinary meaning is “a multimedia processor, directly or indirectly connected to the data rate analyzer”
<b>Defendants</b> “a multimedia processor connected to the data rate analyzer, where the multimedia processor is separate from, and not a sub-component of, the data rate analyzer”
<b>Court</b> “a multimedia processor connected to the data rate analyzer, where the multimedia processor is separate from, and not a sub-component of, the data rate analyzer”

Plaintiff argues that one of ordinary skill in the art would understand the term “coupled” to mean that “two components are connected, either directly or indirectly,” rendering Defendants’ proposed requirement that the two components “be *separate*, where one is not a sub-component of the other,” improper. (D.I. 254 at 18-19) Plaintiff also points to Figure 7 in the patent, which shows that a “data rate analyzer 724 is a sub-component of the multimedia processor 250.” (*Id.* at 19) (citing ’250 patent, at Fig. 7, 6:35-37, referring to “a second data rate analyzer 724 in the multimedia processor 250”) Defendants respond that “[t]he data rate analyzer in claim 1 expressly relates to the data rate analyzer that determines the data rate of the output multimedia data stream, i.e., data rate analyzer 700, not the data rate analyzer that determined the data rate of

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<sup>19</sup>This term appears in claim 1 of the ’250 patent.

individual elementary streams, i.e., data rate analyzer 724.” (D.I. 269 at 17) On this dispute the Court agrees with Defendants.

Defendants also direct the Court to the specification’s use of the word “coupled.” For example, the summary of the invention states that “[a] unified memory module is coupled to the multimedia encoders,” and Figure 2 shows that those components are separate (and neither is a sub-component of the other). (’250 patent at 2:4-5; *see also id.* at 2:11-12 (“A stream processor is coupled to the unified memory module and the multimedia encoders.”) *and* Fig. 2; Tr. at 138) On the other hand, the patent uses the word “in” when referring to sub-components: such as “a second data rate analyzer 724 in the multimedia processor 250,” which is the data rate analyzer to which Plaintiff is referring. (Tr. at 140; ’250 patent at 6:35-37) The Court agrees with Defendants that the patent consistently uses “coupled” to refer to components that are not sub-components of each other and “in” to refer to components that could be sub-components of each other.

**4. “a data rate analyzer, coupled to the output multimedia data stream”<sup>20</sup>**

<p><b>Plaintiff</b>  Plain and ordinary meaning  No construction necessary  Plain and ordinary meaning is “a data rate analyzer, directly or indirectly connected to the output multimedia data streams”</p>
<p><b>Defendants</b>  Indefinite</p>
<p><b>Court</b>  “a data rate analyzer connected to the output multimedia data stream, where the data rate analyzer is separate from, and not a sub-component of, the output multimedia data stream”</p>

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<sup>20</sup>This term appears in claim 1 of the ’250 patent.

Defendants argue this claim term is indefinite because it “recites that a physical component (*i.e.*, the data rate analyzer) is ‘coupled to’ an intangible stream (*i.e.*, the output multimedia data stream)” and a POSA “would not have understood with reasonable certainty how a data rate analyzer could be coupled to an intangible data stream.” (D.I. 253 at 18) Defendants provide no support for this assertion. By contrast, Plaintiff’s expert, Dr. Sayood, opined that a POSA would understand that whether coupled to a signal or a component, the term has the same meaning. (*See* D.I. 266 at 10) Defendants have failed to meet their burden to show indefiniteness.

The Court does not, however, adopt Plaintiff’s proposed construction, as it is inconsistent with the Court’s findings above, including how the patent claims use the term “coupled.” Accordingly, the Court has adopted its own construction.

**5. “determining the data rate”<sup>21</sup>**

<p><b>Plaintiff</b>  Plain and ordinary meaning  No construction necessary  Plain and ordinary meaning is “computing the number of bits transmitted or received over a given period of time”</p>
<p><b>Defendants</b>  “determining the actual number of bits transmitted over a given period of time”</p>
<p><b>Court</b>  “determining the number of bits transmitted over a given period of time”</p>

The parties’ proposed constructions are similar but differ in two respects. First, Plaintiff’s construction refers to transmitting and receiving bits, whereas Defendants’ refers only to transmitting bits. Defendants argue that since the term is referring to the output multimedia data

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<sup>21</sup>This term appears in claim 1 of the ’250 patent.

stream, only the transmission of bits is determined. (See D.I. 253 at 18-19) Plaintiff does not dispute that the term is limited to determining the data rate of the output stream. (See D.I. 266 at 9) Hence, the Court’s construction refers only to transmitting of bits.

Second, Defendants insert the word “actual” in their construction, because “the term ‘actual’ is repeatedly used in the specification and prosecution history to describe the bit rate being determined by the patented invention.” (D.I. 269 at 19) Plaintiff counters that the term “actual” is only used when comparing the actual data rate to the target data rate. (See D.I. 254 at 15) The Court will not include “actual” in its construction because the distinction between actual and target data rate is already clear; that is, the first step of the claim refers to “determining the data rate of the output multimedia data stream” while the second step compares that “determined output multimedia data stream data rate” to a target data rate. (’250 patent, cl. 1)

**6. “target output data stream data rate”<sup>22</sup>**

<p><b>Plaintiff</b>  “adjustable parameter input to the multimedia processor providing the optimal or maximum data rate of the output multimedia data stream”</p>
<p><b>Defendants</b>  Plain and ordinary meaning  No construction necessary  Plain and ordinary meaning is “a data rate chosen by a user or other source to specify the optimal or maximum data rate for the output multimedia data stream”</p>
<p><b>Court</b>  “the optimal or maximum data rate for the output multimedia data stream at a given point in time”</p>

Again, the parties largely agree on the proper construction of this term, and the Court discusses just their differences. First, Plaintiff argues that “the ‘target’ rate is not merely a *fixed*

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<sup>22</sup>This term appears in claim 1 of the ’250 patent.

*maximum* data rate of the system, but, instead is an adjustable parameter that can be modified to account for changes in the system capacity.” (D.I. 254 at 16) The patent’s specification provides that “[t]he target data rate 226 is *preferably* adjustable as the system’s needs and capabilities change.” (’250 patent at 6:66-7:1) (emphasis added) The Court agrees with Defendants that the adjustable nature of the target rate is a preferred embodiment, not a claim limitation, so the Court will not import it as a requirement in the claims. (See D.I. 269 at 19-20) However, by including in its construction “at a given point in time,” the Court intends to make clear that the “target output data stream rate” could be adjusted, i.e., have different values at different times.

Second, Plaintiff argues that “the target data rate must be a parameter input to the multimedia processor,” because only a multimedia processor is recited in claim 1, even though the specification provides that a target data rate may be input to the stream processor as well. (D.I. 254 at 17; ’250 patent at 6:66-7:2, cl. 1) Plaintiff claims this is important because “it indicates that this value cannot be fixed within the multimedia processor.” (D.I. 254 at 17) Defendants contend that the term “parameter” is improper because it is unspecified and the determined data rate must be able to be compared to it. (See D.I. 269 at 20) The Court concludes that regardless of whether the target data rate is referred to as a parameter, the determined data rate can still be compared to it. It is not necessary for the construction to include the multimedia processor.

7. **“generating rate control signals for adjusting the data rates of the input multimedia data streams”<sup>23</sup>**

<b>Plaintiff</b> “generating signals providing rate control information for increasing, decreasing or maintaining the data rates of the input multimedia data streams”
<b>Defendants</b> “generating rate control signals to change the data rates of the input multimedia data streams”
<b>Court</b> “generating rate control signals for increasing, decreasing or maintaining the data rates of the input multimedia data streams”

The Court agrees with Plaintiff that the construction of this term should allow for the scenarios where “the data rate of the elementary stream is (1) increased, (2) decreased, or (3) maintained.” (D.I. 254 at 18) While Defendants argue that a “change” is required, they acknowledge that the specification refers to the possibility of maintaining the data rate. (See D.I. 269 at 20) Accordingly, the Court will construe “generating rate control signals for adjusting the data rates of the input multimedia data streams” as “generating rate control signals for increasing, decreasing or maintaining the data rates of the input multimedia data streams.”

**III. CONCLUSION**

The Court construes the disputed terms as explained above. An appropriate Order follows.

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<sup>23</sup>This term appears in claim 1 of the '250 patent.