

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

PHOTONIC IMAGING SOLUTIONS,)
INC.,)
)
Plaintiff,)
)
v.)
) C.A. No. 18-636 (MN)
LENOVO GROUP LTD., LENOVO)
(UNITED STATES) INC. and LENOVO)
HOLDING CO., INC.,)
)
Defendants.)

MEMORANDUM ORDER

At Wilmington this 11th day of September 2019:

IT IS HEREBY ORDERED that the claim terms of U.S. Patent Nos. 6,563,187 (“the ’187 Patent”) and 6,949,388 (“the ’388 Patent”) with agreed-upon constructions are construed as follows (*see* D.I. 48 at 8-9):

1. “dielectrically isolated well” means “a well electrically isolated by dielectric material” (’187 Patent, claim 1)
2. “dielectrically isolated region” means “a region electrically isolated by dielectric material” (’388 Patent, claims 1 & 37)
3. “insulating layers” means “dielectric material to isolate the wells from each other” (’187 Patent, claims 1 & 4)
4. “forming a first isolation region between . . . forming a second isolation region between . . .” means “electrically isolating the first region from the second / the second region from the third” (’388 Patent, claims 31 & 36)¹
5. “isolating” means “electrically isolating by dielectric material” (’388 Patent, claim 2)

¹ The parties’ agreed-upon term in the Joint Claim Construction brief appears to have a typographical error – *i.e.*, the term omits “region” after “a first isolation.” (*See* D.I. 48 at 8). The Court has corrected that error in setting forth the agreed-upon constructions.

6. “one or more insulating layers are layered on the pixel array, the logic circuit and the memory” means “the pixel array, the logic circuit and the memory are isolated from each other by one or more insulating layers” (’187 Patent, claim 11)
7. “first region . . . second region . . . third region” means “regions that are isolated from each other by one or more insulating layers” (’388 Patent, claim 19)

Further, as announced at the hearing on August 30, 2019, IT IS HEREBY ORDERED that the disputed claim terms of the ’187 and ’388 Patents are construed as follows:

1. “logic circuit” / “logic circuit” means “a circuit or cell that operates in accordance with CMOS logic functions” (’187 Patent claims 1, 4, 9 & 11; ’388 Patent claims 1, 19, 31, 33, 34, 36 & 37)
2. “isolation region” means “a region that isolates one thing from another” (’388 Patent, claims 31 & 36)

The parties briefed the issues (*see* D.I. 48) and submitted a Joint Claim Construction Chart containing intrinsic evidence (*see* D.I. 41). Neither party provided a tutorial describing the relevant technology. The Court carefully reviewed all submissions in connection with the parties’ contentions regarding the disputed claim terms, heard oral argument and applied the following legal standards in reaching its decision:

I. LEGAL STANDARDS

“[T]he ultimate question of the proper construction of the patent [is] 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). “[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.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc) (internal citations and quotation marks omitted). Although “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. *Id.* at 1314. “[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 . . . [as] it is the single best guide to the meaning of a disputed term.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). 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. “Even when the specification describes only a single embodiment, [however,] 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) (internal quotation marks omitted) (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004)).

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) (en banc), *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, courts “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. 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.” *Phillips*, 415 F.3d at 1318. 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.* Overall, although 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).

II. THE COURT’S RULING

The Court’s rulings regarding the disputed claim terms of the ’187 and ’388 Patents were announced from the bench at the conclusion of the hearing as follows:

. . . We have four patents asserted in this case, but only two of them have claim terms that are in dispute – United States Patent Nos. 6,563,187, the ’187 patent, and 6,949,388, the ’388 patent, both of which are titled “CMOS Image Sensor Integrated Together with Memory Device.”

There are two terms in dispute, and I am prepared to rule on each of those disputes. I will not be issuing a written opinion, but I will issue an order stating my rulings. I want to emphasize before I

announce my decision that, while I am not issuing a written opinion, we have followed a full and thorough process before making the decisions I am about to state. I have reviewed the '187 and '388 Patents and the portions of the prosecution history submitted. There was full briefing on each of the disputed terms and there has been argument here today. And all of that has been carefully considered.

Now as to my rulings. I am not going to read into the record my understanding of claim construction law generally. I have a legal standard section that I have included in my earlier opinions, including in my recent order in *OmegaFlex v. Ward Manufacturing*, C.A. No. 18-1004. I incorporate that law and adopt it into my ruling today, and I will also set it out in the order that I issue.

Additionally, with respect to the person of ordinary skill in the art in this case, Plaintiff asserts that that person is someone having “a Master’s degree in Electrical Engineering or Materials Science and two to four years’ experience in designing CMOS image sensors. Extensive experience and technical training may substitute for educational requirements, while advanced education might substitute for experience.”

Defendants do not offer a definition of a person of ordinary skill in the art, and agree here today that Plaintiff’s definition is appropriate for purposes of claim construction. Thus, I will use the Plaintiff’s definition.

Finally, I note that the '187 and '388 Patents have identical specifications. For simplicity, when I cite to a specification, unless otherwise noted, I will cite to the '187 Patent as the parties did in their papers.

The first disputed term is “logic circuit” or “logic cell” in Claims 1, 4, 9, and 11 of the '187 Patent, and Claims 1, 19, 31, 33, 34, 36, and 37 of the '388 Patent. The parties agree that “logic circuit” and “logic cell” will have the same meaning. I will construe them together and may refer to them as the “logic terms.”

Plaintiff’s proposed construction is “plain and ordinary meaning, wherein plain and ordinary means ‘CMOS logic.’” Defendants, on the other hand, proposed what they say is the plain and ordinary meaning as understood in the context of the patents and their prosecution history. Their construction is “logic that receives signals from the pixel array, processes the signals, and stores them in the memory.”

Here, I agree with Plaintiff that Defendants are improperly reading limitations from the embodiments in the specification into the “logic terms” contrary to the Federal Circuit’s caution against doing so in *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366, from the Federal Circuit in 2002, and also *Superguide Corp. v. DirecTV Enters, Inc.*, 358 F.3d 870, 875 from the Federal Circuit in 2004. I also, however, agree with Defendants that Plaintiff’s construction is not really construing anything and does nothing to explain what the terms “logic circuit” and “logic cell” mean.

Thus, I will construe the “logic terms” to mean “a circuit or cell that operates in accordance with CMOS logic functions.”

This construction is consistent with the ordinary meaning of the words and supported by the specification. For example, Figure 1 depicts the arrangement of logic structures and gate circuitry within “CMOS Logic Part 20” which is described in the specification at column 2, lines 29 through 31 as performing logic functions.

Similarly, Figures 2A through 2J show a chip on which a CMOS image sensor and a DRAM are integrated. The figure depicts a “pixel array,” a “logic part” and a “memory part.” The specification at column 2, lines 36 to 40, refers to the “logic part” depicted as a “CMOS logic part.”

The claims of the patents also support the construction. Independent Claims 1, 4, 9, 11 of the ’187 Patent and independent Claims 1, 19, 27, and 39 of the ’388 Patent recite limitations that Defendants would read into the “logic terms.” For example, claims recite that the “logic circuit . . . processes signals from the pixel array,” the outputs of which are stored in the memory or that the “logic circuit” or “logic cell” is “configured” or “operable” to “process signals from the pixel array” and that its outputs are stored in the memory. The additions that Defendants propose to the “logic terms” thus improperly render other claim language redundant and superfluous. And thus Defendants’ proposed construction runs “contrary to the well-established rule that claims are interpreted with an eye toward giving effect to all terms in the claim” as stated in *Digital-Vending Servs. Int’l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1275 (Fed. Cir. 2012).

Moreover, at least two of the claims – Claims 31 and 38 of the ’388 Patent – recite “at least one logic cell” and “a plurality of logic cells” without reciting the relationship of those cells to other structures in the claims. Thus, the patentees knew how to claim specific aspects of the “logic terms” when they wanted to. They did

so in some claims, and did not in others. And that counsels against reading the limitations Defendants proposed into the “logic terms” of all claims that the terms appear in.

The second disputed term is “isolation region” which is found in Claims 31 and 36 of the ’388 Patent. Plaintiff proposes that “isolation region” be construed by its “plain and ordinary meaning, wherein plain and ordinary means ‘isolation that is not necessarily done with dielectric material.’” Defendants counter that “isolation region” should be construed as “a region being made of dielectric material.”

Here, I will construe this term to have its plain and ordinary meaning – “a region that isolates one thing from another.” To be clear, I am not construing the term to require that the region be made of dielectric material.

This construction is consistent with the use of the words in the claims. For example, Claim 1 refers to a “dielectrically isolated region” but Claims 31 and 36 refer simply to “isolation regions” or “field oxide regions.”^[2] The absence of the “dielectric” limitation in Claims 31 and 36, given its use in other claims, shows that the patentee did not intend the term “isolation region” to be so limited.

It is also consistent with the specification. While Defendants rely on references to “field oxide layers” and embodiments with isolation regions made of oxide dielectrics, as already noted, those embodiments do not limit the scope of the claims.

That is particularly true here, where there seem to be more general references to isolation. For example, column 1, lines 65 to 66 state the logic circuit and the memory are “isolated from each other by insulating layers” and do not specify that the insulating material is dielectric. Similarly, column 2, lines 7 and 8 state “wherein the first to third sections are isolated from each other by insulating layers” – again without specifying that the insulation must be with the dielectric material.


Defendants also argue that their construction is supported by the prosecution history in the papers, both as a guide to the patentee’s understanding of the claimed invention, as *Phillips* instructs, and to some extent as a disclaimer. The portion of the prosecution cited, however, did not concern the disputed claims of

² The Court inadvertently stated that the term “field oxide regions” appears in Claims 31 and 36 of the ’388 Patent but later clarified on the record at the conclusion of the bench ruling (*see infra*) that the term “field oxide regions” is not present in Claim 31 or 36.

the '388 Patent or even the disputed claim term. Specifically, during the prosecution of the '187 Patent (from which the '388 Patent is a divisional), the examiner rejected claims for obviousness. In response, the applicant amended the claims – adding that the pixel array, the logic circuit, and the memory were formed in dielectrically isolated wells. And [the applicant] then distinguished the prior art on that basis in order to gain allowance.

Here, however, the claims at issue were allowed without any recitation that the components are isolated in dielectrically isolated wells or reference them as being dielectrically isolated. I will not import the “dielectric” limitations from the file history of the '187 Patent into the term “isolation region” in Claims 31 and 36 of the '388 Patent.

And just one second, I just want to check one thing. I think that when I spoke, I said that Claims 31 and 36 referred to oxide regions and I just want to clarify that they did not, they just simply refer to isolation regions. It may be a dependent claim that refers to the field oxide. So with that, I will issue an order with those constructions.


The Honorable Maryellen Noreika
United States District Judge