United States District Court,
E.D. Pennsylvania.

SYNERGETICS, INC,
v.
PEREGRINE SURGICAL, LTD. and.

April 6, 2006.

Background: Patentee brought action against competitors, alleging infringement of its patents involving an adapter for connecting a laser probe to a light source during eye surgery. Competitors moved for summary judgment.

Holdings: The District Court, Shapiro, Senior District Judge, held that:
(1) patents were not literally infringed, but
(2) genuine issue of material fact as to whether patents were infringed under doctrine of equivalents precluded summary judgment.

Motion granted in part and denied in part.

6,357,932, 6,634,799. Construed.

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MEMORANDUM & ORDER

SHAPIRO**, Senior District Judge.**

Plaintiff, Synergetics, Inc. ("Synergetics"), filed an action for patent infringement against defendants, Peregrine Surgical, Ltd. ("Peregrine") and Innovatech Surgical, Inc. ("Innovatech") (collectively "defendants"). Jurisdiction is conferred upon this court by 28 U.S.C. s. 1331 and s. 1338(a).

All parties are companies involved in the design, manufacturer and sale of ophthalmic equipment for use in eye surgery, including an adapter that connects a microsurgical optic fiber instrument, or laser probe, to a light source. Synergetics alleges that defendants have infringed at least one claim of its U.S. Patent Nos.

6,357,932 ("the "2 patent"), issued on March 19, 2002, and 6,634,799 ("the '799 patent"), issued on October 21, 2003 as a continuation-in-part of the "2 patent. Both patents are entitled "Adapter for Coupling a BNC Connector to an SMA Bushing." Synergetics alleges Innovatech and Peregrine have entered into agreements for Peregrine to manufacture products, including the allegedly infringing adapter, on behalf of Innovatech.

Defendants, moving for summary judgment, claim their products do not infringe plaintiff's patents literally or under the doctrine of equivalents. Plaintiff, cross-moving for summary judgment, claim literal infringement, and further claim fact questions preclude summary judgment for defendants under the doctrine of equivalents. The court held oral argument on the cross-motions for summary judgment. Although not labeled as such, this hearing served the same purpose as a Markman hearing-the parties argued and presented testimonial evidence in support of their proposed claim constructions of the disputed patent terms. *See* Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed.Cir.1995), aff'd 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). The court will construe the disputed patent terms, then apply the construed patent terms to decide the cross-motions for summary judgment.

I. Claim Construction

[1] [2] Patent infringement allegations are litigated in two stages. In "claim construction," the court determines the scope and meaning of the patent claims. The judge or jury then compares the judicially-defined claims with the alleged infringing device. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454 (Fed.Cir.1998); Markman, 52 F.3d at 976. Two types of evidence are relevant to claim construction: "intrinsic" and "extrinsic." Intrinsic evidence consists of the patent's claims, specification, FN1 and, if in evidence, the prosecution history. FN2 Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996). Extrinsic evidence consists primarily of expert testimony, inventor testimony, and scientific publications. Dow Chem. Co. v. Sumitomo Chem. Co., Ltd., 257 F.3d 1364, 1373 (Fed.Cir.2001).

FN1. The specification of a patent should describe the invention in clear terms so that a person skilled in the relevant art may make and use the invention. 35 U.S.C. s. 112. *See, e.g.,* SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1121 n. 14 (Fed.Cir.1985) ("Specifications teach. Claims claim.") The specification usually includes the background of the invention, a summary of the invention, drawings, and a detailed description of the invention's preferred embodiment.

FN2. The prosecution history is the public record of a patentee's submissions to the Patent and Trademark Office regarding the particular patent. *See* Tulip Computers, Internationali B.V. v. Dell Computer Corp., 236 F.Supp.2d 364, 371 (D.Del.2002). The prosecution history includes, among other things, the prior art cited during the examination of the patent. Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed.Cir.2005); *see also* Autogiro Co. of Am. v. United States, 181 Ct.Cl. 55, 384 F.2d 391, 398-99 (1967).

[3] A court begins claim construction by examining intrinsic evidence because the patent language generally resolves how a court should define a patent's disputed terms. Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1331 (Fed.Cir.2001). Where possible, the intrinsic evidence alone should determine the meaning of a claim term. Optical Disc Corp. v. Del Mar Avionics, 208 F.3d 1324, 1334 (Fed.Cir.2000).

[4] [5] [6] The court "look[s] first to the claim language itself to define the scope of the patented invention." Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1267 (Fed.Cir.2001).

The words of a claim are generally given their ordinary and customary meaning, Vitronics, 90 F.3d at 1582, and dictionaries may be used to determine a term's ordinary meaning. Altiris Inc. v. Symantec Corp., 318 F.3d 1363, 1369 (Fed.Cir.2003); *see also* Teleflex Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed.Cir.2002) (dictionaries and treatises are no longer considered extrinsic evidence); *but see* Phillips v. AWH Corp., 415 F.3d 1303, 1322-23 (Fed.Cir.2005) (cautioning against narrow reliance upon dictionaries and emphasizing the importance of reading claim limitations in light of the specification). When claim language is clear on its face, the court gives the disputed term its "ordinary and accustomed meaning" as understood by one of ordinary skill in the art at the time of invention. Tate Access Floors, Inc. v. Maxcess Techs., Inc., 222 F.3d 958, 965 (Fed.Cir.2000). A person of "ordinary skill" in the field of the invention is "deemed to read the words used in the patent documents with an understanding of ... any special meaning and usage in the field." Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1477 (Fed.Cir.1998).

[7] [8] [9] If a term has more than one plausible ordinary meaning, the court must consult the intrinsic record to identify which of the possible meanings is "most consistent with the use of the words by the inventor." Texas Digital Sys. v. Telegenix, Inc., 308 F.3d 1193, 1203 (Fed.Cir.2002). After the claim language, the court considers the remaining intrinsic evidence, Interactive Gift, 256 F.3d at 1331, but the court "does not accord the specification, prosecution history, and other relevant evidence the same weight as the claims themselves." Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F.3d 1547, 1552 (Fed.Cir.1997), *overruled* on other grounds by Cybor Corp., 138 F.3d at 1452-55. While "claims must be construed so as to be consistent with the specification," Merck & Co. v. Teva Pharms. USA, Inc., 347 F.3d 1367, 1371 (Fed.Cir.2003), the court must "avoid the danger of reading limitations from the specification into the claim," Phillips, 415 F.3d at 1323. This is a "fine" distinction. Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186-87 (Fed.Cir.1998).

[10] [11] [12] A court may refer to extrinsic evidence only if the disputed term's ordinary and accustomed meaning cannot be discerned from the intrinsic evidence. Vitronics, 90 F.3d at 1584. Although extrinsic evidence "may not be used to vary or contradict the claim language," id., extrinsic materials, such as expert testimony, "may be helpful to explain scientific principles, the meaning of technical terms, and terms of art that appear in the patent and prosecution history," Markman, 52 F.3d at 980. Extrinsic evidence is used "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." Phillips, 415 F.3d at 1318. The Federal Circuit has cautioned against relying upon expert reports and testimony that is generated for the purpose of litigation because of the likelihood of bias. Id.; *see also* Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 595, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993) ("Expert evidence can be both powerful and quite misleading because of the difficulty in evaluating it.")

Usually the court first considers the claim language; then the remaining intrinsic evidence; and finally, the extrinsic evidence in limited circumstances. *See, e.g.,* Interactive Gift, 256 F.3d at 1331. However, the Federal Circuit has recently reaffirmed that "there is no magic formula or catechism for conducting claim construction;" "[n]or is the court barred from considering any particular sources or required to analyze sources in any specific sequence." Phillips, 415 F.3d at 1324.

All the claims of the "2 and '799 patents, whether independent or by virtue of their dependency on an independent claim, require either: (1) a "BNC connector;" or (2) an adapter capable of connecting to a "BNC connector." All of the claims of the "2 and '799 patent, whether independent or by virtue of their dependency on an independent claim, require a post of an adapter to "engage" a slot of a BNC connector.

The adapter, attached to a laser light source, connects to a BNC connector located at the end of a laser

probe. The assembled device is used in eye surgery. *See* May 4, 2005 Tr. at 9-14. It is not necessary to recite all of the independent claims here, but the following four are included, with emphasis added, as representative examples:

Claim 1 of the "2 patent, which covers only the light source adapter, recites:

1. An adapter for enabling a quick connect and disconnect between an externally threaded bushing and a *BNC connector,* the adapter comprising:

a cylindrical sleeve having an external surface and an internal surface, a portion of the internal surface having internal screw threading that is complementary to external screw threading of a bushing to which the sleeve is attached, at least one post on the external surface of the sleeve, the post being positioned to *engage* with a slot of a BNC *connector* to hold the *BNC connector* on the sleeve exterior surface; and

an insulator is inserted into the sleeve and the internal screw threading is on the insulator.

Claim 7 of the "2 patent, which covers the light source adapter and laser probe assembled together, recites:

7. An assembly for connecting an optic fiber instrument to an externally threaded bushing of a light source, the assembly comprising:

a *BNC Connector* having a cylindrical collar with a center axis, the collar having at least one slot therein that spirals around the center axis of the collar;

a cylindrical sleeve adapter having a center axis, an external surface and an internal surface, a portion of the internal surface having internal screw threading that is complementary to external screw threading of a bushing of a light source to which the sleeve is to be attached, at least one post on the sleeve positioned to *engage* in the slot of the *BNC connector* to hold the collar of the *BNC connector* on the external surface of the sleeve; and

the cylindrical sleeve is a conductor and an insulator is inserted inside the sleeve, the insulator has an exterior surface in engagement with the sleeve interior surface and the insulator has an internal bore and the internal screw threading of the sleeve is in the internal bore of the insulator.

Claim 6 of the '799 patent, which covers only the light source adapter, recites:

6. An adapter for enabling a quick connect and disconnect between an externally threaded bushing and a *BNC connector,* the adapter comprising:

a cylindrical sleeve having an external surface and an internal surface, a portion of the internal surface having internal screw threading that is complementary to external screw threading of a bushing to which the sleeve is to be attached, at least one post on the external surface of the sleeve, the post being positioned to *engage* with a slot of a BNC *connector* to hold the *BNC connector* on the sleeve external surface;

an insulator inserted into the sleeve and the internal screw threading being on the insulator; and

a lanyard attached to the adapter.

Claim 19 of the '799 patent, which covers the light source adapter and laser probe assembled together, recites:

19. An assembly for connecting an optic fiber instrument to an externally threaded bushing of a light source, the assembly comprising:

a *BNC connector* having a cylindrical collar with a center axis, the collar having at least one slot therein that spirals around the center axis of the collar;

a cylindrical sleeve adapter having a center axis, an external surface and an internal surface, a portion of the internal surface having internal screw threading that is complementary to external screw threading of a bushing of a light source to which the sleeve is to be attached, at least one post on the sleeve positioned to *engage* in the slot of the *BNC connector* on the external surface of the sleeve;

an electrical device secured inside the sleeve;

a conductive insert secured inside the sleeve and the electrical device being electrically connected to the conductive insert;

an insulator inserted into the sleeve and the conductive insert being insulated from the sleeve by the insulator; and the internal screw threading being on the conductive insert.

The court will construe the terms "BNC connector" and "engage," the only two patent terms in dispute.

A. "BNC Connector"

[13] Because none of the claims in either patent defines the term "BNC connector," the court must consult the remaining intrinsic evidence-the specification and the prosecution history-in construing the disputed term. If the meaning of the disputed term cannot be ascertained from the intrinsic evidence alone, the court will consult the relevant extrinsic evidence.

The summary of the invention of the "2 and '799 patent use the same language to define what is meant by "BNC connector":

The BNC connector 38 is basically a *conventional* BNC connector that is typically used as an electronic connector. Because the construction of the BNC connector is, for the most part, conventional, it will not be described in detail. The connector includes a cylindrical collar 48 that is mounted on a body 50 of the connector for rotation relative thereto. The collar 48 is constructed of a conductive material. *The collar includesa pair of diametrically opposite grooves or slots* 52. The slots 52 spiral around the collar 48 for one quarter of the circumference of the collar.

"2 patent, col. 5, ll. 8-17 (emphasis added); '799 patent, col. 5, ll. 51-60 (emphasis added).

The prosecution history of the "2 patent shows that patent was originally rejected on July 24, 2001 as being anticipated by U.S. Patent No. 5,074,637, issued to Dan Rink on December 24, 1991 (the "Rink patent"). The prosecution history of the '799 patent shows that patent was originally rejected on March 6, 2003 for

various reasons, including double patenting of the "2 patent claims. Following amendments, the "2 and '799 patents successfully issued on March 19, 2002 and October 21, 2003, respectively. The Rink patent is referenced as prior art in both the "2 and '799 patents. The Rink patent uses the term "bayonet connector," which is similar to but broader than the term "BNC connector."

Defendants argue the slots of a "conventional" BNC connector must fall within the dimensions set forth in international and United States standards. Plaintiff responds by arguing that the court should not construe "BNC connector" to incorporate specific dimensions; plaintiff notes that a leading technical dictionary defines "BNC connector" without any reference to the size of its slots: "[a] small device for connecting coaxial cables, used frequently in low-power, radio-frequency and test applications. Abbreviation for bayonet Neil-Concelman connector." McGraw-Hill Dictionary of Scientific and Technical Terms 260 (6th ed.2003). Defendants respond by arguing that persons skilled in the art of electrical connectors understand that BNC connectors-particularly *conventional* ones-are necessarily defined by technical standards in order to ensure compatibility amongst connectors produced by various manufacturers. Defendants argue the term "BNC connector" is a subset of the more general term "bayonet connector," and thus BNC connectors are governed by the relevant provisions of the United States Department of Defense Standards for Radio-Frequency Connector Interfaces ("U.S. standard" or "military specification") and the International Standards for Radio-Frequency Connectors ("international standard"), FN3 both of which require the width of BNC connector slots to be between .091 and .097 inches. FN4 Ex. D (militaryspecification) to Defs.' Reply at 2; Ex. E (international standard) to Defs.' Reply at 5-6.

FN3. The United States was not one of the countries that voted in favor of publication of the international standard, as amended in 1997. *See* Ex. G (international standard) to Pl.'s Br. at 5. Therefore, it is not clear whether BNC connectors produced and sold in the United States are governed by the international standard. This issue is irrelevant, however, because the international and U.S. standards are identical with regard to minimum and maximum slot widths for BNC connectors. Ex. D (military specification) to Defs.' Reply at 2; Ex. E (international standard) to Defs.' Reply at 5-6.

FN4. At oral argument, plaintiff argued these standards were not relevant to claim construction of the term "BNC connector" and should not be incorporated into the "2 and '799 patent claims. *See* May 4, 2005 Tr. at 77-78. Yet plaintiff had previously argued in its brief that the international standard was in fact relevant. Pl.'s Br. at 15-16; *see also* Auld Decl. para. 8 (attached to Pl.'s Br.) (inventor named on "2 and '799 patents declaring that "[m]anufacturers commonly use technical standards, such as the International Standards for Radio-frequency Connectors ("ISRC"), to ensure that electronic parts from multiple manufacturers are capable of working in concert"). Plaintiff even proposed incorporating the international standard into the court's claim construction. Pl.'s Br. at 16, n. 6. Plaintiff made this proposal because, at that time, it mistakenly believed the international standard did not set forth a maximum slot width; therefore, plaintiff thought the international standard supported its argument that BNC connectors could possess a wide variety of slot widths. Later, plaintiff realized it had incorrectly cited to an older version of the international standard and acknowledged that the international standard does indeed include maximum slot widths. *See* Pl.'s Notice to Correct Record at 1-2.

Defendants note that the slot width of plaintiff's commercial implementation of a BNC connector is .093 inches, approximately halfway between the minimum and maximum slot widths identified in the U.S. and international standards. Defendants cite various manufacturer definitions in support of its proposed claim

construction, including one from Tyco Electronics ("Tyco"), one of the largest connector manufacturers in the world. Tyco defines "BNC Series (connector)" as:

A radio frequency connector *covered by Military Specification*. It has an impedance of 50 ohms, and is designed to operate in the 0 to 4 GHz frequency range. Quick connect/disconnect is featured by a pin and cam bayonet coupling.

Ex. G (Tyco website) to Defs.' Reply at 3. Tyco defines "bayonet coupling (product feature)" as:

A quick coupling device for circular plug and receptacle connectors. Pins projecting from the outside of the cylindrical receptacle engage with corresponding cam slots in the bayonet plug.

Id. at 2. Defendants argue that these definitions confirm that persons skilled in the art, i.e., electrical engineers from Tyco, distinguish between a general bayonet connector and the more specific BNC connector. Defendants' argument is supported by the one of the two definitions plaintiff provided in its brief defining "BNC connector":

A type of bayonet connector used with thin coax cable used in 1 0Base-2 ethernet systems. BNC stands for Bayonet-Neill-Concelman. Neill and Concelman were the inventors of the connector. There are a number of other BNC type devices such as a terminator and a T-connector.

Ex. H to Pl.'s Br. (definition taken from glossary section of website devoted to cable industry) (emphasis added).

Plaintiff's own definition confirms that a BNC connector is a specific kind of bayonet connector. The Rink patent, referenced by the patent examiner in the ' 932 patent prosecution history and cited as prior art in both the "2 and ' 799 patents, confirms that the term "BNC connector" is more specific than the general term "bayonet connector." The Rink patent, entitled "Optical Fiber Connector," describes an "improved bayonet optical connector" and includes an illustration of the preferred embodiment which pictures slot widths as wide as the entire circumference of the connector, presumably wider than .097 inches, the maximum width for BNC connectors meeting U.S. and international standards. Plaintiff argues the Rink patent demonstrates that a BNC connector can have slots wider than .097 inches. This argument fails because: (1) the description of the preferred embodiment in the Rink patent makes no mention of specific dimensions; and (2) even if the illustrated slots are presumed to be wider than .097 inches, the Rink patent describes a "bayonet connector," of which there are many kinds, not a "BNC connector," which is a subset of bayonet connectors according to plaintiff's own definition.

Plaintiff attempts to conflate the terms "bayonet connector" and "BNC connector," but the court concludes, based on the intrinsic and extrinsic evidence, that the two terms have different meanings, i.e., a BNC connector is a specific type of bayonet connector. The drafters of the "2 and '799 patents were aware of the more general term "bayonet connector" used in the Rink patent and chose instead the more specific term "BNC connector." The drafters' choice of the specific term over the general term makes sense because the specific term promotes connectivity and interchangeability across different brands and products. Because of the importance of interchangeability in the field of electrical connectors, it is logical to construe the term "BNC connector," described as "conventional" in the specification, as incorporating the relevant U.S. standard for slot widths. Michael Auld, the inventor named on the "2 and '799 patents, agrees: "[m]anufacturers commonly use technical standards, such as the International Standards for Radio-

frequency Connectors ("ISRC"), to ensure that electronic parts from multiple manufacturers are capable of working in concert." Auld. Decl. para. 8 (attached to Pl.'s Br.)

In construing the disputed patent term "BNC connector," the court has utilized the following evidence, in order of importance: (1) the "2 and ' 799 patents' specification, which describes a "conventional" BNC connector with "diametrically opposite grooves or slots;" (2) the "2 patent's prosecution history and cited prior art, including the Rink patent's description of a general "bayonet connector;" and, because the disputed patent term could not be ascertained from the intrinsic evidence alone, (3) the extrinsic evidence, including plaintiff's admissions, the McGraw-Hill and manufacturer definitions, and the U.S. and international standards, none of which vary or contradict the claim language. The court has also reviewed the inventor and expert testimony, although little weight has been accorded this extrinsic evidence with regard to claim construction as most of it appears self-serving and generated for the purpose of litigation.

The court construes the term "BNC connector" to mean "a type of bayonet connector with a slot or slots FN5 conforming to military specification."

FN5. Although the intrinsic and extrinsic evidence demonstrates that a BNC connector always has *two* diametrically opposite slots, and consequently a light source adapter always has *two* diametrically opposite posts, the court includes the language "slot or slots" in its claim construction in order to avoid reading out certain elements of the "2 and '799 patent claims. For example, claim 19 of the '799 patent, supra p. 543, recites: "the assembly comprising a BNC *connector* having a cylindrical collar with a center axis, the collar *having at least one slot* therein that spirals around the center axis of the collar ..." (emphasis added). Claim 1 of the "2 patent, supra p. 542, recites: "the *adapter* comprising ... *at least one post* on the external surface of the sleeve, the post being positioned to engage with a slot of a BNC connector ..." (emphasis added).

Defendants argue "BNC connector" should also be construed to have "spiral slots." Some independent claims, such as claim 19 of the '799 patent quoted above, describe a "BNC connector having a cylindrical collar with a center axis, the collar having at least one slot therein that spirals around the center axis of the collar." *See also* claim 7 of the "2 patent, supra p. 542. Other independent claims, such as claim 6 of the ' 799 patent, describe a BNC connector slot without any mention of spiraling. *See* supra, p. 542; *see also* claim 1 of the "2 patent, supra p. 542. A narrowing limitation present in one claim should not be read into other claims in which the limitation is absent, Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971-72 (Fed.Cir.1999); the court will not construe "BNC connector" as having spiral slots.

B. "Engage"

[14] No claim in either patent defines the term "engage." The "2 and ' 799 patents' description of the preferred embodiment explains the engagement process as follows:

The adapter sleeve 62 has an external surface 70 that is dimensioned to fit inside the cylindrical collar 48 of the BNC connector 38 and engage in the electrical contact therewith. A pair of posts 72 project from the sleeve external surface 70 on diametrically opposite sides of the sleeve. The posts 72 are positioned on the sleeve to engage in the pair of slots 52 of the BNC connector collar 48 when attaching the connector to the adapter. *The engagement of the posts 72 in the adapter collar slots 52 enables the BNC connector 3 8 to be attached on the external surface 70 of the adapter by merely rotating the BNC connector one quarter turn.* Thus, the BNC connector 38 can also be disconnected from the external surface of the adapter 36 by turning the BNC connector one quarter turn in the opposite direction.

"2 patent, col. 5, ll. 36-49 (emphasis added); '799 patent, col. 6, ll. 12-26 (emphasis added).

Based on this part of the "2 and '799 specification, defendants urge the court to construe the term "engage" to mean a connection requiring a "quarter turn." But the term "engage" is simple and straightforward, and should be construed in accordance with its ordinary and customary meaning. *See* Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996); *see also* Altiris Inc. v. Symantec Corp., 318 F.3d 1363, 1369 (Fed.Cir.2003) (dictionaries may be useful in determining a term's ordinary meaning). Of the forty-two claims in the "2 and '799 patents that require an adapter post to "engage" with the slot of a BNC connector, only three specifically require the engagement to occur through a one-quarter turn. *See* ' 932 patent, claims 8 and 9; '799 patent, claim 8. A narrowing limitation present in one claim should not be read into other claims in which the limitation is absent. *See, e.g.,* Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971-72 (Fed.Cir.1999).

Webster's provides the following definitions, among others, for the verb "engage": (1) "to interlock with, to cause (mechanical parts) to mesh"; (2) "to bring together or interlock (weapons)"; and (3) "to come together and interlock (as of machinery parts)." Merriam-Webster Collegiate Dictionary 413 (11th ed.2005). The American Heritage Dictionary provides the following definitions, among others: (1) "to interlock or cause to interlock; mesh"; and (2) "to become meshed or interlocked." American Heritage Dictionary 610 (3d ed.1992). The court will construe the term "engage" to mean: "to come together and interlock."

II. Summary Judgment

Summary judgment is appropriate if there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law. Fed.R.Civ.P. 56(c); *see also* Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 247-48, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986). Summary judgment is as appropriate in a patent action as in any other action. *See, e.g.,* Barmag Barmer Maschinenfabrik v. Murata M ach., Ltd., 731 F.2d 831, 835 (Fed.Cir.1984). Whether a product infringes a patent is a question of fact. Dayco Products, Inc. v. Total Containment, Inc., 258 F.3d 1317, 1324 (Fed.Cir.2001). Summary judgment "can only be granted if, after viewing the alleged facts in the light most favorable to the non-movant, there is no genuine issue whether the accused device is encompassed by the claims." Id.

[15] To prevail on a claim of patent infringement, a plaintiff must demonstrate that the accused product contains every limitation of the asserted claims, either literally or by equivalents. *See* Maxwell v. J. Baker, Inc., 86 F.3d 1098, 1105 (Fed.Cir.1996). The absence of a single claim limitation precludes a finding of infringement. *See* London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1539 (Fed.Cir.1991).

A. Literal Infringement

[16] [17] [18] Literal infringement occurs when every element of at least one claim of the patent at issue, properly construed, is literally found within the accused device. WMS Gaming, Inc. v. International Game Tech., 184 F.3d 1339, 1350 (Fed.Cir.1999). It is the language of the claim, not the patent owner's commercial embodiment, that is the measure of infringement. *See* International Visual Corp. v. Crown Metal Mfg. Co., Inc., 991 F.2d 768, 771-72 (Fed.Cir.1993). A patent owner need only prove infringement of a single claim to establish infringement. Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1220 (Fed.Cir.1995).

[19] All the claims of the "2 and '799 patents, whether independent or by virtue of their dependency on an independent claim, require either: (1) a "BNC connector; or (2) an adapter capable of connecting to a BNC

connector." All of the claims of the "2 and '799 patent, whether independent or by virtue of their dependency on an independent claim, require a post of an adapter to "engage" a slot of a BNC connector. The only issue with regard to literal infringement is whether defendants' accused product contains a "BNC connector" or an adapter able to "engage" with a BNC connector, as those terms have been construed by the court. The court has construed the term "BNC connector" to mean "a type of bayonet connector with a slot or slots conforming to military specification," and the term "engage" to mean "to come together and interlock." "Military specification" refers to the U.S. standard, which requires BNC connector slots to fall within minimum and maximum diameters of .091 and .097 inches.

There is no dispute regarding the dimensions of the adapter posts or connector slots of defendants' accused product. The posts of defendants' adapter, and accordingly the slots of defendants' connector, are .125 inches wide. *See, e.g.,* Ex. 10 (Lumpkin Decl.) to Defs.' Mot. para.para. 5-6. Plaintiff concedes: (1) defendants' accused product does not contain a connector with slots between .091 and .097 inches wide; and (2) defendants' accused product does not contain an adapter with posts capable of interlocking with connector slots between .091 and .097 inches wide. *See, e.g.,* May 4, 2005 Tr. at 87 (plaintiff's attorney noting that "if you read in [military specification for] slot width, we don't establish literal infringement. I'll concede that point right now").

Consequently, there is no dispute that plaintiff has failed to show literal infringement of any of its "2 or '799 patent claims: (1) there is no literal infringement of the "assembly claims," i.e., claims covering the adapter and the BNC connector, because defendants' product does not contain a connector "with a slot or slots conforming to military specification" (between .091 and .097 inches wide); and (2) there is no literal infringement of the "adapter claims," i.e., claims covering the adapter solely, because defendants' product does not contain an adapter able to "engage" with a "BNC connector"; the posts of defendants' adapter, .125 inches wide, are too big to fit into the slots of a BNC connector, which have slot widths between .091 and .097 inches.

B. Doctrine of Equivalents

[20] [21] Plaintiff argues that construing the term "BNC connector" to include specific dimensions renders its patents useless. Plaintiff is incorrect because it remains protected by the doctrine of equivalents, which "prevents an accused infringer from avoiding infringement by changing only minor or insubstantial details of a claimed invention while retaining their essential functionality." Zodiac Pool Care, Inc. v. Hoffinger Indus., Inc., 206 F.3d 1408, 1416 (Fed.Cir.2000) *(quoting* Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1424 (Fed.Cir.1997)); *see* Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., 535 U.S. 722, 732-33, 122 S.Ct. 1831, 152 L.Ed.2d 944 (2002) (noting that if literal infringement is not established, a court examines infringement under the doctrine of equivalents); *see also* CAE Screenplates, Inc. v. Heinrich Fiedler GmbH & Co. KG, 224 F.3d 1308, 1318-19 (Fed.Cir.2000) (same).

[22] [23] A product or process infringes a claim "if it performs substantially the same function in substantially the same way to obtain the same result." Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608, 70 S.Ct. 854, 94 L.Ed. 1097 (1950); *see also* Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 21, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997). The doctrine of equivalents must be applied to the individual elements of a claim, and not to the invention as a whole; each disputed limitation of the claimed invention must be examined for equivalency. Warner-Jenkinson, 520 U.S. at 40, 117 S.Ct. 1040.

Because the "doctrine of equivalents is contrary to the general principle that the claims measure the scope of

the patent monopoly," Donald S. Chisum, *Chisum on Patents* s. 18.04 at 547 (2005), there are various rules to restrain the doctrine when it threatens to eviscerate the "definitional and public-notice function of the statutory claiming requirement." Warner-Jenkinson, 520 U.S. at 29, 117 S.Ct. 1040. Those rules include: (1) prosecution history estoppel; and (2) the all-limitations rule. Before determining whether a genuine issue of material fact exists with regard to infringement under the doctrine of equivalents, the court must conclude that neither of the legal rules cited above bar plaintiff from proceeding under an equivalency theory.

[24] [25] *Prosecution history estoppel*. A patent's prosecution history is the public record of the patent proceedings before the Patent and Trademark Office ("PTO"). The PTO may reject early versions of a patent application for its failure to meet various statutory requirements relating to patentability, such as novelty. *See* Festo, 535 U.S. at 727, 122 S.Ct. 1831; *see also* 35 U.S.C. s. 132. When a "patentee responds to the rejection by narrowing his claims, this prosecution history estops him from later arguing that the subject matter covered by the original, broader claim was nothing more than an equivalent." Festo, 535 U.S. at 727, 122 S.Ct. 1831.

During the prosecution of "2 patent, the PTO decided claim 1 as originally filed was too broad and required plaintiff to narrow the claim by adding a limitation directed to the insulator, i.e., the last element of claim 1 of the "2 patent, supra p. 542. The PTO stated, "[p]rior art fails to disclose a BNC adapter having an insulator inserted into the sleeve having internal threading, and a conductive stop connected to the external sleeve via a resistor." *See* Ex. D (prosecution history) to Pl.'s Br. Synergetics then amended its claim to include a narrowing limitation relating to the *insulator,* not the BNC connector. Synergetics never made an amendment relating to the central term "BNC connector," so it is not estopped from arguing defendants' connector is equivalent to a BNC connector.

[26] [27] *All-limitations rule*. The doctrine of equivalents may not be used to erase entirely "meaningful structural and functional limitations of a claim on which the public is entitled to rely in avoiding infringement." Perkin-Elmer Corp. v. Westinghouse Elec. Corp., 822 F.2d 1528, 1532 (Fed.Cir.1987). Each element contained in a patent claim is deemed material, so "[i]t is important to ensure that the application of the doctrine, even as to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety." Warner-Jenkinson, 520 U.S. at 29, 117 S.Ct. 1040; *see, e.g.,* Moore U.S.A., Inc. v. Standard Register Co., 229 F.3d 1091, 1106 (Fed.Cir.2000) (a "minority" cannot be equivalent to a "majority," its "very antithesis")

In Warner-Jenkinson, an infringement action against a competitor, plaintiff alleged the competitor's ultrafiltration method for purifying dye infringed its patented method under the doctrine of equivalents. 520 U.S. at 21-22, 117 S.Ct. 1040. The patent claim recited an ultrafiltration process comprising a membrane having a pH range "from approximately 6.0 to 9.0." Id. at 22, 117 S.Ct. 1040. The competitor had developed an ultrafiltration process using a membrane having a pH range of 5.0. Id. at 23, 117 S.Ct. 1040. On remand, the Federal Circuit reaffirmed its prior decision upholding the jury verdict of equivalence:

Although there is nothing in the written description part of the specification to indicate that the invention extends beyond the specific range given in that claim, there is substantial record evidence to prove that one of ordinary skill in the art would know that performing ultrafiltration at a pH of 5.0 will allow the membrane to perform substantially the same function in substantially the same way to reach substantially the same result as performing ultrafiltration at 6.0.... The jury's finding that the accused process with a pH of 5.0 is equivalent to the claimed process with a lower limit of approximately 6.0 does not therefore vitiate the claim limitation.

Hilton Davis Chem. Co. v. Warner-Jenkinson Co., Inc., 114 F.3d 1161, 1164 (Fed.Cir.1997).

Warner-Jenkinson is instructive here. The court has construed the term "BNC connector" to mean "a type of bayonet connector with a slot or slots conforming to military specification," requiring BNC connector slots to fall within minimum and maximum diameters of .091 and .097 inches. Defendants' accused product does not literally infringe the "2 and '799 patents because its adapter posts and connector slots are .125 inches wide. Plaintiff's argument that the accused adapter and connector are equivalent to the "2 and '799 claim limitations, despite their post and slot width, is as proper here as it was in Warner-Jenkinson. A post or slot diameter of .125 inches is not the "very antithesis" of a post or slot diameter between .091 and .097 inches. *See* Moore, 229 F.3d at 1106 ("[I]t would defy logic to conclude that a minority-the very antithesis of a majority-could be insubstantially different from a claim limitation requiring a majority, and no reasonable juror could find otherwise.") Plaintiff's equivalence argument does not completely *eliminate* the slot and post width claim limitation; rather, plaintiff's argument *expands* the claim limitation in the same way the pH claim limitation was expanded in Warner-Jenkinson. Synergetics will be permitted to proceed with its infringement claim under the doctrine of equivalents. FN6

FN6. Defendants argues that even if plaintiff is allowed to proceed with its equivalency argument for the adapter claims, i.e., the claims covering only the adapter, plaintiff should be barred from proceeding with its equivalency argument for the assembly claims, i.e., claims covering the adapter and the BNC connector, because the assembly claims contain a claim limitation relating to the BNC connector's "spiral" slots, and defendants's connector has straight slots. *See* Ex. 10 (Lumpkin Decl.) to Defs.' Mot. para. 4 and figure A. The court will reject defendants' argument because a spiral slot is not the "antithesis" of a straight slot. Moore, 229 F.3d at 1106. A spiral slot and a straight slot are both slots; permitting plaintiff to proceed with its equivalency argument under the assembly claims will not "eliminate that element in its *entirety*." Warner-Jenkinson, 520 U.S. at 29, 117 S.Ct. 1040 (emphasis added).

There is little question that a genuine issue of material fact exists with regard to infringement under the fact-intensive doctrine of equivalents. Plaintiff alleges that the differences between defendants' accused product and the claims embodied in the "2 and '799 patents are insignificant. Auld Decl. (attached to Pl.'s Br.) para. 27. Plaintiff alleges defendants' accused device performs the same function (connects the "male" portion of the connector to the external threading of a laser), in the same way (via the "male" portion mechanically engaging the adapter, which then connects to the external threading), to provide the same result (a quick connect and disconnect that overcomes inconvenient prior art requiring complete screwing and unscrewing of the laser probe). Id. para. 28. Defendants allege their accused device functions in a very different way than the claims embodied in plaintiff's patents. *See, e.g.,* Ex. 10 (Lumpkin Decl.) to Defs.' Mot. para. 4. Genuine issues of material fact preclude summary judgment on infringement under the doctrine of equivalents.

III. Conclusion

Defendants' summary judgment motion will be granted as to literal infringement and denied as to the doctrine of equivalents. Plaintiff's cross-motion for summary judgment will be denied. An appropriate order follows.

ORDER

AND NOW, on this 6th day of April, 2006, upon consideration of defendants' motion for summary judgment, plaintiff's cross-motion for summary judgment, and defendants' response thereto, after a hearing on May 4, 2005, for the reasons included in the accompanying memorandum, it is **ORDERED**:

1. Defendants' motion for summary judgment of non-infringement of U.S. Patent Nos. 6,357,932 and 6,634,799 (paper # 22) is **GRANTED** as to literal non-infringement of U.S. Patent Nos. 6,357,932 and 6,634,799.

2. Plaintiff's cross-motion for summary judgment of literal infringement of U.S. Patent Nos. 6,357,932 and 6,634,799 (paper # 29) is **DENIED.**

3. Defendants' motion for summary judgment of non-infringement of U.S. Patent Nos. 6,357,932 and 6,634,799 (paper # 22) is **DENIED** as to non-infringement under the doctrine of equivalents of U.S. Patent Nos. 6,357,932 and 6,634,799.

A status conference will be held on ***Tuesday, April 25, 2006*** at ***4:00 p.m.***

E.D.Pa.,2006.
Synergetics, Inc. v. Peregrine Surgical, Ltd.

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