IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

FLATFROG LABORATORIES AB,	)	
	)	
Plaintiff,	)	
	)	
v.	)	C.A. No. 19-2246 (MN)
	)	
PROMETHEAN LTD. and PROMETHEAN INC.,	)	
	)	
	)	
Defendants.	)	

MEMORANDUM ORDER

At Wilmington this 22nd day of October 2021:

IT IS HEREBY ORDERED that the claim terms of U.S. Patent Nos. 10,739,916 ("the '916 Patent") and 10,775,935 ("the '935 Patent") with agreed-upon constructions are construed as follows (*see* D.I. 113 § I):

1. "curvature" means "the amount, if any, by which a line or surface deviates from a straight line or a flat surface" ('935 Patent, claims 1 & 7);

2. "element" does not require construction ('916 Patent, claim 1);

3. "a mating portion having a second cross-section shape that is substantially reciprocal to the first cross-sectional shape" means "a mating portion has a second cross-sectional shape that is configured so that the mating portion can be received within the gap" ('916 Patent, claim 1);

4. "touch sensing apparatus of claim 3, wherein the first curvature and the second curvature" does not require construction ('935 Patent, claims 4, 5 & 6);

5. "curvature in the touch surface" / "curvature . . . after the plate is configured in the frame assembly" / "second curvature . . . in the touch surface when the plate is installed in the frame assembly" means "the curvature in the touch surface, measured when the touch sensing apparatus is in its operative orientation, extends from one side of the touch surface to an opposite side of the touch surface" ('935 Patent, claims 1, 3 & 7); and

6. "a parabolic curvature in the touch surface relative to a first axis and relative to a second axis perpendicular to the first axis" / "a second curvature along

the width and along the length in the touch surface" means that "the parabolic curvature is defined in the touch surface relative at least to a first axis and to a second axis perpendicular to the first axis. Curvature of the parabolic curvature at the first axis may be different from curvature of the parabolic curvature at the second axis. The second curvature is defined along at least the width in the touch surface and the length in the touch surface perpendicular to the width. Curvature of the second curvature along the width may be different from curvature of the second curvature along the length"[1] ('935 Patent, claims 1 & 7).

Further, as announced at the hearing on October 15, 2021, IT IS HEREBY ORDERED that the disputed claim terms of the '935 and '916 Patents are construed as follows:

1. "configuring the frame assembly to support the plate include inducing a parabolic curvature in the touch surface" will be given its plain and ordinary meaning, which is "assembling the plate into the frame assembly induces a parabolic curvature in the touch surface of the plate" ('935 Patent, claim 1);

2. "parabolic curvature in the touch surface" / "curvature [in the touch surface] is parabolic" means "substantially similar in shape to a mathematical parabola," where mathematical parabola is defined by $y = ax^2 + bx + c$ ('935 Patent, claims 1 & 7);

3. "wherein the plate has a first curvature in the touch surface when not installed in the frame assembly, and wherein the plate has a second curvature along the width and along the length in the touch surface when the plate is installed in the frame assembly" means "the plate possesses a first curvature in the touch surface when not installed in the frame assembly, and wherein the plate possesses a second curvature along the width and along the length in the touch surface when the plate is installed in the frame assembly" ('935 Patent, claim 7)[2];

---

[1] The parties reached agreement on this construction at the hearing. (*See* D.I. 114 at 5:23-6:19).

[2] The fundamental dispute over the meaning of this term was whether it was indefinite. The Court found that indefiniteness had not been proven at this stage, leaving open the possibility for Defendants to raise the issue again during summary judgment.

4. "wherein the plate has a second curvature along the width and along the length in the touch surface when the plate is installed in the frame assembly" does not require construction ('935 Patent, claim 7)[3];

5. "said first portion including a first projection extending downwards from said first portion and a second projection extending downwards from said first portion" will not be construed at this time ('916 Patent, claim 1);

6. "optical element" means "an element that refracts, deflects, diverts or focuses light beams" ('916 Patent, claim 1);

7. "fitted in the space between the panel and the first portion and configured to seal the plurality of light emitters from contaminants from the touch surface" will not be construed at this time ('916 Patent, claim 1)[4]; and

8. "supported by" shall be given its plain and ordinary meaning, which includes direct and indirect support ('916 Patent, claim 3).

The parties briefed the issues (*see* D.I. 102) and submitted an appendix containing intrinsic and extrinsic evidence, including an expert declaration (*see* D.I. 103), and both sides provided a tutorial describing the relevant technology (D.I. 101 & 104). The Court carefully reviewed all submissions in connection with the parties' contentions regarding the disputed claim terms, heard oral argument (*see* D.I. 114) and applied the following legal standards in reaching its decision.

I. LEGAL STANDARDS

A. Claim Construction

"[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

[3] The parties agreed that no further construction of this term was necessary in light of the Court's resolution of underlying disputes in connection with the previous "configuring" and "wherein the plate has a first curvature" terms. (*See* D.I. 114 at 102:21-103:22).

[4] Absent case narrowing that removes the relevant claims from the case, the parties should proceed through fact and expert discovery using alternate constructions for the "projection" and "fitted" terms. (*See* D.I. 114 at 102:23-104:6 & 106:4-9).

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).

B. Indefiniteness

"The primary purpose of the definiteness requirement is to ensure that the claims are written in such a way that they give notice to the public of the extent of the legal protection afforded

by the patent, so that interested members of the public, *e.g.* competitors of the patent owner, can determine whether or not they infringe." *All Dental Prodx, LLC v. Advantage Dental Prods., Inc.*, 309 F.3d 774, 779-80 (Fed. Cir. 2002) (citing *Warner-Jenkinson Co. v. Hilton-Davis Chem. Co.*, 520 U.S. 17, 28-29 (1997)). Put another way, "[a] patent holder should know what he owns, and the public should know what he does not." *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722, 731 (2002).

A patent claim is indefinite if, "viewed in light of the specification and prosecution history, [it fails to] 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). A claim may be indefinite if the patent does not convey with reasonable certainty how to measure a claimed feature. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1341 (Fed. Cir. 2015). But "[i]f such an understanding of how to measure the claimed [feature] was within the scope of knowledge possessed by one of ordinary skill in the art, there is no requirement for the specification to identify a particular measurement technique." *Ethicon Endo–Surgery, Inc. v. Covidien, Inc.*, 796 F.3d 1312, 1319 (Fed. Cir. 2015).

Like claim construction, definiteness is a question of law, but the Court must sometimes render factual findings based on extrinsic evidence to resolve the ultimate issue of definiteness. *See, e.g.*, *Sonix Tech. Co. v. Publications Int'l, Ltd.*, 844 F.3d 1370, 1376 (Fed. Cir. 2017); *see also Teva*, 135 S. Ct. at 842-43. "Any fact critical to a holding on indefiniteness . . . must be proven by the challenger by clear and convincing evidence." *Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1366 (Fed. Cir. 2003); *see also Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1338 (Fed. Cir. 2008).

I. THE COURT'S RULING

The Court's ruling regarding the disputed claim terms of '935 and '915 Patents was announced from the bench at the conclusion of the hearing as follows:

> . . . At issue we have two patents and quite a few disputed claim terms. In the papers, the parties asserted ten, but we have gotten agreement on some of those.
>
> I am prepared to rule on all but two of the remaining 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 decisions that although 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 patents in dispute. I have also reviewed the portions of the prosecution history, the expert declaration and the other references submitted. There was full briefing on each of the disputed terms and both sides submitted a technology tutorial. We have also had argument here today. All of that has been carefully considered.
>
> As to my rulings, I am not going to read into the record my understanding of claim construction law and definiteness. I have a legal standard section that I have included in earlier opinions, including recently in *Roche Diabetes Care, Inc. v. Insulet Corp.*, C.A. No. 20-825. I incorporate that law and adopt it into my ruling today and will also set it out in the order that I issue.
>
> Neither party has suggested any differences in the definitions of a person of ordinary skill in the art that are relevant to the issues currently before me.
>
> Now the disputed terms.
>
> The first term is "configuring the frame assembly to support the plate includes inducing a parabolic curvature in the touch surface," which is in claim 1 of the '935 Patent. Plaintiff proposes that no construction is needed, or alternatively that it means that "assembling the plate into the frame assembly induces a parabolic curvature in the touch surface of the plate." Defendants propose "assembling the plate into the frame assembly so that the frame assembly applies a force to the plate that causes the formation of a parabolic curvature in the touch surface, wherein, prior to the

assembly of the plate into the frame assembly, the plate does not have an inherent curvature greater than the parabolic curvature."[5]

When we started the argument today, we had two disputes. First, whether assembling the plate into the frame causes the curvature and second, whether the patent disavows plates having an "inherent" curvature greater than claimed resulting parabolic curvature. During the argument, we got an agreement as to the first dispute, that is Defendants agreed to Plaintiff's proposal of "assembling the plate into the frame assembly induces a parabolic curvature in the touch surface of the plate" with the understanding that induces means causes.

So the dispute here is really about whether the resulting parabolic curvature is greater than any inherent curvature that the plate possessed prior to assembling into the frame. As to this dispute, I can't find any support for Defendants' position. There is nothing in the claim language, other claims or specification that suggest that the claims require a resulting parabolic curvature that is greater than an inherent curvature of the plate prior to performing the method. I certainly do not find any indication that the patentee clearly and unmistakably disclaimed (in the specification or otherwise) all embodiments with plates that have a greater inherent curvature prior to performing the method. Moreover, I agree with Plaintiff that, if Defendants were correct, then claim 3 has no meaning. That claim specifically requires a first curvature before being configured into the assembly and a second curvature after being configured into the assembly, where the second curvature is greater than the first. I think it is telling that that is exactly what Defendants argue should be read into the meaning of the configuring term.

Therefore, I reject Defendants' construction. The term "configuring the frame assembly to support the plate includes inducing a parabolic curvature in the touch surface" will be given its plain and ordinary meaning, which is "assembling the plate into the frame assembly induces a parabolic curvature in the touch surface of the plate."

As we discussed at the beginning of the hearing, we have agreement on the second term presented in the brief and I will adopt that agreement.

---

5 During argument, Defendants' counsel suggested that the term really means that the frame itself applies the force.

The third term is two related terms in claims 1 and 7 of the '935 Patent: "Parabolic curvature in the touch surface" and "curvature [in the touch surface] is parabolic." Both sides agree that the terms should be given the same meaning. Plaintiff again proposes that no construction is necessary but, in the alternative, proposes that "parabolic" should mean "substantially parabolic." Defendants, on the other hand, contend that the terms require "the curvature in the touch surface conforms to a mathematical parabola that bows toward the display panel and does not vary from the mathematical parabola by more than 0.5 mm." Both sides also agree that the terms do not require the shape be a true mathematical parabola and instead permit some deviation. The real dispute seems to be how far one may deviate from a mathematical parabola and still fall within the scope of "parabolic curvature" as used in the claims.

Defendants argue that that deviation is no more than 0.5 mm, whereas Plaintiff does not put any quantification on it, merely arguing that "parabolic" should mean "substantially parabolic," which is later extrapolated to mean "substantially similar in shape to a mathematical parabola." The thrust of Defendants' argument is that the specification limits any parabolic deviation to 0.5 mm or less and there is support for that position. Although the embodiments do largely seem limited to parabolic deviation less than 0.5 mm, I think there is an embodiment that exceeds that deviation – *i.e.*, the one depicted in Figure 18a, with a parabolic deviation approaching 0.6 mm.

As Defendants note, the specification describes that figure as still maintaining a deviation less than 0.5 mm.[6] But continuing on, the specification explains that the "parabolic fit of the touch surface" depicted in Figure 18a has "an S-shaped" residual, which is apparently what results in the deviation past 0.5 mm. The specification does not explain that Figure 18a falls outside of the "parabolic curvature" of the claimed invention. In sum, I am not persuaded by Defendants' argument that the parabolic curvature is limited to parabola-like curves in the touch screen that fall within 0.5 mm of a true parabola shape. Today, Defendants argued that without the 0.5 mm addition, the term is indefinite. That is not an argument that was made and certainly not one supported by clear and convincing evidence in connection with these proceedings. So I cannot address it further today.

---

6 (*See* '935 Patent at 18:50-67).

Nor am I persuaded that we need to read into the claims "bows toward the display panel." It doesn't seem like there is any dispute about this, but I also do not see any basis in the intrinsic evidence to add those words, particularly when other claims specify that a curvature is, for example, concave, when the claims are meant to be so limited.[7]

Therefore, I will construe "parabolic curvature in the touch surface" / "curvature [in the touch surface] is parabolic" as "substantially similar in shape to a mathematical parabola," and the parties have agreed that a mathematical parabola fits the equation $y = ax^2 + bx + c$. I think that this dispute – whether something is parabolic or not as claimed – is really more of a question of fact when applied to a device than a question of claim construction.

The two related claim terms presented as the "fourth term" in the briefs are also subject to the agreement we talked about at the beginning of the argument. I will adopt that.

The fifth term is "wherein the plate has a first curvature in the touch surface when not installed in the frame assembly, and wherein the plate has a second curvature along the width and along the length in the touch surface when the plate is installed in the frame assembly" and is in claim 7 of the '935 Patent. Plaintiff's construction substitutes the phrase "is configured to" in place of the word "has" in the claim term itself. Plaintiff's proposal is otherwise just the same language of the claim. Defendants argue that the term is indefinite.

Defendants' only argument is that the term is indefinite, but they fail to come forward with clear and convincing evidence. Indeed, much of what Defendants have to say is simply attorney argument and they didn't have their expert, who opined on other terms, opine on this issue. So I am not going to find this term to be indefinite at this stage. I suppose if Defendants want to pursue the issue further at summary judgment, they may raise it again then.

That being said, I am not going to adopt Plaintiff's proposal. I do not see any reason to rewrite "has" in the claim to "is configured to" instead of something that "possesses." And I don't see that there is support in the intrinsic record for Plaintiff's proposal. And finally, I think a person of ordinary skill would understand "has" in this context to simply mean "possesses."

---

7 (*See, e.g.*, *id.* at Claim 7).

The sixth term is "wherein the plate has a second curvature along the width and along the length in the touch surface when the plate is installed in the frame assembly," which appears in claim 7 of the '935 Patent. Plaintiff again proposes that no construction is necessary but, in the alternative, proposes that "has" means "is configured to have." Defendants, on the other hand, contend that the terms require "the touch surface of the plate, when the plate is installed in the frame assembly, has a second curvature along a width and along a length of the touch surface, wherein the plate does not have an inherent curvature greater than the second curvature."

The dispute here is two-fold: (1) whether "has" should be rewritten as "is configured to" and (2) whether the curvature of the plate after assembly into the frame must be greater than any inherent curvature of the plate before assembly. I have already addressed the two disputes in connection with previous terms. I rejected Plaintiff's attempt to rewrite "has" as "is configured to" and I also rejected Defendants' disavowal argument – *i.e.*, that the patentee disavowed all embodiments except for those where the inherent curvature of the plate prior to assembly into the frame is smaller than the curvature after assembly into the frame. The parties agree that my resolution of those disputes in connection with the other terms is controlling as to this term. And in lieu of that, I don't see the need to further construe this term.

The seventh term is "said first portion including a first projection extending downwards from said first portion and a second projection extending downwards from said first portion," which appears in claim 1 of the '916 Patent. I am not prepared to construe this term today. I am not sure whether I will be able to construe this when I issue my order or whether you are going to have to go through expert discovery with alternative constructions on this.

The eighth term is "optical element" in claim 1 of the '916 Patent. Plaintiff proposes that the term be construed as "sealing window including one or more elements that refracts, deflects, diverts, or focuses light beams," whereas Defendants propose that the term means "in a component of the touch sensing apparatus, a surface that refracts, deflects, diverts, or focuses light beams passing through the surface." Both sides agree that "refracts, deflects, diverts, or focuses light beams" is part of the construction. The dispute centers around whether the "optical element" is a "sealing window," as Plaintiff proposes, or "a surface," as Defendants propose. The parties also dispute whether the optical element is a two-dimensional surface (Defendants) or a three-dimensional sealing window (Plaintiff).

I will construe "optical element" to mean an element that refracts, deflects, diverts, or focuses light beams passing through. The parties have agreed that element needs no construction so I will not further construe that word.

As Plaintiff points out, the specification only refers to "optical element" twice.[8] According to Plaintiff, in each instance, the optical element is described as a "sealing window." But the specification actually states that "[i]n some embodiments . . . the sealing window can optionally comprise optical elements for refracting, deflecting, diverting or focusing the light beams therethrough."[9] Further, in other embodiments, the sealing window "does not comprise any optical elements for refracting, deflecting, diverting or focusing the light beams therethrough." I think these passages suggest that, contrary to Plaintiff's argument, the "sealing window" and "optical element" are not necessarily the same thing. At the same time, the specification does discuss the "sealing window" in terms that suggests that sometimes it is synonymous with the "optical element" in the claims.[10] With those two descriptions, I do not feel that I can construe "optical element" on its own as necessarily meaning sealing window – but I am not saying that it cannot be in a particular instance.

As for Defendants' proposal that the optical element be a "surface," I do not think that it is consistent with the intrinsic evidence. The specification provides examples where the sealing window comprises a surface but that is not a definition. And Defendants' proposal is also inconsistent with claim 5, which claims an optical element with at least two surfaces and a base.

The ninth term is "fitted in the space between the panel and the first portion and configured to seal the plurality of light emitters from contaminants from the touch surface," which appears in claim 1 of the '916 Patent. As with the seventh term, I am not prepared to construe this term today.

The tenth and final term is "supported by" from claim 3 of the '916 Patent. Plaintiff proposes that the term be construed as "directly joined to" whereas Defendants propose that the term be construed as "directly or indirectly held in position by." The dispute

---

8 (*See* '916 Patent at 16:36-43).

9 (*Id.* at 16:36-40).

10 (*See, e.g.*, '916 Patent at 13:24-14 (describing optional sealing window structure that tracks optical element of claim 5)).

between the parties here is whether direct support is required or whether, as Defendants argue, indirect support is covered by the claims. Here, I agree with Defendants.

I think the plain meaning of the phrase "supported by" contemplates both direct and indirect support. And I think Plaintiff is importing limitations into the term that are not required by the intrinsic evidence. Despite Plaintiff's argument to the contrary, I do not see anything in the specification (or elsewhere) that indicates the patentee intended to limit the term "supported by" to mean "directly joined to." It is true that the specification describes an embodiment where there is direct joining between the substrate (electronics board) and the support structure (carrier), but I am not persuaded this is a reason to limit the claim in the way Plaintiff suggests. First, the claim does not use the term "directly join" even though the specification does and, further, the specification does not suggest that "supported by" is synonymous with "directly join." Second, as Defendants point out, the specification elsewhere demonstrates that the patentee knew how to use the term "support," seemingly as distinct from "join."[11] So I just don't think there is support for limiting the term in the way Plaintiff suggests. But I don't think Defendants' construction is necessary. The term will be given its plain and ordinary meaning, which permits both direct and indirect support.

Maryellen Noreika

The Honorable Maryellen Noreika
United States District Judge

11 (*See* '916 Patent at 9:66-10:8, 10:9-11 & 9:57-60).