

United States District Court,
D. Minnesota.

MTS SYSTEMS CORPORATION, a Minnesota corporation,
Plaintiff.

v.
HYSITRON, INCORPORATED, a Minnesota corporation,
Defendant.

Civil File No. 06-3853 (MJD/AJB)

June 21, 2008.

Background: Manufacturer of precision measurement devices brought patent infringement action against seller of nanotensile measuring devices, alleging infringement of patent describing tensile testing device. Following transfer of venue, parties sought claim construction.

Holdings: The District Court, Michael J. Davis, J., held that:

- (1) term "base" meant a platform that supports the entire apparatus, and
- (2) term "coupled to" meant to connect for consideration together, or to join for combined effect.

Claims construed.

6,679,124. Construed.

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for Defendant.

MEMORANDUM OF LAW & ORDER

MICHAEL J. DAVIS, District Judge.

I. INTRODUCTION

This matter is before the Court on the parties' request for a claim construction hearing, found in their Joint Claim Construction Statement. [Docket No. 134] The Court heard oral argument on March 13, 2008.

II. BACKGROUND

A. Factual Background

1. The Parties

Plaintiff MTS Systems Corporation ("MTS") is a Minnesota corporation with its principal place of business in Minnesota. It is in the business of manufacturing precision measurement devices.

Defendant Hysitron, Incorporated, ("Hysitron") is a Minnesota corporation that sells nanotensile measuring devices.

2. The Patent

The case involves United States Patent No. 6,679,124 B2 ("the '124 Patent"), issued January 20, 2004. This utility patent describes a tensile testing device.

In 1998, Dr. Warren Oliver, General Manager of MTS's Nano Instruments division and Ph.D. in materials science, discovered that his work on indentation devices could be adapted to the field of tensile testing devices. (Pearson Decl. Ex. 4, Oliver Dep. 71-72; Oliver Decl. para. para. 1-2, 4.) According to MTS, before this, tensile testing devices were limited in their ability to measure the tensile properties of fine fibers. (Oliver Decl. para. 4.)

Oliver patented his invention and it was issued as the '124 Patent, titled "Statistically Rigid and Dynamically Compliant Material Testing System." The device holds a specimen in tension through the use of specimen holders which attach at each end of the material, and the instrument measures the material's response as multiple force components are applied to the specimen.

3. Claims at Issue

MTS asserts that Hysitron infringes claims 1, 2, 6, 7, 8, 15, and 16 of the '124 Patent. The three disputed terms, "base," "coupled to," and "fixedly coupled to," appear in claims 1, 2, 6, 7, and 8.

The text of the claims at issue in this Markman hearing provides:

1. A material testing system comprising:

a base;

a first specimen holder;

a second specimen holder, the first specimen holder and the second specimen holder being adapted to hold a specimen in tension;

a first displacement sensor measuring displacement of the first specimen holder relative to the base along a common axis between the first and second specimen holders; and

a second displacement sensor measuring displacement of the second specimen holder relative to the base along the common axis.

2. A material testing system comprising:

a base;

a first specimen holder;

a second specimen holder, the first specimen holder and the second specimen holder being adapted to hold a specimen in tension;

a first displacement sensor measuring displacement of the first specimen holder relative to the base along a common axis between the first and second specimen holders;

a second displacement sensor measuring displacement of the second specimen holder relative to the base along the common axis; and

an actuator assembly fixedly coupled to the second specimen holder and operated as a function of the second displacement sensor to dispose the second specimen holder in a known position.

* * *

6. A material testing system comprising:

a base;

a first specimen holder;

a second specimen holder;

a first displacement sensor measuring displacement of the first specimen holder relative to the base along a common axis between the first and second specimen holders; and

a second displacement sensor measuring displacement of the second specimen holder relative to the base along the common axis, wherein the second displacement sensor is a capacitive sensor.

7. A material testing system comprising:

a first specimen holder;

a second specimen holder aligned with the first specimen holder along a common axis;

a first actuator coupled to the first specimen holder;

a second actuator coupled to the second specimen holder; and

a controller coupled to the first actuator and the second actuator, the controller operating the first actuator to cause displacement of the first specimen holder away from the second specimen holder along the common axis, the controller further operating the second actuator to dispose the second specimen holder in a known position.

8. The material testing system of claim 7 wherein the second actuator includes a displacement sensor having a pair of fixed plates and a movable plate coupled to the second specimen holder.

B. Procedural Background

On May 11, 2006, MTS sued Hysitron in the Northern District of California. MTS alleged Count One, direct infringement of the '124 Patent; and Count Two, induced infringement of the '124 Patent. On June 28, 2006, Hysitron filed a Motion to Transfer Venue to the District of Minnesota. On September 1, 2006, the Court granted the Motion to Transfer.

On September 26, 2006, the case was transferred to this Court.

On October 1, 2007, the parties filed their Joint Claim Construction Statement. [Docket No 134] The three disputed terms are "base," "coupled to," and "fixedly coupled to."

III. DISCUSSION

A. Legal Framework

1. Standard for Claim Construction

[1] [2] Interpretation of the terms used in a patent is a matter of law to be decided by the Court. *See* *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). The *Markman* hearing is held to construe the meaning of claim language as a matter of law, not to make factual findings. The Court need only construe the disputed claim language "to the extent necessary to resolve the controversy." *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed.Cir.1999) (citation omitted).

[3] [4] "[T]he words of a claim are generally given their ordinary and customary meaning.... [T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed.Cir.2005) (en banc) (citations omitted). "[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* at 1313.

[5] "In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words. In such circumstances, general purpose dictionaries may be helpful." *Id.* at 1314 (citation omitted).

[6] However,

the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean. Those sources include the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.

Id. (citations omitted).

2. Intrinsic Evidence of Meaning

[7] "Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms." Phillips, 415 F.3d at 1314 (citation omitted).

[8] [9] [10] [11] [12] "[C]laims must be read in view of the specification, of which they are a part.... [T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." Id. at 1315 (citations omitted).

[T]he specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography governs. In other cases, the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor. In that instance as well, the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive.

Id. at 1316 (citations omitted).

[A] court should also consider the patent's prosecution history, if it is in evidence. The prosecution history ... consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent. Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent. Furthermore, like the specification, the prosecution history was created by the patentee in attempting to explain and obtain the patent. Yet because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.

Id. at 1317 (citations omitted).

[13] "The public notice function of a patent and its prosecution history requires that a patentee be held to what he declares during the prosecution of his patent. A patentee may not state during prosecution that the claims do not cover a particular device and then change position and later sue a party who makes that same device for infringement." Springs Window Fashions LP v. Novo Indus., L.P., 323 F.3d 989, 995 (Fed.Cir.2003).

3. Admission of Extrinsic Evidence

[14] "Resort to extrinsic evidence is appropriate only when an ambiguity remains after consulting the intrinsic evidence of record." *Storage Tech. Corp. v. Cisco Sys., Inc.*, 329 F.3d 823, 832 (Fed.Cir.2003) (citation omitted).

B. "Base"

1. Parties' Proposed Constructions

The disputed term "base" appears in claims 1, 2, and 6 of the '124 Patent. MTS asserts that the term "base" means "a frame of reference or a reference location that provides a *datum* from which or in relation to which measurements are made." Hysitron asserts that the term means "a platform that supports the entire apparatus."

2. Intrinsic Evidence of Meaning Within the Patent

a. Abstract and Summary

[15] MTS asserts that the '124 Patent itself demonstrates that the term "base" is a reference from which measurements are made. It notes that the abstract states:

A material testing system includes a base and first and second specimen holders. A first displacement sensor measures displacement of the first specimen holder relative to the base. In addition, a second displacement sensor measures displacement of the second specimen holder relative to the base.

(124 Patent at abstract.) Similar language is repeated in the summary of the invention. (*Id.* at 1:47-54.) MTS concludes that this language shows that the '124 Patent uses "base" as a reference point from which measurements are made. MTS claims that one practicing the invention would understand that the device requires a base point from which measurements are made, and the device measures displacement of the specimen holders relative to that base to determine the effect of forces applied to the specimen.

b. Preferred Embodiment

MTS admits that the foundation of the device is also the point of reference in the preferred embodiment, but argues that this does not mean that the point of reference is always the foundation. The illustrative embodiment references a "base," element 22 of Figure 1, which is both the foundation or bottom of the material testing system and the reference point for measurement. MTS asserts that the scope of the invention is based upon the claim terms and is not limited to the illustrative embodiment unless specifically stated. *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1334 (Fed.Cir.2007) ("Limiting claims from the specification is generally not permitted absent a clear disclosure that the patentee intended the claims to be limited as shown.") (citation omitted).

MTS notes that, in the preferred embodiment, the upper specimen holder is fixed on a crosshead that moves relative to the instrument's foundation and the lower specimen holder is also moveable relative to the specimen's foundation. MTS concludes that, therefore, a point on the instrument's foundation is its most logical reference point: the movement of each specimen holder can be measured relative to a chosen point on the foundation. MTS asserts that it is simply a fortuity that, in the preferred embodiment, the most logical

reference point is located on the instrument's foundation.

MTS argues that the '124 Patent states that its claims are broader than the illustrative embodiments: "Although the present invention has been described with reference to preferred embodiments, workers skilled in the art will recognize that changes may be made in form and detail without departing from the spirit and scope of the invention." ('124 Patent at 5:14-19.)

MTS continues that the illustrative embodiment in the '124 Patent's specification contradicts Hysitron's proposal to limit "base" to the instrument's foundation. In describing the material testing system and Figure 1, the patentee disclosed that the patented invention may be configured in ways other than that depicted in the illustrative embodiment, stating that "[a]lthough illustrated as a vertical testing system, the system 10 may be oriented horizontally or at other angles convenient for the test specimen 12." ('124 Patent at 2:25-28.) MTS states that the '124 Patent thus discloses that the system depicted in Figure 1 may be turned on its side, at an angle, or upside down. MTS argues that, in such configurations of the system, the bottom or foundation the instrument would not be the base because it would not be in alignment with the axis upon which the specimen holders are displaced and a more logical reference point for such measurements would be used. (Oliver Decl. para. 7.) Moreover, the '124 Patent discloses other possible reference points for measurements, such as the frame or the crosshead. ('124 Patent at 2:56-3:1.) Thus, it concludes that the specification is consistent with its proposed construction.

As MTS points out, the '124 Patent discloses other possible reference points for measurements, such as the frame or the crosshead, for example, when it states that "the first displacement sensor 35 measures displacement of the crosshead 30 relative to the frame 20 (i.e., the base 22 or the cross beam 26)." ('124 Patent at 2:56-58.) However, the Court concludes that this language supports Hysitron's construction. If "base" simply meant any point of reference then it would make no sense to state that the first displacement sensor measures displacement of the crosshead relative to the frame (i.e. the point of reference or the cross beam). After all, according to the MTS, the cross beam is, in this embodiment, itself a point of reference. The language in the specification supports a definition of base that is narrower than any point of reference.

Hysitron asserts that the Court should rely only on intrinsic evidence to define "base" because the '124 Patent leaves no ambiguity regarding the meaning of the term. The Court agrees that the specification clearly uses the term "base" to refer to the foundation of the device which supports the entire apparatus. (*See* '124 Patent 2:30 ("frame 20 having a base 22"), 2:31-32 ("threaded rods 28 extend upward from the base 22 to a crossbeam 26"), 2:47-48 ("The LCDS assembly 16 includes a permanent magnet 36 mounted in the base 22 ..."), 2:56-58 ("the first displacement sensor 35 measures displacement of the crosshead 30 relative to the frame 20 (i.e., the base 22 or the crossbeam 26)"), 5:1-3 (a specimen holder is displaced "relative to base 92 along support frame 87").)

The specification specifically defines the "base" as being a physical object upon which a magnet can be mounted and as being a part of the frame, confirming that the base is a structural component of the device. Threaded rods cannot extend from an abstract mathematical construct or frame of reference, and a magnet cannot be mounted in an abstract mathematical construct or frame of reference. MTS's expert, Dr. Krishnaswamy Ravi-Chandar, supported this assertion when he agreed that in the aforementioned instances, "the patent is using the word base to describe that physical structure which is the support of the device." (Ravi-Chandar Dep. 68.)

In the second embodiment, found in Figure 2, the specification again uses the term "base" to refer to the

structural foundation of the device: "[a] drive motor 31 displaces the upper specimen holder relative to base 92 along support frame 87." ('124 Patent at 5:1-3, Fig. 2.)

c. Alternative Embodiment

MTS asserts that the Patent describes an alternative embodiment in which the most logical reference point from which to make measurements would not be a point on the foundation. ('124 Patent at 4:58-61.) MTS argues that in this alternative embodiment, the most logical reference point for measuring the relative movement of the two specimen holders is the crosshead. MTS concludes that because the most logical reference point for measurements in each embodiment will differ depending on the device's configuration, its definition of "base" must apply.

This other embodiment is not a "preferred embodiment," so the fact that "case law generally counsels against interpreting a claim term in a way that excludes the preferred embodiment from the scope of the invention" does not necessarily govern. *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1383 (Fed.Cir.2008). This "yet another" embodiment is only mentioned in a single sentence in the '124 Patent. ('124 Patent at 4:58-61.) It involves a lower specimen holder attached to the frame. Oliver attempts to fit the embodiment into the claims by opining that the crosshead of the alternative embodiment is the "most logical reference point." However, the specification does not identify a frame of reference for this embodiment, whether that is the "crosshead" or anything else. (Hinderaker Decl. Ex. 2, Oliver Dep. 49 ("[T]here is not a definition of base or a point of reference in [the alternative embodiment].")) In fact, Ravi-Chandar testified that the '124 Patent states that the foundation ("base") serves as the frame of reference in this alternative embodiment. (Hinderaker Decl. Ex. 1, Ravi-Chandar Dep. 85-86.) Ravi-Chandar was asked:

In the patent, to your knowledge, is there any description or example given where the frame of reference is not the support for the device (22), or in Figure 2, the support for the device (92)?

A. No.

Q. So it's fair to say that in the body of the patent as it describes the invention, the frame of reference is always the support for the device being, in Figure 1, 22, and in Figure 2, 92?

A. Correct.

(*Id.* 86.)

[16] Moreover, a construction should not be rejected just because it excludes an alternative embodiment. *See, e.g., Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1383 (Fed.Cir.2008) ("While we recognize that the district court's construction of "partially hidden from view" does not encompass these embodiments for the claims at issue, we disagree with Brocar that the district court's construction is for that reason necessarily erroneous.").

d. Claim Language

MTS asserts that nothing in the claim language suggests that "base" means only a structural component. It argues that, instead, language within the claims discloses a relative relationship between the claim elements—a relationship based on measurement. It concludes that its construction of the term "base" is known in the art and is consistent with the patentee's use of the term in the patent.

MTS claims that the novel aspect of this invention is not that it has a foundation, but that it can measure the application of one or more forces on the specimen by measuring the displacement of the first and second specimen holder relative to a reference point, known as the base.

There is no dispute that the other claim elements, such as "first specimen holder," "second specimen holder," "first displacement sensor," and "second displacement sensor" all refer to structural components of the claimed device. (Werner Decl. Ex. 8, Pl.'s Second Amended Claim Chart at 2-3; Ravi-Chandar Dep. 77; Oliver Dep. 40-41.) The "base" is included in descriptions along with this indisputably structural elements in Abstract, the Summary of the Invention, the preferred embodiment, and the claims; it is logical to conclude that the "base" is also a structural component of the claimed device.

The fact that MTS chose to require the foundation to serve as the reference point does not transform the "base" into an abstract mathematical construct or frame of reference. Hysitron provides this example: A judge takes three steps from a desk; distance can be measured relative to the desk. Measurement from the desk does not "transform" the desk into an abstract concept or frame of reference. The desk is the object from which distance is measured, not a mathematical construction or frame of reference. It is still a desk.

3. Evidence of Meaning Within the Prosecution History

a. Use of Prosecution History in Claim Construction

[17] Hysitron asserts that, throughout the prosecution, Oliver used the term "base" to refer to structure-the foundation of the device. "The best source for understanding a technical term is the specification from which it arose, informed, as needed, by the prosecution history." Phillips, 415 F.3d at 1315 (citations omitted).

b. The Hartman Prior Art Rejection

In the first Office Action during prosecution of the '124 Patent, the Examiner rejected the pending claims as obvious based on Hartman in view of other references. (Werner Decl. Ex. 9.) The Examiner stated that Hartman disclosed a testing device with "a first and a second specimen holder which are actuated to move relative to each other upon application of an associated force and means to measure the applied force." (*Id.* at 3.)

To overcome the Examiner's rejection of the claims as obvious based on Hartman, Oliver argued:

The Office Action notes col. 5, ll.21-31 of Hartman et al. in order to describe that the specimen holders may be adjusted *relative to one another* to accommodate elongation of a specimen during loading. However, this section simply does not teach or suggest using displacement sensors measuring displacement of each specimen holders *relative to the base*.

(Werner Decl. Ex. 10 at 2-3 (emphasis in original).)

Both Oliver and Ravi-Chandar testified that under the frame of reference construction, anything, including a point on a specimen holder, could serve as the "base." (Oliver Dep. 65-66; Ravi-Chandar Dep. 16-17, 26.) Under the frame of reference definition, the '124 claims would cover measuring displacement of the specimen holders relative to each other, a point on one of the specimen holders being the frame of

reference.

Oliver argued to the Examiner that Hartman did not teach the invention because the '124 Patent measures displacement relative to the base-i.e., its foundation. Oliver asserted that the "base" was a structural component of the device in order to gain allowance of the claims so MTS cannot now change its position during litigation. *Springs Window*, 323 F.3d at 995.

c. The Schmidt Prior Art Rejection

The Examiner summarized the teachings of Schmidt, a reference that the Examiner believed anticipated the claimed invention, as follows:

Schmidt discloses a resiliency testing device with features of the claimed invention including a base (element 102), a first and, a second specimen holder (for example, elements 11, see figures 2-3), a first displacement sensor (element 8) for measuring the displacement of the holder (col. 3, lines 50-60), and a second displacement sensor to measure the displacement of the second specimen holder.

(Werner Decl. Ex. 11 at 2.)

Oliver used the term "base" to refer to the bottom of the device when addressing the Examiner's rejection based on Schmidt. Schmidt disclosed a tensile testing device having a "base" that was a structural component. (*See* Werner Decl. Ex. 12 at 5:23-30 (describing apparatus with "two screw-threaded elements 120 rigidly affixed to base 102"), 5:61-65 (stating that the "base" can be made out of aluminum).) In response to this rejection, Oliver used the term "base" to refer to a supporting structure-the bottom (102) of the apparatus depicted in Figure 1 of the Schmidt Patent, not merely the abstract concept of a frame of reference. (Werner Decl. Ex. 13; Werner Decl. Ex. 12, Schmidt Patent at 1:19-23, Fig. 1.) Oliver stated:

With respect to figure 1 of Schmidt, a cylindrical sample 104 is held on the base 102 by elements 103, 117.... The frame 105 and sensing means 119 are thus entirely supported by the sample itself and not by elements 103, 117 or base 102.

(Werner Decl. Ex. 13, at 7-8.) Oliver used the term "base" to refer to a supporting structure in Schmidt, not an arbitrary frame of reference.

Schmidt himself used the term "base" to refer to the foundation of the apparatus and also disclosed that the "base" could serve as a frame of reference. (Schmidt at 5:23-50 (describing Figure 4 and explaining how "to adjustably fix the position of the movable support relative to the base".))

MTS notes that, unlike the '124 Patent, Schmidt used delimiting words and phrases in connection with the term "base" to convey that this was a specific structural element of the claimed invention. (*See, e.g.*, Schmidt Claim 9, Werner Decl. Ex. 12, 10:3-11 (claiming "a stationary base" and "a movable support adjustably connected to said stationary base to move toward and away from said stationary base".)) While MTS is correct that, in isolation, the claims in the '124 Patent do not so obviously describe the base as structural, the '124 Patent, as a whole, defines the base as structure and, as previously explained, the claims themselves do indicate that the base is a structural component. At a minimum, the evidence related to the Schmidt prior art rejection adds some support to Hysitron's construction.

d. Cited Prior Art

Cited prior art is also intrinsic evidence concerning the meaning of the term "base." *See* V-Formation, Inc. v. Benetton Group SpA, 401 F.3d 1307, 1311 (Fed.Cir.2005) ("[P]rior art cited in a patent or cited in the prosecution history of the patent constitutes intrinsic evidence.") (citations omitted). In this case, the prior art references considered by the Examiner further support the definition of the term "base" as the foundation of the apparatus, not merely to an abstract "frame of reference."

The cited prior art includes two MTS patents: U.S. Patent Nos. 4,475,403 ("the '403 Patent") and 4,478,086 ("the '086 Patent"). Those patents also used the term "base" to refer to the structural foundation of these tensile testing devices. ('403 Patent at 2:4-6 and Fig. 1 ("In FIG. 1, a load test frame indicated generally at 10 is shown schematically and includes a base 11, and columns 12 that will support an upper crosshead (not shown).")); '086 Patent at 2:66-68, and Fig. 1 ("The frame 10 includes a base 12, a pair of upwardly extending support columns 14 and 16, and a crosshead 18.") Other references by the Examiner also used the term "base" to refer to the foundation of device, such as the Holmes patent. (Werner Decl. Ex. 16 at 2:60-64 ("Fixed grip 24 is rigidly mounted to a base 28 fixed between side members of supporting frame 12."))

4. Extrinsic Evidence

a. Propriety of Consideration of Extrinsic Evidence

[18] MTS asserts that the Court should consider extrinsic evidence to determine the meaning of the term "base." Consulting extrinsic evidence is "particularly appropriate" to ensure that the Court's "understanding of the technical aspects of the patent is not entirely at variance with the understanding of one skilled in the art." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1309 (Fed.Cir.1999) (citations omitted).

Hysitron argues that consideration of extrinsic evidence regarding the meaning of the term "base" is improper because the intrinsic record unambiguously defines "base" as the "foundation of the device."

The Court agrees that the intrinsic evidence requires that Hysitron's construction of the term "base" be adopted. However, because the Court concludes that the extrinsic evidence in this case further supports Hysitron's construction, the Court will analyze that evidence as well.

b. Inventor and Expert Testimony

i. Inventor Testimony: Oliver

Oliver has sworn that he used the term "base" in the '124 Patent to mean "a frame of reference or a reference location that provides a *datum* from which or in relation to which measurements are made." (Oliver Decl. para. 9; Oliver Dep. 31.) Oliver explained that measurements must be made from points, not from structures. (Oliver Dep. 30.) This invention tests and measures the tensile properties of very thin fibers with extreme precision. MTS argues that it would be imprecise to measure displacement of the specimen holders from a structure such as an instrument's foundation.

[19] "The testimony of an inventor and his attorney concerning claim construction is ... entitled to little or no consideration. The testimony of an inventor often is a self-serving, after-the-fact attempt to state what should have been part of his or her patent application ..." *Bell & Howell Document Mgmt. Prods. Co. v.*

Altek Sys., 132 F.3d 701, 706 (Fed.Cir.1997). In this case, Oliver's declaration and testimony are conclusory. Oliver does not cite any references to support his opinion that "base" means "a frame of reference." Instead, he simply states how one can use any frame of reference to make the measurements necessary to perform tensile testing. (Oliver Decl. para. 7.) The fact that scientific principles allow measurements to be made using a "frame of reference" other than the foundation of the device does not dictate the meaning of the term "base" in this patent.

Moreover, according to Oliver, a "frame of reference" is a concept; it "has zero volume, so by definition it cannot be a real object.... It is a mathematical point in space." (Oliver Dep. 29-30.) When Oliver was asked to reconcile his intended construction of "base" with the statement in the specification that a permanent magnet 36 can be "mounted in the base 22" ('124 Patent at 2:47-48), he conceded that the '124 Patent was not clearly written and stated that he did not know if it is "physically possible to mount a magnet in a point of reference." (Oliver Dep. at 39-40.)

Additionally, despite Oliver's testimony regarding his interpretation of the term "base," the intrinsic evidence, such as the cited prior art, demonstrates that those of skill in the art of materials testing use the term "base" to refer to the foundation of the device. For example, as discussed earlier, Schmidt states that the "base" can be made of aluminum, as so is obviously a structural component, and, in Schmidt, that structural component also serves as a frame of reference.

The Court concludes that Oliver's interpretation of the term "base" is entitled to little weight, and notes that other testimony by Oliver supports Hysitron's construction.

ii. Expert Testimony: Ravi-Chandar

MTS's expert, Ravi-Chandar, a professor of aerospace engineering and engineering mechanics, opined the term "base" in the '124 Patent has the same meaning Oliver intended. (Ravi-Chandar Decl. para. 8-10.) He claimed that this construction was clear given the common usage of the term "base" in the art and the Patent's use of the term with respect to making measurements. (Id. para. 10.)

Ravi-Chandar's declaration is conclusory and unsupported. He admits that his construction was simply "made ... up." (Second Hinderaker Decl., Ex. 1, Ravi-Chandar Dep. 12.) Ravi-Chandar relies upon a single textbook reference, James W. Dally, et al., *Instrumentation for Engineering Measurements* (1984), to support his opinion that those of skill in the art would have understood "base" to mean "a frame of reference," but that reference does not support his definition. In fact, it repeatedly uses the term "base" to refer to the structural foundation of a device.

The definition of "base" advanced by MTS cannot be found anywhere in the Dally text. Moreover, the text lends support to Hysitron's construction. The subchapter on "Motion Measurement Without a Fixed Reference" discusses situations in which there is no fixed reference for measurements, such as in an earthquake. (Id. at 329.) In that case, seismic instruments are used which "detect relative motion between a base, which is attached to a structure of interest, and a seismic mass." (Id.) The chapter goes on to discuss making measurements of the "relative motion between the seismic mass and the base." (Id. at 331.)

The text, therefore, refers to a "base" as something that is "attached" to a structure of interest. This section also teaches that a transducer can be bolted to a structure of interest, and that "[t]he bolt force required to attach the transducer base to the structure can be expressed as [a mathematical expression.]" (Id. at 331.)

While the base of the transducer discussed in this section is the frame of reference, the term "base" also has structural form-it is used to refer to a particular part of the transducer: its foundation.

In any case, this chapter simply explains scientific concepts that can be used to analyze moving objects. While scientific theory may support the use of an arbitrary frame of reference, such as a line on the wall, to perform measurements, this does not dictate the meaning of the term "base" is used in the '124 Patent.

Therefore, the Court does not find Ravi-Chandar's opinion regarding the construction of the term "base" to be helpful. *See* Phillips, 415 F.3d at 1318 ("[C]onclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court.")

Additionally, while Ravi-Chandar contends that "base" is used by those in the field of mechanical physics to refer to a "frame of reference," he also acknowledges that "base" means a foundation for something. (*See* Ravi-Chandar Decl. para. 5 ("Though laypeople think of a 'base' as being a foundation for something, those in the field of physics know the term 'base' to *also* mean 'a frame of reference ...") (emphasis added).) Moreover, during his deposition, frame Ravi-Chandar admitted that the '124 Patent uses the word "base" to describe the physical structure that supports the device. (Ravi-Chandar Dep. 66, 68.)

c. Dictionary Definitions of the Term

MTS asserts that the ordinary dictionary definition of the term "base" supports its construction: it notes that the fifteenth definition of "base" in the *American Heritage Dictionary* is "[a] line used as a reference for measurement or computations." *American Heritage Dictionary* (4th ed. 2000.)

The Court acknowledges that a possible-although not primary-definition of "base" is a point of reference. However, the dictionary definitions also tend to support Hysitron's construction. In the *American Heritage Dictionary*, the first definition for "base" is "the lowest or bottom part: *the base of a cliff.*" (*Id.*) The third definition is "a supporting part or layer; a foundation: *a skyscraper built on a base of solid rock.*" (*Id.*) Additionally, the *Wiley's Electrical & Electronics Engineering Dictionary* also supports Hysitron's construction. Its first definition of "base" is "[t]he foundation of something, or the material that composes said foundation." *Wiley's Electrical & Electronics Engineering Dictionary* 61 (2004).

5. Conclusion

The Court adopts Hysitron's proposed construction of the term "base." From the language of the '124 Patent itself, it is clear that the "base" is a part of the structure. A magnet cannot be mounted in a point with no volume-the specification, the preferred embodiment, and the illustrations all show that "base" is a physical concept. Moreover, the prosecution history and the cited prior art demonstrate that Oliver and others skilled in the art use the term "base" to mean the foundation of the device.

The intrinsic evidence demonstrates that the "base" is a physical structure; however, the extrinsic evidence also supports this construction. MTS's dictionary definition is the fifteenth definition in the dictionary, while Hysitron's is the primary definition, not only in the general usage dictionary, but also in the technical dictionary in the field. The textbook upon which Ravi-Chandar relies also uses the term "base" to clearly refer to a physical structure. Although Oliver and Ravi-Chandar are qualified as experts and testified to MTS's proffered construction, their testimony is not persuasive. As Oliver admits, his definition does not make sense when the specification calls for a magnet to be mounted in the base. Neither of the experts can support their word-for-word identical definition with any outside source. Finally, simply because the

foundation of the device is used as the point of reference does not mean that it is no longer the foundation.

Adopting Hysitron's construction will limit the '124 Patent. It may be that Oliver did not intend to limit the '124 Patent so that only the foundation could be the reference point-it would make logical sense to have other possible reference points. However, the '124 Patent claims before the Court do not claim those potential alternative embodiments. Oliver could have defined "base," used the clearer term "point of reference," or provided alternative points of reference. Instead, he only used the term "base," which, at multiple points in the '124 Patent, clearly refers to the physical foundation of the invention.

The term "base" is construed as: "a platform that supports the entire apparatus."

C. "Coupled To"

[20] The term "coupled to" is found in asserted claims 2, 7, and 8 of the '124 Patent. These claims speak to actuators coupled to specimen holders, controllers coupled to actuators, and plates coupled to specimen holders.

MTS asserts that the term "coupled to" means "to connect for consideration together, or to join for combined effect." Hysitron asserts that the term means "to connect for consideration together." Thus, the parties agree that the term "coupled to" should at least encompass the definition "to connect for consideration together," but disagree about MTS's additional definition "or to join for combined effect."

Both parties' proposed constructions come directly from the dictionary: "1. a: to connect for consideration together b: to join for combined effect." *Merriam Webster's Collegiate Dictionary* 266 (10th ed. 1994).

The '124 Patent specification describes features consistent with MTS's broader definition:

Another aspect of the present invention includes a material testing system having first and second specimen holders. A first actuator is coupled to the first specimen holder and a second actuator is coupled to the second specimen holder. A controller is coupled to the first and second actuators. The controller operates the first actuator to cause displacement of the first specimen holder and further operates the second actuator to dispose the second specimen holder in a known position.

(124 Patent at 1:53-55.) The controller, the actuator, and the specimen holder are all joined for combined effect-the controller operates the actuator which in turn causes displacement of the specimen holder which in turn applies a load, such as a static or oscillating load, to the test specimen. (*Id.* at 2:41-43, 3:22-38.) The specification demonstrates that the controller, the actuator, and the specimen holder are not just connected; they are joined for combined effect. These features of the tensile testing invention act together to apply force or loads to the sample during the test procedure.

[21] "[T]he claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed.Cir.2004) (citation omitted). The term "coupled to" has a broad meaning in everyday parlance and is used in the '124 Patent consistent with that broad meaning.

The Court adopts MTS's construction of the term "coupled to" because it is consistent with the ordinary meaning of the term and the specification. "Coupled to" is constructed as: "to connect for consideration

together, or to join for combined effect."

D. "Fixedly Coupled To"

MTS asserts that no construction is required once "coupled to" is construed. Hysitron asserts that the term means "connected to prevent any movement relative to."

The Court concludes that, once it has construed "coupled to," there is no need to separately construe "fixedly coupled to," because the ordinary meaning of the claim language is readily apparent. *See Allan Block Corp. v. County Materials Corp.*, 502 F.Supp.2d 845, 852 (D.Minn.2007) (declining to construe phrase when, "[c]onsistent with the claim language, the specification, and the prosecution history, the Court determines that the claim language creates no ambiguity and has a readily understood meaning").

For the reasons stated, **IT IS HEREBY ORDERED:**

The claims of the patent at issue in this case should be construed in a manner consistent with the definitions set forth by the Court in this Memorandum of Law & Order.

D.Minn.,2008.

MTS Systems Corp. v. Hysitron, Inc.

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