United States District Court,
C.D. California.

OPTIVUS TECHNOLOGY, INC., et al,
Plaintiffs.
v.
ION BEAM APPLICATIONS S.A,
Defendant.

No. CV 03-2052 SJO (VBKx)

Aug. 31, 2004.

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Court-Filed Expert Resumes

ORDER RE MOTIONS FOR SUMMARY JUDGMENT

S. JAMES OTERO**, District Judge.**

This matter came before the court on a series of Cross-Motions for Summary Judgment filed by Plaintiff, Co-Plaintiff and Defendant. The Motions address the issue of claim construction. Plaintiffs accuse Defendant Ion Beam Applications S.A. of infringing upon patented proton therapy technology. Plaintiff Loma Linda University Medical Center ("Loma Linda") joins in the Motion for Summary Judgment filed by Co-Plaintiff Optivus Technology Inc. ("Optivus"). Defendant Ion Beam Applications S.A. ("Ion Beam") filed its own Cross-Motion for Summary Judgment.

Because the five patents at issue describe relatively complex technology, the instant case is proceeding in stages in a format suggested by the Local Rules of Practice for Patent Cases Before the United States District Court for the Northern District of California. Once the claims are properly construed, the court may proceed to compare the patents to the prior art to determine, *inter alia,* whether the invention was anticipated by prior art. Ion Beam expressed its intention to file a Motion for Summary Judgment on this issue. FN1 (*See* Ion Beam P. & A. at 1 n. 7.)

FN1. The parties were ordered to first address the issue of claim construction. (*See* Stip. and Order of May 12, 2004.) Ion Beam violated the May 12, 2004 Order. On June 17, 2004, the court ordered Ion Beam's improper non-infringement argument severed from the claim construction proceedings.

The matter came before the court for a hearing on August 06, 2004. Having carefully considered all admissible documents, pleadings and arguments of counsel submitted by all parties, the court hereby issues its ruling, as described in greater detail herein.

I. *BACKGROUND* FN2

FN2. The description of the technology contained in this section is for the purpose of general background only and has no impact whatsoever on the interpretation and construction of claim terms, unless otherwise noted.

In their Complaint, Plaintiff accused Defendant Ion Beam of infringing five patents: United States Patent Nos. 4,870,287 ("the '287 patent"); 5,260,581 ("the '581 patent"); 5,585,642 ("the '642 patent"); 5,895,926 ("the '926 patent"); and 5,825,845 ("the '845 patent"). Loma Linda is the purported owner of all of the patents in suit, and Optivus claims to be the exclusive licensee of these patents. (Optivus P. & A. at 1.) Plaintiff describes the technology at issue as follows:

In its most fundamental sense, proton therapy involves accelerating protons to a desired energy using an accelerator and then transmitting a beam of accelerated protons to a treatment room where they are delivered into a patient with the intent of targeting and destroying cancerous cells in the patient's body. Proton therapy is the most precise form of advanced radiation treatment available for certain cancers and other diseases. Because it is so precise, it minimizes harm to surrounding tissues, which allows patients to be treated on an outpatient basis, usually allowing them to continue their normal activities while experiencing few or no side effects from the treatments. (*Id.*)

II. *LEGAL STANDARD*

A. *MOTIONS FOR SUMMARY JUDGMENT*

Rule 56(c) of the Federal Rules of Civil Procedure sets forth the standard for granting a motion for summary judgment. It states in part:

The judgment sought shall be rendered forthwith if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law.

This standard has been explained by the Supreme Court of the United States in Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986), Matsushita Elec. Indus. Co. v. Zenith Radio, 475 U.S. 574, 106 S.Ct. 1348, 89 L.Ed.2d 538 (1986), and Celotex Corp. v. Catrett, 477 U.S. 317, 106 S.Ct. 2548, 91 L.Ed.2d 265 (1986).

In *Anderson,* the Court set out the requisites needed to show there is no genuine issue as to a material fact

As to materiality, the substantive law will identify which facts are material. Only disputes over facts that might affect the outcome of the suit under the governing law will properly preclude the entry of summary judgment Factual disputes that are irrelevant or unnecessary will not be counted.

477 U.S. at 248. The Court also held that "it is the substantive law's identification of which facts are critical and which facts are irrelevant that governs." *Id*.

Regarding the existence of a genuine issue of material fact, the Court held that summary judgment is not appropriate if "the evidence is such that a reasonable jury could return a verdict for the nonmoving party." *Id*. However, the Court also noted that "there is no issue for trial unless there is sufficient evidence favoring the nonmoving party for a jury to return a verdict for that party." *Id*. at 249. The nonmoving party has the burden of producing operative facts, and the "mere existence of a scintilla of evidence in support of the plaintiff's position will be insufficient; there must be evidence on which the jury could reasonably find for the plaintiff." *Id*. at 252. If the operative facts are not presented, summary judgment is appropriate.

Once the moving party has met its burden under Rule 56(c), the nonmoving party "must do more than simply show that there is some metaphysical doubt as to the material facts." Matsushita, 475 U.S. at 586. However, any inferences from the underlying facts must be viewed in light most favorable to the nonmoving party. Id. at 587.

In *Celotex,* the Court explained that the nonmoving party must designate specific facts showing a genuine issue for trial. Summary judgment is appropriate if a party, after adequate time for discovery, "fails to make a showing sufficient to establish the existence of an element essential to that party's case, and on which that party will bear the burden of proof at trial." 477 U.S. at 322. The moving party is not required to prove the absence of a genuine issue of fact, even with respect to an issue on which the nonmoving party bears the burden of proof. Id. at 325. "Instead ... the burden on the moving party may be discharged by 'showing'-that is, pointing out to the district court-that there is an absence of evidence to support the nonmoving party's case." *Id*. The Court also stated that "[o]ne of the principal purposes of the summary judgment rule is to isolate and dispose of factually unsupported claims or defenses," *id*. at 323-24, and that the summary judgment procedure should not be regarded as a "disfavored procedural shortcut" but should be viewed as an "integral part of the Federal Rules as a whole, which are designed to secure the just, speedy and inexpensive determination of every action." *Id*. at 327.

"[I]t is not [the task] of the district court, to scour the record in search of a genuine issue of triable fact. [The courts] rely on the nonmoving party to identify with reasonable particularity the evidence that precludes summary judgment." Keenan v. Allan, 91 F.3d 1275, 1279 (9th Cir.1996). *See also* Carmen v. San Francisco Unified Sch. Dist., 237 F.3d 1026, 1031 (9th Cir.2001) ("The district court need not examine the entire file for evidence establishing a genuine issue of fact, where the evidence is not set forth in the opposing papers with adequate references so that it could conveniently be found.").

B. *CLAIM CONSTRUCTION*

"An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed." Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed.Cir.1995) (*en banc*), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996); *citing* Read Corp. v. Portec, Inc., 970 F.2d 816, 821 (Fed.Cir.1992). "The second step is comparing the property construed claims to the device accused of infringing." *Id*. As mentioned, the only matter presently before the court is

claim construction. The question of infringement will be addressed at a later date in response to subsequent motion(s) for summary judgment.

1. ***Evidentiary Basis for Claim Construction***

The Federal Circuit instructs there are generally three primary sources available to the court to help construe the meanings of claim terms. "It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, *i.e.,* the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Markman, 52 F.3d at 979. Analysis of the intrinsic evidence requires the court look initially to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention. Vitronics Corps. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996); *see also* Markman, 52 F.3d at 979. Second, it is always necessary to review the specification to determine whether the inventor has used any term in a manner inconsistent with its ordinary meaning. *Id.; citing also* Markman, 52 F.3d at 979. Claims must be read in view of the specification. *Id.* As stated by the court in *Vitronics,* "[t]he specification contains a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use it." Vitronics, 90 F.3d at 1582. In *Markman,* the Federal Circuit explained "[f]or claim construction purposes, the description may act as a sort of dictionary, which explains the invention and may define terms used in the claims." Markman, 52 F.3d at 979. The *Markman* Court goes on to state "a patentee is free to be his own lexicographer.... The caveat is that any special definition given to a word must be clearly defined in the specification.... The written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of the claims." *Id.* The specification must clearly express the patentees' intent to impart novel meaning to terms used in the claims portion of the patent. Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed.Cir.2002) [*stating* "[i]In the absence of an express intent to impart a novel meaning to claim terms, an inventor's claim terms take on their ordinary meaning]. The third primary source available to the court is the prosecution history of the patent, if in evidence. *Id.*

Finally, "in most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such cases it is improper to rely on extrinsic evidence." *Id* . (*citing* Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1216 (Fed.Cir.1995)). If necessary, however, the court may look to extrinsic evidence. *Id.; see also* Markman, 52 F.3d. at 980 [finding the court may, in its discretion, receive extrinsic evidence in order to aid the court in coming to a correct conclusion as to the true meaning of the language employed in the patent]. FN3 The court may also receive expert testimony to aid In understanding what the patent claims actually say. Id. at 981. "Extrinsic evidence is to be used for the court's understanding of the patent, not for the purpose of varying or contradicting the terms of the claims." *Id.* (*citing* U.S. Indus. Chems., Inc. v. Carbide & Carbon Chems. Corp., 315 U.S. 668, 678, 62 S.Ct. 839, 86 L.Ed. 1105 (1942)). Testimony of the patentee or his attorney on the proper construction of claims is not entitled to deference. Markman, 52 F.3d at 983.

FN3. As this discussion indicates, the Federal Circuit has offered inconsistent guidance on this question in several recent opinions. *Compare* Vitronics, 90 F.3d 1576; *contra* Pitney-Bowes, Inc. v. Hewlett-Packard Corp., 182 F.3d 1298, 51 U.S.P.Q.2d 1161 (Fed.Cir.1999); *and* Eastman Kodak v. Goodyear Tim & Rubber Co., 114 F.3d 1547.

All that being said, the court recognizes the Federal Circuit has offered inconsistent guidance since its decisions in *Markman* and *Vitronics,* as to when the trial court can and should consider extrinsic evidence.

For example, in Pitney Bowes v. Hewlet-Packard, 182 F.3d 1298, 1309 (1999), the court opined it is entirely appropriate, even preferable, for a trial court to consult extrinsic evidence to ensure the claim construction it intends to adopt is consistent with widely held understanding of people skilled in the pertinent technical field.

2. *Intrinsic Evidence*

In the instant case, the parties dispute the importance of customary and ordinary meanings of the claim terms as well as the dictionary and technical definitions of disputed claim terms. The court finds Texas Digital Systems Inc. v. Telegenix Inc., 308 F.3d 1193 (Fed.Cir.2002) to be instructive on this point. In *Texas Digital Systems,* t he Federal Circuit recognized "[i]n construing claims, the analytical focus must begin and remain centered on the language of the claims themselves, for it is that language that the patentee chose to use to 'particularly point out and distinctly claim the subject matter which the patentee regards as his invention.' " Texas Digital Systems, supra, 308 F.3d at 1201 (*quoting* Interactive Gift Express, Inc. v. CompuServe, Inc., 256 F.3d 1323, 1331 (Fed.Cir.2001)); *see also* 35 U.S.C. s. 112, P2. The court stated "[t]he terms used in the claims bear a 'heavy presumption' that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art." *Id*. "Moreover, unless compelled otherwise, a court will give a claim term the full range of its ordinary meaning as understood by persons skilled in the relevant art." *Id*.

The court in *Texas Digital Systems* added "[i]t has been long recognized in our precedent and in the precedent of our predecessor court, the Court of Customs and Patent Appeals, that dictionaries, encyclopedias and treatises are particularly useful resources to assist the court in determining the ordinary and customary meanings of claim terms." *Id*. Dictionaries and technical treatises are always available to the court to aid in the task of determining meanings that would have been attributed by those of skill in the relevant art to any disputed terms used by the inventor in the claims. *See id*. (*citing* Vitronics, 90 F.3d at 1584 n. 6; *and Cybor Corp*., 138 F.3d at 1459.)

As explained by the Court in *Texas Digital Systems:* "[b]ecause words often have multiple dictionary definitions, some having no relation to the claimed invention, the intrinsic record must always be consulted to identify which of the different possible dictionary meanings of the claim terms in issue is most consistent with the use of the words by the inventor." *Id*. at 1203. "The objective and contemporaneous record provided by the intrinsic evidence is the most reliable guide to help the court determine which of the possible meanings of the terms in question was intended by the inventor to particularly point out and distinctly claim the invention." *Id*.

3. *Presumption in Favor of Ordinary Meaning*

The Federal Circuit made it clear in *Texas Digital Systems* there is a presumption that claim terms "mean what they say and have ordinary meaning that would be attributed to those words by persons skilled in the relevant art." *Id.; see also* Teleflex, supra, 299 F.3d at 1325; Sunrace Roots Enter. Co., LTD. v. SRAM Corp., 336 F.3d 1298, 1302 (Fed.Cir.2003); *and* Superguide Corp. v. DirecTV Enters., 358 F.3d 870, 874 (Fed.Cir.2004). But the intrinsic record must be examined to determine whether the presumption is rebutted:

the intrinsic record also must be examined in every case to determine whether the presumption of ordinary and customary meaning is rebutted.... Indeed, the intrinsic record may show that the specification uses the words in a manner clearly inconsistent with the ordinary meaning reflected, for example, in a dictionary definition. In such a case, the inconsistent dictionary definition must be rejected.

Id. at 1204.

In short, the presumption in favor of a dictionary definition will be overcome if the patentee, acting as his or her own lexicographer, has clearly set forth an explicit definition of the term different from the term's ordinary meaning. *Id*. "Further, the presumption also will be rebutted if the inventor has disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." *Id*. The Federal Circuit made itself abundantly clear in *Texas Digital Systems* as to how a court should approach claim construction when it stated "[c]onsulting the written description and prosecution history as a threshold step in the claim construction process, before any effort is made to discem the ordinary and customary meanings attributed to the words themselves, *invites a violation of our precedent counseling against importing limitations into the claims*." *Id*. (*emphasis added*).

4. ***Two Step Process in Utilizing Intrinsic Information***

To summarize, recent decisions from the Federal Circuit support a two step approach to claim construction. *See, e.g.,* Intellectual Property Development, Inc. v. UA-Columbia Cablevision of Westchester, Inc., 336 F.3d 1308, 1315 (Fed.Cir.2003); *see also* Anthony R. Zeuli and Rachel Clark Hughey, *Avoiding Patent Claim Construction Errors,* 51-5 The Federal Lawyer 29 (2004). For example, in Intellectual Property Development Inc., supra, 336 F.3d at 1315, the Federal Circuit affirmed the lower court's approach to claim construction, disagreeing with the argument on appeal "that the district court 'put the cart before the horse' by looking at dictionary definitions first instead of the specification to determine the meaning of the term "high frequency." " *Id*.

Accordingly, it is proper to consider the ordinary meaning of claim terms as the first step in claim construction, and consult general use dictionaries or technical dictionaries to aid in that process. *See, e.g., id*. FN4

FN4. That being said, the court notes the Federal Circuit plans to re-visit this issue in the very near future. In Phillips v. AWH Corporation, 376 F.3d 1382, 2004 WL 1627271, the Federal Circuit invited parties to submit, for *en banc* hearing, briefs addressing the following questions: (1) whether the public notice function of patent claims is better served by referencing technical and general purpose dictionaries; (2) if dictionaries serve as the primary source for claim interpretation, should the specification limit the full scope of claim language (as defined by dictionaries); (3) if the primary source for claim construction should be the specification, what use should be made of dictionaries; and *inter alia* (4) what role should prosecution history and expert testimony play in determining the meaning of disputed claim terms. During oral argument, the court asked the parties to address the issues raised in Phillips, supra, 207 Ill.2d 609, 283 Ill.Dec. 136, 807 N.E.2d 977, 2004 WL 162721. Counsel informed the court it was unlikely the Federal Circuit would render its decision in *Phillips* before the instant case went to trial. (Hr'g. Tr. at 68.)

In *Intellectual Property Development,* the Federal Circuit repeated the admonition stated in Texas Digital Systems, supra, 308 F.3d at 1204: "consulting the written description and prosecution history as a threshold step-in the claim construction process, before any effort is made to discern the ordinary and customary meanings attributed to the words themselves, invites a violation of our precedent counseling against importing limitations into the claims." *Intellectual Property Dev'l, Inc.,* 336 F.3d at1315 (quoting Texas Digital Systems, 308 F.3d at 1204). The Court then found "the district court did not err in looking to

dictionary definitions before consulting the written description or the prosecution history to determine the meaning of the term 'high frequency.' " *Id*. "There is a 'heavy presumption' that the terms used in claims 'mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art.' " Resonate, Inc. v. Alteon WebSystems, Inc., 338 F.3d 1360, 1364 (Fed.Cir.2003) (*quoting* Tex. Digital Sys., Inc., 308 F.3d at 1201).

The second step in claim construction is to concentrate on the written description and drawings to determine whether the patentee has specially defined or limited the term: "[a]fter identifying the ordinary meaning of a disputed claim term, we turn to the patent's written description and drawings to determine whether that meaning is inconsistent with the patentee's use of the term, ... for example whether the patentee has specially defined the term or otherwise limited the scope of the claim." *Id*. (citations omitted). When multiple dictionary or treatise definitions apply, the written description, drawings or file wrapper may be used to determine which meaning is appropriate given the context of the technology. *See, e.g.,* Ferguson Beauregard/Logic Controls, Div. of Dover Res., Inc. v. Mega Sys. LLC., 350 F.3d 1327, 1348 (Fed.Cir.2003); *see also* Toro Co. v. White Consolidated Industries Inc., 199 F.3d 1295, 1299-1300 (Fed.Cir.2001); *and* Anderson v. International Engineering and Manufacturing, Inc., 160 F.3d 1345, 1348-49 (Fed.Cir.1998) (stating "dictionary definitions of ordinary words are rarely dispositive of their meaning in a technological context. A word describing patented technology takes its definition from the context in which it was used by the inventor .").

III. *DISCUSSION*

The parties rely on different types of evidence to support their competing positions regarding the construction of claim terms. (*Compare, e.g.,* Optivus P. & A. at 9:10-22; *and* Ion Beam P. & A. at 3:18-22.) Plaintiff Optivus principally relies on intrinsic evidence and dictionary definitions for its proffered construction of claim terms. (*See, e.g.,* Optivus P. & A. at 9:10-22.) Defendant Ion Beam, on the other hand, relies heavily on extrinsic evidence, namely the expert testimony of Dr. Arlene Lennox. (*See, e.g.,* Ion Beam P. & A. at 3:18-22.) Plaintiff Optivus submitted the declaration of Dr. Richard Lundy to rebut the testimony of Dr. Lennox. (*See generally* Lundy Declaration.)

There is no question that Dr. Lennox and Dr. Lundy are learned experts in the field of proton beam technology. (*See, e.g.,* Lennox Decl. Ex. A, Curriculum Vitae.) Dr. Lennox is presently the Facility Head at the renowned Fermilab Neutron Therapy Facility. (*Id*.) Dr. Richard Lundy has a similarly impressive resume. However the Federal Circuit instructed that while it may be proper for the court to rely on expert testimony to explain the meaning of claim terms, expert testimony should nevertheless play a subordinate role in claim construction. *See, e.g.,* Bell & Howell Document Management Products Co. v. Altek Systems, 132 F.3d 701, 706 (Fed.Cir.1997) (commenting "[p]atents should be interpreted on the basis of their intrinsic record, not on the testimony of such after-the-fact 'experts' that played no part in the creation and prosecution of the patent"); *see also* Merck & Co. v. Teva Pharms. USA, Inc., 347 F.3d 1367, 1372 (Fed.Cir.2003); *and* Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed.Cir.2003). The reason for this rule is explained by the Federal Circuit in *Vrtronics:*

The claims, specification, and file history, rather than extrinsic evidence, constitute the public record of the patentee's claim, a record on which the public is entitled to rely. In other words, competitors are entitled to review the public record, apply the established rules of claim construction, ascertain the scope of the patentee's claimed invention and, thus, design around the claimed invention. *See* Markman, 52 F.3d at 978-79.... Allowing the public record to be altered or changed by extrinsic evidence introduced at trial, such as

expert testimony, would make this right meaningless.

Vitronics, supra, 90 F.3d at 1583. When a district court finds the patent specification and the prosecution history adequately elucidate the proper meaning of the claims, expert testimony is not necessary and certainly not crucial. Trilogy Communications, Inc. v. Times Fiber Communications, Inc., 109 F.3d 739, 744 (Fed.Cir.1997); *contra* Hoechst Celanese Corp. v. BP Chemicals Ltd., 78 F.3d 1575, 1579 (Fed.Cir.1996); *see also* 5A DONALD S. CHISUM, CHISUM ON PATENTS s. 18.03[2][e][iv] (indicating that the Federal Circuit has sent inconsistent messages on the proper role of expert testimony in claim construction).

In its Opposition to Plaintiffs' Motions for Summary Judgment, Defendant Ion Beam cites Vanderlande Indus. Nederland BV v. International Trade Comm'n, 366 F.3d 1311, 1321 (Fed.Cir.2004) for the proposition that "claim limitations must be construed from the vantage point of a person skilled in the art." (Ion Beam Opp'n at 1:12-16.) By "person skilled in the art," Defendant means from the vantage point of Dr. Lennox, Defendant's expert witness.

However, the relevant passage from Vanderlande, supra, 366 F.3d at 1321 does not directly address the issue of expert testimony. Rather, the passage cited by Defendant Ion Beam squarely addresses "the proper role of general-usage (as opposed to technical, art-specific) dictionaries in claim construction." Vanderlande, 366 F.3d at 1321. In addressing this question, the court states "[c]laims are to be construed from the vantage point of a person skilled in the relevant art. To the extent that this artisan would understand a claim term to have the same meaning in the art as that term has in common, lay usage, a general-usage dictionary can be a helpful aid to claim construction." *Id*. The *Vanderlande* Court goes on to say "where evidence-such as expert testimony credited by the factfinder, or technical dictionaries-demonstrates that artisans would attach a special meaning to a claim term, ... (independent of the specification), general-usage dictionaries are rendered irrelevant with respect to that term; a general-usage dictionary cannot overcome credible art-specific evidence of the meaning or lack of meaning of a claim term." *Id*. However, in this court's view, the cited passage in *Vanderlande* merely re states the position taken by the Federal Circuit in *Texas Digital Systems* regarding the importance of technical dictionaries: "technical treatises and dictionaries ... are worthy of special note." Texas Digital Systems, 308 F.3d at 1202; *and* Vitronics, 90 F.3d at 1584 n. 6. Judges are free to consult such resources at any time and may also rely on dictionary definitions when construing cl aim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents. *Id*. Nowhere in *Vanderlande,* does the Federal Circuit suggest expert testimony should be elevated to a more deferential position than intrinsic evidence, general dictionaries or relevant contemporaneous technical treatises. *See generally* Vanderlande, 366 F.3d 1311.

Moreover, in *Texas Digital Systems,* the Federal Circuit seems to have gone a step beyond the position taken in *Vitronics* and more precisely defined the relative importance of technical treatises versus expert testimony. *See id*. In *Vitronics,* the Court categorized technical treatises and expert testimony as two types of extrinsic evidence. *See* Vitronics, 90 F.3d. at 1584 n. 6. However, in *Texas Digital Systems,* the Federal Circuit elevated the role played by technical treatises and general dictionaries over the role of expert testimony, commenting "it is entirely proper for both trial and appellate judges to consult these materials at any stage of a litigation, regardless of whether they have been offered by a party in evidence or not." Texas Digital Systems, 308 F.3d at 1203. "Thus, categorizing [dictionaries and treatises] as 'extrinsic evidence' or even a 'special form of extrinsic evidence' is misplaced and does not inform the analysis." *Id*. The Court in *Texas Digital Systems* explained:

When a patent is granted, prosecution is concluded, the intrinsic record is fixed, and the public is placed on

notice of its allowed claims. Dictionaries, encyclopedias and treatises, publicly available at the time the patent is issued, are objective resources that serve as reliable sources of information on the established meanings that would have been attributed to the terms of the claims by those of skill in the art. Such references are unbiased reflections of common understanding not influenced by expert testimony or events subsequent to the fixing of the intrinsic record by the grant of the patent, not colored by the motives of the parties, and not inspired by litigation.

Id. at 1202-03. The same cannot be said for expert testimony, which is necessarily "after the fact" and not available at the time the patent is issued. Vitronics, supra, 90 F.3d at 1583. Moreover, the same cases-*Vitronics,* and *Texas Digital Systems*-clearly state it would be error to allow expert testimony to trump intrinsic evidence or the plain meaning of the claim terms. Vitronics, 90 F.3d at 1583; *and* Texas Digital Systems, 308 F.3d at 1202-03.

In view of the Federal Circuit's precedents in *Vitronics* and *Texas Digital Systems,* the methodology this court applies in construing patent claims is as follows: intrinsic evidence and the common meaning of claims terms are to be considered first The court may also refer to technical treatises and general usage dictionaries. Tex. Digital Sys., Inc., 308 F.3d at 1201. If the claim term at issue is specifically defined in a technical treatise in a way that differs from the definition of the same term found in a general dictionary, it only makes sense that the court accord greater weight to the technical treatise. Vanderlande, 366 F.3d at 1321. It is, after all, the "common usage" employed by people who are skilled in the art that is relevant to the meaning of the claim terms. Tex. Digital Sys., Inc., 308 F.3d at 1201. Expert testimony, however, developed long after the patent is released to the public, is often colored by the course of litigation, and it therefore will be given less weight than technical treatises or relevant "common usage." *See* Vitrinics, 90 F.3d at 1583; *and* Texas Digital Systems, 308 F.3d at 1202-03: Expert testimony is not entitled to deference and does not trump the plain meaning of claim terms, or the definition of claim terms found in dictionaries and relevant technical treatises. *Id*.

A. *CONSTRUCTION OF CLAIM TERMS*

There are five patents at issue in the instant case and there is a long list of claim terms that are in dispute. Broadly speaking, however, the parties' positions can be characterized as follows: (1) the Plaintiff generally adopts a very broad definition of each term; and (2) Defendant frequently proffers a narrow definition, or introduces specific limitations on the terms. Defendant relies oh expert testimony and portions of the patent specification to support its argument. Plaintiff, on the other hand, relies on the common meaning of claim terms.

1. *The* '287 Patent

(a) "An injector"

Claim 1 includes the following element "an injector for transporting protons from the source to the accelerator." (Rosenberg Decl. Ex. 1, '287 Patent at 14:7-8.) Plaintiff Optivus sites general dictionaries and technical treatises in support of its construction. (Optivus P. & A. at 9:14-10:9.) Plaintiff defines the term "injector" quite broadly as "an apparatus that introduces orfeeds protons from the source to the accelerator." (*Id*. at 10:11-14.) Defendant Ion Beam, on the other hand, insists on a much narrower definition-limiting the term "injector" to a certain type of injector. (*See, e.g.,* Lennox Decl. para. 15.) Ion Beam proposes this element be construed to mean "a device for transporting protons from the source to the accelerator, such as a radio frequency quadrupole linear accelerator ("RFQ Linac"), that increases the energy of the protons

emerging from the source to the initial energy required by the accelerator before the protons are introduced into the accelerator." (Ion Beam P. & A. at 4:5-9.)

In support of its construction of the term "injector," Plaintiff provides the following definitions from general, non-technical dictionaries: (1) "a person or thing that injects," (2) "to force (a fluid) into a passage, cavity or tissue"; and (3) "to place into orbit, trajectory, or stream." (Optivus P. & A. at p. 9; Airhart Decl. Ex. H, Random House Dictionary; *and* Ex. I, Webster's II New Riverside University Dictionary.) Because these definitions are quite broad, the court turns to the technical treatises supplied by the parties. Optivus offers the following passage from the definition of the term "cyclotron": "Particles are injected near the centre of an evacuated space between two Dshaped boxes placed between the poles of a stronger permanent magnet." (Airhart Decl. Ex. J, Dictionary of Physics at 163.) The quoted passage is taken from a more lengthy definition of the term "cyclotron." (*Id.*) While the passage states "[p]articles are injected," it does not describe the term "injector," or the device that does the injecting. (*See id.*) The passage provides context but does not precisely define the term "injector." (*See id.*)

Both parties also rely on a passage taken from a learned treatise, authored by Dr. John J. Livingood, describing an "Alvarez type (1946)" accelerator ("Livingood Treatise"). (*Id.* at Ex. K, John J. Livingood, *Principles of Cyclic Particle Accelerators* (D. Van Nostrand Co., Inc.1961) at p. 167; *and* Rosenberg Decl. Ex. 14.) The Livingood Treatise describes early forms of particle accelerators, including the "Alvarez type (1946)" accelerator and concludes that "Alvarez type" accelerators are "also employed as an *injector,* that is, as an auxiliary device to give the necessary initial energy to projectiles before they are introduced into the main accelerator known as a synchotron." *Id.* Defendant's expert, Dr. Lennox, relies on that passage, among others, to support her proffered construction of the term "injector ." (Lennox Decl. at para. 19:24-28.)

Dr. Lennox initially defines the term "injector" as "a device designed to increase the kinetic energy of the protons after emerging from the proton source to the initial kinetic energy required by the accelerator before the protons are introduced into the accelerator." (Lennox Decl. at para. 14.) However, Dr. Lennox and Ion Beam suggest the term "injector" should be further limited to the following definition: "a device for transporting protons from the source to the accelerator, such as a radio frequency quadrupole linear accelerator ("RFQ Linac"), that increases the energy of the protons emerging from the source to the initial energy required by the accelerator before the protons are introduced into the accelerator." (*See* Ion Beam P. & A. at 4:5-9; Lennox Decl. at para. 15.) Dr. Lennox cites a series of articles, including an article authored by Plaintiff Loma Linda, to support this construction. (Rosenberg Decl. Ex. 17, Loma Linda University Medical Center, *Proton Therapy Facility Engineering Design Report* (Feb.1987)). Dr. Lennox takes special note of the following passage taken from the article authored by Loma Linda: "The source of protons is a 40-KeV duoplasmatron. The 40 KeV beam passes through a solenoidal focusing system and is injected into a 1.7-MeV radiofrequency quadrupole linear accelerator (RFQ) operating at 425 MHz." (Rosenberg Decl. Ex. 17 at 422.) FN5 Similarly, in a paper cited by Dr. Lennox and entitled *Proceedings of the 1987 IEEE Particle Accelerator Conference* (*Id.* at Ex. 18), the patent applicants stated "[a]s injector we chose an RFQ linac." (*Id.* at p.1985 .) FN6

FN5. Academic articles do not necessarily qualify as "treatises" as that term is used by the Federal Circuit A simple internet search will return thousands of articles, published and unpublished, on the claim term at issue here. This sort of material is best classified as "extrinsic" information, unless it could be elevated to some sort of canonical text or treatise that might have been used by the relevant person in the art.

FN6. Dr. Lennox points out that Dr. James Slater of Loma Linda authored an article in 1988 wherein he described the technology: The source of protons is a 40 KeV duoplasmatron. The 40 KeV beam passes through a solenoid focusing system and is injected into a 2 MeV radiofrequency quadrupole linear accelerator (RFQ) operating at 425 MHz. At 2 MeV the beam is transported to the synchotron by a transport system that includes a debuncher to reduce momentum speed. (Lennox Decl. para. 23; *quoting* Rosenberg Decl. Ex 20 at p. 765, 283 Ill.Dec. 136, 807 N.E.2d 977.) Dr. Lennox cites the article to support her opinion that the term "injector" should be defined as the type of injector that increases the kinetic energy of a proton beam. (Lennox Decl. para. 23 .) As noted, similar information is supplied by the patentee on the face of the '287 patent itself. The ' 287 patent states "the source 10 comprises a duoplasmatron ion source providing a 40 KeV proton beam. The beam is focused by solenoidal lenses at 48 to match the beam into a radiofrequency quadrupole linear accelerator (RFQ) 50. The RFQ accelerates protons to 1.7 MeV for transmission to a debuncher 52 through a quadrupole 54. The debuncher functions to reduce the momentum spread of the beam ... to approximate the design momentum spread of the beam for injection into the accelerator." (Rosenberg Decl. Ex. 1, the '287 patent at 3:27-35.)

While Dr. Lennox' efforts are appreciated, most of this information is referenced in the '287 patent summary itself. (*See, e.g.,* id. at Ex. 1, the '287 Patent at 3:19-25.) In the description section of the '287 patent, the patentees plainly state their preference for an RFQ accelerator. (Id.) In other words, Dr. Lennox and Ion Beam invite the court to consult the written description or in the alternative, purely extrinsic information, as a threshold step in the claim construction process in order to narrow the claims, and thereby invite a violation of Federal Circuit precedent. *See, e.g.,* Texas Digital Systems, 308 F.3d at 1204. The court declines their invitation.

The term "injector" is not limited or qualified by any language in the claims section of the '287 patent. (Rosenberg Decl. Ex. 1, '287 Patent at 14:7-8.) The court does not find it appropriate to import a limitation from the written description of the patent, or otherwise limit the scope of the patent based on expert testimony of Dr. Lennox. The court notes that the claim terms "source of protons" and "protons from the source" are equally broad as the claim term "injector." (*See id.* at 14:5 & 14:7-8.) However, neither party is suggesting the claim term "source" be limited to mean "a duoplasmatron ion source providing a 40 KeV proton beam" as described in the specification. There is nothing in the plain meaning of the claim terms to suggest the term "injector" should be limited as Defendant suggests. Indeed, literature cited by Dr. Lennox indicates there are many different types of injectors. (*See, e.g.,* Rosenberg Decl. Ex. 16, Proceedings of a Medical Workshop on Accelerators for Charged Particle Beam Therapy at p. 414.) FN7 But there is nothing in the claim terms indicating that the general term "injector" should be limited to the specific type of injector suggested by Dr. Lennox and Ion Beam.

FN7. Plaintiff's rebuttal expert, Dr. Lundy, confirms this point: "Injectors come in many different sizes and types. Injectors can be large facilities or they can be small devices." (Lundy Decl. at para. 22.) Moreover, the court notes the Livingood treatise stated an Alvarez type accelerator could be used as an injector, but presumably not for a proton therapy system. (*See* Rosenberg Decl. Ex. 14. at p. 167, 283 Ill.Dec. 136, 807 N.E.2d 977.) This confirms there is more than one kind of injector.

In the court's view, it would probably be error to restrict the claim term in the manner suggested by Defendant. As the Federal Circuit stated in Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1249: "[W]hen a claim term is expressed in general descriptive words, we will not ordinarily limit the term

to a numerical range that may appear in the written description or in other claims.... Nor may we, in the broader situation, add a narrowing modifier before an otherwise general term that stands unmodified in a claim." The *Renishaw* court included a very instructive explanation important to the construction of the claim term "injector" in the '287 patent:

For example, if an apparatus *claim recites a general structure (e.g., a noun) without limiting that structure* to a specific subset of structures *(e.g., with an adjective), we will generally construe the claim to cover all known types of that structure* that are supported by the patent disclosure. *See, e.g.,* Virginia Pan el Corp. v. MAC Panel Co., 133 F.3d 860, 865-66, 45 U.S.P.Q.2D (BNA) 1225. 1229 (Fed.Cir.1997) (claim term "reciprocating" is given its ordinary meaning and not limited to mere linear reciprocation); Sjolund v. Musland, 847 F.2d 1573, 1581-82, 6 U.S.P.Q.2D (BNA) 2020, 2027 (Fed.Cir.1988) (refusing to limit claim term "baffle" to only rigid baffles and term "panel" to only pan els of lattice construction).

Renishaw, supra, 158 F.3d at 1249 (emphasis added). The Federal Circuit in *Renishaw,* stated two important canons of claim construction: (a) the court "may not read a limitation into a claim from the written description, but (b) one may look to the written description to define **a** term already in a claim limitation, for a claim must be read in view of the specification." *Id*. at 1249. A patent applicant may also elect to be a lexicographer by providing an explicit definition in the specification for a claim term. *Id*. However, if a patentee "has chosen to be his or her own lexicographer," she must clearly set forth an explicit definition for the claim term. *See, e.g., Johnson Worldwide Associates, Inc. v. Zebco Corp.,* 175 F.3d 985,990 (Fed.Cir.1990.)

Comparing Figures 1 and 2, as well as the patent specification, it appears the patentees preferred using a "radiofrequency quadrupole linear accelerator" as an injector. (*Compare id*. at 2:38-40; 3:25-41; Figures 1 & 2.) The patentee also included a more general description of the technology at issue. (*Id*. at 2:35-60, and Figs. 1 & 2.) The patentees did not clearly express in the specification their intent to define or limit the term injector to the parameters suggested by Ion Beam. (*See id*. at 3:27-33.) Accordingly, as in Renishaw, 158 F.3d at 1249 the court adopts a broader definition of the term "injector" and hereby defines the term as **"an apparatus that introduces protons from the proton source to the accelerator."** (*See* Rosenberg Decl. Ex. 14 at p. 167; Ex. 17 at 422-23; Ex. 1, the '287 Patent at 15:7-9; *and* Airhart Decl. Ex. H, Random House Dictionary; *and* Ex. I, Webster's II New Riverside University Dictionary.)

As Dr. Lundy points out, there are many different kinds of accelerators, including accelerators that feed a non-accelerated beam into an accelerator. (Lundy Decl. at para.para. 22, 24 & 25, *and* Ex. 4.) FN8 The court declines to introduce any limitation, based on extrinsic information or the ' 287 patent description, on the type of injector claimed by the patentees. There is nothing in the text of the claim terms to suggest the claim term "injector" should be limited to a type of injector that provides an increase in kinetic energy.

FN8. Furthermore, it is possible to describe a "A 15 mA, 15 keV, proton Duoplasmatron source" as an injector. *See, e.g.,* http:// www.barc.emet.in/btdg/appd/ion.html; *see also* Robinson and Hamm, *Flourine 18 Production,* (1997) at 3. This would seem to indicate that an injector, by definition, does not necessarily add kinetic energy to particles emitted from a duoplasmatron ion source. *See also* http:/ / www.barc.ernet.in/webpages/o rganization/appd/microwave_ion_source.htm (stating "A 15 mA, 15 keV, proton Duoplasmatron source was developed as an injector to the Radio Frequency Quadrupole (RFQ) Linac") By comparison, the '287 patent states "the source 10 comprises a duoplasmatron ion source providing a 40 KeV proton beam." (Rosenberg Decl. Ex. 1, the '287 Patent at 3:27-35.)

2. "***A Plurality of Separate Patient Treatment Stations***"

Defendant Ion Beam suggests the phrase "plurality of separate patent treatment stations" be defined as "every treatment station in a proton beam therapy system." (Ion Beam P. & A. at p. 6:6-7.) The argument is foreclosed, however, by the common meaning of the term "plurality" as well as the parties' Stipulated Claim Construction. (*See* Stip. Claim Const. at 3:14-16.)

The '287 patent includes the following element: "A proton beam therapy system comprising: a plurality of separate treatment stations each having a patent support for orienting a patient in a fixed position." (Rosenberg Decl. Ex. 1 at 14:1-4.) The parties agreed that in the context of the related '642 patent, the term "plurality" means "more than one." (Stip. Claim Const. at p. 3:14-16.) It is clear the patentees in the '642 patent were using the term "plurality" in the same way the patentees used "plurality" inn the '287 patent. In the '642 patent, the patentees stated: "We claim: Una radiation beam therapy system comprising a radiation beam source, a plurality of radiation beam treatment locations, and a multiplexed switchyard .... " (Rosenberg Decl. Ex. 3 at 14:65-68.) Moreover, the plain meaning of the term "plurality" does not mean "every." The Random House Dictionary defines the term "plurality" as "1. the excess of votes received ... [and] 3. a number greater than one. 4. fact of being numerous ... 6. state or fact of being plural." (Airhart Decl. Ex. H. p. 138.) Similarly, the Oxford English Dictionary defines "plurality" as "1. The state of being plural; the fact or condition of denoting, comprising, or consisting of more than one." The meaning of "plurality" is straightforward and clear. The court hereby defines the term "plurality of separate treatment stations" as meaning "*more than one* separate treatment stations."

3. "***A Gantry at Each Treatment Station***"

Claim 1 of the '287 patent recites "[a] proton beam therapy system comprising: *... a gantry at each treatment station* each rotatable about a different axis of rotation and carrying optics for receiving a proton beam on its axis of rotation...." (Rosenberg Decl. Ex. 1, the '287 patent at 14:1-18.) Plaintiff contends the term "a gantry at each treatment station" should be construed as "a gantry at more than one treatment station." (Optivus P. & A. at 11:5-7.) The court cannot accept Plaintiff's argument that "each" means "more than one." Defendant Ion Beam, on the other hand, proposes that "a gantry at each treatment station" be defined as "a gantry at all treatment stations." (Ion Beam P. & A. at 6:14-16.)

In support of its preferred construction, Plaintiff argues the term at issue, "a gantry at each treatment center," relates back to an earlier recited element in Claim 1-"a plurality of separate patient treatment stations each having a patient support." (Optivus P. & A. at 11:2-8; Optivus Opp'n at 9:11-18.) As the court has already found, *supra,* the term "a plurality of separate treatment stations" means "*more than one* separate treatment station." Plaintiff notes the claim terms of the '287 patent describe a system where there is more than one treatment station and each treatment station has a gantry. (*See* id.) As Plaintiff points out, however, this construction is plainly contradicted by Figure 1 in the '287 patent, depicting a "Stationary Beam Station" without a gantry in addition to several treatment stations with a gantry. (*See* Rosenberg Decl. Ex. 1 at Fig. 1:2:44-56; *and* Optivus P. & A. at 11:12-14.) Plaintiff insists the claim term "a gantry at *each* treatment station" takes on the meaning "a gantry at *more than one* treatment station" when considered in light of this drawing and in view of the earlier recited claim term "a plurality of treatment stations." (Optivus P. & A. at 11.) The court does not agree.

The term "each" clearly does not mean "more than one." According to the Random House Dictionary, the definition of "each" is "1. every one of two or more considered individually or one by one ... 2. every one

individually...." (Airhart Decl. Ex. H at 130.)

Similarly, the Oxford English Dictionary (2d ed.1989) defines the word "each" as meaning "every." Accordingly, the court hereby finds the contested claim term to mean **"a gantry at *every* treatment center" In a system where there is "a plurality" or "more than one treatment station."** (*See* Rosenberg Decl. Ex. 1, the '287 Patent at 14:1-24.)

Just as the court is unwilling to import limitations from the patent specification to limit the claim term "injector," the court declines Plaintiff's invitation to alter the meaning of the claim term "each" based on information found in the patent specification, or in this case, Figure 1 portraying a treatment station without a gantry in addition to stations with gantries in the '287 patent.FN9 "A second *caveat* [on claim construction] is that it is improper to eliminate or ignore (*i.e.,* "read out") a claim limitation in order to extend a patent to subject matter disclosed [in the specification] but not claimed." 5A DONALD S. CHISUM, CHISUM ON PATENTS s. 18.03[2][c][i] at 18-194 (2003) (citing Oak Technology, Inc. v. U.S. Int'l Trade Comm'n., 248 F.3d 1316, 1329 (Fed.Cir.2001.) In Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1562 (Fed.Cir.1991), the Federal Circuit commented:

FN9. The figures or drawings disclosed in a patent are part of the specification or description of the patented device. *See* 35 U.S .C. s. 113.

The statute requires that an inventor particularly point out and distinctly claim the subject matter of his invention. 35 U.S.C. s. 112 (1988). It would run counter to this statutory provision for an applicant for patent to expressly state throughout his specification and in his claims that his invention includes right angle corner border pieces and then be allowed to avoid that claim limitation in a later infringement suit by pointing to one paragraph in his specification stating an alternative that lacks that limitation, and thus interpret the claim contrary to its plain meaning. Such a result would encourage an applicant to escape examination of a more broadly-claimed invention by filing narrow claims and then, after grant, asserting a broader scope of the claims based on a statement in the specification of an alternative never presented in the claims for examination.

Unique Concepts, supra, 939 F.2d at 1562. Significantly, in Gart v. Logitech, Inc., 254 F.3d 1334, 1342 (Fed.Cir.2001) the Federal Circuit commented "drawings are not meant to represent "the" invention or to limit the scope of coverage defined by the words used in the claims themselves." FN10 The term "each" is not ambiguous. Accordingly, there is no reason to rely on the patent specification in order to clarify the meaning of the term. Schering v. Amgen Inc., 18 F.Supp.2d 372, 380 (D.Del.1998), *aff'd,* 222 F.3d 1347 (Fed.Cir.2000).FN11

FN10. At the same time, the court recognizes there is Federal Circuit precedent that could be construed as contrary:

a common meaning, such as one expressed in a relevant dictionary, that flies in the face of the patent disclosure is undeserving of fealty .... "Indiscriminate reliance on definitions found in dictionaries can often produce absurd results.... One need not arbitrarily pick and choose from the various accepted definitions of a word to decide which meaning was intended as the word is used in a given claim. The subject matter, the context, etc., will more often than not lead to the correct condusion.

Renishaw, supra, 158 F.3d at 1250 (citations omitted)

FN11. Defendant Ion Beam also argues that the prosecution history supports a rigid interpretation of "each"

meaning "every" in the context of the disputed claim term. (Ion Beam Opp'n at 4:11-22.) However, the cited passage from the prosecution history (Rosenberg Ded. Ex. 6 at p. .56) does not dearly take a position foreclosing Plaintiff's proffered construction.

As the *Renishaw* court explains "where there are several common meanings for a claim term, the patent disclosure serves to point away from the improper meanings and toward the proper meaning." *Id*. In the instant case, it appears Figure 1 in the '287 patent plainly contradicts the claim term "a gantry at *each* treatment station"-giving rise to the question that, in the context of the '287 patent, "each" does not necessarily mean "every." (*Compare* Rosenberg Decl. Ex. 1, the '287 Patent at p. 2 Fig. 1; *and* the '287 Patent at 14:14.) It is possible the patentees or counsel for the patentees made a careless mistake. (*See id*.) Given the context of the claim terms, there is only one possible definition for the word "each," and the patent specification does not dearly show the patentees elected to be their own lexicographer. Accordingly, the court has little choice but to hold the contested claim term to mean **"a gantry at *every* treatment center" in a system where there is "a plurality" or "more than one treatment station."** (*See* Rosenberg Decl. Ex. 1, the '287 Patent at 14:1-24.)

4. "*An Operator Controllable Means*"

Claim 1 recites the following "means plus function" FN12 element:

FN12. The parties agreed the claim term in question is a "means plus sfunction" element. (Stip. Claim Constr. at 1-2.)

a control system for the proton beam therapy system induding *an operator controllable means* for (1) selectively switching the first switching magnet between its first and second states and (2) controlling the rotational position of the first gantry to direct the proton beam exiting the first switching magnet in its first state to the target isocenter for the first treatment station along one or more controlled angles. (Rosenberg Decl. Ex. 1, the ' 287 Patent at 14:32-40; *emphasis added*.)

The parties agree "[t]his limitation is a means plus function claim element that invokes 35 U.S.C. s. 112 para. 6." FN13 (Stip. Claim Constr. at 1-2.) The first step in construing a means-plus-function limitation is to identify the function explicitly recited in the claim. Asyst Techs., Inc. v. Empak, Inc., 268 F.3d 1364, 1369 (Fed.Cir.2001). The functions described in this limitation are (1) selectively switching the first switching magnet between its first and second states; and (2) controlling the rotational position of the first gantry to direct the proton beam exiting the first switching magnet in its first state to the target isocenter for the first treatment station along one or more controlled angles (hereinafter referred to as "function (1)" and "function (2).") (Stip. Claim Constr. 2:3-15.)

FN13. The sixth paragraph of section 112 provides "[a]n 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." 35 U.S.C. s. 112.

After identifying the function, "[t]he next step is to identify the corresponding structure set forth in the written description that performs the particular function set forth in the claim." Asyst Techs., supra, 268 F.3d at 1369. The parties do not agree as to the definition of the corresponding structure. Plaintiff Optivus

contends "the structure disclosed in the patent for performing both of these functions is a control computer, a distributed microprocessor based system with interface circuitry, or other such logic based electronic control equipment that initiates commands or signals and includes an operator interface and at least one output in communication with the first switching magnet and the first gantry." (Optivus P. & A. at 12:1-5.) Defendant Ion Beam, on the other hand, proffers the following construction for function (1), described *supra:*

A computer control system consisting of multiple local stations and a central computer networked together on a Local Area Network ("LAN") using the Token Ring protocol standard. Each local station uses a Motorola 680000 processor and VMEbus hardware, and contains a CPU card, network adapter, RAM card, and analog and binary I/O interface cards. The central computer is a MASSCOMP computer, and includes disks and printers. A binary control for energizing a contractor that activates or deactivates a power line to a direct power current supply to energize or de-energize the switching magnet. (Ion Beam P. & A. at 9:4-13.)

In addition, Ion Beam proposes a nearly identical definition for the second function. (*Id*. at 9:18-10-1.) The only difference between Defendant's proffered definitions for function (1) and function (2) is the last sentence is omitted in the definition of the structure for the second function. (*Id*.) It is apparent that in proffering these constructions Ion Beam extracted and utilized as much detail as possible from the description of the '287 patent. (*Compare* id.; *and* the '287 Patent at 6:1-33.)

The court turns to the written description in order to determine the structure at issue. Asyst Techs., 268 F.3d at 1369. "Section 112 paragraph 6 does not 'permit incorporation of structure from the written description beyond that necessary to perform the claimed function.' " *Id*. (quoting Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1257-58 (Fed.Cir.1999)). "Structural features that do not actually perform the recited function do not constitute corresponding structure and thus do not serve as claim limitations." *Id*. (citing Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc., 145 F.3d 1303, 1308-09 (Fed.Cir.1998)). Significantly, the Federal Circuit in McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1347 (Fed.Cir.2001) emphasized "[d]rafters of means-plus-function claim limitations are statutorily guaranteed a range of equivalents extending beyond that which is explicitly disclosed in the patent document itself." McGinley, supra, 262 F.3d at 1347 (citing 35 U.S.C. s. 112 para. 6); *see also* Vulcan Engineering Co. Inc. v. Fata Aluminium, Inc., 278 F.3d 1366, 1376 (Fed.Cir.2002). "When the claims include means-plus-function terms in accordance with s. 57 Or. 541, 112 P. 6, claim scope necessarily is not limited to the preferred embodiments, but includes equivalents thereof." Vulcan Engineering, supra, 278 F.3d at 1376 (Fed.Cir.2002).

During the hearing for the instant Motion (Hr'g. Tr. at 49-50), the court inquired of counsel for both parties whether the decision of the *McGinley* Court forecloses Defendant Ion Beam's proffered construction, because it appears that in drafting the definition of the corresponding structures, Ion Beam has merely summarized or restated as closely as possible, a passage from the text of the '287 patent description. (*Compare* Ion Beam P. & A. at 9:4-13; *and* the '287 Patent at 6:1-33); *see also* McGinley, 262 F.3d at 1347. Counsel for Ion Beam responded to the court's inquiry by citing *Asyst Techs., supra,* for the unremarkable proposition that "a structure must be linked to the function found in the specification." FN14 (Hr'g. Tr. at 50.)

FN14. Counsel for Ion Beam also referred the court to "the dissent" in Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 908 (Fed.Cir.2004). The court cannot find the passage quoted by counsel in Liebel-Flarsheim, supra, 358 F.3d at 908. It is unclear how the cited passage from *Liebel-Flarsheim* is relevant to the question

posed by the court, or how it helps Ion Beam's case. Indeed, the 358 F.3d at 908 seems to hold the term "injector" should not be limited by language in the patent specification. *See id*. Counsel later clarified himself, stating that he was referring to Toro Co. v. White Consol. Indus., 199 F.3d 1295, 1301 (Fed.Cir.1999). (Hr'g. Tr. at 69.) In Toro Co., 199 F.3d at 1301, the court stated the following rule: "[i]t is well established that the preferred embodiment does not limit broader claims that are supported by the written description." Nevertheless, in *Toro Co.,* the court adopted a narrow reading of the claim terms at issue. In a subsequent decision the federal circuit explained: "this court interpreted the pertinent claim language narrowly [in *Toro Co*.], not merely because the specification did not describe a broader embodiment, but because the specification, claim, or prosecution history made clear that the invention was limited to a particular structure. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 908 (Fed.Cir.2004) (*citing* Toro, 199 F.3d at 1301). In the instant case, the court does not find any reason to depart from the normal rule by adopting a narrow reading of claim terms.

Returning to means plus function analysis:

Congress decided to permit broad means-plus-function language, but provided a standard to make the broad claim language more definite. The 1952 Patent Act included a new section 112. This new language permits a patent applicant to express an element in a combination claim as a means for performing a function. The applicant need not recite structure, material, or acts in the claim's means-plusfunction limitation....

Valmont Industries, Inc. v. Reinke Mfg. Co., 983 F.2d 1039, 1042 (Fed.Cir.1993). The second clause of 32 U.S.C. s. 112 para. 6 "confines the breadth of protection otherwise permitted by the first clause." *Id*. "The applicant must describe in the patent specification some structure which performs the specified function. Moreover, a court must construe the functional claim language 'to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.' " *Id*. (quoting 35 U.S.C. s. 112).

Accordingly, the court hereby defines the structure for both functions as a **"control computer, a distributed microprocessor based system with interface circuitry, or other such logic based electronic control equipment that initiates commands or signals and includes an operator interface and at least one output in communication with the first switching magnet and the first gantry."**

B. *THE* '581 PATENT

The'581 patent describes "[a] method for treatment room selection verification in a radiation beam therapy system." (Rosenberg Decl. Ex. 2, the ' 581 Patent at 9:1-2.)

1. "*Switchyard*"

According to Claim 1 of the '581 patent, the technology at issue comprises a "radiation beam source, beam accelerator, plurality of treatment rooms and a *switchyard* for directing accelerated beam from the accelerator to a selected ... treatment room[ ]." (*Id*. at 9:2-7.) Plaintiff relies on standard dictionary definitions to arrive at the following construction for the term "switchyard": "systems of devices by which the beam is transported along one of a plurality of paths." (Optivus P. & A. at 13:19-20.) Defendant, on the other hand, argues the patentees specifically defined the term "switchyard" in the patent specification. (Ion Beam Opp'n at 6:5-7.) Ion Beam relies on extrinsic expert testimony from Dr. Lennox to formulate its own definition: "[t]he set of transport line equipment including all switching magnets, dipole magnets, and quadruple magnets which direct the beam from the accelerator to delivery in the treatment room." (Ion

Beam P. & A. at 14:3-5.) Once again, as in its construction of the claim terms at issue in the '287 patent, Defendant Ion Beam adopted a very narrow construction, limiting the patent at issue to a narrow set of highly specific parameters. (*See* id.) Plaintiff's rebuttal expert, Dr. Lundy, responds that the construction should not be limited to specific types of magnets as Dr. Lennox proposes.

Once again, the court turns first to the language of the claims and the common meaning of the claim terms before reviewing the specification to see if the patentees have specially defined any claim terms. Vitronics, 90 F.3d at 1582. "In construing claims, the analytical focus must begin and remain centered on the language of the claims themselves." *Texas Digital Systems,* 308 F.3d at 1331. "The terms used in the claims bear a 'heavy presumption' that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art." *Id*. Dictionaries and technical treatises are always available to the court to aid in the task of determining meanings that would have been attributed by those of skill in the relevant art *See id*. (citing Vitronics, 90 F.3d at 1584 n. 6; *and Cybor Corp*., 138 F.3d at 1459.)

Random House Dictionary of the English Language ("Random House") defines "switchyard" as "a railroad yard in which rolling stock is distributed or made up into trains[.]" (Airhart Decl. Ex. H, p. 145.) Similarly, the American Heritage Dictionary (4th ed.2000) defines the term as "[a]n area where railroad cars are switched and trains assembled." The Webster's New Universal Unabridged Dictionary ("Webster's Unabridged") defines "switchyard" as: "a railroad yard where cars are shifted from one track to another by means of a system of switches as in making up trains." (Airhart Decl. Ex. L. at 193.) The Oxford English Dictionary includes a similar definition, but adds the following: "an enclosed area of a power system which contains the switchgear." Oxford English Dictionary (2d ed.1989). The definition found in the Oxford English Dictionary plainly indicates the "term" switchyard is equally applicable to a "power system," and not just locomotives. *See id*.

Turning to the patent specification, the description in the '581 patent teaches an "illustrated beam handling system ... [that] also includes a switchyard 6 comprising four switching magnets 38, 40, 42, and 44." (Rosenberg Decl. Ex. 2. the 581 Patent at 2:40-43; *see also* Ex. 3, the '642 Patent at 4:47-48.) Figure 1 is a rendering of the entire system, including the switchyard. (*Id*. at p. 2.) The description recounts four switching magnets comprising the switchyard. Each has two states. (*Id*. at 2:40-45.) Figure 1 depicts the same. The switching magnets are arranged in a line with switching magnet 44 downstream from switching magnets 42, 40 and 38. (*See, e.g., id*. at p. 2, Fig. 1.) The beam leaves the synchotron and encounters the first switching magnet, numbered 38. (*See id.; id*. at 2:40-50; *see also* Ex. 3 at 4:40-50) With the switching magnet in the first state, it will bend and deliver the beam to the first treatment station. (*Id.; see also* Ex. 3 at 4:52-55.) In the second state, the switching magnet will let the beam travel "downstream" to the next switching magnet in the switchyard. (*Id*. at 2:49-55; *see also* Ex. 3 at 4:52-55.) In other words, each switching station operates just like a switch on a train track-it either diverts the beam to a side track, or allows it to continue traveling down the same track toward a selected treatment room. (*See id*.) Accordingly, it is apparent that the term "switchyard" does not really have any special technical meaning in the context of the '642 patent. (*See* id.) It is akin to "a switchyard" as that term is generally understood.

Technical glossaries FN15 confirm this conclusion. The Fermilab website defines "switchyard" as "a transfer beam line that will direct beam coming from the Main Injector to the Meson fine in the fixed target area." *Available at* http://www.fnal.gov/pub/news03/ definitions/switchyard.html. The Stanford Linear Accelerator Center ("SLAC"), originally constructed in 1962, defines the term "Switchyard" as follows: "When the electrons and positrons reach the end of the linac and enter the Beam Switch Yard (BSY), they are diverted in different directions by a powerful dipole magnet and travel into storage rings, such as

SPEAR or PEP, or into other experimental facilities, such as Final Focus Test Beam (FFTB) or the arcs of SLC-the SLAC Linear Collider." *Available at* http:// www2.slac.stanford.edu/vvc/accelerators/bsy.html.

FN15. The court hereby takesn judicial notice of the SLAC and Fermilab websites, and the technical glossaries embedded therein.

Turning to the extrinsic evidence supplied by Defendant Ion Beam, Dr. Lennox draws the court's attention (Lennox Decl. at para. 42) to a Fermilab publication entitled *Conceptual Design of a Proton Therapy Synchotron for Loma Linda University Medical Center* (1986). (Rosenberg Decl. at Ex. 7.) That article includes the following definition: "The switchyard transports protons from the accelerator to the start of the individual dedicated beam lines leading to the separate beamspreading systems. An element is defined to be a part of the switchyard if two or more treatmont-room beam lines use it. Otherwise, the element will be part of a dedicated treatment-room beam line." (Rosenberg Decl. Ex. 7 at p. 68 of 74.) In light of this article, it is difficult to see how the term "switchyard" is being used any differently than the common dictionary meaning. (*See* id.) The article simply describes a system where, like a train "switchyard," a single track of proton beams is fed into a "switchyard" where it then is diverted on to one or another track leading to one of the treatment rooms.FN16 (*See* id.)

FN16. *See also* Wanzenberg R., *A Fast Switchyard For the Telsa-Fel Beam Using a Superconducting Transverse Mode Cavity,* 20th International Linear Accelerator Conference, Monterey, CA (2000).

Accordingly, the court hereby finds the term "switchyard" to mean **"a series of switches** FN17 **that bend or otherwise divert the proton beam emanating from the accelerator in one of two directions; that is, the beam is either diverted toward a treatment station or sent on to the next switch in the yard."**

FN17. *See* Webster's Third New International Dictionary (1993) at 226 (defining "switch": "to turn from one railroad track to another: transfer by switch .... to shift to another electrical circuit by means of a switch.")

2. "***A Beam Request Signal***"

Claim 1 sets forth:

a switchyard for directing accelerated beam from the accelerator to a selected one of the treatment rooms, the method comprising the steps of: (a) receiving a *beam request signal* from one or more of the treatment rooms;

(b) verifying the authenticity of one of the beam request signals from one of the treatment rooms; and

(c) authorizing beam transport to one of the treatment rooms.

(Rosenberg Decl. Ex. 2, the 581 Patent at 9:3-13.)

Plaintiff argues the disputed claim term "a beam request signal" should be construed in light of its ordinary meaning and offers the following construction: "a detectable message indicating a desire for the beam."

Defendant Ion Beam, on the other hand, argues the contested claim term is indefinite (Ion Beam P. & A. at 11-12). In addition, Ion Beam offers the following definition for the term "beam request signal": "computer generated data identifying the origin of the request and requesting that a beam be initiated and sent to the requesting treatment room." (Ion Beam P. & A. at pp. 12-13.)

As a preliminary matter, it is not immediately clear why Ion Beam would declare the term "beam request signal" is indefinite. The claim term is made up of three common words. Putting those words together does not obfuscate meaning. The phrase "beam request signal" is not indefinite and Ion Beam does not put forward any justification, aside from the conclusory opinion of its expert, to support the determination that the claim term is indefinite.FN18 (*See* P. & A. at 11-12.)

FN18. Ion Beam's argument is flawed for several reasons. "Indefiniteness must be determined by the facts in each case, not be some abstract rule. Georgia-Pacific Corp. v. United States Plywood Corp., 258 F.2d 124, 136 (2d Cir.), *cert. denied,* 358 U.S. 884, 79 S.Ct. 124, 3 L.Ed.2d 112 (1958). Because the terms at issue in the instant matter are readily understood in the context of their plain and ordinary meaning, it is clear that a person skilled in the art would understand what these words mean. *See id*. Finally, it would probably be erroneous to allow the conclusory opinions of defendant's expert to trump the plain meaning of claim terms. *See* Texas Digital Systems, 308 F.3d at 1204.

The meaning of "beam" in the context of the instant set of patents is dear-it means proton beam. The term "request" is equally straightforward, meaning "an asking for, or expressing a desire for, something[.]" (*See, e.g.,* Airhart Decl. Ex. L, Webster's Unabridged Dictionary at p. 188.) Random House defines the term "signal" as "anything that serves to indicate, warn, direct, command, or the like, as a light, a gesture, an act, etc.: *a traffic signal; a signal to leave*. 2. anything agreed upon or understood as the occasion for concerted action. 3. an act, event or the like that causes or incites some action...." (Airhart Decl. Ex. H. at 144.) Webster's Third New International Dictionary ("Webster's Third") defines the term in a similar way (*See* Airhart Decl. Ex. N. at 226) and adds the following: "a detectable physical quantity or impulse (as a voltage current, magnetic field strength) by which messages or information can be transmitted[.]" (*Id*. at 225.) The American Heritage Dictionary (4th ed.2000) concurs with this definition of the term "signal": An indicator, such as a gesture or colored light, that serves as a means of communication.... A message communicated by such means.

Something that incites action: *The peace treaty was the signal for celebration*. *Electronics*. An impulse or a fluctuating electric quantity, such as voltage, current, or electric field strength, whose variations represent coded information. The sound, image, or message transmitted or received in telegraphy, telephone, radio, television, or radar.

AMERICAN HERITAGE DICTIONARY (4th ed.2000); *see also* OXFORD ENGUSH DICTIONARY (2d ed.1989). Accordingly, the court hereby finds ordinary meaning of the disputed phrase to be **"a detectable message indicating a desire for the beam."**

3. "*Verifying" and Authenticity*

Again, Claim 1 of the '581 patent recites the following: "a switchyard for directing accelerated beam from the accelerator to a selected one of the treatment rooms ... comprising the steps of: (a) receiving a beam request signal from one ... treatment rooms; (b) *verifying the authenticity* of one of the beam request signals

from one of the treatment rooms. (Rosenberg Decl. Ex. 2, the '581 Patent at 9:9-10.) Plaintiff argues the terms " 'Verifying' and 'authenticity' have well understood ordinary meanings." (Optivus P. & A. at p. 15.) Relying on common dictionary definitions and intrinsic evidence, Plaintiff Optivus offers the following definition for the term at issue, Claim 1 step (b): "to confirm that one of the beam request signals from one of the treatment rooms is a valid request for the beam." (Optivus P. & A. at 15-16.)

Defendant, on the other hand, contends the term "verifying" is indefinite. (Ion Beam P. & A. at 12:16-19; *see also* Lennox Decl. at para. 37.) Defendant Ion Beam's argument is conclusory and relies exclusively on the summary opinion stated by Dr. Lennox. (*See id*.) Moreover, Defendant Ion Beam suggests elsewhere that a similar term, namely "confirming," is perfectly clear. (*See id*. at 14:23-25.) Indeed, Ion Beam proffers the following definition of the disputed claim term: "confirming by comparison that at least the beam request signal is in agreement with another signal or value indicating the origin of the requesting treatment room." (*Id*.) Comparing the alternate definitions offered by Plaintiff Optivus and Defendant Ion Beam, it appears that both parties have simply replaced the claim term "verifying" with the word(s) "to confirm" or "confirming." (*Compare id.; and* Optivus P. & A. at 15-16.) Accordingly, the parties seem to agree that "verifying" means "confirming." FN19 (*See id*.)

FN19. Defendant Ion Beam insists that "verifying" means "confirming by comparison." (Ion Beam P. & A. at 14-15.) However, the notion of "comparison" nowhere appears in the actual claim terms. Ion Beam asks the court to import the limitation of "comparison" from the patent specification. But that would probably be reversible error. *See, e.g.,* Texas Digital Systems, 308 F.3d at 1204. The term is not ambiguous. Accordingly, there is no reason to resort to the patent specification in order to clarify the meaning of the term. Schering v. Amgen Inc., 18 F.Supp.2d 372, 380 (D.Del.1998), *aff'd,* 222 F.3d 1347 (Fed.Cir.2000). Moreover, there is nothing in the patent specification suggesting the court must import the limitation "by comparison" to qualify the term "verifying." The '581 patent sets out, in the summary of the patent, the following language: "The verification and authorization steps *may* comprise comparing the beam request signals with a beam path...." (Rosenberg Decl. Ex. 2, the '581 Patent at 1:39-41, *emphasis added; see also* the '581 Patent at 5:44-6:50.) If the patentees wanted to introduce such a limitation, they would have used more definite language, as they did in Claim 2 of the ' 581 patent: "The method of claim 1 wherein steps (b) and (c) comprise *comparing* the beam request signal with a beam path configuration signal." (*Id*. at 9:13-15.)

This construction is otherwise confirmed by common dictionary definitions. Webster's Third, for example, defines "verify" as "to confirm or establish the authenticity or existence of by examination, investigation, or competent evidence." (Airhart Decl. Ex. N at 232.) The following definition is found in the American Heritage Dictionary of the English Language (4th ed. 2000): "To determine or test the truth or accuracy of, as by comparison, investigation, or reference: ... See Synonyms at *confirm*." *Available at* http://dictionary.reference.com/search?q=verifying. Moreover the Oxford English Dictionary includes the following definition: "In general use: To testify to, to assert, to affirm or confirm, as true or certain." OXFORD ENGUSH DICTIONARY (2d. ed.1989). Accordingly, the court finds the meaning of the term "verifying" is abundantly clear and it means **"to confirm or establish the authenticity, truth or accuracy."** In the context of Claim 1 step (b), the court hereby adopts the following construction: **"to confirm or establish the authenticity of one of the beam request signals from one of the treatment rooms."**

4. "***Authenticity***"

Defendant Ion Beam refers the court to the following dictionary definitions of the term "Authenticity": "the condition or quality of being authentic, trustworthy, or genuine" and "having an undisputed origin; genuine." (Ion Beam P. & A. at 16:3-11.) Plaintiff Optivus does not disagree with this definition. (Optivus Opp'n at 13-14.) Accordingly, the entire phrase of Claim 1 step (b) is hereby constructed as **"to confirm or establish the genuine or trustworthy nature of one of the beam request signals from one of the treatment rooms."**

5. "*Authorizing*"

Step (c) of Claim 1 recites: "authorizing beam transport to one of the treatment rooms." FN20 (Rosenberg Decl. Ex. 2, the '581 Patent at 9:10-12.) "Authorizing" is defined in the Oxford English Dictionary as "the-giving of authority; sanctioning." *Id*. Random House gives the following definition: "to give authority for; formally sanction[.]" (Airhart Decl. Ex. H at 121.) The American Heritage Dictionary defines "authorize" as follows: "[t]o give permission for, sanction." AMERICAN HERITAGE DICTIONARY (4th ed.2000.) Defendant Ion Beam proffers the following construction of the disputed term: "*issuance of computer generated data permitting* beam transport." However, the court finds no reason to import this limitation to the claim terms.

FN20. The entire claim reads as follows: Claim 1 of the '581 patent recites the following: "a switchyard for directing accelerated beam from the accelerator to a selected one of the treatment rooms ... comprising the steps of:
(a) receiving a beam request signal from one ... treatment rooms;

(b) *verifying the authenticity* of one of the beam request signals from one of the treatment rooms; and

(c) authorizing beam transport to one of the treatment rooms.

(Rosenberg Decl. Ex. 2, the '581 Patent at 9:1-12.)
Ion Beam offers the following definition, taken from a technical treatise, in support of its construction: "**authorization** The process of verifying that a user or process has permission to use a resource in the manner requested." (Rosenberg Decl. Ex. 24, IEEE 100 THE AUTHORITATIVE DICTIONARY OF IEEE STANDARD TERMS (7th ed.2000). But that definition does not mention "issuance of computer generated data." (*See id*.) Indeed, in the context of the contested claim language, it more closely supports Plaintiff Optivus' construction. Therefore, the disputed claim term is hereby defined as follows: **"to permit beam transport to one of the treatment rooms."**

6. *Terms at Issue in the Second Claim*

Moving on to Claim 2 of the '581 patent, the parties dispute the meaning of the following claim terms: "comparing," "beam path configuration signal," and "agreement." (*Compare* Optivus P. & A. at 17; *and* Ion Beam P. & A. at pp. 17-18.) In its entirety, Claim 2 states: "The method of claim 1 wherein steps (b) and (c) comprise *comparing* the beam request signal with a *beam path configuration signal* from the switchyard

and authorizing beam transport upon *agreement* of the signals." (Rosenberg Decl. Ex. 3, the '581 Patent at 9:13-17.)

(a) "Beam Path Configuration Signal"FN21

FN21. The court begins with this term for greater ease. It is easier to first define the objects of comparison before discussing the definition of the term "compare."

The definition of "beam path" is straightforward: "a route, course or track upon which the proton beam moves." (*See, e.g.,* Airhart Decl. Ex. H, Random House at 137.) The common dictionary definition of "configuration," according to Random House, is "the relative disposition or arrangement of the parts." (*Id.* at 127 .) Similarly, the Oxford English Dictionary defines "configuration" as an "[a]rrangement of parts or elements in a particular form or figure; the form, shape, figure, resulting from such arrangement; conformation; outline, contour," or an "[a]rrangement of elements; physical composition or constitution." OXFORD ENGLISH DICTIONARY (2d ed.1989). Parts or elements may also be described as "physical properties." *Id.* The Oxford English Dictionary explains the term is used in that manner by physicists when describing "configurations" and quantum mechanical relations of sub-atomic matter. *Id.* The court finds the definition of beam configuration to be the "arrangement of parts, elements or physical properties of the beam." (*See id.*) Signal means "a detectable message," supra. Accordingly, the p lain language of the contested cl aim term appears to mean "a detectable message indicating the arrangement of beam elements or physical properties FN22 of the beam, as well as the course upon which the beam is moving." FN23

FN22. Defendant Ion Beam should not disagree with this construction because they elsewhere use the term "physical properties" in defining the term "beam configuration." (*See* Ion Beam P. & A. at 18:17-18.)

FN23. Defendant Ion Beam's proffered definition-"computer generated data indicating the physical properties of the beam requested"-is hereby rejected for the same reason the court rejected Defendant's proffered definition of the term "beam request signal."

This meaning is confirmed by reference to the '581 patent specification, which explains a "beam path configuration signal .... may be generated by detectors or monitors for the various magnets included in the switchyard." (Rosenberg Decl. Ex. 2, the '581 Patent at 5:32-35.) The '581 patent specification elaborates: "[the] switchyard beam path configuration signal is indicative of and provides data corresponding to the path of the treatment beam from the accelerator through the switchyard to one of the treatment rooms." (*Id.* at 5:39-43.) Further, the patent explains, "if it is so desired that the beam reaching the treatment rooms be of a particular configuration ..., beam configuration request signals may also be generated by the operators in a similar manner to indicate, for example, a desired beam intensity, duration and energy." (*Id.* at 6:8-15.) The specification continues: "such treatment room beam request and beam configuration request signals are received and compared with the ... beam path ... configuration signals." (*Id.* at 6:15-18.) In other words, monitors and detectors in the switchyard detect the "make up," "configuration," or "arrangement of components" of the beam as it passes through the switchyard, possibly sending messages regarding the intensity, energy and duration of the beam. (*See id.* at 5:25-6:18.) The messages include information about the beam path. (*See id.*) The messages are received and compared with the beam request signals. (*Id.* at 6:15-20.) In sum, the general character of the beam-its intensity, duration and path-is measured by monitors

in the switchyard, and those measurements are then compared to the requests coming from the control room. (*See id*.) Accordingly, the term 'beam path configuration signal" is hereby constructed as **"a detectable message indicating the physical properties of the beam, as well as the course upon which the beam is moving."**

(b) "Comparing"

Defendant Ion Beam argues the claim term "comparing" is indefinite. (Ion Beam P. & A. at 12:8-14.) Ion Beam cites Union Pac. Resources v. Chesapeake Energy Corp., 236 F.3d 684, 692 (Fed.Cir.2001) to support its argument that the term "comparing" is indefinite. "Whether a daim is invalid under 35 U.S.C. s. 112, P2 for indefiniteness is a question of law reviewed *de novo*." *Id*. (citing Personalized Media Communications, LLC v. Int'l Trade Comm'n, 161 F.3d 696, 702 (Fed.Cir.1998)). "The definiteness inquiry focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the rest of the specification." *Id*. (citing Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1576 (Fed.Cir.1986). "Even if the written description does not enable the claims, the claim language itself may still be definite." *Id*. (citing In re Hyatt, 708 F.2d 712, 714-15 (Fed.Cir.1983)). "The amount of detail required to be induded in claims depends on the particular invention and the prior art, and is not to be viewed in the abstract but in conjunction with whether the specification is in compliance with the first paragraph of section 112: 'If the claims, read in the light of the specifications, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as predse as the subject matter permits, the courts can demand no more.' " GeorgiaPacific Corp. v. United States Plywood Corp., 258 F.2d 124, 136, 118 USPQ122, 132 (2d Cir.), *cert. denied,* 358 U.S. 884, 79 S.Ct. 124, 3 L.Ed.2d 112 (1958), *cited with approval in* Chemcast Corp. v. Arco Industries Corp., 854 F.2d 1328 (Fed.Cir.1988).

Although the *Union Pac. Resources* court held the term "comparing" to be indefinite, the court in Georgia-Pacific Corp., 258 F.2d at 136 explained "[o]bjectionable indefiniteness must be determined by the facts in each case, not by reference to an abstract rule." Id. (*emphasis added*). "Patentable inventions cannot always be described in terms of exact measurements, symbols and formulae, and the applicant necessarily must use the meager tools provided by language, tools which admittedly lack exactitude and precision." *Id*.

In Union Pac. Resources, supra, 236 F.3d at 692, the court found the patentee failed to enable the patent, and the patent term "comparing" was void for indefiniteness.FN24 Id. at 690-92. In *Union Pac. Resources,* the Federal Circuit found an oil drilling company failed to enable its method for calculating the location of a borehole because it failed to disclose all information about the computer programs used to perform the calculation. *Id*. The *Union Pac. Resources* court made the following observations:

FN24. As CHISUM explains, "definiteness" and "enablement" are not the same thing: "Definiteness means that the language of the claims must clearly set forth the area over which the applicant seeks exclusive rights. Enablement means that the specification must describe the manner of making and using the invention in such clear terms as to enable any person skilled in the art to make and use it." 3 DONALD S. CHISUM, CHISUM ON PATENTS s. 8.03[2][a] at 8-24 (2003). The primary purpose of the definiteness requirement is "to provide clear warning to others as to what constitutes infringement of the patent A secondary purpose is to provide a dear measure of the invention." *Id*. at s. 8.03, 8-18.

According to the claims, the method for determining the location of a borehole relative to strata (or in the earth) comprises a step of "comparing" characterizing information. The precise meaning of the term

"comparing" is not explained in the written description. The patent suggests, however, that "comparing" (which incorporates "rescaling" in Claim 1) involves the determination of TSD by correlation. As explained during trial, correlation is a process of stretching and squeezing a TVD log by carefully choosing assumed bed dip angles, until a portion of the TVD log matches a portion of the offset log. In other words, the "comparing" step presumably refers to a complex "correlation" step suggested (but not explained) in the written description.
Yet "comparing" could undoubtedly have other meanings to a person of skill in the art. For example, because the patent does not indicate that it is a technical or scientific term, the term "comparing" could simply mean "to examine in order to note the similarities or differences of." The American Heritage College Dictionary 283 (3d ed.1997). Nothing in the specification describes "comparing" (or "rescaling") as a process of stretching and squeezing a TVD log by carefully choosing bed dip angles. Thus, the '961 patent does not define the means to "compare" the two sets of characterizing information. The district court correctly found that the "comparing" steps in claims 1 and 6 are indefinite.

Id. at 692. The instant case is distinguishable from *Union Pac. Resources* on several grounds. First, there is no "complex correlation step" suggested (but not explained) in the instant patent specification. Rather, the specification states that the data generated by switching magnet monitors and detectors is compared with data representing the type of beam requested by an operator. (*See* Rosenberg Decl. Ex. 2, the '518 Patent at 5:25-6:18.) Secondly, there is no reference to "reseating" in the instant case, or any other similarly confusing cross-reference for the term "compare." (*See id*.)
The court in *Union Pac. Resources* was dealing with a more complex procedure than the one at issue in the instant case. For example, the *Union Pac. Resources* court complained about the indefiniteness of the word "compare" because, *inter alia,* "the patent does not explain that stretching and squeezing of the borehole log, as well as significant trial and error, are necessary to correlate (*i.e.,* "compare" and "rescale") the logs. Nor does the patent describe how to select sections of the borehole log to stretch or squeeze, or how to select points to correlate." Union Pac. Resources, 236 F.3d at 691. In the instant case, on the other hand, the term "compare" refers to the comparison of two sets of data to see if they are in "agreement."

A patentee need not disclose the underlying source code or computer program that actually structures and performs the comparison. *See id.; see also* Dan Burk and Mark Lemley, *Is* Patent Law Technology-Specific?, 17 Berkeley Tech. L.J. 1155, 1164 (2002). In the instant case, it is difficult to imagine how the patentee could be more specific without disclosing the code or including actual software program used to perform the comparison. Accordingly, the court hereby finds the claim term "comparing" is sufficiently definite as used in the context of the '581 patent. It means, **"to examine, check or note similarities or differences between two things."** (*See, e.g.,* Airhart Decl. Ex. H. at 125; *compare* Optivus P. & A. at 17:14-15, and Ion Beam P. & A. at 17:10-11.)

***(c)* "*Agreement*"**

Plaintiff cites numerous general dictionaries to support its argument that the meaning of "agreement" is "to be in accord." (Optivus P. & A. at 18-19.) Defendant proffers "equality between signals" as the definition of "agreement" but offers a dictionary definition that does not support that definition. (Ion Beam P. & A. at 18:4-16.) Defendant cites the American Heritage Dictionary, which defines "agreement" as "the act of agreeing." (Id.) Defendant also argues that the added limitation of "equality between signals" be introduced from the patent specification and the extrinsic testimony of Dr. Lennox. (*See* id. at 18.) The court however, finds the meaning of the term "agreement" to be sufficiently clear and hereby defines the term to mean **"to be in accord."**

Combining the terms at issue in Claim 2 of the '581 patent, the disputed claim term "steps (b) and (c) comprise *comparing* the beam request signal with a *beam path configuration signal* from the switchyard and authorizing beam transport upon *agreement* of the signals" (the '581 Patent at 9:13-17) is hereby constructed to mean "***examining or checking* the beam request signal** FN25 **against the *message sent from the switchyard indicating the course of the beam and physical properties of the beam*** (**'switchyard message') and permitting beam transport if the beam request signal and switchyard message are in accord.**"

FN25. The term "beam request signal" means "a detectable message indicating a desire for the beam," *supra*.

7. *Claim Six*

Claim 6 of the '581 patent recites: "(a) receiving a plurality of *input signals* comprising beam requests from the treatment rooms and a beam path configuration signal from the switchyard identifying a beam path through the switchyard to one of the treatment rooms; (b) comparing the input signals to verify the authenticity of a request from a selected one of the treatment rooms; and (c) in response to such verification, allowing beam transport to the selected treatment room." (Rosenberg Decl. Ex. 2, the '581 Patent at 9:37-102.) Plaintiff offers the following definition of the terms "input signals": "detectable messages that convey information." The other claim terms have already been construed or are undisputed. (*See* Ion Beam Opp'n at 10:8-14.) Defendant Ion Beam, on the other hand, suggests the term "input signals" be constructed as "detectable messages that are entered into a computer for processing."

As already discussed, the term "signal" means "detectable message," and that point is not disputed. (*Compare id.; and* Optivus P. & A. at 19:28-20:2.) Plaintiff offers the following definitions in support of its argument: (1) Microsoft defines input as "information entered into a computer for processing (Airhart Decl. Ex. P. at p. 246.); (2) Random House defines the word to mean data to be entered into a computer for processing. (*Id.,* Ex. H at p. 132.1.) Random House also includes the following definitions: "something that is put in 2. the act or process of putting in." (*Id.*) Turning to the specification, the term "input signal" is discussed in the following context "A method of including the generation and reception of a plurality of different input signals and the processing of such signals in a treatment room selection verification system .... a more specific method of the present invention includes a step of generating in the treatment rooms, treatment room beam request signals and beam configuration request signals." (Rosenberg Decl. Ex. 2, the '581 Patent at 5:65-6-4.) Because the claim term is used in the specification in a manner consistent with the Microsoft definition, the court hereby defines the term "input signals" to mean **"detectable messages that are entered into a computer for processing."**

8. *Claim Seven*

The seventh claim of the '581 patent states "[t]he method of claim 6 wherein the input signals further include *beam configuration request signals* from the treatment rooms and a *beam configuration signal* from the accelerator and the comparing of the input signals verifies the authenticity of the requests from the selected treatment room." (*Id.* at 10:8-14.)

(a) "Beam Configuration Sional"

As discussed earlier, the term "beam configuration" means the "arrangement of parts, e lements or physical properties of the beam ." Signal means "a detectable message." Accordingly, the claim term is hereby constructed as **"a detectable message conveying information about the arrangement beam elements or physical properties."** *supra*.

(b) "Beam Configuration Request Signals"

The term "request" has already been defined as "an asking for" or expressed desire for something, *supra*. Accordingly, the term "Beam Configuration Request Signals" means **"detectable messages indicating desire for a beam with a certain arrangement of elements or physical properties."**

9. *Claim Nine*

The '581 patent introduces the following terminology in Claim 9: "treatment room configuration signal." (Rosenberg Decl. Ex. 2, the '581 Patent at 10:17-18.) The entire claim states: "[t]he method of claim 8 wherein the input signals further include treatment room configuration signals." (*Id*.) A treatment room is properly defined as "a space for giving medical care to a patient." (*See* Airhart Decl. Ex. N at 220 & 231, Ex. Q at 286 & 275.1.) However, that does not clarify the kind of "configuration signal" referred to in Claim 9 of the '581 patent. (Rosenberg Decl. Ex 2, the '581 Patent at 10:17-18.) Accordingly, the court turns to the specification. *See, e.g.,* Anderson, supra, 160 F.3d at 1348-49. The term is precisely defined in the specification as follows: "treatment room configuration signals are signals which indicate the particular configuration of the treatment room in readiness for receiving a beam to treat a patient positioned in the treatment room." (Rosenberg Decl. Ex. 2, the '581 Patent at 6:48-51.) The specification explains:

[s]uch treatment room condition may indicate for example, that all x-ray sources are out of the beam line, that a range shifter block is in the beam line, that the high voltage and energy monitors are operations, etc. Similarly, the treatment room configuration signals may indicate that all conditions under which beams should be halted are not present. For example that all doors to the treatment room that should be closed are closed. Further, such treatment room configuration signals may include signals which would trigger an aborting of the treatment beam from the accelerator.

(*Id*. at 6:53-63.) As noted, *supra,* a patentee may be her own lexicographer if the patentee expressly defines claim terms within the specification. *See, e.g.,* Markman, 52 F.3d at 979. In the instant case, that is what the patentees have done. (*See* Rosenberg Decl. Ex. 2, the '581 Patent at 6:48-51.) The term "treatment room configuration signals" is hereby defined as **"a detectable message indicating the physical make-up and properties of the treatment room, conveying information that ensures the room and patient are safe and ready to receive a beam."** (*See id*.)

10. *Claim Thirteen*

The relevant portion of Claim 13 reads: "[t]he method of claim 6 further comprising generating a *treatment room selection signal*FN26 for the selected treatment room upon agreement of the beam request input signal from the selected one of the treatment rooms and the input signal from the switchyard[.]" (*Id*. at 10:28-33.) The term "treatment room selection signal" is in dispute. Of the different words making up the phrase "treatment room selection signal," all but one have already been defined by this court "Signal" means "a detectable message." "Treatment room" is defined as "a space for giving medical care to a patient." The only word remaining to be defined is "selection."

FN26. Defendant Ion Beam proffers the following definition, "computer generated data indicating the particular treatment room to receive beam." (Ion Beam P. & A. at p. 18:16-17.) Ion Beam argues this "construction recognizes that the control system generates this signal and is therefore consistent with the teachings of the specification." (*Id*. at 17-19.) Having read the specification, the court cannot agree. The specification speaks of operators initiating signals with consoles located in the treatment rooms. (*See generally* Rosenberg Decl. Ex. 2, the '581 Patent at 7:3 to 8:61.)

Webster's Third defines "selection" as "the act ... of selecting" (Airhart Decl. Ex. N. at 221) and the verb is defined as "to choose from a number or group." (*Id*.) The Oxford English Dictionary includes a similar definition: "[t]he action of selecting or choosing out"; and "[t]o choose or pick out in preference to another or others." OXFORD ENGLISH DICTIONARY (2d ed.1989). Accordingly, the ordinary meaning of the phrase means **"a detectable message indicating which treatment room (space for giving medical care to a patient) should receive the beam ."**

C. *THE* '642 PATENT

The following terms found in the '642 patent are common to terms already defined by the court with respect to the '287 and '581 patents: (1) "beam request signal"; (2) "beam path configuration signal"; (3) "comparing"; (4) "configuration"; (5) "switchyard"; (6) "verify" and "verifying." The parties agree these terms should be construed in the same manner with regard to all of the patents at issue in the instant case. (*See* Optivus P. & A. at 23-24;IIon Beam Opp'n at pp. 11-12; *and* Ion Beam P. & A. at pp. 23-29.) The court hereby finds that each of these terms is to be construed in the same manner with respect to the '642 patent, the '287 patent, and the '581 patent.

1. *Claim One*

The first claim of the '642 patent recites:

In a radiation beam therapy system comprising a radiation beam source, a plurality of radiation beam treatment locations, and a multiplexed *switchyard* and a beam transport system for directing the radiation beam to a selected one of the radiation treatment locations, a method of radiation beam security comprising the steps of:

(a) receiving a *beam request signal* from a selected treatment location;

(b) *deriving* a *beam path configuration signal* from said *beam request signal;*

(c) *selecting* the *switchyard* and *beam transport system configuration* in accordance with said *beam path configuration signal;*

(d) *sensing the configuration* of the *switchyard* and *beam transport system* to *verify* that the *switchyard* and *beam transport system configuration* allow radiation beam transport to only said selected treatment location;

(e) in response to step (d), providing radiation beam *transport* to said selected treatment location; and

(f) *sensing* the temperature of electrical load bearing components within said *switchyard* and *beam transport system* to determine an over-temperature condition; and

(g) *denying*FN27 beam transport in the event of said over-temperature condition.

FN27. The parties have stipulated that denying means disallowing. (Stip. Claims at 2.)

(Rosenberg Decl. Ex. 3, the '642 Patent at 14:65-15:21.)

(a) **"*Deriving*"**FN28

FN28. In its Motion for Summary Judgment, Defendant Ion Beam refers to a larger phrase, "Deriving a beam path configuration signal," and argues the entire phrase is indefinite (Ion Beam P. & A. at p. 23:14-18.). However, Ion Beam rests its argument on a bald assertion, with no argument, facts or legal citation supplied in support. (*See id*.) Accordingly, Ion Beam has not carried its burden on this point as a matter of law. *See, e.g.,* Celotex, 477 U.S. at 322-325; *see also* Matsushita, 475 U.S. at 586.

Moreover, the claim term "beam path configuration signal" has already been defined, leaving only the term "deriving" to adjudicate.

Finally, Ion Beam argues the term "means for deriving a beam path configuration signal from said beam request signal" is indefinite. But that argument is rejected for the same reasons. (*See* Ion Beam P. & A. at 23-24.)
Plaintiff Optivus argues "deriving" has the ordinary meaning of "arriving at." (Optivus P. & A. at p. 24.) In support of its argument Optivus relies on the definition found in Random House: "to receive or obtain from a source or an origin." (Airhart Decl. Ex. H. at 129.) Optivus also relies on the definition found in Webster's Third: "to obtain or gain through heredity or by transmission ... 3. to gather or arrive at (as a conclusion) by reasoning and observation a: to obtain inductively <ideas *derived* from nature>[.]" (*Id.,* Ex. N at 211.) Similarly the Oxford English Dictionary defines "derive" as "to hand down" or "pass by descent or transmission," and more pertinently "[t]o draw, fetch, get, gain, obtain (a thing *from* a source)"; as well as "[t]o obtain (a compound) from another, as by partial replacement"; and "to obtain by some process of reasoning, inference or deduction"; and finally "[t]o arise, spring, come *from* something as its source; to take its origin *from*." OXFORD ENGLISH DICTIONARY (2d ed.1989) (*emphasis in original*).

In light of the common dictionary definitions, and the context of Claim 1, it appears "deriving" means "to obtain something from another thing or source." The relevant portion of Claim 1 recites "*deriving a beam path configuration signal from said beam request signal*." (Rosenberg Decl. Ex. 3, the '642 Patent at 15:6-7.) In other words, a *beam path configuration, signal* ("x") is *derived* or obtained from the (previously mentioned) *beam request signal* ("y"). (*See id*.)

The court therefore rejects Plaintiffs proffered construction of "arriving at" for the term "deriving" because Plaintiff's construction does not make sense in the context of the claim term, and otherwise does not correspond with the common meaning of the term "to derive" or "deriving." On the other hand, Defendant Ion Beam's construction is overly limited. (*See* Ion Beam P. & A. at 25:3-4.) Ion Beam proposes the term "deriving" be defined as "computing or obtaining data from other data by application of a specified procedure." (*Id*.) While it appears the term "deriving" means "to obtain something from another source," the court is not persuaded it should import the limitations suggested by Defendant Ion Beam, *i.e.,* "by

application of a specified procedure."

The patent specification reinforces the court's conclusion that "deriving" be defined as "to obtain something from another source ." (*See, e.g.,* Rosenberg Decl. Ex. 3, the '642 Patent at 2:30-34, *and* 6:37-46.) For example, the specification describes "a method of radiation beam security [that] comprises receiving a beam request signal from a selected treatment location. The specification goes on to state "[a] beam path configuration signal is derived from the beam request signal and used to select the switchyard and beam transport system configuration." (*Id*. at 2:30-34.) More specifically, the specification also teaches:

a beam request is provided by control computer 52 and transferred to the dipole switch controller via interface 51. The dipole switch controller 60 encodes the beam request address into digital command signals specifying the selected dipole switch positions. Switch instructions are transferred via the interfaces.... The instructions are communicated to ... the switches so that the switches are connected in the preselected orientations....

(*Id*. at 6:37-46.) Accordingly, the court hereby finds the claim term to mean **"a beam path configuration signal is obtained from a beam request signal,"** wherein the term "beam path configuration signal" means **"a detectable message indicating the arrangement of beam elements or physical properties of the beam";** and the term "beam request signal" means **"a detectable message indicating a desire for the beam."**

(b) "Selecting"

The ordinary meaning of the term select has already been noted by this court, *supra*. Webster's Third defines "selection" as "the act ... of selecting" (Airhart Decl. Ex. N. at 221) and the verb is defined as "to choose from a number or group." (*Id*.) The Oxford English Dictionary includes a similar definition: "[t]he action of selecting or choosing out"; and "[t]o choose or pick out in preference to another or others." OXFORD ENGLISH DICTIONARY (2d ed.1989). Accordingly, the ordinary meaning of the term "selecting," and the meaning of the term as it is used in Claim 1 of the '642 patent is **"to choose or pick out one thing from a number or group of things."**

The court's construction makes perfect sense in the context **of** step (c), Claim 1: "(c) *selecting* the *switchyard* and *beam transport system configuration* in accordance with said *beam path configuration signal*." (*See, e.g.,* Rosenberg Decl. Ex. 3, the '642 Patent at 15:8-10.) In other words, of all the various configurations available for the switchyard and beam transport system, the configuration is selected (*i.e.,* chosen or picked out) in accordance with the beam path configuration signal. The construction is confirmed by reference to the patent specification. The verb "to select" is used consistently throughout the '642 patent (*See, e.g., id*. at 15:16 & 2:35-58.) Furthermore, although Defendant suggests otherwise (*See* Ion Beam Opp'n at p. 13), the court cannot find anything in the cited portion of the prosecution history that would be contrary to the court's construction of the term "selecting." (*See* Rosenberg Decl. Ex. 10 at 48-49.)

Defendant Ion Beam's proffered construction is inapposite. Defendant contends the following definition is the proper construction for the term "selecting": "enabling all magnets in a chosen path and disabling all magnets in non-chosen paths." (Ion Beam P. & A. at 25:17-18.) Central to Defendant's construction, however, is the concept of "choosing" the proper configuration of switchyard magnets. Defendant appears to have found a more limited manner of conveying a similar message. The court finds the proposed limitations should not be imported into the claim terms.

(c) "Beam Transport System Configuration"

Of the four terms in this phrase, "beam" and "configuration" have already been defined. Configuration means an arrangement of elements or physical properties. In this context, configuration is modified by the preceding terms "beam transport system." Accordingly, the phrase means the arrangement of the beam transport system's physical properties. This definition dovetails nicely into the definition of the term "system," *infra*.FN29 As Plaintiff Optivus points but, Webster's Third defines "transport" to mean "to transfer or convey from one person or place to another." (Airhart Decl. Ex. N at 230.) The Oxford English Dictionary includes a nearly identical definition. Oxford English Dictionary (2d ed.1989). The Oxford English Dictionary defines the term "system" as "[a] set or assemblage of things connected, associated, or interdependent, so as to form a complex unity; a whole composed of parts in orderly arrangement according to some scheme or plan; rarely applied to a simple or small assemblage of things"; and "[i]n various scientific and technical uses: A group, set, or aggregate of things, natural or artificial, forming a connected or complex whole .... b. of artificial objects or appliances arranged or organized for some special purpose, as ... pieces of mechanism[.]" *Id*. Microsoft defines the term as "any collection of component elements that work together to perform a task." (Airhart Decl. Ex. P at 250.) Of the definitions offered by the American Heritage Dictionary, the following stand out as particularly germane: "A functionally related group of elements, especially: A group of interacting mechanical or electrical components [or] ... A network of related computer software, hardware, and data transmission devices." AMERICAN HERITAGE DICTIONARY (4th ed.2000).

FN29. Relying exclusively on the patent specification and expert testimony, Defendant Ion Beam tries to define the term without breaking it down into constituent parts. Defendant proffers the following definition: "the set of all switching, dipole and quadrupole magnets which direct the beam from the beam source for delivery in the treatment rooms, including the beam transport apparatus, switchyard and gantries." (Ion Beam P. & A. at 26.) At first glance, it is difficult to distinguish between "beam transport apparatus," and the term Defendant is trying to define-beam transport system." As a result, the definition does not appearto adequately define the term. Moreover, the definition is overly narrow and seems to import limitations from the specification and expert testimony.

Accordingly, the entire phrase at issue-"beam transport configuration system"-is hereby held to mean "the arrangement of all the interacting elements and components used to convey the beam." FN30 *See id*.

FN30. Optivus proposes "the arrangement of a system of devices to convey the beam." (Optivus P. & A. at 25.) Ion Beam, on the other hand, suggests "the set of all switching dipole & quadrupole magnets which direct the beam from the beam source for delivery in the treatment rooms, including the beam transport apparatus, switchyard and gantries." (Ion Beam P. & A. at 26.)

(d) "Sensing the Configuration"

"Configuration" means "an arrangement of elements or physical properties." Plaintiff Optivus draws the court's attention to the following definitions for the verb "to sense": "something I to be grasped, comprehended." (Airhart Decl. Ex. N at 222.) Webster's Third also discusses the term extensively in the context of "perception," or "the interpretation of sensory stimuli," and "a specialized mechanism or function by virtue of which an animal is receptive and responsive to particular stimuli." (*Id*.) In the context of

machines, Webster's Third defines "sensing" as follows: "to detect (a symbol) automatically or mechanically." (*Id*.) The Oxford English Dictionary defines "sensing" as "the action of sense v." It defines the verb as "[t]o perceive (an outward object) by the senses"; and more pertinently "[o]f a machine, instrument, etc.: to detect (some circumstance or entity)." OXFORD ENGLISH DICTIONARY (2d ed.1989). Defendant Ion Beam draws the court's attention to the American Heritage Dictionary, which includes the following definition of "sense:" "to detect automatically: *sense radioactivity*." (Rosenberg Decl. Ex. 21 at 11.)

Finally, both parties use the word "detect" to define the disputed claim term. Plaintiff Optivus, for example, defines "sensing the configuration" as "detecting the arrangement while Defendant Ion Beam proffers "detecting the state of each of the magnets as enabled or disabled." (*Compare* Optivus P. & A. at 26:4-5; *and* Ion Beam P. & A. at 27:11.) The parties are, therefore, in accord as to the definition of "sensing," which means "to detect." The entire claim term is hereby constructed by the court to mean **"to detect the arrangement of elements or physical properties of the *switchyard* and *beam transport system* to *verify* that the *switchyard* and *beam transport system configuration* allow radiation beam *transport* to only said selected treatment location."** (*Italicized terms are defined elsewhere in the instant Order*.)

2. *Claim Two*

The contested terms in Claim 2: "switchyard and beam transport system configuration signal"; and "comparing," have already been defined by this court. Having reviewed Claim 2 and the specification of the '642 patent, the court finds nothing in the claims or intrinsic evidence that demonstrates a reason to deviate from the constructions already adopted in this Order.

3. *Claim Five*

The court hereby adopts the parties stipulated agreement as to the construction of certain claim terms, including the following terms found in Claim 5 of the '642 patent "redundant communication paths"; "mutual logical complementary redundant communication paths"; "communication link failure"; "mutual logical complements"; and "beam path error." (*See* Stip. Claim Constr.)

4. *Claim Ten*

There are six means plus function elements at issue in Claim 10 of the '642 patent (*Compare* Optivus P. & A. at 27-30; *and* Ion Beam P. & A. at 29-32.) Claim 10 begins:

In a radiation beam therapy system comprising a radiation beam source, a plurality of radiation beam treatment locations, and a multiplexed switchyard and beam transport system for directing the radiation beam to a selected one of the radiation beam treatment locations, and apparatus for radiation beam security comprising:

(Rosenberg Decl. Ex. 3, the '642 Patent at 16:9-14.) The means plus function elements follow the above quoted paragraph, described in steps labeled (a) to (f). (*Id*. at 16:15-40.) The court will discuss each step in turn.

Step (a)

Claim 10(a) recites "means for receiving a beam request signal from a selected treatment location." (*Id*. at

16:17-18.) The function is "receiving a beam request signal from a selected treatment location." (Stip. Claim Constr. at 3:21-23.) Plaintiff proffers the following structure "a control computer, a controller with interface circuitry, or other such logic based control equipment to initiate commands or signals and that includes at least one input in communication with a selected treatment location." (Optivus P. & A. at 27:9-12.) Defendant Ion Beam, on the other hand, offers "a dipole switch controller (60) including a path decoder module (134), and at least one switch interface (54/56/58)." (Ion Beam P. & A. at 29:20-21.)

To determine the corresponding structure for the function described in step (a), the court turns to the written description of the '642 patent Asyst Techs., 268 F.3d at 1369. As noted earlier "[s]ection 112 paragraph 6 does not 'permit incorporation of structure from the written description beyond that necessary to perform the claimed function.' " *Id*. (quoting Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1257-58 (Fed.Cir.1999)). As referenced by the court in *Micro Chem.,* "[s]tructural features that do not actually perform the recited function do not constitute corresponding structure and thus do not serve as claim limitations." *Id*. (citing Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc., 145 F.3d 1303, 1308-09 (Fed.Cir.1998)). Significantly the Federal Circuit in McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1347 emphasized "[d]rafters of means-plus-function claim limitations are statutorily guaranteed a range of equivalents extending beyond that which is explicitly disclosed in the patent document itself." McGinley, supra, 262 F.3d at 1347 (citing 35 U.S.C. s. 112 para. 6); *see also* Vulcan Engineering Co., Inc. v. Fata Aluminium, Inc., 278 F.3d 1366, 1376 (Fed.Cir.2002). "When the claims include means-plus-function terms in accordance with s. 57 Or. 541, 112 P. 6, claim scope necessarily is not limited to the preferred embodiments, but includes equivalents thereof." Vulcan Engineering, supra, 278 F.3d at 1376 (Fed.Cir.2002).

Defendant Ion Beam's construction depends heavily on the method disclosed in the preferred embodiment. (*See* Rosenberg Decl. Ex. 3, the '642 Patent at 5:65-6:46.) Accordingly, Ion Beam's structure is too narrow. *See* Vulcan, 278 F.3d at 1376 (stating claim scope "is not confined to the particular mode of use or preferred embodiment described in the specification.") The preferred embodiment teaches a proton control system comprising "a control computer 52 connected to a Dipole Switch Controller (DSC) 60 which serves as the central component for the monitor and control system. The DSC 60 is connected to a plurality of dipole switch and power supply interfaces A 54, B 56 and C 58." (Rosenberg Decl. Ex. 3, the '642 Patent at 6:8-7:13.) The '642 patent elaborates:

The path request signal is received by the DSC 60 and decoded in process block 134 into the individual switch position addresses corresponding to beam paths 0-5, where path 0 represents a null path, and paths 1-5 correspond to those previously outlined in connection with FIG. 1. A path request signal which has been received and decoded by the DSC 60 initiates an error and status examination .... The system status and error conditions are passed onto the user through which corrective action and reset functions are indicated.

(*Id*. at 9:56-10:3; *see also id*. at 9:15-20; *and* 6:37-6:47.) In view of the description, the court hereby finds the corresponding structure to be **"a control computer, a controller with interface circuitry, or other such logic based control equipment to initiate commands or signals and that includes at least one input in communication with a selected treatment location."** This structure is broad enough to incorporate the equivalents to the technology described in the preferred embodiments.

Step (b)

Claim 10(b) recites "means for deriving a beam path configuration signal from said request signal."

(Rosenberg Decl. Ex. 3, the '642 Patent at 16:17-18.) The function, as stipulated by the parties, is defined as "deriving a beam path configuration signal from the beam request signal." (Stip. Claim Constr. at 3-4.) For the reasons already described with respect to step (a), namely that Defendant's proffered construction is too narrow, and Plaintiff's construction properly reflects the technology described in the preferred embodiment and covers equivalents, the court hereby adopts the following definition for the corresponding structure: **"logic based control equipment, such as a control computer, for processing signals."** (*See, e.g.,* Rosenberg Decl. Ex. 3, the '642 Patent at 6:37-6:47.) This interpretation is supported by the '642 patent which discloses that one example of a means for deriving a beam path configuration signal. (Id.)

Step (c)

Claim 10(c) recites "means for selecting the switchyard and beam transport system configuration in accordance with said selected beam path configuration signal by enabling a first set comprising less than all of a plurality of switchyard and beam transport elements wherein enabling said first set of elements provides a path for transport of said radiation beam to said selected treatment location[.]" (*Id.* at 16:19-26.) The function, as stipulated by the parties, is defined with language that is virtually identical to the claim terminology. (Stip. Claim Constr. at 4:4-21.) The court hereby defines the structure as "a control computer, a controller with interface circuitry, or other such logic based control equipment to initiate commands or signals, that includes at least one input in communication with the logic based equipment for processing signals and at least one output in communication with switchyard and beam transport elements."

Step (d)

Claim 10(d) recites "means for sensing the configuration of the switchyard and beam transport system to verify that (i) all of said first set of said switchyard and beam transport i elements are enabled and (ii) all elements of said plurality of elements not in said first set are not enabled so that the switchyard and beam transport system configuration allow radiation beam transport to only said selected treatment location." (Rosenberg Decl. Ex. 3, the '642 patent at 16:27-34.) Again, as with step (c), the function closely tracks the claim language. (Stip. Claim Constr. at pp. 4-5.) As with the previous steps, the court finds Defendant Ion Beam impermissibly attempts to limit the claim scope by incorporating detailed descriptions of the technology set out in the preferred embodiment (*See generally* Ion Beam P. & A. at p. 31.) As already explained, means plus function claim terms are not to be .so limited. Accordingly, the court hereby adopts Plaintiffs proffered structure because it adequately describes the function, rather than just repeating what is said in the preferred embodiment. The structure that performs the recited function is **"a control computer, a controller with interface circuitry, or other such logic based control equipment to initiate commands or signals and that includes at least one input in communication with a plurality of sensors that are positioned to sense one or more attributes of the switchyard and beam transport elements."** (*See* Rosenberg Decl. Ex. 13, the '642 Patent at 7:64-8:10; *see also* 8:11-40; 8:64-9:15; 9:31-50; 11;25-64 *and* Figs. 1, 2, 3A through 9.)

Step (e)

Claim 10(e) recites "means for providing radiation beam transport to said selected treatment location." (*Id.* at 16:35-36.) The function is "providing radiation beam transport to the selected treatment location." (Stip. Claim Constr. at 5:17-21.) The structure that performs the function is **"switchyard and beam transport elements and power supplies, including related switch interfaces and devices that perform the functions of the switchyard and beam transport magnets."** (*See, e.g.,* Rosenberg Decl. Ex. 3, the '642 Patent at 4:47-6:46.) This interpretation is supported by the '642 patent which describes the switchyard

which comprises magnets 13, 15, 17, and 19 that switch the direction of the beam based upon whether their power supplies are activated or not, and that serves to transport the beam to the treatment stations. (*Id*. at 4:47-11:64.)

Step (f)

Claim 10(f) recites "means for interrupting said providing of transport to said selected treatment room in response to said means for sensing when an element not in said first set is enabled. (*Id* . at 16:37-40.) The function is "interrupting the providing of transport to the selected treatment room in response to the means for sensing when an element not in the first set is enabled." (Stip. Claim Constr. at 5-6.) The structure that performs the recited function is **"a control computer, a controller with interface circuitry, or other such logic based control equipment to initiate commands or signals and that includes at least one input in communication with the plurality of sensors and at least one output in communication with the power supplies."** (*See, e.g.,* Rosenberg Decl. Ex. 3, the '642 Patent at 7:32-39; *see also* 7:62-8:40; 8:64-9:15; 9;31-10:39; 1125-64; and Figs. 1, 2, 3A through 9.)

5. ***Other Terms Identified by the Parties***

(a) Switch

Defendant Ion Beam construes the term "switch" to mean "a device designed to close or open, or both, one or more electric circuits." (Ion Beam P. & A. at 28-29.) The court, however, implicitly defined the term already in its discussion of the term "switchyard." Microsoft defines the term as "a circuit element that has two states. (Airhart Decl. Ex. P. at 249.) The term switch is defined by the Oxford English Dictionary as follows:

Name for various mechanical devices for altering the direction of something, making **a** connexion or disconnexion, or other purposes. a. On **a** railway: A movable rail or pair of rails pivoted at one end, ... **b.** In an electric telegraph, telephone, signalling-, lighting-, or other apparatus: A lever, plug, or other device for making or breaking contact, or altering the connexions of a circuit, ... e. *Computers*. A program instruction that selects one or other of a number of possible paths according to the way it is set.

OXFORD ENGLISH DICTIONARY (2d ed.1989). Accordingly, the term "switch" is hereby defined as **"a device for altering the direction of something, in this case a beam, and selecting the onward path of the entity by choosing between at least two possible paths."** (*See* Airhart Decl. Ex. H at 145; and Ex. N at 226; *accord* Rosenberg Decl. Ex. 3, the '642 Patent at 6:14-17.)

(b) Beam Path

A "path" means "a route, course, or track along which something moves." (Airhart Decl. Ex. H at 137.) Because the terms "path" and "beam path" are used in a manner consistent with their ordinary meaning, the court hereby constructs "beam path" to mean **"the route along which the beam travels."**

(c) Plurality of Paths

Pursuant to the parties stipulation, "plurality" means "more than one." (Stip. Claim Constr. at 3.) Accordingly, "plurality of paths" is hereby constructed to mean **"more than one route along which the beam travels."** FN31

FN31. Similarly, "plurality of switches" means "more than one switch" and "plurality of sets" means "more than one set." (*See* Optivus P. & A. at p. 30.) A "set" is "a number, group or combination of thins of similar nature, design or function." (Airhart Decl. Ex. Hat 142-43.) A "plurality of beam treatment paths" means "more than one route along which a beam can travel to treat **a** patient." (*See* Airhart Decl. Ex. M at 231; and Ex. H at 217.)

(d) Halts and Interrupting

The term "halts" means "stops" and "interrupting" means "stopping." (*See* Stip. Claims Constr. at 6.)

6. ***Claim Thirteen-"Sensing Means for Sensing"***

The following means plus function claim is at issue in Claim 13 of the '642 patent: "sensing means for sensing the state of said plurality of switches." (*Compare* Optivus P. & A. at 30:3-13; *and* Ion Beam P. & A. at 32:17-21.) The function is "sensing the state of the plurality of switches." (Stip. Claim Constr. at 6:6-7 .) Defendant Ion Beam offers the following construction: "current and voltage sensors located at each silicon controlled rectifier within every dipole switch (72, 74, 76)." (Ion Beam P. & A. at 32.) The patent explains "[t]he dipole switch status is monitored by current and voltage sensors located at each SCR (not shown) within the dipole switch 72. These current and voltage sensors supply the DSC 60 with signals 83 and 84 which indicate the SCR current and voltage, respectively. The SCRs are also preferably equipped with temperature sensors, which signals 88 are supplied to the DSC 60 as an indication of possible overheating." (Rosenberg Decl. Ex. 4 at 7:64-8-10.) In light of the description, the court hereby finds the corresponding structure that performs the function recited in the relevant means plus function claim is **"a plurality fo sensors, such as current, voltage, or temperature sensors."** (*See, e.g.,* Rosenberg Decl. Ex. 3, the '642 Patent at 7:64-8:40.)

D. ***THE*** '926 PATENT

The parties agree the court's construction of the claim terms at issue in the '642 patent should also be applied to the claim terms at issue in the ' 926 patent because, *inter alia,* the '926 patent is a continuation of the '642 patent and otherwise quite similar to the '642 patent. (*Compare* Optivus P. & A. at 33:18-28; *and* Ion Beam P. & A. at 35:14-22.) IT IS SO ORDERED.

Ion Beam identified one term to be construed in Claim 17 of the '926 patent-capable of being arranged. (Rosenberg Decl. Ex. 4, the '925 Patent at 17:4-5.) The relevant portion of Claim 17 reads:

An apparatus for providing radiation beam security ... comprising: a plurality of switches having a first state and a second state wherein said plurality of switches are *capable of being arranged* divided into a plurality of sets of one or more switches and wherein each set of switches directs said radiation beam along one of said plurality of paths when each of said one or more switches in said set are in said first state. (*Id*. at 16:65-17-09.)

Plaintiff relies on generic dictionary definitions to arrive at the following construction of the term "capable of being arranged": "able to be ordered or grouped." (Optivus P. & A. at p. 34.) The court generally agrees with this construction and Defendant Ion Beam does not dispute this point. The Oxford English Dictionary defines "capable" as "having the ability, power or fitness for some specified purpose or activity[.]" (Airhart

Decl. Ex. Q at 257.1.) The same dictionary offers the following definitions: "[h]aving general capacity, intelligence, or ability, qualified, gifted, able, competent [,]" "[a]ble or fit to receive and be affected by; open to, susceptible [,]" and "[a]ble to take in, receive, contain, or hold; having room or capacity for[.]" OXFORD ENGLISH DICTIONARY (2d ed.1989). In the context of the patent at issue, capably is best construed as "being able" or "having the ability." *See id*. The term "arranged" means put in order or grouped. (*See* Airhart Decl. Ex. H at 120; Ex. Q at 255.1.) Accordingly, the court hereby construes the claim term "capable of being arranged" as **"able to be ordered or grouped."**

E. *THE* '845 PATENT

Identifying two claims for interpretation-Claims 14 and 33 of the '845 patent-Defendant Ion Beam argues Plaintiff adopted a restrictive definition of terms used in the those claims during the prosecution of the '845 patent. The controversy turns on the meaning of the words "intensify," "intensification" and "non-intensify." (*Compare* Optivus P. & A. at 34-35; *and* Ion Beam P. & A. at 37.) Plaintiff argues the controversy would be resolved if the court construed the term "nonintensified" in Claims 1 and 25 according to its alleged ordinary and customary meaning. (Optivus P. & A. at 34:24-27.)

Claim 14 of the '845 patent recites, in pertinent part:

An imaging system for a proton beam therapy system ... comprising: an X-ray source ...; an X-ray beam receiver ...; an image capture device which receives *said photon image* directly from said X-ray beam receiver, and produces a patient orientation image of the region of the patient's body that is positioned in said beam path so that said patient orientation image is substantially undistorted by *intensification;* and a controller ....

(Rosenberg Decl. Ex. 5, the '845 Patent at 14:66-15:47, *emphasis added*.) Defendant argues the proper construction of the relevant portion of Claim 14 is "an image capture device *which receives a non-intensified photon image* directly from said X-ray beam receiver, and produces a patient orientation image of the region of the patient's body that Is positioned in said beam path so that said patient orientation image is substantially undistorted by *intensification*." (Ion Beam P. & A. at 38, *emphasis added*.) In other words, Defendant argues that the term "said photon image" in Claim 14, should be modified to read "a non-intensified photon image." (*Id*.) Defendant does not produce any evidence to support this construction. (*Id*. at n. 227.) FN32

FN32. In an attempt to add argument to a 40 page brief that addresses issues the parties were explicitly instructed to avoid, the Defendant directs the court's attention to an exhibit that simply extends the Points and Authorities with pages of extra argumentation. (*Id*.) If counsel wanted more space, it should have followed instructions and only addfessedclaim construction in the instant Motion. Instead, counsel ignored the court's order and addressed issues beyond the scope of the instant set of Motions.

The court reminds counsel that it is not the task of the court to scour the record in search of a triable issue of fact. Keenan, supra, 91 F.3d at 1279. The court relies on the parties to identify, *with reasonable particularity,* the evidence supporting the parties' positions. *See id*. Counsel for the defense complicated this task by adding Exhibit 29 to the Rosenberg Declaration. Exhibit 29 is not evidence. Exhibit 29 contains additional argument presented in impermissible format in violation of court order and the local rules.

That being said, the court has taken considerable time and effort to review the patent specification and prosecution history to determine whether the claim should be limited in the manner Defendant suggests.

However, that is hot an invitation for counsel to employ similar tactics In the future. If counsel for either party attempts to circumvent page limits or any other rule or order of this court by such "creative" devices, the pleading will be stricken.
Claim 33 provides:

A therapeutic imaging system for a treatment beam therapy system ... comprising: an X-ray beam source mounted on said beam delivery system ...;

a fluorescing screen ...;

a digital camera which receives *said photon image* directly from said fluorescing screen and produces a patient orientation image of the region of the patient's body that is positioned in said beam path so that said patient orientation image is substantially undistorted by *intensification*.

(*Id*. at 18:8-31, *emphasis added*.) As in its construction of Claim 14, Defendant adds the following limitation: where the claim states "receives photon image," Defendant argues the patent should read "receives a non-intensified photon image."

Plaintiff directs the court's attention to the language of Claims 1 and 25. Claim 1 of the '845 patent describes:

An imaging system for a proton beam therapy system ... comprising: an imaging beam source mounted on said beam delivery system wherein said imaging beam source is movable ...;

an imaging beam receiver attached to said gantry ...;

an image capture device proximate to said receiver, wherein said image capture device directly receives a *non-intensified* signal from said receiver and produces a patient orientation image of the region of the patient's body that is position in said beam path; and

a controller which receives said master prescription image and said patient orientation image ....

(*Id*. at 13:20-68, *emphasis added*.)

Claim 25 recites:

A method of aligning a patient in a proton beam therapy system so that the center of a beam line from a nozzle is centered at a target isocenter positioned within the body of the patient, said method comprising ...:

obtaining a master prescription image of the patient ...;

positioning the patient on a treatment table so that ...;

transmitting an imaging beam along the treatment beam path so that the imaging beam is transmitted into the region of the patient's body positioned in front of the nozzle; receiving the imaging beam after it has been transmitted into the region of the patient's body and directly capturing a *non intensified* patient orientation image of the region of the patient's body that is positioned in said beam path that is provided to said computer system;

designating said one or more monuments, using said computer system, on said master prescription image ...;

designating said one or more monuments ... on said patient orientation image ...;

determining the relative position of the center of said treatment beam with respect to one or more monuments designated ... [.]

(*Id*. at 16:38-16:67, *emphasis added*.)

Relying on definitions taken from common dictionaries. Plaintiff contends the proper construction of the term "non-intensified" means "without the use of an image intensifier." (Optivus P. & A. at 35:1-7.) Defendant, on the other hand, argues the relevant claim term is "nonintensified photon image" in Claims 15 and 33. (Ion Beam P. & A. at 38.)

The court begins with the plain meaning of the terms. The American Heritage Dictionary defines "intensification" as "to make more intense"; or "To increase the contrast of (a photographic image)." Similarly, the Oxford English Dictionary defines "intensification" as "[t]he action of intensifying"; or in the context of photography, "The thickening or increasing of the opacity of the film of a Negative." OXFORD ENGUSH DICTIONARY (2d ed.1989). The following passage from the Oxford English Dictionary seems particularly germane: "To become intense, to grow in intensity.... intensifying *ppl*. a., esp. in ***intensifying screen,*** a fluorescent screen placed in contact with the film or plate when a radiograph is taken in order to increase the effect on it of the X-rays." *Id*.

Plaintiff draws the court's attention to the following definitions from technical treatises. The Chamber's Dictionary of Science and Technology defines "image intensifier" as "an electronic device screen for enhancing brightness of an image in fluoroscopy, at the same time reducing patient dose." (Airhart Decl. Ex. R at 290.) Similarly, the Principles of Radiographic Imaging states that "an image intensification tube is designed to electronically amplify the brightness of an image." (*Id*. at Ex. S at 294.) Accordingly, the ordinary meaning of the term "intensify" in the context of X-ray fluoroscopy is "to enhance the brightness of an X-ray image." (*See, e.g., id*.) An intensifier accomplishes that task. (*Id*.)

Turning to the specification, the patentees distinguish a prior art reference and explain:

the '867 Patent (prior art reference) is designed to be used in conjunction with ionized particle beams and heavy particle beams and also uses an image intensifier to intensify the television image of the X-ray. This type of system is not readily adaptable to proton therapy treatment as the use of an image intensifier would introduce image distortion and, therefore, errors into the calculation of patient position which would be unacceptable. Since the proton beams can have a significantly more harmful effect on tissue, it is important to very accurately locate the patient in front of the nozzle and, consequently, the errors introduced by an image intensifier would result in too many inaccuracies for use in a proton therapy system.

(Rosenberg Decl. Ex. 5, the '845 Patent at 2:55-68.) The court finds nothing in this patent specification, including the preferred embodiment, to alter the ordinary meaning of the words "intensify," "intensification," or "intensifier" as those terms are used in the context of X-ray fluoroscopy. (*See id*. at 2:44-13:19.) In addition, as the above quoted passage indicates, there is nothing in the prosecution history to suggest the ordinary meaning of the term was altered **or** limited by the patentees. (*See id.; see also* Rosenberg Decl. Ex. 12.) Accordingly, the term "intensify" means **"to enhance the brightness of an X-ray image."** It follows that "nonintensified" means **"generated without the use of an image intensifier."** However, it is equally clear from the face of the patent (Rosenberg Decl. Ex. 5, the '845 Patent at 2:55-68) and the prosecution history (*Id*. at Ex. 12 at 6-7) that the device described by the '845 patent does not use an image intensifier. As Defendant suggests **Claim 14 and Claim 33 cannot be construed to include an Intensifier.** (*See, e.g.*, id.)

IV. *RULING*

The claim terms are hereby constructed as stated herein.

IT IS SO ORDERED.