IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

ALIGN TECHNOLOGY, INC.,	:	
	:	
Plaintiff,	:	
	:	
v.	:	C.A. No. 17-1646-LPS-CJB
	:	
3SHAPE A/S, and 3SHAPE, INC.,	:	
	:	
Defendants.	:	

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MEMORANDUM OPINION

June 6, 2019
Wilmington, Delaware

STARK, U.S. District Judge:

Plaintiff Align Technology, Inc. ("Plaintiff") filed suit against Defendants 3Shape A/S and 3Shape, Inc. ("Defendants") on November 14, 2017, alleging infringement of U.S. Patent Nos. 7,112,065 (the "'065 Patent"), 9,510,757 (the "'757 Patent"), 9,299,192 (the "'192 Patent"), 8,845,330 (the "'330 Patent"), 8,454,364 (the "'364 Patent"), and 9,427,916 (the "'916 Patent"). (D.I. 1) The patents-in-suit relate to various aspects of intraoral scanning.

Pending before the Court is the issue of claim construction. The parties completed briefing on January 14, 2019, presenting disputes concerning terms in the '757 and '916 Patents. (D.I. 81, 83, 95, 97) The Court held a claim construction hearing on March 7, 2019. (D.I. 127) ("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." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (citation and 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. Conceptronic, 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)) (alteration in original) (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 [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.* 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)).

I. CONSTRUCTION OF DISPUTED TERMS[1]

A. The '757 Patent

1. "Voxel"[2]

Plaintiff the 3D equivalent of a pixel
Defendant a cube in 3D space
Court volume pixel; the 3D equivalent of a pixel

The parties' dispute over the meaning of "voxel" appears to be largely due to one sentence in the specification, which states (in part) "the flagging module 118 may divide the 3D space into cubes (e.g., voxels corresponding to one or more pixels of the 3D space)." '757 Patent, col. 8 ll. 6-8. This sentence, Defendants argue, limits the shape of "voxels" to cubes

[1] The Court will also adopt the parties agreed-upon constructions.

[2] This term appears in claim 13 of the '757 Patent.

(at least for purposes of the '757 Patent). (D.I. 81 at 11-12; Tr. at 5-6, 10-11) Plaintiff responds that a cube is merely one exemplary embodiment of a voxel. (D.I. 97 at 1-2; Tr. at 13-14)

The Court agrees with Plaintiff. The specification identifies a cube as one non-limiting embodiment of a voxel, but one of ordinary skill in the art would understand that a voxel could also be other 3D shapes. This conclusion is supported not only by the intrinsic evidence (the use of "e.g." when associating cubes and voxels) but also by Defendants' proffered extrinsic evidence. (D.I. 81 at 11; *see* Ex. 1 at 549 ("These cells are often called ***voxels*** (volume elements), in analogy to pixels . . . . The ***most common*** cell type is the cube.") (emphasis added)) In fact, both parties concede that a voxel could take on a variety of 3D shapes, and dispute only whether the '757 Patent encompasses these other shapes. (Tr. at 11, 14) As there is no persuasive basis to limit voxels to cubes, the Court will construe the term to mean "volume pixel; the 3D equivalent of a pixel."

2. "an indication of the intraoral area of interest"[3]

Plaintiff No construction necessary
Defendant a visible indicator displayed to a user which is remote from and points to the location of the intraoral area of interest
Court No construction necessary

Plaintiff argues "indications" are defined in the specification, and that definition should be applied consistently throughout the claims. (D.I. 83 at 9-12; D.I. 97 at 5) Defendants counter that claim 13 is directed to a subset of "indications" described in the specification: those that are visible when the area of interest is hidden. (D.I. 81 at 5-9; D.I. 95 at 5; Tr. at 21, 23) Defendants

[3] This term appears in claim 13 of the '757 Patent.

provide two examples of indications that are not within the scope of the claim: (1) those that are not remote from their areas of interest; and (2) those that do not point to their areas of interest. (D.I. 81 at 5; Tr. at 24-26)

Generally, "a claim term should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent." *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001). But this preferred method of construction is not absolute; the context in which a term is used may require a different meaning for different claims. *See Aventis Pharm. Inc. v. Amino Chemicals Ltd.*, 715 F.3d 1363, 1374 (Fed. Cir. 2013) ("We have previously held that the same claim term can have different constructions depending upon the context of how the term is used within the claims and specification.").

Plaintiff rightly argues that "indication" has a plain and ordinary meaning, set forth in the specification, that may be applied consistently throughout the claims and needs no construction. *See* '757 Patent, col, 7 ll. 19-61; col. 14 ll. 9-32 (noting, for instance, that indication may be "flags, markings, contours, text, images, and/or sounds"). Defendants, too, rightly argue that claim 13 imposes additional limitations on the term: specifically, that the "indication" be visible (i.e., not only audible) when the area of interest is hidden.[4] '757 Patent, cl. 13. These additional limitations, however, are claimed and need not be read into the term "indication" itself. *See id.* (claiming "the intraoral area of interest ***is hidden in one or more views*** . . . wherein ***the indication*** of the intraoral area of interest ***is visible in the one or more views***") (emphasis added). The Court is not persuaded that the claim also requires the indication be remote from and

[4] Plaintiff also acknowledged that, to prove infringement, it must identify in the accused products an indication that is visible when the area of interest is hidden, and not every indication recited in the specification (e.g. audible indications) will meet these additional limitations of claim 13. (Tr. at 32-33) Plaintiff argued, however, that the additional limitations are claimed separately and should not be read into the disputed term. (*Id.* at 30-32)

pointing to the area of interest, but only that the indication identify the area of interest's location when the area is hidden from view. '757 Patent, col. 5 l. 58-col. 9 l. 63 (describing indication's primary purpose to identify existence and location of areas of interests (among other information) in digital representations).

Having rejected Defendants' proposed construction, the Court concludes that no construction is necessary.

3. "wherein the intraoral area of interest is hidden in one or more views of the dental site, and wherein the indication of the intraoral area of interest is visible in the one or more views"[5]

Plaintiff No construction necessary
Defendant Wherein the intraoral area of interest is hidden in one or more views of the dental site, and wherein the visible indicator displayed to the user which is remote from and points to the location of the intraoral area of interest [the meaning of "indication of the intraoral area of interest"] is visible in the one or more views
Court No construction necessary

Defendants seek to read their construction of "indication of intraoral area" into other recitations of the term to "ensure that the user will be made aware of the area of interest regardless of a current view." (D.I. 81 at 10) Given the Court's analysis of "indication of the intraoral area of interest" above, the Court is not persuaded that it must adopt Defendants' construction or read that construction into every subsequent recitation of the term.

B. The '916 Patent

4. "receive a virtual three dimensional (3D) representation of a patient's lower arch, the patient's upper arch, and an occlusion alignment between the upper and lower arches"[6]

[5] This term appears in claim 13 of the '757 Patent.

[6] This term appears in claims 1, 11, and 18 of the '916 Patent.

Plaintiff No construction necessary, but if necessary: "receive a virtual three-dimensional (3D) representation of a patient's lower arch, upper arch, and the occlusion alignment between the upper and lower arches"
Defendant receive a virtual three dimensional (3D) representation of a (1) patient's lower arch, (2) the patient's upper arch, and (3) an occlusion alignment between the upper and lower arches
Court No construction necessary

Defendants attempt to limit "virtual 3D representations" to something akin to "3D models" – requiring that a processor must receive (at least) one virtual three-dimensional model of a patient's (1) lower arch, (2) upper arch, and (3) the occlusion alignment. (D.I. 81 at 14; D.I. 95 at 13-15; Tr. at 40-41) Plaintiff counters that the claim requires only 3D representations (not models), and that at least the occlusion alignment may be provided as data. (D.I. 97 at 12-13; Tr. at 45-47)

The specification describes a "virtual impression" as a single "***3D file*** that contains the two jaws and the spatial relationship between them in occlusion." '916 Patent, col. 4 ll. 24-26 (emphasis added). The specification also states:

> [r]unning in the processor 22 is a first software utility 26 that ***receives an input*** [(e.g. a 3D file)] of a three dimensional virtual teeth model [(constituting a virtual representation)] and then processes . . . manipulable software utility 28, ***to construct a three dimensional virtual teeth model*** . . . which can then be fed for display to display unit 24.

Id. at col. 4 ll. 28-41 (emphasis added).

The specification, therefore, envisions virtual ***representations*** of the upper jaw, lower jaw, and occlusion alignment, wherein at least the representation of the occlusion alignment may be in the form of data (and not necessarily a model). The specification requires only that the processor be capable of constructing a "virtual three-dimensional model" based on those representations and/or data, and nothing in the claims suggest a different or narrower view.

Having resolved the parties' dispute in favor of Plaintiff, the Court will not construe the disputed term, as its meaning is clear in light of the specification.

III. CONCLUSION

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

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ALIGN TECHNOLOGY, INC.,	:	
	:	
Plaintiff,	:	
	:	
v.	:	C.A. No. 17-1646-LPS-CJB
	:	
3SHAPE A/S, and 3SHAPE, INC.,	:	
	:	
Defendants.	:	

ORDER

At Wilmington this **6th** day of **June, 2019**:

For the reasons set forth in the Memorandum Opinion issued this date,

IT IS HEREBY ORDERED that the following claim terms of U.S. Patent Nos. 9,510,757 ("the '757 Patent) and 9,427,916 ("the '916 Patent") are construed as follows:

Claim Term	Court's Construction
voxel [claim 13 of the '757 Patent]	volume pixel; the 3D equivalent of a pixel
an indication of the intraoral area of interest [claim 13 of the '757 Patent]	No construction necessary
wherein the intraoral area of interest is hidden in one or more views of the dental site, and wherein the indication of the intraoral area of interest is visible in the one or more views [claim 13 of the '757 Patent]	No construction necessary
receive a virtual three dimensional (3D) representation of a patient's lower arch, the patient's upper arch, and an occlusion alignment between the upper and lower arches [claims 1, 11, and 18 of the '916 Patent]	No construction necessary

UNITED STATES DISTRICT JUDGE