

UNITED STATES DISTRICT COURT  
DISTRICT OF MINNESOTA

American Medical Systems, Inc.,  
and Laserscope,

Plaintiffs,

v.

Civil No. 08-4798 (JNE/FLN)  
ORDER

Laser Peripherals, LLC,

Defendant.

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Leland G. Hansen, Esq., and Scott P. McBride, Esq., McAndrews, Held & Malloy, Ltd., and Misti N. Okerlund, Esq., Myers, Boebel & MacLeod L.L.P., appeared for Plaintiffs American Medical Systems, Inc., and Laserscope.

Arne M. Olson, Esq., and Matthew D. Kellam, Esq., Olson & Cepuritis, Ltd., and Galen Watje, Esq., Watje & Moore, Ltd., appeared for Defendant Laser Peripherals, LLC.

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American Medical Systems, Inc., and its subsidiary, Laserscope, (collectively, AMS) assert claims of patent infringement against Laser Peripherals, LLC (LP). LP counterclaims for declarations of non-infringement and invalidity. The case is before the Court to construe disputed claim terms pursuant to *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996).

### I. BACKGROUND

AMS owns U.S. Patent No. 5,428,699 (filed July 2, 1993), entitled “Probe Having Optical Fiber for Laterally Directing Laser Beam.” Russell Pon is the sole named inventor on the ’699 Patent. According to the ’699 Patent, such a probe can be used to treat benign prostatic hyperplasia, which causes an enlarged prostate, by laterally directing laser energy out of the tip of a waveguide onto selected portions of the enlarged prostate to cause necrosis of the tissue. The necrotic tissue sloughs off as small particles which are passed away during urination. The

claims of the '699 Patent are directed to apparatuses for communicating and laterally directing electromagnetic energy and probes for treating benign prostatic hyperplasia.

AMS contends that LP infringes independent claims 1 and 25, as well as dependent claims 27-30, of the '699 Patent. Claim 1 recites:

An apparatus for communicating and laterally directing electromagnetic radiation, comprising:

a waveguide having a tip for communicating electromagnetic radiation in a propagation direction to the tip of the waveguide;

a transmitting surface on the tip of the waveguide;

a reflecting surface on the tip of the waveguide for internally reflecting electromagnetic radiation communicated by the waveguide in a direction lateral to the propagation direction toward a particular area on the transmitting surface; and

wherein the particular area and the reflecting surface are disposed so that greater than about 90% of electromagnetic radiation reflected by the reflecting surface is incident on the particular area at below a critical angle for transmission through the transmitting surface in the lateral direction.

Claim 25 recites:

A surgical probe for treating benign prostatic hyperplasia (BPH), said probe, comprising:

a waveguide having a tip with a glass cladding extending to a distal end of the tip, the waveguide for communicating electromagnetic radiation in a first propagation direction to the tip of the waveguide;

means for positioning the waveguide during surgery;

a transmitting surface on the tip of the waveguide;

a reflecting surface on the tip of the waveguide for internally reflecting electromagnetic radiation communicated in the first propagation direction by the waveguide in a second propagation direction toward the transmitting surface; and

wherein at least 90% of all electromagnetic radiation reflected by the reflecting surface is incident on the transmitting surface at below a critical angle for transmission through the transmitting surface.

The parties dispute the construction of several terms in the asserted claims.<sup>1</sup>

## II. DISCUSSION

The construction of patent claims “is a matter of law exclusively for the court.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996). The claims 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). 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 pertinent art at the time of the invention (i.e., as of the effective filing date of the patent application). *Id.* at 1312-13. “[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* at 1313. Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, a court should look to the sources available to the public that show what a person of skill in the art would have understood the claim language to mean. *Id.* at 1314.

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<sup>1</sup> Claim 27 recites: “The apparatus of claim 25, wherein the means for positioning the waveguide includes a tube having a hollow passage, and the waveguide is positioned within the hollow passage.”

Claim 28 recites: “The apparatus of claim 27, wherein the tube comprises a rigid cannula.”

Claim 29 recites: “The apparatus of claim 27, wherein the tube comprises a flexible catheter.”

Claim 30 recites: “The apparatus of claim 25, wherein the reflecting surface comprises a bevelled surface at the distal end of the tip.”

“Those sources include ‘the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.’” *Id.* (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

The claims provide substantial guidance as to the meaning of particular claim terms. *Id.* In some cases, the use of a term within the claim provides a firm basis for construing the term. *Id.* Other claims of the patent, both asserted and unasserted, can be valuable sources of enlightenment as to the meaning of a claim term. *Id.* In many cases, because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can illuminate the meaning of the same term in other claims. *Id.* In addition, differences among claims can be a useful guide in understanding the meaning of particular claim terms. *Id.* For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation is not present in the independent claim. *Id.* at 1314-15.

The claims do not stand alone, however, but must be read in light of the specification, of which they are a part. *Id.* at 1315. The specification is always highly relevant to claim construction and usually is dispositive because it is the single best guide to the meaning of a disputed term. *Id.*

In addition to the claims and specification, a court should consider the patent’s prosecution history, if it is in evidence. *Id.* at 1317. This is because the prosecution history can “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.*

Finally, a court may consider extrinsic evidence, which is all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and treatises. *Id.* Extrinsic evidence, however, is less significant than the intrinsic record in determining the legally operative meaning of claim language. *Id.* Dictionaries and treatises can be useful in claim construction, particularly technical dictionaries that endeavor to collect the accepted meanings of terms used in various fields of science and technology. *Id.* at 1318. Such technical dictionaries can help a court determine the meaning of particular terms to those of skill in the pertinent art. *Id.* Expert testimony can be useful to a court for a variety of purposes, including to provide background on the relevant technology, to explain how an invention works, 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.* Expert testimony that consists of conclusory, unsupported assertions as to the definition of a claim term is not useful, however, and “a court should discount any expert testimony ‘that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent.’” *Id.* (quoting *Key Pharms. v. Hercon Labs. Corp.*, 161 F.3d 709, 716 (Fed. Cir. 1998)).

**A. Indefiniteness**

LP contends that several terms in the asserted claims are indefinite. First, LP contends that the clauses “wherein the particular area and the reflecting surface are disposed so that greater than about 90% of electromagnetic radiation reflected by the reflecting surface is incident on the particular area at below a critical angle for transmission through the transmitting surface in the lateral direction” and “wherein at least 90% of all electromagnetic radiation reflected by

the reflecting surface is incident on the transmitting surface at below a critical angle for transmission through the transmitting surface” (collectively, 90% clauses) are indefinite because one cannot directly measure the amount of electromagnetic radiation that is reflected and because the amount of electromagnetic radiation that is reflected will vary based on the radiation’s polarization. LP also contends that the ’699 Patent does not teach the manner in which the relative positions of the transmitting surface and reflecting surface achieve the 90% limitations. In addition, LP asserts that “transmitting surface,” “particular area,” “tip of the waveguide,” “transmitting surface on the tip of the waveguide,” and “distal end of the tip” are indefinite because the ’699 Patent does not identify the element or where the element “begins and ends” and because AMS’s infringement claim chart does not identify where the element is found in the accused product.

The requirement of definiteness is set forth in 35 U.S.C. § 112, ¶ 2 (2006), which provides that a specification of a patent must “conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” Claims in a patent are presumed to be valid, and the evidentiary burden to show facts supporting a conclusion of invalidity for indefiniteness is one of clear and convincing evidence. *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347-48 (Fed. Cir. 2005). General principles of claim construction apply when indefiniteness is alleged. *Id.* at 1348. Claims are considered indefinite when they are “‘not amenable to construction’ or ‘insolubly ambiguous.’” *Id.* at 1347. If a court can discern the meaning of a claim, even though the task is formidable and the conclusion may be one over which reasonable persons will disagree, the claim is sufficiently clear to avoid invalidity on indefiniteness grounds. *See id.* In addition, “[t]he test for indefiniteness does not depend on a potential infringer’s ability to ascertain the

nature of its own accused product to determine infringement,” and claim breadth is not indefiniteness. *SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331, 1340-41 (Fed. Cir. 2005).

LP maintains that the validity of the claims should be addressed in later proceedings, and reserves its right to raise invalidity arguments, including those relating to indefiniteness, at a later date. Based on the evidence before the Court, the Court concludes that the disputed terms are reasonably amenable to construction. Moreover, with respect to the 90% clauses, “the task of determining whether [a functional claim limitation] is sufficiently definite is a difficult one that is highly dependent on context (e.g., the disclosure in the specification and the knowledge of a person of ordinary skill in the relevant art area).” *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1255 (Fed. Cir. 2008). The Court declines to determine at this time if the asserted claims are invalid as indefinite, and will consider arguments relating to validity if and when they are raised during a subsequent proceeding.

## **B. Means-Plus-Function Claiming**

The parties dispute whether certain claim terms are “means-plus-function” terms subject to the restrictions of 35 U.S.C. § 112, ¶ 6. LP contends that the 90% clauses are means-plus-function terms. LP identifies the “function” of these clauses as the “90% function,” where the function is that of ensuring that “about” or “at least” 90% of electromagnetic radiation reflected by the reflecting surface is incident on the particular area or transmitting surface at below a critical angle. LP also contends that “transmitting surface” and “particular area” are limited to certain disclosed embodiments because they are recited in the 90% clauses and they are part of the “means” that accomplishes the 90% function. AMS responds that none of these terms are means-plus-function terms.

The statutory basis for means-plus-function claiming is found in 35 U.S.C. § 112, ¶ 6, which states:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

This paragraph operates to restrict claim limitations drafted as such a means or step to the structures, materials, or acts disclosed in the specification (and their equivalents) that perform the claimed function. *Personalized Media Commc'ns, LLC v. Int'l Trade Comm'n*, 161 F.3d 696, 703 (Fed. Cir. 1998). Accordingly, if the terms are means-plus-function terms, they are limited to the structures disclosed in the specification that perform the 90% function and their equivalents.<sup>2</sup>

When determining whether a claim term is a means-plus-function term, the use of the word “means” creates a presumption that § 112, ¶ 6 applies, while the failure to use the word “means” creates a presumption that § 112, ¶ 6 does not apply. *Id.* at 703-04. The 90% clauses, “transmitting surface,” and “particular area” do not use the word “means.” Consequently, the Court presumes that § 112, ¶ 6 does not apply. The presumption can be rebutted if the claim term fails to recite sufficiently definite structure or recites function without reciting sufficient structure for performing that function. *Mass. Inst. of Tech. v. Abacus Software*, 462 F.3d 1344, 1353 (Fed. Cir. 2006).

The 90% clauses recite functional claim language. Functional claim language is not objectionable so long as it does not cause the claim to cover more than the inventor disclosed or invented or define the invention in a vague and ambiguous manner. 3 Donald S. Chisum,

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<sup>2</sup> LP would further limit the construction of these terms by excluding the embodiment shown in Figure 12 of the '699 Patent from the structures covered by the asserted claims.



*Chisum on Patents* § 8.04 (2009). Functional language that results in such overly broad or indefinite claims would result in the claim's invalidity for failing to meet the requirements of § 112, ¶¶ 1-2. LP contends, citing several United States Supreme Court cases, that the 90% clauses must be construed as means-plus-function terms to avoid vague and overly broad constructions. In none of the cases cited by LP, however, were claim terms construed under § 112, ¶ 6 to avoid these defects. Further, while a court should construe claims to preserve their validity, this maxim applies only where, after applying all available tools of claim construction, the claim is still ambiguous. *Broadcom Corp. v. Qualcomm Inc.*, 543 F.3d 683, 690 (Fed. Cir. 2008). Where claim language is clear, it must be accorded its full breadth even if the result is a claim that is plainly invalid. *Tate Access Floors, Inc. v. Interface Architectural Res., Inc.*, 279 F.3d 1357, 1372 (Fed. Cir. 2002); *see also Saunders Group, Inc. v. Comfortrac, Inc.*, 492 F.3d 1326, 1335 (Fed. Cir. 2007) (“That is not to say that we reject the district court’s validity analysis; we hold only that the court’s validity analysis cannot be used as [a] basis for adopting a narrow construction of the claims.”). Accordingly, if the claim language makes it clear that these terms do not fall under § 112, ¶ 6, the Court cannot construe them as such to preserve their validity.

The Court first addresses whether “transmitting surface” and “particular area” are means-plus-function terms. The terms “transmitting surface” and “particular area” are introduced in the claims before their recitation in the 90% clauses. The claim language states that the transmitting surface is “on the tip of the waveguide” and the particular area is “on the transmitting surface.” The specification describes the transmitting surface and particular area in structural terms. *E.g.*, ’699 Patent col.2 ll.34-38 (stating the particular area “comprises an arced surface extending to and intersecting the opposing flat sides and the bevelled end so the particular area is limited by

the intersection of the two opposing flat sides and bevelled end”), col.4 ll.65-69 (stating the transmitting surface is disposed in the peripheral surface of the fiber core), col.5 ll.59-60 (stating that adhesive may cover the transmitting surface), col.6 ll.16-18 (stating that an upper arced surface includes the particular area and transmitting surface), col.8 l.66 (describing the transmitting surface as having an “internal side”). The dictionary definitions of “surface” and “area” support the conclusion that these terms are structural. *See Webster’s Third New International Dictionary* 115 (2002) (defining “area” as “the surface included within any set of lines” or “any particular extent of space or surface”); *id.* at 2300 (defining “surface” as “the exterior of an object or body,” “the outermost or uppermost boundary,” or “one or more faces of a three-dimensional body”). In short, the claim language, specification, and dictionary definitions confirm that the transmitting surface and particular area describe a type of structure and do not fall under § 112, ¶ 6. *See DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1023-24 (Fed. Cir. 2006). The Court concludes that “transmitting surface” and “particular area” are not means-plus-function terms.<sup>3</sup>

The Court turns to whether the 90% clauses are means-plus-function terms. The 90% clauses begin with the word “wherein” and further define the configuration of the reflecting surface, transmitting surface, and, in the case of claim 1, particular area by requiring the configuration to achieve the recited 90% limitations. The use of functional language in the 90% clauses, however, does not require the conclusion that the 90% clauses are means-plus-function terms because “[f]unctional language may also be employed to limit the claims without using the means-plus-function format.” *Microprocessor Enhancement Corp. v. Tex. Instruments Inc.*, 520

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<sup>3</sup> The description of the “surface” by reference to its transmitting function does not convert the term into a means-plus-function term. *See Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996).

F.3d 1367, 1375 (Fed. Cir. 2008); *cf.* *K-2 Corp. v. Salomon S.A.*, 191 F.3d 1356, 1363-64 (Fed. Cir. 1999) (construing “said non-rigid shoe portion being permanently affixed to said base portion at least at said toe area and said heel area for substantially preventing movement therebetween at least in a horizontal plane”); *Wright Med. Tech., Inc. v. Osteonics Corp.*, 122 F.3d 1440, 1443-44 (Fed. Cir. 1997) (construing “adapted to closely fit in and extend through the narrowest portion of the human femur”).

LP cites several cases where the presumption that a term was not a means-plus-function term was rebutted. These cases, however, do not involve “wherein” clauses such as those recited in claims 1 and 25. Rather, the cases involve generic structural terms such as “mechanism” or “element.” *See, e.g., Welker Bearing Co. v. PHD, Inc.*, 550 F.3d 1090, 1096 (Fed. Cir. 2008) (construing “mechanism for moving said finger”); *Mass. Inst. of Tech.*, 462 F.3d at 1353-55 (construing “colorant selection mechanism”); *Toro v. Deere & Co.*, 355 F.3d 1313, 1325 (Fed. Cir. 2004) (construing “control mechanism for controlling the operation of said valve”); *Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206, 1213-14 (Fed. Cir. 1998) (construing “lever moving elements”); *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 422 F. Supp. 2d 446, 459-60 (D. Del. 2006) (construing “soft start circuit”). LP has not identified any such generic structural term in the 90% clauses, nor has it cited any case where a clause reciting “wherein” (or similar language) and imposing a functional limitation was found to be a means-plus-function term despite the presumption that § 112, ¶ 6 did not apply.

LP contends that the 90% clauses are means-plus-function terms because they do not recite sufficiently definite structure to accomplish the 90% function. LP asserts that the 90% clauses do not recite sufficiently definite structure because they do not disclose the configuration and location of the reflecting surface, transmitting surface, and particular area required to

achieve the 90% function or the specific dimensions, shapes, or angles of these elements.

According to LP, the 90% clauses will cover an “infinite” number of configurations if they are not construed as means-plus-function terms.

Whether a claim term is broad is not the test for determining if it is a means-plus-function term. *See Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1359-60 (Fed. Cir. 2004) (rejecting argument that a term must be a means-plus-function term if it covers a “broad class of structures”). Moreover, the claims do identify the location of the transmitting surface and reflecting surface (on the tip of the waveguide) and particular area (on the transmitting surface), albeit without specific dimensions, and state that the reflecting surface reflects electromagnetic radiation in a direction lateral to the propagation direction and toward the transmitting surface. LP cites no authority for the proposition that claims reciting the location of and relationship between structural elements, and not the word “means,” must recite precise dimensions, distances, or angles to avoid falling under the rubric of § 112, ¶ 6.<sup>4</sup> The clauses reciting the location of the structural transmitting surface, reflecting surface, and particular area and the 90% clauses sufficiently describe the structural relationship between the reflecting and transmitting surfaces and particular area to avoid falling under § 112, ¶ 6. *See Kothmann & Kothmann v. Trinity Indus., Inc.*, 287 F. Supp. 2d 673, 697-98 (S.D. Tex. 2003) (finding clauses reciting “wherein the energy absorption system is positionable along a roadway to cooperate with the upstream portion of a roadside hazard” and “wherein the impact head is in operational connection with the cutter and the cuttable member such that the impact of an errant vehicle with

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<sup>4</sup> LP’s reliance on *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1535-36 (Fed. Cir. 1991), is unpersuasive given that the term at issue in *Laitram* used the word “means,” and therefore was presumed to be a means-plus-function term, and the structural description in *Laitram* “merely serve[d] to further specify the function of that means.”

the impact head will cause the cutter to cut at least a portion of the cuttable member to absorb the impact energy of the errant vehicle” were not means-plus-function terms).

LP also asserts that the prosecution history and prior art support its contention that the 90% clauses are means-plus-function terms. As filed, original claim 26 (which issued as claim 25) recited that “substantially all” of the electromagnetic radiation reflected by the reflecting surface was incident on the transmitting surface at below the critical angle. In response to a rejection based on U.S. Patent No. 5,253,312 (filed June 26, 1992) to Errol Payne et al. (Payne), the applicant replaced the phrase “substantially all” with “at least 90%.” The examiner then allowed original claim 26. LP, relying on a declaration from its vice-president Jeffrey Stein, contends that this amendment and subsequent allowance means the examiner construed the 90% clause as a means-plus-function term because, according to Stein’s calculations, 90.7% of the light reflected off the reflecting surface disclosed in Payne is incident on the fiber side wall at below the critical angle.

The Court does not find this argument persuasive. There is no reference to § 112, ¶ 6 or means-plus-function claiming in this portion of the prosecution history, and nothing in the prosecution history suggests that the examiner or the applicant viewed the 90% clauses as means-plus-function terms. Moreover, the applicant asserted when amending original claim 26 to recite the 90% limitation that Payne did not teach the 90% limitation, which, if true, would rebut LP’s argument that the examiner and applicant were required to construe the 90% clause as a means-plus-function term to overcome Payne.<sup>5</sup>

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<sup>5</sup> The Court makes no finding as what Payne actually discloses, and declines to consider the parties’ arguments relating to the accuracy and relevance of Stein’s calculations at this time.

LP also contends that AMS admits that the structure necessary to achieve the 90% function is disclosed only in the specification and not in the claims. Because the paragraph of AMS's brief quoted by LP is explicitly responsive to LP's contention that claims 1 and 25 are "indefinite because the specification . . . does not teach the relative positions of the transmitting surface and reflecting surface" to achieve the 90% limitation, AMS's response describing what the specification teaches is not an admission as to whether the presumption that the 90% clauses are not means-plus-function terms is rebutted. Moreover, it is entirely appropriate for AMS to refer to the specification in the indefiniteness context as the test for indefiniteness under § 112, ¶ 2 is "if a person skilled in the field of the invention would reasonably understand the claim *when read in the context of the specification.*" See *Marley Mouldings Ltd. v. Mikron Indus., Inc.*, 417 F.3d 1356, 1359 (Fed. Cir. 2005) (emphasis added).

Finally, LP cites a statement made in U.S. Patent No. 7,447,409 (filed Jan. 30, 2006), now assigned to AMS, in support of its contention that the 90% clauses are means-plus-function terms. The '409 Patent was filed over twelve years after the filing date of the '699 Patent, is not related to the '699 Patent, and does not share a common inventor with the '699 Patent. Consequently, LP's reliance on the '409 Patent is unpersuasive.<sup>6</sup> See *Phillips*, 415 F.3d at 1313 (stating that claims are interpreted as of their effective filing date); *Goldenberg v. Cytogen, Inc.*, 373 F.3d 1158, 1167 (Fed. Cir. 2004) (finding statements in another patent irrelevant to claim construction absent a formal relationship or incorporation during prosecution of the patent at issue).

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<sup>6</sup> LP's reliance on the '409 Patent with respect to the construction of "tip of the waveguide" is unpersuasive for the same reasons.

LP has not rebutted the presumption that “transmitting surface,” “particular area,” and the 90% clauses are not means-plus-function terms. Section 112, ¶ 6 is inapplicable to these terms, and does not limit them to the structures disclosed in the specification.<sup>7</sup>

### **C. Comprising**

The asserted claims recite “comprising” as a transitional phrase. AMS proposes “including but not limited to.” LP proposes “including the named essential elements, but not limiting the addition of other elements.” The transitional phrase “comprising” is inclusive or open-ended, and does not exclude additional, unrecited elements. *CollegeNet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 1235 (Fed. Cir. 2005). Both proposals appear correct; the Court construes “comprising” as the more concise “including but not limited to.”

### **D. Transmitting surface**

Claims 1 and 25 recite “a transmitting surface on the tip of the waveguide.” The term “transmitting surface” is recited again in the 90% clauses. AMS proposes “surface through which electromagnetic radiation is transmitted from the tip in the targeted lateral direction” as a construction for “transmitting surface.” LP proposes a construction limited to the embodiments disclosed in the specification, which is predicated on its argument that “transmitting surface” and the 90% clauses are means-plus-function terms. For the reasons previously stated, the Court concludes that “transmitting surface” is not a means-plus-function term. The Court finds no

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<sup>7</sup> Because the 90% clauses are not means-plus-function terms, the “transmitting surface” and “particular area” are not limited to the disclosed embodiments by virtue of their recitation in the 90% clauses. Even if the 90% clauses were means-plus-function terms, the “transmitting surface” and “particular area” would be limited to the disclosed embodiments only if they were part of the “means” that performed the 90% function. *See IMS Tech., Inc. v. Haas Automation, Inc.*, 206 F.3d 1422, 1432 (Fed. Cir. 2000) (“Section 112, ¶ 6 does not limit all terms in a means-plus-function or step-plus-function clause to what is disclosed in the written description and equivalents thereof; § 112, ¶ 6 applies only to interpretation of the means or step that performs a recited function when a claim recites insufficient structure or acts for performing the function.”).

basis in the specification or prosecution history for limiting “transmitting surface” to the embodiments disclosed in the specification. *See Phillips*, 415 F.3d at 1323.

Beginning with the claim language itself, claim 1 recites “a transmitting surface on the tip of the waveguide” and “a reflecting surface on the tip of the waveguide for internally reflecting electromagnetic radiation . . . in a direction lateral to the propagation direction toward a particular area on the transmitting surface.” Claim 25 recites “a transmitting surface on the tip of the waveguide” and “a reflecting surface on the tip of the waveguide for internally reflecting electromagnetic radiation . . . in a second propagation direction toward the transmitting surface.” Claim 1 further recites that “greater than about 90% of electromagnetic radiation reflected by the reflecting surface is incident on the particular area . . . for transmission through the transmitting surface,” while claim 25 further recites that “at least 90% of all electromagnetic radiation reflected by the reflecting surface is incident on the transmitting surface . . . for transmission through the transmitting surface.” In short, the claim language indicates that electromagnetic radiation reflected by the reflecting surface is transmitted through the transmitting surface, which is on the tip of the waveguide, in a lateral or second propagation direction.

The specification describes electromagnetic radiation as being transmitted “through” or “out” the transmitting surface. *See, e.g.*, ’699 Patent col.5 ll.3-6, col.5 ll.66-68, col.6 ll.48-51, col.9 ll.39-43. The specification also indicates that electromagnetic radiation is transmitted through the transmitting surface in a desired lateral direction or second propagation direction and that the second propagation direction is the desired lateral direction.<sup>8</sup> *See, e.g.*, ’699 Patent col.2 ll.21-23, col.8 ll.42-46, col.8 ll.59-68, col.9 ll.39-44. As a result, the specification confirms that

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<sup>8</sup> AMS uses the term “targeted” rather than “desired” in its proposed construction. The Court discerns no difference between “targeted” and “desired,” but adopts “desired” based on its use in the specification.



electromagnetic radiation is transmitted through the transmitting surface in a desired lateral direction.

LP seeks to limit “transmitting surface” to the outside surface of an optical fiber’s core cladding based on the prosecution history of the ’699 Patent. After allowing claim 1, the patent examiner rejected original claim 26 as anticipated by Payne. The examiner maintained that Payne disclosed a transmitting surface on the tip of the waveguide. In response, the applicant amended original claim 26 to recite that the waveguide had “a glass cladding extending to a distal end of the tip” and stated in the context of describing one embodiment of the invention that the “transmitting surface includes a portion of the cylindrical outside surface of the core cladding.” When taken in context, the applicant’s statement does not constitute the “clear and unmistakable” surrender required for prosecution disclaimer. *See Bayer AG v. Elan Pharm. Research Corp.*, 212 F.3d 1241, 1252 (Fed. Cir. 2000). The Court construes “transmitting surface” as “surface through which electromagnetic radiation reflected by the reflecting surface is transmitted from the tip in the desired lateral direction.”<sup>9</sup>

LP makes several collateral arguments with respect to the construction of “transmitting surface.” First, LP contends that the accused product does not contain a transmitting surface because the surface interfaces in the accused product are removed by fusing. “[A] trial court should certainly not prejudge the ultimate infringement analysis by construing claims with an aim to include or exclude an accused product or process.” *Wilson Sporting Goods Co. v.*

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<sup>9</sup> LP contends that construing “transmitting surface” in terms of transmission “through” the surface ignores the 90% clauses, which recite that electromagnetic radiation is “incident on” the particular area or transmitting surface. Given the unambiguous language in the claims and specification indicating that electromagnetic radiation is transmitted “through” the transmitting surface, this argument is unpersuasive.

*Hillerich & Bradsby Co.*, 442 F.3d 1322, 1326-27 (Fed. Cir. 2006). The Court declines to determine if the accused product includes a transmitting surface at this time.

Second, LP asserts that AMS's proposed construction is suspect because AMS proposed three different constructions of "transmitting surface" during litigation of the '699 Patent in the United States District Court for the District of Massachusetts. LP also maintains that AMS represented to the Massachusetts court that the transmitting surface was on the surface of the optical fiber. The portions of AMS's Massachusetts brief cited by LP as establishing that the transmitting surface is on the surface of the optical fiber, however, simply describe specific embodiments of the invention, and LP has not identified which of the proposed Massachusetts constructions are inconsistent with AMS's proposed construction in this action or indicated that it has relied on the Massachusetts constructions. *See SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1290-92 (Fed. Cir. 2005) (explaining when judicial estoppel arises in the context of claim construction). Moreover, the Court "has an independent obligation to determine the meaning of the claims, notwithstanding the views asserted by" the parties here or in other proceedings. *See Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1555 (Fed. Cir. 1995). Accordingly, the Court independently construes the terms here.

Third, LP contends that the patent claims require one, and only one, transmitting surface. The Federal Circuit has repeatedly emphasized the general rule that an indefinite article "a" or "an" in the context of patent claims carries the meaning of "one or more" in open-ended claims containing the transitional phrase "comprising." *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342 (Fed. Cir. 2008). "The exceptions to this rule are extremely limited: a patentee must 'evince a clear intent' to limit 'a' or 'an' to 'one.'" *Id.* Here, "transmitting surface" was introduced using "a" in claims reciting "comprising" as the transitional phrase. In the absence of

language in the claims, specification, or prosecution history necessitating a departure from the general rule, the Court construes “a transmitting surface” to permit one or more transmitting surfaces.

**E. Tip of the waveguide**

The parties dispute the construction of “tip of the waveguide.” Claim 1 recites “a waveguide having a tip for communicating electromagnetic radiation in a propagation direction to the tip of the waveguide.” Claim 25 recites “a waveguide having a tip . . . the waveguide for communicating electromagnetic radiation in a first propagation direction to the tip of the waveguide.” AMS proposes as a construction “the distal end portion of the waveguide, including any separate component(s) coupled thereto in a manner that prevents internal reflection at any interface between the components (for example by fusing or a transparent, index-matched adhesive).” LP proposes “a prism or the far end of the optical fiber having a core cladding over a fiber core.”

The Court first considers LP’s argument that “waveguide” is limited to an “optical fiber.” AMS did not propose a construction for “waveguide,” but argues that “waveguide” cannot be construed as only an “optical fiber” because claim 2, which depends from claim 1, recites “wherein the tip of the waveguide comprises a fiber optic segment.” Similarly, claim 16, which indirectly depends from independent claim 7, recites “wherein the waveguide comprises an optical fiber.” Under the doctrine of claim differentiation, these recitations create a presumption that the waveguide should not be limited to an optical fiber. *See Nazomi Commc’ns, Inc. v. Arm Holdings, PLC*, 403 F.3d 1364, 1370 (Fed. Cir. 2005).

LP contends that the waveguide is limited to an optical fiber because the title of the ’699 Patent recites an optical fiber, the only waveguide taught in the ’699 Patent is an optical fiber,

and the '699 Patent uses the terms “waveguide” and “optical fiber” interchangeably. The title of a patent is nearly irrelevant to claim construction. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1312 (Fed. Cir. 1999). While the detailed description of the preferred embodiments does at times use the phrase “optical fiber or waveguide,” the context of such usage suggests that an optical fiber is one example of a waveguide, not that a waveguide is always an optical fiber. *E.g.*, '699 Patent col.8 ll.52-55 (“The fiber tip 51 can be formed into the distal end of an optical fiber 23 as a unitary component or coupled to the distal end of another optical fiber serving as a waveguide.”), col.10 ll.6-9 (“The fiber 80 can be formed into the waveguide or attached to the distal end of an optical fiber or waveguide.”). Moreover, the Summary of the Invention states: “The present invention comprises a waveguide, such as an optical fiber.” This indicates that “waveguide” is a broader term than “optical fiber.” *See Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 811 (Fed. Cir. 2002) (“‘Such as’ introduces an example of a broader genus rather than limiting the genus to the exemplary species.”). Finally, the dictionary definition of “waveguide” indicates that the ordinary meaning of a waveguide is not limited to an optical fiber. *See Webster’s Ninth New Collegiate Dictionary* 1334 (1991) (defining “waveguide” as “a device (as a duct, coaxial cable, or glass fiber) designed to confine and direct the propagation of electromagnetic waves including light waves”). Based on the claims, specification, and dictionary definition, the term “waveguide” is not limited to “optical fiber.”

The Court turns to the construction of “tip of the waveguide.” The parties agree, and the specification and claim language indicate that the “tip” is located at the “distal” end of the waveguide, which is the end farthest from the energy source. The parties disagree, however, as

to whether (1) the “tip of the waveguide” can constitute a separate component and (2) the “tube” shown in Figure 12 and the “cap” shown in Figure 2 can constitute a “tip of the waveguide.”

As to whether the “tip of the waveguide” can be a component separate from the waveguide, nothing in the claim language indicates whether the tip can or cannot be a separate component. The Summary of the Invention, however, states: “According to another aspect of the invention, the tip is a separate component that is coupled to the distal end of the waveguide.” The specification states: “While a fiber optic tip constructed in accordance with the present invention can be formed into the distal end of a waveguide, the tip of the present invention can be a separate component that is coupled to the distal end of a waveguide using transparent adhesive index matched to the waveguide.” ’699 Patent col.12 ll.51-59. Figure 11 illustrates such a separate tip that is coupled to an optical fiber by fusing or an index-matched transparent adhesive. *See* ’699 Patent col.12 ll.60-68. The specification also states that the tip can be coupled to the distal end of the waveguide using an index-matched transparent adhesive “or otherwise.” ’699 Patent col.8 ll.52-58. The Court concludes that the “tip of the waveguide” can constitute a separate component. LP contends that the separate component is limited to the “prism” embodiment shown in Figure 11. The Court finds no basis in the specification or prosecution history for this proposed limitation. *See Phillips*, 415 F.3d at 1323.

The Court turns to whether the “tip of the waveguide” includes the “tube” shown in Figure 12 or the “cap” shown in Figure 2, which is an issue distinct from whether the tip of the waveguide can constitute a separate component. AMS contends that the cap and tube shown in Figures 2 and 12 must be included in the construction of “tip of the waveguide” because Figure 12 shows a “transmitting surface” on the surface of the tube. In other words, AMS reasons that because the specification identifies a transmitting surface on a tip in some embodiments and on a

tube in other embodiments, the construction of “tip of the waveguide” must include a tube. LP responds that the claim language and specification require the exclusion of the cap and tube from the construction of “tip of the waveguide.”

Claims 18 and 20, which depend from claim 7, are instructive. Claim 7 recites a waveguide having a reflecting surface and transmitting surface, both located on a tip of the waveguide. Claim 18 recites the apparatus of claim 7 further comprising “a tube with a hollow inside having a first end *secured to the tip* and enclosing the reflecting surface and transmitting surface.” (Emphasis added.) Claim 20 recites “a transparent cap, *secured to the tip* and enclosing the reflecting surface and the transmitting surface.” (Emphasis added.) This claim language indicates that the “tube” and “cap” are separate elements from the “tip of the waveguide.” AMS contends that claim 19, which recites the apparatus of claim 7 further comprising “a transparent cap secured to the waveguide and enclosing the reflecting surface on the tip,” supports a construction of “tip of the waveguide” that includes a tube or cap. The Court does not agree. A transparent cap that “enclos[es] the reflecting surface on the tip” plainly is a separate component from the tip.

This construction of the claim language is supported by the specification. The specification states that Figure 12 illustrates an embodiment of the invention “wherein a tube is coupled to the tip of the waveguide.” ’699 Patent col.3 ll.45-57. When describing Figure 12, the specification states that “a first end 103 of a transparent tube 100 having a hollow inside 109 is secured to a distal end 101 of an optical fiber or waveguide 102 having a bevelled end 106.” ’699 Patent col.13 ll.16-20. The specification states: “FIG. 2 illustrates an alternative embodiment wherein a cap 30 is secured around the distal end or tip 23 of the fiber 23. . . . The transparent cap 30 encloses the transmitting surface 25 and the bevelled end or surface 24 of the

fiber 23.” ’699 Patent col.5 ll.42-44. The specification’s description of the experiments indicates that the cap is a separate element from the distal end of the optical fiber having the reflecting surface. *See* ’699 Patent col.11 ll.58-67, col.12 ll.21-24, col.12 ll.39. These descriptions of the cap and tube being coupled to and surrounding the distal end or tip of the waveguide indicate that the tube and cap are distinct elements from the tip.

To the extent that excluding a cap and tube from the construction of “tip of the waveguide” would exclude a preferred embodiment from the scope of claims 1 and 25, the Court is mindful that Federal Circuit case law “generally counsels against interpreting a claim term in a way that excludes the preferred embodiment from the scope of the invention.” *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1383 (Fed. Cir. 2008); *see Globetrotter Software, Inc. v. Elan Computer Group, Inc.*, 362 F.3d 1367, 1381 (Fed. Cir. 2004) (“A claim interpretation that excludes a preferred embodiment from the scope of the claim ‘is rarely, if ever, correct.’”). However, claim constructions that exclude preferred embodiments, or even the sole disclosed embodiment, are correct when required by the unambiguous claim language. *See, e.g., TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc.*, 529 F.3d 1364, 1372-73 (Fed. Cir. 2008) (“Therefore, the mere fact that there is an alternative embodiment disclosed in the ’828 patent that is not encompassed by district court’s claim construction does not outweigh the language of the claim, especially when the court’s construction is supported by the intrinsic evidence.”); *Lucent Techs., Inc. v. Gateway, Inc.*, 525 F.3d 1200, 1215-16 (Fed. Cir. 2008) (adopting construction that excluded only disclosed embodiment because “when the claims are susceptible to only one reasonable construction, we will construe the claims as the patentee drafted them”); *Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1372-74 (Fed. Cir. 2004) (construing “heating the resulting batter-coated dough to a temperature in the range of about 400° F. to 850°

F.” to exclude disclosed embodiments where the air, not the dough, was heated to the claimed temperature range because claims must be construed as drafted); *Elekta Instrument S.A. v. O.U.R. Scientific Int’l, Inc.*, 214 F.3d 1302, 1308-09 (Fed. Cir. 2000) (construing claims to exclude only disclosed embodiment based on unambiguous claim language).

Moreover, the Federal Circuit has construed claim terms in a manner that does not cover the disclosed embodiments when such a construction did not mean the embodiments were excluded from the scope of the invention, but only that they were excluded from the scope of the construed claims. *See Helmsderfer*, 527 F.3d at 1383-84. “It is often the case that different claims are directed to and cover different disclosed embodiments.” *Id.* at 1383; *see Intamin Ltd. v. Magnetar Techs., Corp.*, 483 F.3d 1328, 1336-37 (Fed. Cir. 2007) (“Under the proper claim construction . . . the claim may well not cover this embodiment. Nonetheless, this court has acknowledged that a claim need not cover all embodiments.”). Given the unambiguous language in the claims and specification, and the recitation of the tube and cap in claims 18-20, this is a case where different claims may cover different disclosed embodiments. The Court construes “tip of the waveguide” as “the distal end portion of the waveguide, including a separate component coupled thereto in a manner that prevents internal reflection at any interface between the components (for example, by fusing or a transparent, index-matched adhesive), but not including a cap or tube enclosing a transmitting surface on the distal end portion of the waveguide or a reflecting surface on the distal end portion of the waveguide.”

#### **F. Transmitting surface on the tip of the waveguide**

AMS contends that no construction of “transmitting surface on the tip of the waveguide” is necessary, except to the extent that the parties dispute the construction of “transmitting surface” and “tip of the waveguide.” LP contends that this term must be construed as “a portion



of a prism or a portion of the far end of the optical fiber having a core cladding over a fiber core” and that “on” means “a portion of.” LP’s construction of “on” as “a portion of” finds no support in the intrinsic or extrinsic evidence, nor is there support in the specification or prosecution history for limiting “transmitting surface on the tip of the waveguide” to the embodiments disclosed in the specification. *See Phillips*, 415 F.3d at 1323. Given the Court’s construction of “transmitting surface” and “tip of the waveguide,” no further construction of “transmitting surface on the tip of the waveguide” is necessary.

**G. Reflecting surface/Reflecting surface on the tip of the waveguide**

AMS maintains that no construction of “reflecting surface on the tip of the waveguide” is required other than a construction of “reflecting surface” and “tip of the waveguide.” As a construction for “reflecting surface,” AMS proposes “surface that internally reflects essentially all of the incident electromagnetic radiation communicated by the waveguide.” LP offers “an angled surface of the prism or the bevelled far end of the optical fiber having a core cladding over a fiber core and may include a reflective coating” as a construction of “reflecting surface on the tip of the waveguide.” Having construed “tip of the waveguide,” the Court turns to the construction of “reflecting surface.”

Claims 1 and 25 recite “a reflecting surface . . . for internally reflecting electromagnetic radiation communicated by the waveguide in a direction lateral to the propagation direction toward a particular area on the transmitting surface” and “a reflecting surface . . . for internally reflecting electromagnetic radiation communicated in the first propagation direction by the waveguide in a second propagation direction toward the transmitting surface.” Claim 25 recites that the first propagation direction is “to the tip of the waveguide.” Accordingly, the claim language indicates that the reflecting surface is a surface that internally reflects electromagnetic

radiation that is communicated by the waveguide toward the tip in a direction lateral to the propagation direction.

With respect to LP's inclusion of the terms "angled surface of the prism" and "bevelled far end of the optical fiber," the Court finds no support in the specification or prosecution history for limiting "reflecting surface" to the embodiments disclosed in the specification. *See Phillips*, 415 F.3d at 1323. Moreover, the doctrine of claim differentiation weighs against including these limitations because claim 2, which depends from claim 1, recites "wherein the reflecting surface comprises a bevelled surface." *See Nazomi Commc'ns*, 403 F.3d at 1370.

AMS asserts that "internally reflects" means "total internal reflection," which occurs when all angles of incidence on a surface are greater than the critical angle such that none of the incident light propagates through the interface of the surface and adjacent medium. This contention is supported by the explanation in the specification that essentially all light incident on an interface between two substances is internally reflected when the angle of incidence on the interface is greater than the critical angle, which is a function of the indices of refraction of the substances, *see* '699 Patent col.6, l.57-col.7 l.3, and by the explanation in the Abstract that internal reflection off the transmitting surface is prevented when electromagnetic radiation is incident on the transmitting surface at below the critical angle. The specification also explains that the bevelled end in Figure 5b must be at an angle above the critical angle to cause the internal reflection of incident light off the bevelled end at an angle lateral to the longitudinal axis of the waveguide. '699 Patent col.7 ll.4-11.

In addition, AMS offers the declaration of Tom D. Milster, a Professor of Optical Sciences, Electrical Engineering and Computer Engineering, in support of its construction of "internally reflects." Milster states that "total internal reflection" occurs when no light

propagates through an interface because all angles of incidence are greater than the critical angle. He further states that a person of ordinary skill in the art would understand “internally reflects” to mean “total internal reflection.”<sup>10</sup> LP offers no evidence indicating that a person of ordinary skill in the art would not construe “internally reflects” as “total internal reflection” or that “total internal reflection” does not occur when all angles of incidence on a surface are greater than the critical angle such that no light propagates through the interface. The Court concludes that “internally reflects” refers to total internal reflection, which occurs when all angles of incidence on a surface are greater than the critical angle.

LP’s proposed construction of “reflecting surface” states that the reflecting surface “may include a reflective coating.” The claim language offers no guidance as to whether a reflective coating is a reflecting surface. The specification states: “Although it is not necessary as long as the angle of the bevelled end 95 is greater than the critical angle, a reflective coating 99 can be included *on* the reflecting surface 95.” ’699 Patent col.13 ll.7-10 (emphasis added). This language indicates that a “reflective coating” is a separate element from the “reflecting surface.” LP asserts that this language indicates that light reflected off of the reflective coating is reflected internally. This argument ignores the meaning of “internally reflects.” Further, Milster states in his declaration that light that is reflected by a coating on a glass surface is not “internally reflected” because it is reflected by a medium external to the glass, not the surface of the glass. LP offers no evidence contradicting this statement. The Court concludes that a “reflective coating” is not a “reflecting surface,” but rather a separate component.

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<sup>10</sup> In two footnotes in its response brief, LP purportedly moves to strike the Milster Declaration on the ground that its submission violates the scheduling order in this case. A “motion to strike” contained in a footnote in a response brief does not comply with the requirements for non-dispositive motions set forth in Local Rule 7.1(a). The Court declines to strike the Milster Declaration.

The Court construes “reflecting surface” as “surface that internally reflects essentially all of the incident electromagnetic radiation that is communicated by the waveguide toward the tip, where ‘internally reflects’ means the electromagnetic radiation is reflected because it is incident on the reflecting surface at an angle greater than the critical angle.” Given the Court’s construction of “reflecting surface” and “tip of the waveguide,” no construction of “reflecting surface on the tip of the waveguide” is necessary.

#### **H. Particular area**

The term “particular area” is found in claim 1, which recites “a reflecting surface on the tip of the waveguide for internally reflecting electromagnetic radiation communicated by the waveguide in a direction lateral to the propagation direction toward a particular area on the transmitting surface.” Claim 1 further recites that the particular area and reflecting surface are disposed so that greater than about 90% of the electromagnetic radiation reflected by the reflecting surface is incident on the particular area at below a critical angle for transmission through the transmitting surface in the lateral direction. AMS proposes as a construction “the area on the transmitting surface through which the electromagnetic radiation reflected by the reflecting surface is transmitted in the targeted lateral direction.” LP proposes a construction limited to the embodiments disclosed in the specification, which is predicated on its argument that “particular area” and the 90% clauses are means-plus-function terms. For the reasons previously stated, the Court concludes that these terms are not means-plus-function terms. The Court finds no basis in the specification or prosecution history for limiting “particular area” to the embodiments disclosed in the specification. *See Phillips*, 415 F.3d at 1323.

The claim language indicates that the particular area is an area on the transmitting surface toward which the reflecting surface internally reflects the electromagnetic radiation

communicated by the waveguide. For the reasons given with respect to the transmitting surface, the claim language and specification indicate that the electromagnetic radiation incident on the transmitting surface, and consequently on the particular area, is transmitted in the desired lateral direction.

LP again contends that “on” means “a portion of” and that, consequently, “on” the transmitting surface means “a portion of” the transmitting surface. This construction finds no support in the specification or the prosecution history. Based on the claim language and the specification, the Court construes “particular area” as “the area on the transmitting surface through which electromagnetic radiation reflected by the reflecting surface is transmitted in the desired lateral direction.”

#### **I. 90% clauses**

AMS contends that no additional construction of the 90% clauses is required other than construction of “particular area,” “reflecting surface,” and “transmitting surface.” LP does not identify any additional terms in the 90% clauses that require construction, but instead contends that the 90% clauses must be limited to certain tip embodiments disclosed in the ’699 Patent because they are highly technical and otherwise will confuse the jury. This argument does not provide a legal basis for limiting the 90% clauses to the disclosed embodiments. No additional construction of the 90% clauses is necessary given the constructions of “transmitting surface,” “particular area,” and “reflecting surface.”

#### **J. A surgical probe for treating benign prostatic hyperplasia**

The phrase “a surgical probe for treating benign prostatic hyperplasia” appears in the preamble of claim 25. AMS maintains that the preamble is limiting and should be construed as “a long, thin surgical instrument for treating benign prostatic hyperplasia.” LP maintains that the

preamble is not limiting. When determining whether to treat a preamble as a limitation, a court must review the entire patent to obtain an understanding of what the inventors actually invented and intended to encompass by the claim. *Poly-Am., L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1309-10 (Fed. Cir. 2004). There is no litmus test for determining when a preamble is limiting. *Id.* A preamble is a claim limitation if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim. *Id.* A preamble is not limiting, however, “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.” *Id.* A preamble may operate as a claim limitation when it recites additional structure or steps underscored as important by the specification. *Id.*

The body of claim 25 does not make any reference to benign prostatic hyperplasia or the probe, and the claim body defines a structurally complete invention. AMS identifies no portion of the body of claim 25 that underscores the importance of the preamble. AMS contends, however, that the doctrine of claim differentiation supports the conclusion that the preamble of claim 25 is limiting because claim 1 does not recite a probe or benign prostatic hyperplasia. In the context of two independent claims, such as claims 1 and 25, claim differentiation is a guide, not a rigid rule, and is better expressed as the principle that each claim in a patent has a different scope. *See Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006). Even when the preamble of claim 25 is not considered, claims 1 and 25 have a different scope because claim 25 recites the additional element of a “means for positioning the waveguide during surgery” and does not recite a “particular area.” Consequently, the doctrine of claim differentiation does not support AMS’s position. *See King Pharm., Inc. v. Eon Labs, Inc.*, 593 F.

Supp. 2d 501, 507 (E.D.N.Y. 2009). The Court concludes that the preamble of claim 25 is not limiting.

**K. Cladding/Glass cladding**

Claim 25 recites “a waveguide having a tip with a glass cladding extending to a distal end of the tip.” The parties dispute whether the Court should construe “cladding” or “glass cladding.” AMS asserts that the Court should construe “cladding” and proposes as a construction “material(s) disposed between the core and the first air gap or outside medium.” LP asserts that the Court should construe “glass cladding” and proposes as a construction “also known as core cladding, a layer of glass having a lower index of refraction than the fiber core that contacts the fiber core to create an interface to confine radiation at the fiber core.”

The claims do not recite simply “cladding”; rather, they recite “glass cladding” and “core cladding.” Claim 25 recites “a waveguide having a tip with a glass cladding.” It does not contain any language indicating the meaning of “cladding” or “glass cladding.” Claim 26, which depends from claim 25, recites “wherein the tip of the waveguide comprises a fiber optic segment, the fiber optic segment including a fiber core . . . and a core cladding.” This difference suggests that “glass cladding” is different from “core cladding.” *See Phillips*, 415 F.3d at 1314. The Court turns to the specification to aid in its construction.

AMS cites Figure 10 in support of its construction of “cladding” as “material(s) disposed between the core and the first air gap or outside medium.” Figure 10 shows a cross-sectional view of the embodiment of Figures 9 and 9a. *See* ’699 Patent col.11 ll.9-13. The embodiment disclosed in Figures 9 and 9a includes an additional hard plastic cladding layer and a nylon jacket which protects the hard plastic cladding from scratching or other damage, which are stripped away from the tip in that embodiment. ’699 Patent col.10 ll.45-58. Consequently, the

identification of the core, cladding, and air in Figure 10 does not indicate that “cladding” can be any material disposed between the core and the first air gap or medium because the nylon jacket, which the specification distinguishes from cladding, also is a “material disposed between the core and the first air gap or outside medium.” AMS’s reliance on the prosecution history, where the applicant distinguished a prior art reference by stating that while the reference “removed the cladding and the buffer coating” from the tip of the fiber, the claimed invention “achieved significant results by not removing these layers from the core,” is unpersuasive for the same reason. Extrinsic evidence further supports the conclusion that not all materials disposed between the core and the air or external medium are “cladding.” See Gerd Keiser, *Optical Fiber Communications* 26-27 (2d ed. 1991) (identifying the “cladding” and the “buffer coating” surrounding the cladding separately).

The specification refers to several different types of cladding, including “plastic cladding,” which is removed from the distal end of the optical fiber shown in Figure 1; a “doped fused silica cladding layer,” which is shown in Figures 5a-5c; and a “core cladding layer” shown in Figures 9 and 9a.<sup>11</sup> ’699 Patent col.4 ll.59-60, col.6 ll.30-33, col.10 l.25. The first experiment described in the ’699 Patent used a “micron fiber made out of pure fused silica core/doped fused silica or glass core cladding/hard plastic buffer cladding layer/nylon jacket.” ’699 Patent col.11 ll.45-49. This language indicates that there are many different types of “cladding.”

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<sup>11</sup> LP contends the specification uses “core cladding” and “glass cladding” interchangeably. Two of the portions of the specification cited by LP, however, indicate simply that a core cladding may be made of glass. See ’699 Patent col.10 ll.45-58 (“The core cladding layer 81 is constructed of glass. . . .”), col.11 ll.46-48 (describing optical fiber used for experiment as “made out of pure fused silica core/doped fused silica or glass core cladding”). The other portions cited by LP, when taken in context, are abbreviated references to the “doped fused silica or glass core cladding” in the description of the experiments. See ’699 Patent col.11 ll.58-62, col.11 ll.33-34. LP’s reliance on these portions of the specification is unpersuasive.



In addition, when describing Figures 9 and 9a, the specification states:

The core cladding layer 81 is constructed of glass and positioned around the fiber core 82 using conventional manufacturing procedures. The “cladding” of a typical fiber optic includes an additional hard plastic cladding layer (not shown) which lies over the core cladding layer 81. The additional hard plastic cladding layer is used in case the fiber is bent so that the core cladding layer 81 suffers leakage due to increased incidence angles in the bent portion. Over the hard plastic cladding, a nylon jacket is applied to protect the hard plastic from scratching or other damage. The jacket and hard plastic cladding layer are stripped back away from the tip in this embodiment.

’699 Patent col.10 ll.45-58. This language indicates that a waveguide can have multiple layers of cladding where one layer—in the described embodiment, a hard plastic cladding—surrounds another layer—in the described embodiment, a core cladding layer made of glass.<sup>12</sup> This language also indicates that both cladding layers prevent leakage of electromagnetic radiation from the core. When describing the prior art optical fiber shown Figures 5a-5c, the specification states that the cladding “confine[s] radiation transmitted through the fiber to the fiber core.”

’699 Patent col.6 ll.39-43. This language indicates that cladding prevents leakage of electromagnetic radiation from the waveguide during communication of the electromagnetic radiation through the waveguide and protects the fiber core of the waveguide. Extrinsic evidence supports this construction. *See Keiser, Optical Fiber Communications* at 27 (describing the purposes of cladding as reducing scattering loss from dielectric discontinuities at the core surface, adding mechanical strength to the fiber, and protecting the core from absorbing surface contaminants).

AMS appears to argue, however, that cladding only confines light to the fiber core in the mid span of the optical fiber. In support of this argument, AMS cites Pon’s testimony that

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<sup>12</sup> LP claims that Pon’s testimony supports a construction requiring the cladding to be physically attached to the core. Pon testified that that “cladding could be—could be a material that was physically attached to the core.” Pon’s testimony as to one possible type of cladding does not support a construction requiring physical attachment of the cladding to the core.

“cladding could . . . in a long length of fiber, in the mid span of that length, it could help confine light within the core.” Despite this testimony, nothing in the specification suggests that cladding confines electromagnetic radiation to the core only at the mid span of the waveguide; rather, the removal of the cladding in the embodiments shown in Figures 1, 6, 6a, and 6b suggests that the confining effect of cladding extends along the length of the waveguide. AMS further asserts that the cladding must not be construed as confining electromagnetic radiation within the core because electromagnetic radiation is transmitted through the cladding in certain embodiments of the invention. In those embodiments, described in Figures 9, 9a, and 10, electromagnetic radiation is transmitted through the transmitting surface after it has been reflected by the reflecting surface, not during its communication to the tip of the waveguide, and because a certain core-to-core cladding ratio exists. *See* ’699 Patent col.10 ll.24-41, col.10 l.59-col.11 l.2. This result does not alter the cladding’s purpose of confining electromagnetic radiation to the fiber core during its communication to the tip. The Court construes “glass cladding” as a “glass material that surrounds and protects a fiber core and confines electromagnetic radiation to the waveguide during its communication to the tip of the waveguide where the glass material need not contact the fiber core.”

The parties dispute whether a cap or capsule fused to the cladding can constitute “cladding” or “glass cladding.”<sup>13</sup> Insofar as the parties seek a determination of whether the

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<sup>13</sup> LP contends the applicant disclaimed a cap or capsule as “glass cladding” during prosecution of the ’699 Patent and in the specification. The portion of prosecution history cited by LP does not constitute a “clear and unmistakable” disclaimer of a cap or capsule as “glass cladding” because the applicant’s argument related to “core cladding,” not “glass cladding.” *See Bayer AG*, 212 F.3d at 1252. Similarly, the portion of the specification cited by LP, which describes the experiments, distinguishes between a “cap” and a “glass core cladding,” not “glass cladding.”

capsule in the accused product constitutes glass cladding, the Court declines to prejudge the infringement analysis. *See Wilson Sporting Goods*, 442 F.3d at 1326-27.

**L. Distal end of the tip**

Claim 25 recites “a waveguide having a tip with a glass cladding extending to a distal end of the tip.” AMS contends that no construction of “distal end of the tip” is necessary. LP proposes as a construction “the extreme terminal portion of the optical fiber where the reflecting surface terminates.” LP also contends that the prosecution history establishes that the “distal end of the tip” is “where the reflecting surface terminates.”

The claim language does not provide any guidance for the term “distal end of the tip” other than indicating, by its use of the word “distal,” that is the end of the tip that is farthest from the energy source. The specification states: “According to one embodiment of the invention, the waveguide includes an optical fiber having a bevelled distal end. The distal end of the tip is bevelled at an angle.” ’699 Patent col.2 ll.25-29. This language could suggest that the distal end of the tip is the surface at the distal end of the waveguide or that the distal end of the tip is the portion of the tip that is farthest from the energy source. Given this ambiguity, the Court turns to the prosecution history. *See Phillips*, 415 F.3d at 1317.

During prosecution of the ’699 Patent, in response to a rejection of original claim 26 over Payne, the applicant added the limitation “with a glass cladding extending to the distal end of the tip” and explained that: “[T]he waveguide has a glass cladding which extends all the way along the waveguide to the reflecting surface. The reflecting surface has an interface between an external medium and a bevelled end surface on the fiber core at a distal end of the tip.” The applicant distinguished Payne by asserting that Payne did not teach “glass cladding extend[ing] to the end of the waveguide structure to the reflecting surface.” With respect to claim 25 and its

dependent claims, the applicant's amendments and arguments when distinguishing Payne constitute a clear disclaimer of embodiments where the glass cladding does not extend to the reflecting surface. *See Computer Docking Station Corp. v. Dell, Inc.*, 519 F.3d 1366, 1377-80 (Fed. Cir. 2008) (construing "portable computer" limitation in preamble of claim to mean "a computer without a built-in display or keyboard" due to prosecution statements distinguishing prior art as "requiring a portable display and keyboard," whereas the invention did not require a built-in display and keyboard). The Court construes "distal end of the tip" as "the reflecting surface."

**M. Means for positioning the waveguide during surgery**

The phrase "means for positioning the waveguide during surgery" appears in claim 25. The parties agree that this term falls within the scope of § 112, ¶ 6, and that its construction should include an endoscope, a cytoscope, an in-line scope, and equivalents thereof. AMS contends, however, that the construction should also include "a tube having a hollow passage," "a rigid cannula," or "a flexible catheter." LP contends that the tube, cannula, and catheter cannot achieve the positioning function if they are not used in conjunction with an endoscope, a cytoscope, or an in-line scope.

The first step in construing a means-plus-function limitation is to identify its function. *Tex. Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1208 (Fed. Cir. 2002). The second step is to identify the corresponding structure in the written description necessary to perform that function. *Id.* "Structure disclosed in the specification is "corresponding" structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *Id.* (quoting *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424

(Fed. Cir. 1997)). Here, the parties do not appear to dispute that the function is the positioning function.

AMS cites claims 27-29 in support of its proposed construction.<sup>14</sup> These claims were filed with the application as claims 28-30. Claim 27, which depends from claim 25, recites that the “means for positioning the waveguide includes a tube having a hollow passage.”<sup>15</sup> Claims 28 and 29 recite the tube comprising a rigid cannula or a flexible catheter. The recitation that the means for positioning comprises a tube, cannula, or catheter in the dependent claims creates a link between the tube, cannula, and catheter and the means for positioning. *Cf. Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1313 (Fed. Cir. 2001) (stating that inclusion of dependent claims reciting that the means for connecting adjacent elements could be straight wire, hooks, or sutures “would have been an easy way to draw a clear link or association” between a “means for connecting the adjacent elements” and the alleged corresponding structure of straight wire, hooks, and sutures). Consequently, the Court construes “means for positioning the waveguide during surgery” as “(a) an endoscope, (b) a cytoscope,

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<sup>14</sup> AMS claims that the '699 Patent identifies a rigid cannula, flexible catheter, or plastic tube as corresponding structure for the means for positioning at column 4, lines 18-23. This portion of the specification, however, states that the “probe 17 can be a rigid cannula or a flexible catheter.” The probe is different from the scope. *See* '699 Patent fig.1 (identifying probe 17 and scope assembly 10). In addition, the passage cited by AMS makes no mention of a tube. Column 4, line 25 mentions a “flexible plastic tube 21,” but this tube connects a source of pressurized saline 22 to the probe 17, and clearly is not used for positioning. Consequently, these portions of the specification do not link or associate a tube, catheter, or cannula with the “means for positioning the waveguide during surgery.”

<sup>15</sup> In the context of claim construction, the word “including” has the same meaning as “comprising.” *See Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1344-45 (Fed. Cir. 2003).

(c) an in-line scope, (d) a tube having a hollow passage, (e) a rigid cannula, (f) a flexible catheter, or (g) equivalents thereof.”<sup>16</sup>

### III. CONCLUSION

Based on the files, records, and proceedings herein, and for the reasons stated above, IT IS ORDERED THAT the disputed claim terms are construed as set forth in this Order.

Dated: October 13, 2009

s/ Joan N. Ericksen  
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JOAN N. ERICKSEN  
United States District Judge

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<sup>16</sup> LP’s contention that a tube having a hollow passage, a rigid cannula, and a flexible catheter are not capable of performing the positioning function relates to whether claims 25 and 27-30 meet the enablement requirement of § 112, ¶ 1, not whether the tube, cannula, and catheter are linked to the means for positioning. *Cf. Auto. Techs. Int’l, Inc. v. BMW of N. Am., Inc.*, 501 F.3d 1274, 1280-85 (Fed. Cir. 2007) (finding means-plus-function claim construed to include mechanical and electronic sensors invalid because the patent did not enable electronic sensors).