United States District Court,
N.D. California.

MONSTER CABLE PRODUCTS, INC,
Plaintiff.
v.
The QUEST GROUP d/b/a/ AudioQuest,
Defendant.

No. C 04-0005 MHP

Aug. 8, 2005.

Ian N. Feinberg, Michael A. Molano, Joshua M. Masur, Mayer Brown Rowe & Maw LLP, Palo Alto, CA, for Plaintiff.

Michael D. Lisi, Christopher T. Holland, Krieg Keller Sloan Reilley & Roman, San Francisco, CA, for Defendants.

MEMORANDUM AND ORDER

PATEL**, J.**

Cross-Motions for Summary Judgment

Plaintiff Monster Cable Products, Inc. filed this action alleging patent infringement against defendant The Quest Group, d/b/a/ AudioQuest ("AudioQuest"). The complaint alleges infringement of United States Patent No. 5,307,416 ("the '416 Patent"), technology relating to audio cable technology. Now before the court is defendant's motion for summary judgment, or in the alternative, for summary adjudication of noninfringement. Plaintiff opposes this motion and cross-moves for summary adjudication of infringement. Having fully considered the parties' arguments and submissions and for the reasons set forth below, the court enters the following memorandum and order.

BACKGROUND

I. The Patented Invention

The patent at issue in this infringement action relates to an audio cable technology invention developed by Demian Martin in 1991 and 1992. FN1 The '416 Patent, issued on April 26, 1994, describes a "bias circuit for cable interconnects." The patent discloses a circuit and method for improving the accuracy of electrical signals communicated between electrical devices. The invention is directed towards electrical equipment, such as high fidelity stereo equipment, that reproduces audio signals, either analog or digital. In order to improve sound quality, the invention is designed to reduce noise when an audio signal approaches and passes through zero.

FN1. Martin obtained the patent in 1992, while working as an audio engineer at Crosby Audio Works. Shortly after Martin moved to Monster Cable in 1996, the company purchased the patent from Crosby Audio Works.

The '416 Patent describes two methods: a circuit apparatus (claim 1) and a biased cable apparatus (claims 2 through 5). The first method involves applying a bias voltage across the first and second conductors of a cable connecting two electrical devices and isolating these devices from the bias voltage. The second is an apparatus for communicating a digital electrical signal to an input of a second electrical device on a coaxial cable with a center conductor and a conductive shield. A digital signal, which has a voltage that changes with respect to an approximately constant ground voltage, is input on the center conductor of a coaxial cable. The apparatus applies a bias voltage with respect to ground to the conductive shield of the coaxial cable, such that the digital signal passing through the coaxial cable is biased with respect to the voltage source and to the ground reference. The patent explains that the invention improves signal accuracy by creating an electrostatic effect at the electron level, or based on mechanical force exerted by the electrostatic bias which improves the linearity of the system. The embodiment of the bias circuit apparatus described in the patent is particularly applicable to digital signals, though it can also be used for analog signals.

In 1990, Martin joined Crosby Audio Works, the first assignee of the '416 Patent. Crosby manufactured and marketed the circuit apparatus embodiment of the invention during the early to mid-1990s. Martin joined Monster Cable in 1996, and the company purchased the rights to the '416 Patent. Neither Crosby Audio Works nor Monster Cable has ever built the biased cable apparatus described in the patent's specification. In the present action, Monster Cable alleges that AudioQuest has begun marketing biased cables which infringe on the biased cable apparatus of the '416 Patent, defined in claim 2 and dependent claims 3 to 5.

In relevant part, the '416 Patent makes the following claims:

2. A biased cable apparatus for communicating a voltage varying electrical signal from an output of a first electrical signal to an input of a second electrical device on a coaxial cable having a center conductor and a conductive shield; said electrical signal being provided by a single line and an approximately constant ground reference voltage, the apparatus comprising:

means for applying the electrical signal from the single line to the center electrode;

ground reference means for maintaining the output of the first electrical device and the input to the second electrical device at approximately the same ground reference voltage; and

bias means for applying an approximately constant bias voltage to the conductive shield of the coaxial cable with respect to the ground reference voltage said bias voltage being larger than any peak-to-peak voltage of the voltage varying electrical signal.

3. The biased cable apparatus of claim 2 wherein the ground reference means includes a ground reference line connected between the output of the first electrical device and the input to the second electrical device.

4. The biased cable apparatus of claim 3 wherein the bias means includes a voltage source coupled between the conductive shield and the ground reference line.

5. The biased cable apparatus of claim 3 wherein the bias means includes means for supplying a bias voltage that is greater than the peak voltage of the electrical signal.

'416 Patent, col. 9, lines 27-29, col. 10, lines 1-29.

II. The Accused Devices

Quest has moved for summary judgment of noninfringement on twenty-nine of its audio cables. Each of these cables relies on AudioQuest's Dielectric Bias System ("DBS") technology, but the cables vary in terms of the arrangement, quantity, and type of their conductors, as well as in the application of voltage within the cable. The accused devices can be divided into a number of product "families." Unless otherwise noted below, the products within each family may vary slightly in the type of metal or insulation used.

AudioQuest's original Analog Interconnect Cables (the Original Panther, Jaguar, Cheetah, and Sky cables) have the following conductors: three signal conductors (surrounded by an air gap and insulation), an un-insulated drain conductor, a "Power Anode" (surrounded by insulation), and an aluminum foil or copper foil layer. Harley Dec. para.para. 6, 11-13. These cables are sold as balanced (using two separate conductors, one positive and one negative, to carry an audio signal) or unbalanced (using one conductor to carry the audio signal). *Id*. para. 5. The cables also include a battery pack that provides a DC voltage, with the positive terminal of the battery connected to one end of the Power Anode and the negative terminal connected to one end of the drain conductor. *Id*. para. 9. The other end of the Power Anode is "floating" (i.e., not connected to anything), while the other end of the drain conductor is connected to the terminal connectors for the cables (XLR in the balanced cables, RCA in the unbalanced cables). *Id*. The drain conductors and aluminum foil or copper foil are at ground. *Id*. para. 10. AudioQuest's website describes the DBS system application in the Original Jaguar cable as follows: "Greatly improved performance is made possible by a constant 36 volt charge on all Jaguar's insulation. As 36 volts is far above the voltage of an audio signal, the result is considerably more transparency and dynamics than possible even from a cable in continuous use, with equipment that is never turned off." Harley Dec., Exh. B. The descriptions for the other cables in this family are similar, except that the Sky cable uses a 72 volt charge on the insulation. *See id*., Exh. D, F, H.

The second product family is a newer generation of analog interconnect cables (the New Panther, Jaguar, Cheetah, and Sky Analog Interconnect Cables). *Id*. para. 15. These have the following conductors: three signal conductors (surrounded by an air gap and insulation), a "DBS Cathode," an un-insulated drain conductor, an un-insulated "DBS Anode," and inner and outer layers of aluminum foil or copper foil. *Id*. para.para. 15, 20-22. Like their original versions, these cables are sold as either balanced or unbalanced, with XLR or RCA conductors. *Id*. para.para. 16, 19. The battery which provides DC voltage to these cables has a positive terminal connected to one end of the DBS Anode and a negative terminal connected to the DBS Cathode. *Id*. para. 18. The opposite ends of the DBS Anode and Cathode are floating. *Id*. The inner aluminum foil layer is at ground, as is the drain conductor. *Id*. para. 19.

The Sub-3 cable is also a type of analog interconnect cable. *Id*. para. 23. It is used to connect a receiver, processor, or preamp to a subwoofer. *Id*. The Sub-3 includes the following conductors: three copper signal conductors (surrounded by an air gap and polythylene insulation), a Power Anode, two un-insulated copper drain conductors, an inner aluminum foil layer (in electrical contact with one of the drain conductors and surrounded by insulation), and an outer aluminum foil layer (in electrical contact with the other drain

conductor). *Id*. para.para. 23, 25, 26. The Power Anode is located inside of a three-pronged polyethylene insulator. *Id*. para. 23. It is sold balanced or unbalanced. *Id*. para. 24. The battery of the Sub-3 has a positive terminal connected to one end of the Power Anode, with the other end of the Power Anode floating, and the negative terminal of the battery is connected to one end of the outer drain conductor. *Id*. para. 27. The inner aluminum foil and inner drain conductor are both at ground. *Id*. para. 29.

The fourth product family includes four AudioQuest speaker cables, called the Original Kilimanjaro, Mont Blanc, and Pike's Peak Speaker Cables. *Id*. para. 30. The conductors in the cables include: an insulated conductor in the middle of the cable, five separate insulated conductors placed around that conductor to form a "flower pattern" of conductors, and five more separate insulated conductors placed outside of the flower of conductors. *Id*. The cables do not have aluminum foil layers or drain conductors. *Id*. The outer flower conductors are the negative conductors and are each connected to the negative terminal of a battery and the "negative" signal. *Id*. para. 31. The positive terminal of the battery is connected to one end of the middle conductor, which is not electrically connected to any other conductors in the cable. *Id*. The inner flower conductors are positive conductors that carry the audio signal. *Id*. para. 31.

The new generation of that group of speaker cables (called the New Original Kilimanjaro, Mont Blanc, and Pike's Peak Speaker Cables) have the same conductors as the original cables, with the addition of an aluminum foil layer surrounding the outer sets of conductors and fillers, as well as an un-insulated drain wire. *Id*. para. 33-34. These cables' batteries have a slightly different configuration, with the negative terminal of the battery connected to one end of the insulated middle conductor, and the positive terminal connected to one end of the drain conductor. *Id*. para. 35.

In AudioQuest's Original Volcano and Everest Speaker Cables, the center of the cables are a foam core surrounded by an aluminum foil layer. *Id*. para. 37. This aluminum foil layer is in electrical contact with an un-insulated drain conductor connected to the positive terminal of the battery. *Id*. Eight insulated conductors (positive conductors) are placed in groups of four outside the aluminum foil, with two fillers separating the groups. *Id*. para.para. 37-38; Exh. X. Outside that layer of conductor groups is a non-conductive binder and eight insulated conductors (negative conductors) and eight fillers placed in alternating groups of four. *Id*. The positive conductors are connected to the positive terminal of the battery and the negative conductors connected to the negative terminal. *Id*. para. 38. The AudioQuest materials describing the DBS technology on these cables states:

Unfortunately, because insulation stores and releases energy, it is also a 'dielectric.' In a cable application, all released energy is distortion. The misnomer 'break-in' is often used to describe the pronounced improvement in performance as the dielectric adapts to a charged state as the cable is used. Whenever a cable does not have a charge on it, it is re-adapting to an uncharged state; it is becoming new again. By maintaining a 72 volt dielectric-bias, far above the voltage of delicate audio signals, the DBS system provides considerably better transparency and dynamics than is possible even from a cable in continuous use.

Id., Exh. Y, AA.

The new generation of the Volcano and Everest Speaker Cables has an insulated conductor in the middle of the cable which is connected at one end to the negative terminal of a battery and floating at the other end. *Id*. para. 40. As in the Original Volcano and Everest Cables, these cables have eight insulated conductors and fillers placed in groups of four, forming a layer that is surrounded by a non-conductive binder and then

an outer layer of eight insulated conductors and eight fillers, again arranged in alternating groups of four. *Id*. The insulated conductor in the middle of the cable is not electrically connected to any of the conductors in the inner or outer layers or to the aluminum foil. *Id*. para. 41.

The CV-4, KE-4, CV-6, and KE-6 Speaker Cables also have an insulated conductor in the middle of the cable that is connected at one end to the negative terminal of a battery but otherwise not electrically connected to any adjacent conductors or layers. *Id*. para. 43-45. Four (or eight, in the latter two cables) insulated signal conductors are placed adjacent to this middle conductor, two (or four) of which carry a positive signal, two (or four) a negative signal. *Id*. Outside of the conductors is a layer of aluminum foil, which is in electrical contact with an un-insulated drain conductor connected at one end to the positive terminal of the battery (the other end of the drain conductor is floating). *Id*.

The Gibralter and Rockefeller Speaker Cables include two cable "portions" that each have seven conductors. *Id*. para. 46, 48. Each portion has an insulated conductor in the middle, with one end connected to the negative terminal of a battery and the other end floating, but which is otherwise not in electrical contact with any other conductors. *Id*. para.para. 47-48. Adjacent to that middle conductor are four insulated conductors, two of which carry a negative signal and two a positive, interleaved with a set of cotton fillers. *Id*. Outside of this layer is an aluminum foil layer, and each cable portion has an un-insulated drain conductor that runs along the cable in electrical contact with that aluminum foil layer. *Id*. One end of the drain conductor is connected to the battery's positive terminal, while the other end is floating. *Id*.

The Raven Digital Interconnect Cable is a balanced cable. *Id*. para. 49. In the middle of the cable is an insulated conductor with one end connected to the negative terminal of a battery and the other end floating. *Id*. Adjacent to the middle conductor are three insulated conductors interleaved with three fillers. *Id*. Of these three conductors (each of which is connected to one XLR connector pin), one conductor is the positive signal conductor, one the negative signal conductor, and the third is associated with ground. *Id*. These three conductors are surrounded by conductive materials and insulation, which are in turn enclosed by an aluminum foil layer. *Id*. An un-insulated drain conductor (with one end connected to the positive terminal of the battery and the other end floating) runs along the length of the cable in electrical contact with the aluminum foil layer. *Id*. The DBS system in the Raven cable is marketed in AudioQuest's website brochure this way:

When insulation is un-biased, its dielectric properties cause different amounts of time-delay for each frequency and each signal level. Similar to how the earth's magnetic field makes all compasses point north, the AQ DBS system creates an electrostatic field which causes the molecules of the insulation to all point the same direction. This minimizes the multiple nonlinear time-delays. Corruption of time domain information in a digital audio signal is known as 'jitter' ... a primary distortion mechanism limiting intelligibility and causing artifacts (irritation) in the sound.

Id., Exh. MM.

The Hawk Eye and Eagle Eye are also Digital Interconnect Cables. *Id*. para. 50. They have a conductor in the middle of the cable, an un-insulated drain conductor, an outer aluminum foil layer, a conductive PVC layer, a silver-plated copper layer, and a copper foil layer. *Id*. The middle conductor is used to carry an audio or video signal and is connected to the negative terminal of a battery and the center pins of RCA connectors. *Id*. para. 51. This insulator is surrounded by a conductive PVC layer and copper and foil layers which connect to equipment ground through the shells of the RCA connectors located at the ends of the

cable. *Id*. An un-insulated drain conductor (with one end connected to a positive terminal of a battery and the other floating) runs along the cable in electrical contact with the outer aluminum foil layer. *Id*.

The final AudioQuest product is the Leopard Tone Arm Cable. *Id*. para. 53. This cable has an insulated "drain" conductor at the middle of the cable that is connected at one end to the positive terminal of a battery, the other end is floating and not connected to anything. *Id*. para. 54. The drain is juxtaposed between four insulated conductors (left negative, left positive, right negative, right positive) and four cotton fillers. *Id*. Outside of the four conductors are a conductive PVC layer and a tinned copper layer, the latter of which is electrically connected to the ground chassis of the tone arm, the ground chassis of the stereo component, and the negative terminal of the battery. *Id*.

III. Procedural History

Following a *Markman* hearing held on March 15, 2005, this court issued an order construing six terms used in the disputed claim 2 of the '416 Patent. *See* March 18, 2005 Claim Construction Order. That order construed the term "coaxial cable" as a "cable with two conductors that share an axis." The court construed "center conductor" as "a conductive material which is enclosed by the conductive shield of a coaxial cable and which carries the voltage varying electrical signal." As for the term "conductive shield," the court construed the term as an "outer conductor that reduces the effect of external electrical interference on the voltage varying electrical signal transmitted on the center conductor." The court found that the term "applying" (in the context of "applying an approximately constant bias voltage ...") did not require further construction, but rather would be obviously understood as conducting voltage. In addition to these terms, the court adopted the parties' agreed upon constructions, including their construction of "ground reference voltage" as "the approximately zero voltage level or potential against which the 'electrical signal' and 'bias voltage' are established and measured." Finally, the court found that only the agreed structures depicted in figure 9 of the patent performed the functions claimed by the "bias means" and "means for supplying a bias voltage that is greater than the peak voltage of the electrical signal" terms of the patent. FN2

FN2. As discussed herein, the court misstated the parties' agreement in the claim construction order. The correct summary of the parties' agreement should have read that the structures of figure 9 corresponding to the bias means included: (1) the voltage source 190, (2) the unlabeled conductor or device connecting the voltage source to the conductive shield, and (3) the unlabeled conductor or device connecting the voltage source to the ground reference line.

On May 16, 2005, defendant filed a motion for summary judgment of noninfringement of the '416 Patent with respect to all of the AudioQuest products at issue, or in the alternative, for summary adjudication of noninfringement on the asserted claims of the '416 Patent with respect to certain products. Plaintiff opposes this motion and cross-moves for summary judgment of infringement with respect to all claim limitations. The following memorandum and order addresses both of these motions.

LEGAL STANDARDS

I. ***Summary Judgment***

As in any other civil action, summary judgment is proper in a patent infringement action when the pleadings, discovery, and affidavits show that there is "no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law." Fed.R.Civ.P. 56(c). *See also* Southwall Techs., Inc.

v. Cardinal IG Co., 54 F.3d 1570, 1575 (Fed.Cir.), *cert. denied,* 516 U.S. 987, 116 S.Ct. 515, 133 L.Ed.2d 424 (1995). Material facts are those which may affect the outcome of the case. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986). A dispute as to a material fact is genuine if there is sufficient evidence for a reasonable jury to return a verdict in favor of the nonmoving party. *Id.*

The party moving for summary judgment bears the burden of identifying those portions of the pleadings, discovery, and affidavits that demonstrate the absence of a genuine issue of material fact. Celotex Corp. v. Cattrett, 477 U.S. 317, 323, 106 S.Ct. 2548, 91 L.Ed.2d 265 (1986). On an issue for which the opposing party will have the burden of proof at trial, the moving party need only point out "that there is an absence of evidence to support the nonmoving party's case." Id. at 325; Crown Operations Int'l, Ltd. v. Solutia, Inc., 289 F.3d 1367, 1377 (Fed.Cir.2002). On the other hand, where the moving party bears the burden of proof on an issue, it must submit evidence sufficient to establish that no reasonable jury could find against it on that issue at trial. *See* Frank's Casing Crew & Rental Tools, Inc. v. Weatherford Int'l, Inc., 389 F.3d 1370, 1376 (Fed.Cir.2004); Gart v. Logitech, Inc., 254 F.3d 1334, 1339 (Fed.Cir.2001), *cert. denied,* 534 U.S. 1114, 122 S.Ct. 921, 151 L.Ed.2d 886 (2002).

II. Patent Infringement

Under section 271 of the Patent Act, 35 U.S.C. s. 271, liability for patent infringement may be imposed on any person who without permission of the patentee "makes, uses, offers to sell, or sells any patented invention [ ] within the United States or imports into the United States any patented invention during the term of the patent therefor." *Id.* The rights granted to the patentee are defined by the patent's claims. Markman v. Westview Instruments, Inc., 517 U.S. 370, 373, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). In determining whether an allegedly-infringing device falls within the scope of the claims, a two-step process is used: first, the court must determine as a matter of law the meaning of the particular claim or claims at issue; and second, it must consider whether the accused product infringes one or more of the properly construed claims. Id. at 384; Allen Eng'g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1344 (Fed.Cir.2002). The second inquiry is a question of fact, although summary judgment of infringement or noninfringement may nonetheless be appropriate when no genuine dispute of material fact exists. Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1299 (Fed.Cir.2004) (quoting Bai v. L & L Wings, Inc., 160 F.3d 1350, 1353 (Fed.Cir.1998)).

The patentee bears the burden of proving infringement by a preponderance of the evidence. Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1535 (Fed.Cir.1991). This burden can be met by showing that the patent is infringed either literally or under the doctrine of equivalents. *See* Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1318 (Fed.Cir.2004). To support a finding of literal infringement, the patentee must establish that "every limitation recited in the claim appears in the accused product, i.e., the properly construed claim reads on the accused product exactly." Jeneric/Pentron, Inc. v. Dillon Co., 205 F.3d 1377, 1382 (Fed.Cir.2000) (citing Amhil Enters. Ltd. v. Wawa, Inc., 81 F.3d 1554, 1562 (Fed.Cir.1996)). Alternatively, where one or more elements of the claim are not literally present in the allegedly infringing product or process, infringement may nonetheless be found under the doctrine of equivalence if the differences between the accused device and the patented invention are "insubstantial." Honeywell Int'l, Inc. v. Hamilton Sundstrand Corp., 370 F.3d 1131, 1139 (Fed.Cir.2004) (quoting Eagle Comtronics, Inc. v. Arrow Communication Labs., Inc., 305 F.3d 1303, 1315 (Fed.Cir.2002)). As with literal infringement, the inquiry into whether infringement may be found under the doctrine of equivalents requires an element-by-element comparison of the patented invention and the accused device. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 40, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997). Consequently, in applying the doctrine, the

court must consider whether the accused device "contain[s] elements that are either identical or equivalent to each claimed element of the patented invention." *Id.;* EMI Group N. Am., Inc. v. Intel Corp., 157 F.3d 887, 896 (Fed.Cir.1998), *cert. denied,* 526 U.S. 1112, 119 S.Ct. 1756, 143 L.Ed.2d 788 (1999).

Under the classic formulation of the doctrine of equivalents set forth in Graver Tank & Manufacturing Co. v. Linde Air Products Co., 339 U.S. 605, 70 S.Ct. 854, 94 L.Ed. 1097 (1950), a feature of the accused device is "equivalent" to an element of claimed invention if it performs substantially the same function in substantially the same way to achieve substantially the same result. Id. at 608 (citations omitted); Schoell v. Regal Mar. Indus., Inc., 247 F.3d 1202, 1209-10 (Fed.Cir.2001). However, as the Supreme Court subsequently acknowledged in *Warner-Jenkinson,* this particular "linguistic framework" may not be appropriate in every case. 520 U.S. at 39-40. Rather, the Court observed that "[a]n analysis of the role played by each element in the context of the specific patent claim [must] inform the inquiry as to whether a substitute element matches the function, way, and result of the claimed element, or whether the substitute element plays a role substantially different from the claimed element." Id. at 40. A number of other considerations may also be relevant in determining the range of equivalents to which the claimed invention is entitled, including the prosecution history of the patent in suit, the pioneer status of the invention (or lack thereof), and the limitations on patentability of the allegedly equivalent device that would have been imposed by prior art extant at the time that the patent application was filed. See Intel Corp. v. International Trade Comm'n, 946 F.2d 821, 842 (Fed.Cir.1991); K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1366-68 (Fed.Cir.1999).

DISCUSSION

I. The '416 Patent***'s Status as a Pioneer Patent***

The parties' dispute whether the '416 Patent is a pioneer, entitled to a broad range of equivalents, or an improvement patent. This inquiry is relevant to the scope of equivalents due to the claim limitations of the '416 Patent. *See* Abbott Laboratories v. Dey, L.P., 287 F.3d 1097, 1105 (Fed.Cir.2002) ("A pioneer patent by definition will have little applicable prior art to limit it, whereas an improvement patent's scope is confined by the existing knowledge on which the improvement is based"). A patent that issues in a crowded art cannot be considered a pioneer patent. Chemical Engineering Corp. v. Essef Industries, Inc., 795 F.2d 1565, 1572, n. 8 (Fed.Cir.1986). The '416 Patent indeed issued in a crowded field of audio cable technology, much of which sought to achieve the same general purpose as Martin's patent: to improve the accuracy of electrical signals communicated between electrical devices. *See, e.g.,* U.S. Patents Nos. 4,414,023 & 4,954,787 (both cited as prior art in the '416 Patent). *See also* U.S. Patent No. 4,177,431 (discussed in U.S. Patent No. 4,954,787). The '416 Patent referenced eight examples of prior art, and it required amendments at the U.S.P.T.O. *See generally* AudioQuest Req. for Judicial Notice.

The parties have raised a disputed issue over whether the '416 Patent's "bias means" element was a pioneer in the field. Though the concept of biasing conductors in a cable was known and cited as prior art by the patentee, Monster Cable has provided an expert declaration from Dr. Barry A. Blesser attesting that none of the references to prior art cited in the patent showed "either the problem or the solution of the '416 Patent," which he identified to be that "without a bias, the stresses on the dielectric oscillate with the changing sign of the audio signal, but with the bias, there is no longer a change in sign because of the additive bias." July 5, 2005 Blesser Dec. para.para. 5, 8-23. *See* July 5, 2005 Blesser Dec., para.para. 11-12 (discussing the biased conductors in U.S. Patent No. 3,763,482). As an issue of fact, resolution of this issue would not be appropriate on summary judgment as to the "bias means" element of the patent. Augustine Medical, Inc. v. Gaymar Industries, Inc., 181 F.3d 1291, 1301 (Fed.Cir.1999) (citing Sun Studs, Inc. v. ATA Equip. Leasing

Inc., 872 F.2d 978, 987 (Fed.Cir.1989) (noting that "no objective legal test separates pioneers from non-pioneers," and that pioneer status "depends on all factual circumstances"). Nor is resolution of the question necessary for the disposition of this order, where the question of equivalents on the "bias means" functions is not reached.

However, there is no dispute in the record as to the diversity of cable geometries captured in the prior art and the availability of complex arrangements of conductors to improve audio and other cable technology. The examples of prior art cited in the Patent included multiple conductor cables in various configurations. *See, e.g.,* U.S. Patent No. 4,538,023 at col. 3, lines 25-28 (referring to a "cable consist[ing] of a plurality of conductors" in the context of audio cable technology). While it is ultimately true that the "peripheral claiming system itself ... makes the best distinction between pioneers and non-pioneers," and the "claim scope itself generally supplies broader exclusive entitlements to the pioneer," the court nevertheless notes that it is undisputed that claim limitations in the '416 Patent relating to conductor geometries are not pioneering aspects of the invention's contribution. Id.

II. The Claim Limitations Described in Claim 2

Quest moves for summary judgment on the basis that no reasonable jury could find, either literally or under the doctrine of equivalents, that the following limitations of claim 2 are present in the accused devices: (1) a "coaxial cable," (2) a "center conductor," (3) a "conductive shield," (4) a "means for applying the electrical signal," and/or (4) a "bias means." Monster Cable disputes whether the first three of these terms, which appear in the preamble of claim 2, should be considered independent limitations of claim 2.

A preamble limits the claimed invention where it "recites essential structure or steps," or otherwise gives meaning to the claim. Eaton Corp. v. Rockwell Intern. Corp., 323 F.3d 1332, 1339 (Fed.Cir.2003). " '[A] claim preamble has the import that the claim as a whole suggests for it. In other words, when the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects.' " *Id.* (quoting Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620 (Fed.Cir.1995)). However, if deletion of the preamble phrase would not affect the structure or steps of the claimed invention, the body of the claim describes a structurally complete invention such that the preamble is generally not limiting unless there is " 'clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art.' " *See* Intertool, Ltd. v. Texar Corp., 369 F.3d 1289, 1295 (Fed.Cir.2004) (quoting Catalina Marketing Int'l, Inc. v. Coolsavings.Com, Inc., 289 F.3d 801, 808 (Fed.Cir.2002).

In claim 2 of the '416 Patent, the preamble provides the antecedent basis for the terms coaxial cable, center conductor, and conductive shield, as those terms are used in the body of the claim. The preamble does not merely introduce "a biased cable apparatus comprising," as Monster Cable has repeatedly suggested. Instead, it introduces "[a] biased cable apparatus for communicating a voltage varying electrical signal from an output of a first electrical device to an input of a second electrical device on a coaxial cable having a center conductor and a conductive shield ... the apparatus comprising ..." '416 Patent, col. 9, line 27-col. 10, line 4. This language is essential for understanding the means-plus-function claim limitations then described. Claim 2's "bias means," for instance, refers to the "the conductive shield of the coaxial cable," relying on the preamble as both antecedent and structural context for the "bias means." The body of the claim similarly refers to "the center electrode" (stipulated by the parties at claim construction to be the equivalent of "center conductor") and "the conductive shield," in reference to the antecedent introduction of those terms in the preamble. Without the preamble's linking of the "center conductor" and "conductive

shield" as part of the "coaxial cable," the relationship between those three terms in the body would be unidentified. The '416 Patent thus clearly falls at one end of the spectrum identified by the Federal Circuit in *Eaton,* where limitations in the body of a claim "rely upon and derive antecedent basis from the preamble," such that "the preamble may act as a necessary component of the claimed invention." 323 F.3d at 1339. The body of claim 2 does not set out the complete invention such that the preamble could be deleted, making the language of the preamble a necessary key to the claim's meaning. *See id.;* Intertool, 369 F.3d at 1295.

The Patent Office appropriately believed that the language of the preamble was central to understanding the claims, because the prosecution history reveals amendment of the preamble. *See* AudioQuest Req. for Judicial Notice at MON 7 (in response to the Patent Office's rejection of all of the inventor's claims, the patentee amended the claim for the biased cable apparatus to add the language "voltage varying" to the preamble's introduction of the "electrical signal"). The prosecution history's concern for the language of the preamble provides further evidence that it was understood as intertwined with the body of the claim. *See* Intertool, 369 F.3d at 1295.

Terms in the preamble of claim 2 are therefore essential to performance of infringement analysis. At claim construction, both parties and the court recognized this fact, and this court construed a number of terms from the preamble. The very language of the claim which gave the terms importance for claim construction signifies their importance for purposes of infringement. *See* Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1306 (Fed.Cir.1999) (finding that the preamble before the court was "of no significance to claim construction because it cannot be said to constitute or explain a claim limitation").

The court thus proceeds to evaluate infringement by the accused devises as to (1) a "coaxial cable," (2) a "center conductor," (3) a "conductive shield," (4) a "means for applying the electrical signal," and/or (4) a "bias means."

III. Literal Infringement of Claim 2

Summary judgment of noninfringement requires that, on the proper claim construction, "no reasonable jury could have found infringement on the undisputed facts or when all reasonable factual inferences are drawn in favor of the patentee." TechSearch, L.L.C. v. Intel Corp., 286 F.3d 1360, 1371 (Fed.Cir.2002). Establishing literal infringement requires that the patentee show that "all of the elements of the claim, as correctly construed," are present in the accused system. *Id*. To prevail on its motion for summary judgment, plaintiff must show that a reasonable jury would be compelled to find that every element of the claims at issue is present in one or more of the accused devices. *See* Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1299 (Fed.Cir.2004).

A. Literal infringement of the Patent's "Coaxial Cable" Claim Limitation

The court notes that at oral argument plaintiff appeared to concede the lack of viability of the literal infringement theory. Nevertheless, since the parties have addressed this in their papers, the court addresses it. The term "coaxial cable" is introduced in claim 2 in the following context: "[a] biased cable apparatus for communicating a voltage varying electrical signal ... on a *coaxial cable* having a center conductor and a conductive shield." At claim construction, this court construed the term as a "cable with two conductors that share an axis." Claim Const. Ord. at 10. Without need for extrinsic evidence, this court found that in light of the specification and the prior art's use or lack of use of the term "coaxial cable," the term referred to two-conductor cables having a conductive shield and center conductor. The court construed the transition "having" as appearing in its "closed-ended" sense.

AudioQuest argues that claim 2, and this court's construction of the claim, requires that literally infringing cables meet two requirements: (1) they have exactly two conductors and (2) those conductors share an axis. AudioQuest argues that each accused device has more than two conductors, with total numbers of conductors ranging from four to nineteen, and that the diverse configuration of these multiple conductors means that none of them "share an axis" with the other conductors. Some cables contain several separately-insulated conductors twisted along the length of the cable, and others use a drain conductor placed horizontally along the length of the cable. *See generally* Harley Dec. para.para. 5-54. AudioQuest's Vice President of Product Development testified that AudioQuest does sell coaxial cables as claimed and construed in the patent (i.e. with a center conductor and a conductive shield), but they do not have DBS technology. FN3 *See* Harley Dep. at 181:15-25. He believed that DBS technology applied to coaxial cables would "blow something up." *See id*. at 185:13-19.

FN3. Monster Cable has loosely asserted that Mr. Harley's "testimony is incompetent," but it has not brought a *Daubert* motion to exclude this evidence based on reliability concerns. *See* Imonex Services, Inc. v. W.H. Munzprufer Dietmar, 408 F.3d 1374, 1381 (Fed.Cir.2005) (upholding a district court's admission of expert testimony where the challenging party gave no grounds for excluding the person's testimony based on the factors enumerated in Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 592-95, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993)). His testimony thus is admissible, and Monster Cable's concerns merely amount to a credibility attack not appropriate on a motion for summary judgment.

Monster Cable makes three primary arguments that AudioQuest's multiple conductor cable can literally infringe the '416 Patent's "coaxial cable" claim element. First of all, Monster Cable argues that for purposes of infringement, the use of the term "comprising" in claim 2 casts a penumbra so broad that it inflects openness *backwards* in the reading of the claim. Secondly, Monster Cable argues that the preferred embodiment depicted in the '416 Patent includes a ground reference line which constitutes a third conductor in the apparatus described in claim 2, even if it is not counted for purposes of determining the conductors of the "coaxial cable" included in that apparatus. Thirdly, Monster Cable argues that multiple conductors in electrical connectivity with one another function as a single conductor and are often counted as one conductor. The court considers each of these arguments in turn.

Monster Cable first argues that use of "comprising" transitioning from the preamble to the body of the claim should inflect open-endedness on the entire claim, allowing a device to infringe where it has additional unclaimed elements such as multiple additional conductors. In the abstract, this position is sound. It is true that the '416 Patent can include unclaimed elements beyond the three means-plus-function elements that follow claim 2's use of the term "comprising." *See* Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1371-72 (Fed.Cir.2005) (holding that "the addition of elements not recited in the claim cannot defeat infringement" where the use of the open-ended term "comprising" triggers the presumption that recited elements are only a part of the device, that the claim does not exclude additional, unrecited elements). The use of "comprising" does allow claim 2 to "encompass subject matter beyond" what is enumerated by the three means-plus-function elements. But the antecedent definition of "a coaxial cable having a center conductor and a conductive shield" does not appear after "comprising," in the section of the claim where the penumbra of open-endedness is cast. Rather, the '416 Patent defines a coaxial cable and its conductors in the preamble, and it locks the conductors into the transition word "having" rather than "comprising." For the purposes of the number of conductors necessary to infringe, then, Monster Cable's argument ultimately would require the open-endedness of the claim to reach the components of a coaxial cable itself.

While *Gillette*' s statement that "[t]he word 'comprising' transitioning from the preamble to the body signals that the entire claim is presumptively open-ended" can be read to refer literally to all terms that come before and after "comprising" appears, this court has found that such a meaning was not indicated by the facts of that case or its cited precedent. FN4 Such an interpretation would undermine the importance ascribed to a patent drafter's choice of transitional phrases. Federal Circuit precedent emphasizes that patent drafters know the significance of transitional phrases they employ, using them carefully to limit or expand the scope of the material coming thereafter. *See Gillette,* 212 F.3d at 1372 (noting that patent drafters choose their transitional phrases to signal specific meaning); PPG Industries v. Guardian Industries Corp., 156 F.3d 1351, 1354 (Fed.Cir.1998) (same). *See also* Vehicular Technologies Corp. v. Titan Wheel Intern., 212 F.3d 1377, 1383 (Fed.Cir.2000) (Rader, J., concurring) ("A skilled patent drafter would readily foresee the limiting potential of 'consisting of two concentric springs' limitation.") Certainly no patent drafter would place a word such as "comprising" *after* the elements that he or she meant to cast openly. Nothing in the case law of the Circuit stands for the proposition the use of the word "comprising" anywhere in a patent claim inflects a presumption of open-ended meaning backwards into prior portions of the claim governed by other transitional phrases.

FN4. To the extent Monster Cable is seeking to reopen claim construction on the term "coaxial cable," this court soundly rejects its arguments. As this court emphasized in its claim construction order and re-emphasized in its denial of Monster Cable's motion to reconsider, "coaxial cable," which appears in the preamble, must be construed without the influence of the word "comprising" which transitions from the preamble to the body, based on a fundamental precept of English grammar: paragraphs do not read backwards. "Comprising" cannot be read in reverse to inflect its open-ended meaning on contested terms that were used *before* "comprising" appears in the claim. Nothing in the recent Federal Circuit decision *Gillette* is inconsistent with this court's reasoning in the claim construction order. The court in *Gillette* indeed stated that "[t]he word 'comprising' transitioning from the preamble to the body signals that the entire claim is presumptively open-ended." Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1371 (Fed.Cir.2005). Yet the underlying patent in *Gillette* employed a five word preamble: "A safety razor blade unit comprising ..." *Id*. at 1369. The Federal Circuit did not construe the terms "safety razor blade unit" to be open-ended because of the presence of "comprising" thereafter. Rather, the court construed language that appeared *after* "comprising" ("comprising ... a group of first, second, and third blades"), adhering to a long line of precedent in which "comprising" renders "downstream" terms open-ended. In so doing, *Gillette* cited and thereby preserved the very case upon which this court relied in interpreting the effect of "having" on construction of "coaxial cable." *See* Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc., 246 F.3d 1336, 1347-8 (Fed.Cir.2001).

AudioQuest accurately analogizes Monster Cable's argument on this point to a question before the Federal Circuit in Vehicular Technologies Corporation v. Titan Wheel International, Inc., 212 F.3d 1377 (Fed.Cir.2000). In that case, the Circuit considered a claim that used "comprising" to transition from the preamble to the body, but within the body of the claim included a "spring assembly consisting of two concentric springs" limitation. Id. at 1379. By limiting the claim for "a spring assembly" to embodiments with two springs, the Circuit applied very similar claim construction reasoning as that employed by this court in defining coaxial cable as a "having term" rather than a "comprising" term. *See* id. at 1382 (holding that "[t]he claim language expressly requires two springs. Moreover the patent drafter underscored this limitation with the introductory phrase 'consisting of' "); Claim Const. Ord. at 7-8. The fact that "comprising" had appeared even *before* the use of "consisting of"-rather than after as in the '416 Patent's

claim 2-did not cast a penumbra of open-endedness over the entire claim, as Monster Cable would argue. The Circuit affirmed an order of summary judgment of noninfringement for competitors, finding that with a claim thus limited, no reasonable jury could either literal infringement or infringement by equivalents with an accused device that was not "two concentric springs" or a structure "insubstantially different from that." Id. at 1383. Monster Cable's line of reasoning on this issue, therefore, is ultimately a request that this court either revise claim construction or ignore it for purposes of infringement. Neither tact is supported by the law of the Federal Circuit.

Monster Cable argues that even if "having" is the relevant construct for the number of conductors, the term "having" can be used in such a way that "the inclusion of additional components ... do not render the device non-infringing." *See* Lampi Corp. v. American Power Products, Inc., 228 F.3d 1365, 1376 (Fed.Cir.2000). Yet this rule only applies where "having" has been construed in its "open" rather than "closed" sense. In *Lampi,* the Federal Circuit specifically held that "having" was properly understand in its "open" rather than "closed" sense in the patent at issue. *Id*. In construing the '416 Patent, by contrast, this court interpreted "having" in the closed sense.

Monster Cable raises two additional arguments for why the '416 Patent's apparatus involving a coaxial cable might be literally infringed by multi-conductor cables. First, Monster Cable argues that a "coaxial cable" with two conductors is merely a *component* of the entire "biased cable apparatus," which may have additional conductors. Indeed, Monster Cable argues that the apparatus described by claim 2 and depicted by figure 9 can only be practiced by a cable with at least three conductors. The figure includes a "ground reference line" that is not part of the "coaxial cable" named in the Patent, because it does not share an axis with the other conductors. *See* Monst. Cab. Cross-Mot. at 3; June 6, 2005 Blesser Dec. para. 54. Dr. Blesser's explanation for this ground line is that in order to be useful as an audio cable, the basic cable depicted in figure 9 (which had a center and an enclosing conductor and a bias) must have a means for passing audio signals bearing voltage or current from a device at one end of the apparatus to a device at the other end. Id. para. 43. He stated that in order to perform this function, the apparatus needed an additional ground line or other added conductor. Id. This testimony is undisputed in the record, and it does not contradict this court's construction of the term "coaxial cable" that the apparatus as a whole included the ground reference line. At claim construction, Monster Cable conceded and this court's order reasoned that the ground reference line depicted and described in the patent could not "share an axis" with the center conductor and the conductive shield. *See* Claim Const. Ord. at 9, n. 4. Therefore, "the preferred embodiment of a coaxial cable in the '416 Patent necessarily excludes the ground reference line from the count of conductors." Id. at 9. Rather, the ground reference line is captured by the fact that the "bias cables apparatus" includes a "ground reference means." The court therefore agrees with Monster Cable that the "bias cable apparatus" may include one or more conductors that perform the "ground reference means," such as the ground reference line depicted in figure 9. FN5 It does not, however, change the count of conductors that make up the "coaxial cable" element of the apparatus.

FN5. In addition, though it does not seem to be disputed by either party, a device infringing on biased cable apparatus could also have additional elements such as various insulators and fillers, as the patentee did not impose any limitations relating to these cable elements. Where the claim did not otherwise limit these components, the use of the word "comprising" would encompass such additional pieces.

Monster Cable's final argument is that multiple conductors in electrical contact with one another must be considered "one conductor" for purposes of literal infringement. This argument contradicts the terms of the

patent as construed and the pattern of counting and labeling each "conductor" in the patent. As discussed in this court's claim construction order, the patentee expressly chose the term "coaxial cable" rather than the "multiple-conductor" cables referenced in the prior art. Claim Const. Ord. at 9. He chose to label his cable a "coaxial cable," rather than describing it simply as a "cable" and specifying its component conductors, as the cited prior art 4,538, 023 Patent had done (referring to a "cable consist[ing] of a plurality of conductors" in the context of audio cable technology). *See* Behun Dec., Exh. E, U.S. Patent No. 4,538,023 at col. 3, lines 25-28. In addition, the patentee defined a "coaxial cable having a center conductor and a conductive shield," which, for the reasons enumerated, this court construed as a close-ended term. Claim Const. Ord. at 7-10. Even where conductors are in electrical contact with one another, the '416 Patent expressly names and specifies each conductor. *See, e.g.,* '416 Patent, col. 4, lines 44-48. As discussed infra, Monster Cable's argument about the function, way, and result multiple conductors operate is squarely relevant to an application of the doctrine of equivalents. For purposes of literal infringement analysis, however, the patent's limitation of the cable to two conductors can only mean two.

Most importantly, in the context of literal infringement, Monster Cable's arguments would nullify the use of the word "coaxial" to describe the cable in claim 2, and they would eviscerate this court's construction of any meaning. By focusing on whether the AudioQuest cables have a conductive shield and a center conductor somewhere in the cable, Monster Cable's arguments obfuscate the essential question: whether the AudioQuest cables are "coaxial," construed by this court to mean that they only have a conductive shield and center conductor, within the context of a "biased cable apparatus" that also has a ground reference line. The term "coaxial cable" would have no meaning whatsoever-and certainly not the meaning ascribed to it by the '416 Patent-if it referred to "two conductors that shared an axis" in a system or cable that contained inner and/or outer conductors other than the conductive shield, center conductor, and ground reference means. Monster Cable's argument that this court construe "coaxial cable" to contain *at least* one inner and one outer conductor that share an axis was already deemed incorrect at claim construction based on limitations ascribed by the patentee himself. As discussed therein, this court is at loss to see why, under such a reading of the patent, an invention would be referred to as a "coaxial cable" rather than using the terms "cable" or "multiple-conductor cable" as described in prior art. Monster Cable has submitted nothing in the record or its arguments to resolve this concern. FN6

FN6. Dr. Blesser's declaration on this point is nothing but conclusory statements repeating Monster Cable's masked requests to reopen claim construction and find that a "two conductor" coaxial cable could be literally infringed by a nineteen conductor cable. He simply restates Monster Cable's theory that "comprising" should inflect openness backwards in a claim, trumping potentially closed-ended words used earlier in the patent. *See* June 7, 2005 Blesser Dec. at para. 14, 53.

Situated in the proper understanding of the claim limitation "coaxial cable," AudioQuest products do not infringe on this element. Counting each conductor in the cables separately, the AudioQuest cables have conductor geometries ranging from four to nineteen conductors. FN7 Not a single one of these devices can be limited to a conductive shield and a center conductor (as well as a ground reference means conductor). Even the cables which Monster Cable identified as including the simplest conductor geometries, the families of the Hawk Eye and Eagle Eye Digital Interconnect Cables and the Original Analog Interconnect Cables, cannot infringe under the proper understanding of the "coaxial cable" limitation. *See* Mons. Cab. Cross-Mot. at 19. These digital cables include a conductor in the middle of the cable, an un-insulated drain conductor, an outer aluminum foil layer, a conductive PVC layer, a silver-plated copper layer, and a copper foil layer. FN8 Id. para. 50. The second group, the Analog Interconnect Cables, whether balanced or unbalanced,

include three signal conductors, an un-insulated drain conductor, a "Power Anode" conductor, and an aluminum foil or copper foil layer. Id. para.para. 6, 11-13. Without aggregating groups of conductors according to electrical connectivity, Monster Cable has not placed a single item of evidence in the record to defeat the literal noninfringment of these accused cables.

FN7. Specifically, the conductor counts are as follows. The Original Analog Interconnect Cables have six conductors. Harley Dec. para. 6. The New Analog Interconnect Cables and the Sub-3 Analog Interconnect Cable have eight conductors. Id. para.para. 15, 23. Eleven conductors are included in each Original Kilimanjaro, Mont Blanc, and Pike's Peak Speaker Cable. Id. para. 30. The new generation of these cables has the same eleven conductors, as well as an additional outer conductor and drain conductor. Id. para. 33. The Original Volcano and Everest Speaker Cables have eighteen conductors, and the new generation of these cables increases that count to nineteen. Id. para.para. 37, 40. The CV-4, KE-4, CV-6, and KE-6 Speaker Cables have seven conductors. Id. para. 43. Each Gibralter and Rockefeller Speaker Cable has two cable portions, each of which has seven conductors. Id. para. 46. The Raven Digital Interconnect Cable has seven conductors. Id. para. 49. Finally, the Hawk Eye and Eagle Eye Digital Interconnect Cables have four conductors while the Leopard Tone Arm Cable has six. Id. para. 50.

FN8. As discussed infra, even when electrical connectivity is taken into account, this cable could not infringe on the "coaxial cable" element.

Therefore, because all of the accused cables include much more diverse and elaborate conductor geometries than an inner conductor, an outer conductor, and a ground reference line, the court finds that no reasonable juror could find that these products literally infringe on claim 2's limitation of a coaxial cable.

IV. Infringement of Claim Limitations under the Doctrine of Equivalents

"Even if an accused product does not literally infringe the asserted claims of a patent, the product may infringe under the doctrine of equivalents if the differences between the element of the accused product at issue in the product and the claim limitation at issue are insubstantial." Schoell v. Regal Marine Industries, Inc., 247 F.3d 1202, 1209 (Fed.Cir.2001). To determine whether the differences are insubstantial, courts may apply the so-called "function-way-result" test, asking "whether the element performs substantially the same function in substantially the same way to obtain substantially the same result as the claim limitation." Id. at 1209-10. It is a plaintiff's burden to prove equivalence at trial, and thus in the present case, it is Monster Cable's burden to "set forth specific facts showing that there is a genuine issue for trial" whether the DBS system cables are insubstantially different from the coaxial cables claimed in the '416 Patent. *See* id.; Fed.R.Civ.P. 56(e) ("When a motion for summary judgment is made and supported ..., an adverse party ... must set forth specific facts showing that there is a genuine issue for trial").

The scope of the doctrine of equivalents can be narrowed by the legal doctrine of prosecution history estoppel or proscribed by the "all elements" rule. Lockheed Martin Corp. v. Space Systems/Loral, Inc., 324 F.3d 1308, 1320 (Fed.Cir.2003). Under the doctrine of prosecution history estoppel, the patentee is barred from asserting equivalents if an amendment was made to secure the patent and the amendment narrowed the patents scope. Honeywell Intern. Inc. v. Hamilton Sundstrand Corp., 370 F.3d 1131, 1139 (Fed.Cir.2004). The "all-elements rule" instructs that there can be no infringement under the doctrine of equivalents if even one limitation of a claim or its equivalent is not present in the accused device. Lockhead, 324 F.3d at 1321.

The doctrine of equivalents must be applied to individual elements of a claim, not to an invention as a whole. Warner-Jenkinson, 520 U.S. at 29. Therefore, the court cannot make a finding of infringement under the doctrine that would "vitiate a particular claim[ed] element." Lockhead, 324 F.3d at 1321.

A. Infringement of the "Coaxial Cable" Claim Limitation under the Doctrine of Equivalents

Monster Cable raises several arguments that the accused devices meet the "coaxial cable" limitation under the doctrine of equivalents. First of all, Monster Cable argues that the term "coaxial cable" in the context of the claim language entitles the patentee to a broad scope of equivalents. Secondly, Monster Cable argues that multiple conductors in electrical contact with one another are insubstantially different from one conductor. Thirdly, Monster Cable argues that when complex arrangements of conductors placed in electrical contact with one another are understood to constitute a single conductor, each accused device can be understood to have only one center conductor and one conductive shield.

It is now familiar doctrine that the range of equivalents due to a patent cannot be divorced from the scope of the claims. In the context of an analogous patent with a "spring assembly consisting of two concentric springs," in which the court construed the assembly to expressly require two springs and not more, the Federal Circuit noted two key rules. *See* Vehicular Technologies, 212 F.3d at 1382-83. The court held that the restrictive claim language did not foreclose infringement under the doctrine of equivalents, but did "specifically require that an infringing device consist of two springs (either literally or equivalently)." Id. at 1383. In addition, the concurring opinion of the court emphasized that a skilled drafter would have "reasonably foreseen potential substitutes" for the two spring system because the inventive feature was relatively simple and did not call into question issues of after-arising technology. Id. at 1384 (Rader, J., concurring). Monster Cable's arguments to distinguish *Vehicular* ring hollow. The fact that *Vehicular* concerned an accused device with less than the specified number of components, rather than an accused device containing additional components, as is the case here, does not reflect the basis of the court's holding: the closed-end construction of the term.

As in *Vehicular,* no issue of after-arising technology would expand the scope of equivalents due to the '416 Patent. Complex, multiple-conductor geometries predated the patent, and indeed such configurations were captured in the prior art cited by the '416 Patent. The policy for protecting a patentee from later-developed technologies, which underlies the doctrine of equivalents, would not apply. *See* Chiuminatta Concrete Concepts, Inc. v. Cardinal, 145 F.3d 1303 (Fed.Cir.1998) ("The doctrine of equivalents is necessary because one cannot predict the future. Due to technological advances, a variant of an invention may be developed after the patent is granted, and that variant may constitute so insubstantial a change from what is claimed in the patent that it should be held to be an infringement"). The patentee could therefore have claimed a cable with more than two conductors, but conspicuously failed to do so.

Turning to the actual question of infringement under the doctrine of equivalents, the court proceeds to apply the function-way-result test. *See Schoell,* 247 F.3d at 120-10. As for function, claim 2 describes "[a] biased cable apparatus for communicating a voltage varying electrical signal from an output of a first electrical signal to an input of a second electrical device on a coaxial cable...." The parties dispute the function of the "coaxial cable." AudioQuest argues that the function of the coaxial cable is "communicating a voltage varying electrical signal from an output of a first electrical device to an input of a second electrical device." Monster Cable argues that this language actually refers to the function of the "biased cable apparatus," while the function of the coaxial cable is simply "biasing a dielectric" (language which is not found in the '416 Patent). This argument defies logic. The function of "communicating [the electrical signal]" is one small

portion of the function of the entire apparatus. This aspect of the apparatus's function is performed "on a coaxial cable." The coaxial cable's function is to transmit the electrical signal, while the entire apparatus has a much broader function, namely to apply voltage to components of that signal-carrying cable so as to improve the sound quality. The function of the "coaxial cable" is therefore "communicating a voltage varying electrical signal from an output of a first electrical device to an input of a second electrical device." The record before this court indicates that AudioQuest cables share this function, and there is no dispute that these cables do in fact communicate audio signals (which are voltage varying) from an output of a first electrical device to an input of a second electrical device. Therefore, their function, as well as the result of that performance, are insubstantially different than the function and result of the claim limitation "coaxial cable."

However, Monster Cable has provided little in the record to show that the *way* AudioQuest cables perform this function is insubstantially different. Monster Cable's argument for equivalence between the way the AudioQuest cables perform their function and the claim limitation is essentially this: because multiple conductors in electrical contact with one another act as a single electrical entity/conductor, there are no substantial differences between cables with a plurality of conductors and those with only two. To confine this argument within the boundaries of the claim limitation "a coaxial cable having a center conductor and a conductive shield," Monster Cable must show that groups of conductors in electrical contact perform two roles: the roles of the "conductive shield" and the "center conductor." AudioQuest argues that such a multi-conductor equivalence theory is inconsistent with the figures and terms of the patent, which depict conductors in electrical contact with one another but count or name these conductors separately. *See, e.g.* '416 Patent, col. 4, lines 44-48.

Experts for both sides agree that multiple conductors in electrical contact with one another act as a single conductor. Dr. Blesser's declaration attested that "the number of conductors used for purposes of audio technology may vary vastly in number, shape and size due to the low frequency requirements for audio technology." June 7, 2005 Blesser Dec. para. 15. Further, he stated that "the two conductor coaxial cable of the '416 Patent was easily interchangeable with the four to nineteen conductor coaxial cable at the time the Accused Products were made." Id. AudioQuest's expert at claim construction stated that the concept of a conductor could take many forms, such that many conductors could function as one. *See* February 22, 2005 Villasenor Dec. para. 15. Dr. Villasenor stated: "A person of skill in the art would understand that a 'conductor' could take a number of different forms. For example, the outer conductive shield could be a solid sheath, or it could be a braided mesh-like sheath composed of many extremely fine wires overlapping each other in complex patterns. A close examination of such a mesh would reveal that while many individual 'strands' might be present in it, all of the strands are nonetheless in electrical contact with each other and that the sheath would therefore only carry one voltage level. The sheath, whether solid, braided, or otherwise, is a single electrical entity and is therefore a single conductor." Id. The court thus finds the testimony undisputed in the record that multiple conductors in electrical contact act as a single conductor.

However, this physical reality does not address the question of equivalence for the "coaxial cable" claim limitation. As construed by this court, the inventor of the '416 Patent confined the "coaxial cable" claim limitation of his patent, thereby distinguishing his invention from prior art the referenced multiple conductors or "pluralities" of conductors. In order for the accused devices to be insubstantially different from the claim limitation in the context of the construction of "coaxial cable" as a cable with two conductors, and only two conductors, each of which share an axis, they must contain: (1) either a single-conductor "conductive shield," or one or more conductors in electrical contact which act as a single "conductive shield," and (2) either a single center conductor, or one or more conductors which act as a

single center conductor. In addition, as discussed, they may contain one or more conductors in electrical contact with one another that act as a single ground reference line.

Arguing that AudioQuest is falsely counting its conductors to range as high as nineteen per cable, Monster Cable applies its principle of electrical connectivity to recount the number of conductors in each accused device. In other words, Monster Cable argues that if counting each set of multiple conductors in electrical contact as a single conductor, the range of conductors in the accused devices is actually from three to six, rather than four to nineteen. Monster Cable and its expert analyzed the schematics in the record to argue that in the six simplest accused devices, FN9 the count of conductors is "effectively" three, including a conductor at the geometric center of the cable, a grounded conductive shield, and a third inner conductor twisted around the middle of the cable. *See* June 6, 2005 Blesser Dec. para. 37; Monst. Cable. Cross-Mot. at 19-20 (citing Harley Dec. para.para. 8-9). The group of six cables identified in this "three conductor" category includes the Hawk Eye and Eagle Eye Digital Interconnect Cables and the four Original Analog Interconnect Cables when sold as unbalanced cables. Id. Even construing the record evidence in the light most favorable to Monster Cable, and based on the undisputed fact in the record that conductors in electrical contact act as a single entity, the distillation of the conductors within these AudioQuest cables demonstrates that no reasonable jury could find that the devices contain equivalents of "coaxial cables" as used in the '416 Patent. The Hawk Eye and Eagle Eye cables have a conductor running through the middle of the cable that is not in electrical contact with other conductors, a spiral shield in electrical contact with a layer of conductive copper foil, and a drain wire in electrical contact with a layer of aluminum foil. *See* Harley Dec. para. 50-51, Exhs. NN, PP. These cables thus have two sets of outer conductors that might constitute a "conductive shield" (one of which is grounded, the other of which is connected to the positive terminal of a battery) and a center conductor. *See* id. Relying on Monster Cable's expert's identification of the functions of each conductor in these cables, the grounded outer layer of conductors serves as the conductive shield and ground reference line. *See* June 6, 2005 Blesser Dec. para. 37. This leaves two other conductors in the device: the conductive layer including the electrically connected silver-plated copper spiral and the copper foil (which carries the positive audio signal) and a conductor at the geometric center of the cable which is connected to the negative terminal of the battery. Id. One of these latter two conductors thus defeats the two-conductor limitation of "coaxial cable," even putting aside the question of whether they perform the functions construed to apply to "center conductors" or "conductive shield" in the patent. Applying the same principle of electrical connectivity to the unbalanced versions of the four Original Analog Interconnect Cables, the conductor count would include at minimum four conductors: three signal conductors (each of which is insulated) that connect to two separate pins or shells of the RCA terminal connector (therefore counting as two conductors), a drain conductor electrically-connected to a layer of aluminum foil, and an insulated middle conductor. *See* Harley Dec. para.para. 6-9, Exhs. A, C, E, and G. Therefore, the Hawk Eye and Eagle Eye cables and Original Analog Interconnect Cables cannot infringe on the coaxial cable limitation of the patent.

FN9. These include: the Original Jaguar, Panther, Cheetah, and Sky cables, when sold in RCA, or unbalanced cable form; the Eagle Eye and Hawk Eye cables.

Even Monster Cable's own recount of conductors in other accused devices demonstrates that these have even more diverse conductor geometries that could not infringe under the doctrine of equivalents. Monster Cable identifies a second set of cables, the balanced versions of the Analog Interconnect Cables, FN10 that it counts as effectively having four conductors, including an insulated Power Anode, a positive signal conductor, a negative signal conductor, and a grounded conductive shield. *See* Harley Dec. at para. 7, Exh.

A. Another set of cables FN11 each has at least four conductors, including a center conductor, a grounded signal return, a dedicated bias conductor, and a forth conductive element of various configurations. *See* id. para.para. 17, 19, 23, 34, 41, and 43. This is the same for an additional two cables,FN12 except that these products have "two cable portions," each with this configuration. *See* id. para. 47. Five cables FN13 effectively have at least five conductors, including a center conductor, a grounded signal return, a conductive shield, and a dedicated bias conductor. *See* id. para.para. 17, 19, 23, 49. Finally, one last AudioQuest cable FN14 has at least six conductors, including left and right pairs of signal conductors, a bias conductor, and a grounded conductive shield. *See* id. para. 54.

FN10. This set includes: the Original Jaguar, Panther, Cheetah, and Sky cables, when sold in XLR, or balanced cable form.

FN11. These group is: the New Jaguar, Panther, Cheetah, and Sky cables, when sold in RCA, or unbalanced cable form; the New Kilimanjaro, Mont Blanc, Pike's Peak, Volcano and Everest cables; the CV-4, KE-4, CV-6, and KE-6 cables.

FN12. These are the Gibralter and Rockefeller cables.

FN13. These are the New Jaguar, Panther, Cheetah, and Sky cables, when sold in XLR, or balanced cable form; the Raven Cable.

FN14. This includes the Leopard Tone Arm cable.

Whether these accused devices have from four to six conductors, as Monster Cable argues, or six to nineteen, as AudioQuest's evidence attests, no reasonable jury could find that these are "coaxial cables" within the meaning of the '416 Patent. Each of the accused cables contains conductor geometries that are much more complex than a center conductor and conductive shield, and each one contains a "type" of electrical conductor which the "coaxial cable" claim limitation excludes. Nothing in the record supports the principle-either as a matter of science or as a matter of claim interpretation-that these additional conductors or conductor sets represent an equivalent "way" of performing the claimed function, and therefore Monster Cable has failed to carry its burden to show infringement under the doctrine of equivalents. TechSearch, L.L.C. v. Intel Corp., 286 F.3d 1360, 1372 (Fed.Cir.2002) ("[G]eneral assertions of facts, general denials, and conclusory statements are insufficient to shoulder the non-movant's burden" to show infringement literally or equivalently for each limitation). Under the application of *Vehicular* described in this order, the '416 Patent is not entitled to claim infringement where these additional conductor elements are included. In addition, no reasonable jury could find that these complex conductor geometries are equivalent to a coaxial cable with one conductive shield and one center conductor that share an axis in the context of a patent citing prior art that claims diverse conductor configurations as means to achieve more specialized results in the audio technology context.

Monster Cable has therefore not carried its burden to "set forth specific facts showing that there is a genuine issue for trial" as to whether AudioQuest cable geometries perform the function of the claimed "coaxial

cable" in the same or insubstantially different way as captured in the claim limitations. *See* Schoell v. Regal Marine Industries, Inc., 247 F.3d 1202, 1210 (Fed.Cir.2001) ("The doctrine of equivalents is not a talisman that entitles a patentee to a jury trial on the basis of suspicion; it is a limited remedy available in special circumstances, the evidence for which is the responsibility of the proponent"). AudioQuest is therefore entitled to summary judgment of noninfringement on this claim limitation.

CONCLUSION

For the foregoing reasons, AudioQuest's motion for summary judgment for noninfringement is GRANTED and Monster Cable's cross-motion for summary judgment is DENIED.

IT IS SO ORDERED.

N.D.Cal.,2005.
Monster Cable Products, Inc. v. Quest Group