CHARLES S. BARQUIST (CA SBN 133785)
CBarquist@mofo.com
MORRISON & FOERSTER LLP
555 West Fifth Street
Los Angeles, California 90013-1024
Telephone: 213.892.5200
Facsimile: 213.892.5454

BRIAN G. BODINE
bbodine@merchantgould.com
KAUSTUV M. DAS
kdas@merchantgould.com
MERCHANT & GOULD, P.C.
701 Fifth Avenue, Suite 4100
Seattle, Washington 98104
Telephone: 206.342.6200
Facsimile: 206.342.6201

PETER A. GERGELY
pgergely@merchantgould.com
MERCHANT & GOULD, P.C.
1050 17th Street, Suite 1950
Denver, CO 80265-0100
Telephone: 303.357.1670
Facsimile: 303.357.1671

Attorneys for Plaintiff
ALFRED E. MANN FOUNDATION FOR
SCIENTIFIC RESEARCH

UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

ALFRED E. MANN FOUNDATION FOR SCIENTIFIC RESEARCH,

Plaintiff,

v.

COCHLEAR CORPORATION and COCHLEAR LTD.,

Defendants.

Case No. CV 07-08108 GHK (CTX)

INTEGRATED, JOINT BRIEF ON CLAIM CONSTRUCTION

COCHLEAR AMERICAS and COCHLEAR LTD.,

Counterclaimants,

v.

ALFRED E. MANN FOUNDATION FOR SCIENTIFIC RESEARCH,

Counterdefendant

TABLE OF CONTENTS

I. INTRODUCTION BY ALFRED E. MANN FOUNDATION FOR SCIENTIFIC RESEARCH....1

A. The Patents-in-Suit....1

B. The Legal Standard for Claim Construction....3

II. Introduction by Cochlear Ltd. and Cochlear Americas....5

Multi-channel cochlear implants....5

The history of AMF's patents....6

The patent claims at issue....7

III. CONSTRUCTION OF THE CLAIMS....8

A. Group 1....8

AMF's Proposed Constructions....8

Cochlear's Position on Group 1 Claim Terms....8

B. Group 2....9

AMF's Proposed Constructions....9

Cochlear's Position on Group 2 Claim Terms....10

C. Group 3....11

AMF's Proposed Constructions....11

Cochlear's Position on Group 3 Claim Terms....12

D. Group 4....13

AMF's Proposed Constructions....13

Cochlear's Position on Group 4 Claim Terms....15

E. Group 5....17

AMF's Proposed Constructions....17

Cochlear's Position on Group 5 Claim Terms....19

F. Group 6....24

AMF's Proposed Constructions....24

Cochlear's Position on Group 6 Claim Terms....26

G. Group 7 29
AMF's Proposed Constructions 30
Cochlear's Position on Group 7 Claim Terms 32
H. Group 8 34
AMF's Proposed Constructions 35
Cochlear's Position on Group 8 Claim Terms 35
I. Group 9 36
AMF's Proposed Constructions 37
Cochlear's Position on Group 9 Claim Terms 37
J. Group 10 38
AMF's Proposed Constructions 38
Cochlear's Position on Group 10 Claim Terms 41
K. Group 11 42
AMF's Proposed Constructions 42
Cochlear's Position on Group 11 Claim Terms 43
L. Group 12 44
AMF's Proposed Constructions 44
Cochlear's Position on Group 12 Claim Terms 44
M. Group 13 45
AMF's Proposed Constructions 45
Cochlear's Position on Group 13 Claim Terms 46
N. Group 14 47
AMF's Proposed Constructions 47
Cochlear's Position on Group 14 Claim Terms 48
IV. CONCLUSION 49

TABLE OF AUTHORITIES

Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Tech., 521 F.3d 1328 (Fed. Cir. 2008).....2, 7, 22, 42

Bell & Howell Doc. Mgmt. Prods. Co. v. Altek Systems, 132 F.3d 701 (Fed. Cir. 1997).....4

C.R. Bard v. U.S. Surgical, 388 F.3d 858 (Fed. Cir. 2004).....27

Cole v. Kimberly-Clark Corp., 102 F.3d 524 (Fed. Cir. 1996).....4

Connectel v. Cisco Systems, 428 F.Supp.2d 564 (E.D. Tex. 2006).....23

Cross Medical Products v. Medtronic Sofamor Denek, 424 F.3d 1293 (Fed. Cir. 2005).....11

Data General Corp. v. IBM Corp., 93 F. Supp. 2d 89 (D. Mass. 2000).....2, 18, 23

Default Proof Credit Card Sys. v. Home Depot U.S.A., 412 F.3d 1291 (Fed. Cir. 2005).....8

Elbex Video, Ltd. v. Sensormatic Elecs. Corp., 508 F.3d 1366 (Fed. Cir. 2007).....3

Faroudja Labs., Inc. v. Dwin Electronics, Inc., 76 F. Supp. 2d 999 (N.D. Cal. 1999).....2

Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323 (Fed. Cir. 2008).....2, 7

Gemstar-TV Guide Int'l v. Int'l Trade Com'n, 383 F.3d 1352 (Fed. Cir. 2004).....6

Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 478 (D. Del. 2001).....25

Intellectual Prop. Dev., Inc. v. UA-Columbia Cablevision of Westchester, Inc., 336 F.3d 1308 (Fed. Cir. 2003).....14, 16

JVW Enters., Inc. v. Interact Accessories, Inc., 424 F.3d 1324 (Fed. Cir. 2005)..... *passim*

Kahn v. General Motors, 135 F.3d 1472 (Fed. Cir. 1998).....8

Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898 (Fed. Cir. 2004)..... *passim*

Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354 (Fed. Cir. 2004).....4, 19, 23

Massachusetts Inst. of Tech. v. Abacus Software, 462 F.3d 1344 (Fed. Cir. 2006).....4

Metrologic Instruments, Inc. v. PSC, Inc., No. 99-4876 (JBS), 2004 WL 2851955 (D.N.J. 2004).....2

Microsoft v. Multi-Tech Sys, 357 F.3d 1340 (Fed. Cir. 2004).....29

Net Moneyin, Inc. v. Verisign, Inc., -- F.3d. --, 2008 WL 4614511 (Fed. Cir. Oct. 20, 2008).....2, 7

Network v. Centraal, 242 F.3d 1347 (Fed. Cir. 2001).....29

O2 Micro Int'l Ltd. v. Beyond Innov. Tech. Co., 521 F.3d 1351 (Fed. Cir. 2008).....21

Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314 (Fed. Cir. 2003).....5

Personalized Media Commc'ns v. Int'l Trade Com'n, 161 F. 3d 696 (Fed. Cir. 1998).....6

Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005)..... *passim*

Rodime v. Seagate Tech., 174 F.3d 1294 (Fed. Cir. 1999).....22

Salazar v. Procter & Gamble, Co., 414 F.3d 1342 (Fed. Cir. 2005).....47

Signtech USA v. Vutek, 174 F.3d 1352 (Fed. Cir. 1999).....11

Silicon Graphics, Inc. v. nVidia Corp., 58 F. Supp. 2d 331 (D. Del. 1999).....25

Sunrace Roots Enter. Co., Ltd. v. SRAM Corp., 336 F.3d 1298 (Fed. Cir. 2003).....10, 43, 45

Trimed, Inc. v. Stryker Corp., 514 F.3d 1256 (Fed. Cir. 2008).....4

Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576 (Fed. Cir. 1996).....3

Wenger Mfg., Inc. v. Coating Machinery Systems, Inc., 239 F.3d 1225, (Fed. Cir. 2001)..... *passim*

The parties respectfully submit this Integrated, Joint Brief on Claim Construction. In accordance with ¶ 4 of the Court's April 28, 2008 Scheduling Order (DI 34), and to avoid repetition and to improve efficiencies, the parties have gathered together claim terms from different claims and patents that are sufficiently related that they can be discussed together under numbered Group headings.[1]

I. INTRODUCTION BY ALFRED E. MANN FOUNDATION FOR SCIENTIFIC RESEARCH

A. The Patents-in-Suit

Broadly described, United States Patent No. 5,609,616 ("the '616 patent") focuses on methods and systems for testing multichannel cochlear implants using a tester or testing system employing back telemetry features of a wearable processor (WP) and an implantable cochlear stimulator (ICS) to program and determine whether the implant is working properly.

Broadly described, United States Patent No. 5,938,691 ("the '691 patent"), also relates to implantable, multichannel cochlear implants that include back telemetry. The '691 patent includes claims that relate to (1) the method of supplying power from the WP to the ICS, (2) varying the frequency with which electrical signals are sent to the various electrodes and the length of time (referred to as the pulse width) for which current is applied to a stimulating electrode, and (3) devices for preventing or lessening the flow of DC current and the buildup of charge in the cochlea, which can be detrimental to the patient's health.

The focus of this brief is claim construction, notwithstanding Cochlear's irrelevant arguments concerning indefiniteness; that is, validity (*infra* 6-8) that do not address the disputed claim terms. Cochlear's irrelevant arguments are also wrong because they rely on cases that stand only for the proposition that for means-

[1] For the Court's convenience, the parties are submitting a table with the parties' respective proposed constructions for the disputed claim terms presented side-by-side, and the pages of this brief where those terms are discussed, as the first document to the parties' Joint Appendix.

plus-function ("MPF") clauses "[i]n cases involving a computer-implemented invention . . . the structure disclosed in the specification [must] be more than simply a general purpose computer or microprocessor." *See Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1332-33 (Fed. Cir. 2008); *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008); *Net Moneyin, Inc. v. Verisign, Inc.*, ___ F.3d. __, 2008 WL 4614511, at *6 (Fed. Cir. Oct. 20, 2008). Here, in contrast, the disputed claims involve "processor means" or "external processor means," which disclose sufficient structure not to be considered MPF clauses.[2] *See, e.g., Data General Corp. v. IBM Corp.*, 93 F. Supp. 2d 89, 97 (D. Mass. 2000) (holding that "§ 112(6) does not apply to the construction" of "processor means"). Further, the invention is not a "computer-implemented invention" as that term is understood under the case law. It is a biomedical device, part of which is implanted in patients. *See* '616 patent, col. 3 ll. 10-13; '691 patent, col. 3 ll. 10-13. Courts have rejected the rule stated in *Aristocrat* when the technology is not one implemented on a general purpose computer. *See, e.g.*, *Faroudja Labs., Inc. v. Dwin Electronics, Inc.*, 76 F. Supp. 2d 999, 1010 (N.D. Cal. 1999); *see also Metrologic Instruments, Inc. v. PSC, Inc.*, No. 99-4876 (JBS), 2004 WL 2851955, at *14-15 (D.N.J. 2004) (rejecting the argument that sufficient structure was not disclosed for a "programmable processor" when "the algorithms used by the programmable processor . . . [were] well known, not novel, and 'in prevalent use'"); *see also* '691 patent, col. 4 ll. 13-24 ("one may . . . develop the systems utilizing techniques well known in the CMOS technology").

In addition, the Court should ignore Cochlear's claim construction arguments that rely on the declarations of James Patrick and Bruce Wooley, Ph.D. because Cochlear withheld those declarations and their reliance on Dr. Wooley until the

[2] Cochlear also misquotes certain claim language as "external means for . . . processing," while the actual limitation is "external processor means . . . for receiving and processing . . . ." *See infra* at 7.

very last minute, when it was too late for AMF to properly respond to them. *See* Document No. 54 (filed on October 30, 2008).

B. The Legal Standard for Claim Construction

The touchstone of claim construction is "how a person of ordinary skill in the art understands a claim term," and that claim terms are to be given their "ordinary and customary meaning." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005). To determine the meaning of a claim term, the court should look to "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.* at 1314. These different sources are not, however, entitled to equal weight.

First, "the context in which a term is used in the asserted claim can be highly instructive" as can other similar or different claims of the patent. *Phillips*, 415 F.3d at 1314. Under the doctrine of claim differentiation, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim. *Id.* at 1315.

Additionally, claims "must be read in view of the specification, of which they are a part." *Id.* at 1315 (quoting *Markman*, 52 F.3d at 979). "[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.'" *Phillips*, 415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). There is a "'heavy presumption' that [claim terms] carry their ordinary and customary meaning to those skilled in the art in light of the claim term's usage in the patent specification." *Elbex Video, Ltd. v. Sensormatic Elecs. Corp.*, 508 F.3d 1366, 1371 (Fed. Cir. 2007). Deviation from the ordinary and customary meaning is appropriate only if the specification uses "words of manifest exclusion or restriction." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004). Additionally, claim limitations should not be limited to disclosed

embodiments. Even if a patent discloses a single embodiment, the claims of the patent should not, without "words of manifest exclusion or restriction," be "construed as being limited to that embodiment." *Id.*

The prosecution history is less relevant to and is given less weight in claim construction "because . . . it often lacks the clarity of the specification and thus is less useful [than the specification] for claim construction purposes." *Phillips*, 415 F.3d at 1317.

Extrinsic evidence, and in particular expert testimony, is generally "less reliable than the patent and its prosecution history in determining how to read claim terms . . . ." *Id.* at 1318. The court may not rely on extrinsic evidence that contradicts "the meaning of claims in derogation of the indisputable public records consisting of the claims, the specification, and the prosecution history . . . ." *Phillips*, 415 F.3d at 1319 (internal quotation marks deleted). "When the intrinsic evidence is unambiguous, it is improper for the court to rely on extrinsic evidence such as expert testimony for purposes of claim construction." *Bell & Howell Doc. Mgmt. Prods. Co. v. Altek Systems*, 132 F.3d 701, 706 (Fed. Cir. 1997). The court may, however, "look to dictionary definitions of the terms" in determining their ordinary and customary meaning. *Massachusetts Inst. of Tech. v. Abacus Software*, 462 F.3d 1344, 1351 (Fed. Cir. 2006); *see also Phillips*, 415 F.3d at 1322.

Use of the word 'means' in claim language creates a rebuttable presumption that 35 U.S.C. § 112 ¶ 6 applies. *Trimed, Inc. v. Stryker Corp.*, 514 F.3d 1256, 1259 (Fed. Cir. 2008). The presumption is rebutted when the claim discloses "sufficient structure for performing the described functions in their entirety . . . ." *Trimed*, 1259-60; *Cole v. Kimberly-Clark Corp.*, 102 F.3d 524, 531 (Fed. Cir. 1996) ("perforation means" not a MPF clause). Additionally, if "means" does not appear in the limitation, the presumption is that the element is not a MPF clause. *See Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed. Cir. 2004).

Interpretation of a MPF clause is a two-step process in which a court "[f]irst, [identifies] the claimed function, staying true to the claim language and the limitations expressly recited by the claims," and then "ascertain[s] the corresponding structure in the written description that perform those functions." *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1322 (Fed. Cir. 2003). In identifying corresponding structure, the Court "may not import . . . structural limitations from the written description that are unnecessary to perform the claimed function." *Wenger Mfg., Inc. v. Coating Machinery Systems, Inc.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001).

II. Introduction by Cochlear Ltd. and Cochlear Americas

Multi-channel cochlear implants

In the 1960s, Dr. Graeme Clark at the University of Melbourne demonstrated the need for multi-electrode (multi-channel) stimulation of the cochlea to provide hearing at different frequencies in profoundly deaf people. Clark then developed a multi-channel implant that was first implanted in a patient in 1978. Today, all commercial cochlea implants are multi-channel. *See generally* Decl. of James Patrick.

From Clark's first implant through today, multi-channel implants have been paired with sound processors to convert sound to coded signals that are transmitted through the skin. Before use, the sound processor is calibrated or "mapped" to adjust for physiological differences in the patient, such as individual sensitivities. This mapping, done from the first sound processors through today, is accomplished by manually adjusting the stimulation levels, selecting the electrodes being stimulated, and obtaining either oral or visual feedback from the patient. *Id.*

In 1979, a medical device company Nucleus Ltd. (which formed Cochlear Ltd.) became interested in Clark's work. Cochlear, the University of Melbourne and the Australian government partnered to develop a commercial implant, which came to be known as the Nucleus multi-channel implant. The first commercial

implant, Nucleus 22, was implanted in 1982. *Id.*

During the 1980s, Cochlear and the University continued collaborating. In the early 1980s, Hugh McDermott at the University began work on an advanced implant that included telemetry from the implant for monitoring parameters such as voltages at the implant's stimulating electrodes. Between 1984 and 1989, McDermott published several papers describing the implant. In 1985, McDermott filed a patent application directed to the implant, which issued as U.S. Patent No. 4,947,844 ("the '844 patent"). *Id.*

The history of AMF's patents

AMF filed its original patent application on September 22, 1989. That application was rejected based on McDermott's '844 patent. Indeed, the PTO found that the '844 patent disclosed "everything claimed." Decl. of Manuel Nelson ("Nelson") Ex. A, A122-23. AMF abandoned the original application.

On August 29, 1991, AMF filed a continuation-in-part ("CIP") application, adding almost 100 pages of detail to the original application. This detail is encompassed in the AMF patents by claims reciting the word "means" plus a function, which creates a presumption that the claim term is governed by 35 U.S.C. § 112, ¶ 6. *Personalized Media Commc'ns v. Int'l Trade Com'n*, 161 F. 3d 696, 703 (Fed. Cir. 1998). When § 112, ¶ 6 applies, the Court must identify the structure in the patent that performs the function recited in the claims. *Gemstar-TV Guide Int'l v. Int'l Trade Com'n*, 383 F.3d 1352, 1361 (Fed. Cir. 2004).

AMF's continuation-in-part application (and the resulting patents) expressly distinguished the invention from the prior art '844 patent in four ways: (1) the '844 patent used a single current source for more than one stimulating electrode; (2) the '844 patent "lacks output coupling capacitors in series with each electrode … [which] omission may lead to net DC current flow through the electrodes;" (3) the '844 patent can only telemeter one electrode voltage at a time; (4) the '844 patent uses only a single, common antenna/coil in the implant for receiving data from the

sound processor and telemetering data back to the sound processor at the same frequency, which "will result in undesired modulation and possible loss of input data." '616 patent 2:13-3:5; '691 patent 2:14-3:6.[3]

The patent claims at issue

Claims 1-9 and 14 of the '691 patent, and claims 1, 10 and 12 of the '616 patent are actively being litigated. Twelve of these thirteen claims contain means plus function limitations that cannot be properly construed because AMF failed to comply with § 112, ¶ 6 in two key respects.

First, AMF failed to disclose sufficient structure required by § 112, ¶ 6. Specifically, the parties agree that the structure corresponding to the "external means for … processing"[4] and "means for generating"[5] are at least a microprocessor. Nelson Ex. G, ¶¶ 2a, 2d, 2g, 2i. Additionally, the structure for "means … for controlling the power level" in claim 14 of the '691 patent must also include a microprocessor. The AMF patents fail, however, to disclose *any* algorithm for that microprocessor. The disclosure of a microprocessor without a specific algorithm to run on it does not satisfy § 112, ¶ 6, and such claims cannot be correctly construed and are invalid under 35 U.S.C. § 112, ¶ 2. *See Aristocrat Techs. Austl. Pty v. Int'l Game Tech.*, 521 F.3d 1328, 1332-38 (Fed. Cir. 2008) ("control means" interpreted to be a microprocessor with no specific algorithm renders claims invalid).[6]

---

[3] The '691 and '616 patents are enclosed as Exs. B & C to the Declaration of Bruce Wooley, Ph.D. ("Wooley"), respectively. Reference will be made to the patents using column and line numbers in the format col:lines.

[4] "external processor means coupled to the transmitting means of the external headpiece/transmitter for receiving and processing the status-indicating signals to derive information therefrom regarding the operation of the implanted stimulator and its plurality of tissue stimulating electrodes," as recited in claim 1 of the '616 patent; and "external processor means for processing the received status-indicating signals to derive information therefrom regarding the operation of the ICS and its plurality of tissue stimulating electrodes," as recited in claim 12 of the '616 patent.

[5] "means for generating data indicative of the audio signal" as recited in claims 1, 6, 9 and 14 of the '691 patent.

[6] *See also Finisar v. DirecTV Group*, 523 F.3d 1323, 1340-1341 (Fed. Cir. 2008); *Net Moneyin v. Verisign*, __ F.3d __, 2008 WL 4614511 at *6 (Fed. Cir. October 20, 2008).

Secondly, for many means plus function ("MPF") claim elements there is no clear link in the patent between the recited function and the structure that performs the function, even though it may be possible for a person skilled in the art to glean the required structure. The duty to link or associate structure in the patent with the recited function is the *quid pro quo* for the convenience of employing § 112, ¶6. *Kahn v. General Motors*, 135 F.3d 1472, 1476 (Fed. Cir. 1998). If the patent does not adequately identify a particular structure that performs the claimed function in a MPF limitation, then the claim is invalid as indefinite under § 112, ¶ 2. *Default Proof Credit Card Sys. v. Home Depot U.S.A.*, 412 F.3d 1291, 1299 (Fed. Cir. 2005).

The claim construction offered by Cochlear should thus be viewed from the perspective that Cochlear believes that the Court should thus ultimately find every claim except claim 10 of the '616 patent (a method claim) invalid under § 112, ¶2.

III. CONSTRUCTION OF THE CLAIMS

A. Group 1

audio signal receiving means ('691 patent, claims 1, 6, 9, and 14).

AMF's Proposed Construction: "A headpiece that includes a microphone."

This is a MPF clause whose function is receiving audio signals. In the patented invention, audio signals are received by a microphone that is part of the headpiece. *See, e.g.*, '691 patent, col. 4 ll. 28-32 ("[t]he external system **10** comprises a headpiece **14** and an externally wearable processor (WP) **16**. The headpiece . . . comprises a microphone **18**"); *see also* '691 patent Fig. 1.

Cochlear concedes that a microphone is part of the "audio signal receiving means," but ignores the fact that claim 1 expressly states: "A cochlear stimulation system, comprising: audio signal receiving means, ***including a headpiece*** . . . ." '691 patent, col. 34 ll. 9-10 (emphasis added).

Cochlear's Position on Group 1 Claim Terms:

This group of terms comes from claims 1, 6, 9 and 14 of the '691 patent and

relates to the structure for receiving audio signals. Cochlear believes that the terms should be construed as follows:

"Audio Signal Receiving Means" corresponds to the following structure: "a microphone."

The function of this term is receiving audio signals. The only structure disclosed in the '691 patent for receiving audio signals is *a microphone*. '691 patent 4:43-44. AMF argues that the structure should include a headpiece, but a headpiece is not needed to receive audio signals. The fact that "including a headpiece" is recited with the audio signal means only in claim 1 of the '691 patent suggests that the headpiece is not part of the means in the other claims where it is not recited.

B. Group 2

"means for transferring data through the signal and energy coupling means at one frequency for data that originates from an implanted cochlea stimulator (ICS) and is sent to an externally wearable signal processor (WP); and at another frequency data and energy originate from the WP and are sent to the ICS" ('691 patent, claim 1).

AMF's Proposed Construction: "A tuned inductive capacitive filter."

This is a MPF clause whose function is "transferring data . . . at one frequency for data that originates from an implanted cochlea stimulator (ICS) and . . . and at another frequency data and energy originate from the WP . . . ." '691 patent, col. 34 ll. 13-18. This function "can be accomplished by having tuned inductor-capacitor filters for each frequency at each end of the coaxial cable." *Id.*, col. 4 ll. 40-42. Therefore, the structure identified with function of transferring data at different frequencies is a tuned inductive capacitive filter. A single such filter suffices, because it will only allow data transmitted at one frequency to travel from the ICS to the WP (or vice versa), thereby accomplishing the function of this MPF clause. *Cf. Wenger*, 239 F.3d at 1233. Further, because dependent claim 2 claims

multiple "tuned inductive capacitive filters," '691 patent, col. 34 ll. 38-39, it is presumed that independent claim 1 does not require multiple filters under the doctrine of claim differentiation. *Phillips*, 415 F.3d at 1315; *Sunrace Roots Enter. Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1302 (Fed. Cir. 2003).

Cochlear's proposed construction improperly imports additional structure ("at each end of the coaxial cable") that is unnecessary to carry out the relevant function, *Wenger*, 239 F.3d at 1233, and ignores that such structure is only a preferred embodiment. '691 patent, col. 4 ll. 40 ("[t]his can be accomplished"). Cochlear's construction is contrary to law. *JVW Enters., Inc. v. Interact Accessories, Inc.*, 424 F.3d 1324, 1331 (Fed. Cir. 2005) (reversing construction of MPF clause that "relate[d] to a working embodiment disclosed in the [patent in suit's] written description").

Cochlear's Position on Group 2 Claim Terms:

This group is a single term from claim 1 of the '691 patent that relates to transmitting data. Cochlear believes that the term should be construed as follows:

"<u>means for transferring data through the signal and energy coupling means at one frequency for data that originates from an implanted cochlea stimulator (ICS) and is sent to an externally wearable signal processor (WP); and at another frequency data and energy originate from the WP and are sent to the ICS</u>" corresponds to the following structure: "a pair of tuned inductor capacitor filters at each end of a coaxial cable, wherein each filter pair is tuned to a different frequency"

This term relates to the structure that facilitates the use of two different frequencies, one for transmissions from the WP to the ICS and a different frequency for telemetry transmissions from the ICS to the WP. According to AMF, this feature was a critical difference between its invention and the prior art '844 patent. '691 patent 2:54-62. The '691 patent unambiguously describes the structure that performs this key function: "signals from the ICS to the WP on one

carrier frequency and from the WP to the ICS on another frequency can be transferred via a single coaxial cable ... by having *tuned inductor-capacitor filters for each frequency* at each end of the coaxial cable." '691 patent 4:35-42 (emphasis added).[7]

AMF's repeated criticism that Cochlear is reading the preferred embodiment into a MPF element is misplaced. "[I]nterpretation of a means-plus-function element requires this court to consult the structure disclosed in the specification, which often, as in this case, describes little more than the preferred embodiment." *Signtech USA v. Vutek*, 174 F.3d 1352, 1356 (Fed. Cir. 1999).[8] As for AMF's reliance on claim differentiation, any presumption that claims 1 and 2 differ with respect to their structure is "overcome by a contrary construction mandated by the application of § 112, ¶ 6." *Cross Medical Products v. Medtronic Sofamor Denek*, 424 F.3d 1293, 1304 (Fed. Cir. 2005).

C. Group 3

"means for transmitting the data to the ICS" ('691 patent, claim 1);[9] and "transmitting means for transmitting data-containing signals to the ICS" ('616 patent, claim 1).

AMF's Proposed Construction: "an antenna and a transmitter."

These are MPF clauses whose function is transmitting data from the WP to the ICS. The patents identify two structural components—a transmitter and an antenna—that are required to transmit data from the WP to the ICS. '691 patent,

[7] AMF concedes the function requires data transfer using different frequencies and that the structure described in the patent performing this function uses different tuned inductor-capacitor filters for each frequency. AMF's construction omitting some of the necessary structure violates § 112, ¶ 6.

[8] *JVW Enters. v. Interact. Access.*, 424 F.3d 1324 (Fed. Cir. 2005), cited by AMF, is not contrary and does not stand for the cited proposition. *JVW* cautions against reading *function* from the preferred embodiment into the claim, it does *not* caution against reading in the *structure*. *Id.* at 1331.

[9] Claims 6, 9, and 14 of the '691 patent include a claim term almost identical to this term, with differences that are not relevant to claim construction.

col. 4 ll. 30-33; col. 4, ll. 65-67.[10] Thus, the only structure necessary to perform the function of transmitting data to the ICS is the antenna and the transmitter.

Cochlear's attempt to import the gate array as part of the means for transmitting data from the WP to the ICS is improper because the gate array does not transmit data; it simply converts data from one form to another: "the output of the microprocessor **30** is coupled through a custom gate array **32** that converts the data from the microprocessor into a serial bit stream going to a data transmitter **34**." '691 patent, col. 4 ll. 60-61; *Wenger*, 239 F.3d at 1233.

"external transmitter means for transmitting the data-containing signals to the receiver means of the ICS" ('616 patent, claim 12).

AMF's Proposed Construction: "a transmitter."

Because sufficient structure—"external transmitter"—is disclosed in claim 12 of the '616 patent, the presumption that the clause is a MPF term has been rebutted. The plain and ordinary meaning of "transmitter" should be adopted.

Cochlear's Position on Group 3 Claim Terms:

This group of terms from claims 1, 6, 9 and 14 of the '691 patent and claims 1 and 12 of the '616 patent relates to transmitting data to the implant. Cochlear believes that the terms should be construed as follows:

"means for transmitting the data to the ICS"[11] corresponds to the following structure: "an antenna, data transmitter and custom gate array comprising a switching regulator and a switching transistor or multiple switching transistors in the switching regulator"

[10] The specification of the patents-in-suit are virtually identical. AMF, therefore, cites only to the '691 patent to avoid undue duplication when claim terms from both patents are being construed.

[11] This claim language is from claim 1 of the '691 patent. The same construction applies to "means for transmitting the data to an implanted cochlea stimulator (ICS)" in claims 6, 9 and 14 of the '691 patent, "transmitting means for transmitting data-containing signals to the ICS" in claim 1 and "external transmitter means for transmitting the data-containing signals to the receiver means of the ICS" in claim 12 of the '616 patent.

The primary dispute is whether a custom gate array is necessary structure for performing the recited function. In this regard, the parties seem to agree "the data" being transmitted is the "data" generated by the microprocessor. Nelson Ex. G, ¶ 2g. After "data" is generated by the microprocessor, the following structure is needed for "transmitting" the data to the ICS:

> The output of the microprocessor 30 is coupled through *a custom gate array 32* that converts data from the microprocessor into a serial bit stream going *to a data transmitter 34*. The *gate array 32* also converts data from a telemetry receiver 36 and the microprocessor 30 to control the power level of and data generated by *the data transmitter 34*.

'691 patent 4:59-64; '616 patent 4:64-5:2. Without the custom gate array, the data could not be transmitted. It is thus necessary structure.[12]

AMF argues that the "external transmitter means for transmitting" is not governed by §112, ¶6, because "external transmitter" provides sufficient structure. AMF is mistaken. An "external transmitter" or "transmitter" does not connote a well-known structure. *See* Nelson Ex. E, E556 (multiple structures could be considered transmitter); Ex. F, F564 (definition of transmitter functional).

D. Group 4

"the ICS including: . . . means for receiving transmissions from the WP" ('691 patent, claims 1, 6, 9, and 14); and "the ICS comprising: (a) receiving means for receiving the data-containing signals" ('616 patent, claim 1).

AMF's Proposed Construction: "an antenna and a receiver."

These are MPF clauses whose function is receiving data-containing signals from the WP. The patents describe an antenna (i.e., "a coil") and a receiver as the structure corresponding to the receiving function. "[T]he ICS **12** includes a

[12] Similar to the'691 patent, claims 1 and 12 of the '616 patent recite "means for transmitting ... data-containing signals" to the ICS. Because the data to be transmitted is data generated by the microprocessor 30, the structure for "transmitting" the data to the ICS must be the same.

receiver **40** for receiving data transmissions from the wearable system **10** . . . ." '691 patent, col. 4 ll. 65-67. "[P]ower and data are sent through a mail coil **50** to the receiver **40** . . . ." '616 patent, col. 5 ll. 49-50; '691 patent, col. 5 ll. 44-45; *compare* Fig. 1, ref. no. 20 *with* Fig. 2, ref. no. 50. The structures corresponding to the function of receiving data-containing signals from the WP are an antenna (*i.e.*, a coil) and a receiver.

Cochlear's proposed construction improperly seeks to import an embodiment into the claims by arguing that the main coil/antenna has to be separate from the telemetry coil/antenna. *See JVW Enters.*, 424 F.3d at 1331; *Liebel-Flarsheim*, 358 F.3d at 906. Additionally, Cochlear's proposal that the main coil/antenna has to be separate from the telemetry coil/antenna ignores Federal Circuit precedent holding that a single structure can serve multiple functions. *See, e.g., Intellectual Prop. Dev., Inc. v. UA-Columbia Cablevision of Westchester, Inc.*, 336 F.3d 1308, 1320 n.9 (Fed. Cir. 2003).

Cochlear's argument that the "main coil/antenna" has to be separate from the "telemetry coil/antenna" because AMF allegedly distinguished its invention from those disclosed in United States Patent No. 4,947,844 ("the '844 patent"), *infra* at 15-16, is overreaching and should be rejected. In the original claims filed on September 22, 1989 ("the '563 application"), AMF claimed both "an ICS including: means for receiving transmissions from the WP" and also "means in the headpiece for permitting the data from the ICS to the WP on one frequency and the data and energy from the WP to the ICS on another frequency to be transferred through a single coaxial cable [via] tuned inductive capacitive filters . . . ." '563 application, dependent claim 2 (Nelson Decl. Exh. A at COC-0000038). Contrary to Cochlear's representations, AMF did not seek to address "shortcomings" in the '844 patent by adding two separate coils. It addressed a shortcoming in the existing technology by including a tuned capacitive filter in the headpiece. While AMF later added language in the specification criticizing the '844 patent, the specific

needs it identified that were addressed by the patented invention had nothing to do with the transmitting means. '691 patent, col. 2 l. 63 – col. 3 l. 6.

The weakness of Cochlear's argument is further demonstrated by the fact that the original figures that AMF submitted with the '563 application illustrated an embodiment of its device including two coils in the ICS. Nelson Decl. Exh. A at COC-0000050-52. The Court should reject Cochlear's faulty argument that AMF added two coils to the disclosed invention to distinguish over the '844 patent.

"the ICS comprising (a) receiver means for receiving data-containing signals" ('616 patent, claim 12).

AMF's Proposed Construction: "a receiver."

Because sufficient structure—"receiver"—is disclosed in claim 12 of the '616 patent, the presumption that the clause is a MPF term has been rebutted. The plain and ordinary meaning of "receiver" should be adopted.

Cochlear's Position on Group 4 Claim Terms:

This group of terms from claims 1, 6, 9 and 14 of the '691 patent and claims 1 and 12 of the '616 patent relates to the implant's reception of data from the WP. Cochlear believes that the terms should be construed as follows:

"means for receiving transmissions from the WP" and **"receiving [or receiver] means for receiving [the] data-containing signals"** correspond to the following structure: "a receiver connected to main coil/antenna, which is separate from the telemetry coil/antenna"

The function in these claim terms is receiving transmissions (or data-containing signals) from the WP. The structure in the ICS for performing the required function is a receiver (40 or 200) coupled to a receiving coil (50) that is separate from the telemetry coil (106 in Fig. 2, unnumbered in Fig. 4E). '616 and '691 patents Figs. 2, 4A, 4E; *see also id*., Figs. 1, 7 (receiver 40 separate from second antenna connected to telemetry transmitter 42).

AMF seeks to broaden the claimed invention by ignoring its statements

distinguishing the invention from the prior art '844 patent. In its original patent application, claim 1 had a similar term: "an ICS including means for receiving transmissions from the WP." Nelson Ex. A, A39, A117. The PTO rejected claims that included that term in view of the '844 patent. *Id.*, A121-26. In its subsequent CIP application (now the '691 and '616 patents), AMF distinguished the invention it was claiming from the '844 patent:

> The [McDermott '844 patent] transmitter comprises an oscillator operating at a frequency of about 1MHz. The output of the oscillator is coupled to the implant's receiving coil and demodulated to recover the selected voltage waveforms. Unfortunately, [in] such … a telemetry system … the simultaneous transmission of the telemetry signal and reception of the input carrier signal as described will result in undesired modulation and possible loss of input data.

'691 patent 2:49-62; '616 patent 2:48-61. That is, the "problem" with the '844 patent is that it transmits and receives data using the same antenna at the same frequency.

As discussed above, AMF overcame this problem by using an ICS with two separate antenna/coils, one to receive data at one frequency and one to transmit telemetry data at a different frequency. The separate receiver and telemetry transmitter antennae are present because the receiver receives a signal at 49 MHz, while the telemetry transmitter transmits at 10 MHz. *Compare* '691 patent 7:61-63 with 8:16-17. If the structure in AMF's patents did not require an ICS receiver coil separate from the telemetry transmitter coil, it would have the same "problem" attributed to the '844 patent. As such, means in the ICS for receiving must correspond to structure that includes a receiver connected to main coil/antenna, *which is separate from the telemetry coil/antenna*.[13]

[13] AMF cites *Intellectual Prop. Dev. v. UA-Columbia Cablevision*, 336 F.3d 1308, 1320 n.9 (Fed. Cir. 2003), for the proposition that two functions might be performed by one structure. Although that is hypothetically true, it has no

E. Group 5

"stimulation signals" ('691 patent, claims 1, 9, 14; '616 patent, claims 1, 12); "stimulation pulses" ('691 patent, claim 6); and "stimulation signals are pulses" ('691 patent, claim 4).

AMF's Proposed Construction: The Court need not specially construe these terms as their ordinary meaning is readily understood by a person of skill in the art. *See Phillips*, 415 F.3d at 1314. The term "signal" is defined nearly identically in technical and general purpose dictionaries as "[a] visual, audible or other indication used to convey information," IEEE Standard Dictionary of Electrical and Electronics Terms 896 (4th ed. 1988) ("IEEE Dictionary") and as "[a]n indicator, such as a gesture or colored light, that serves as a means of communication," The American Heritage College Dictionary 1267 (3d ed. 2000) ("AHC Dictionary").

Similarly, the term "pulse" is defined nearly identically in technical and general purpose dictionaries as "[a] brief sudden change in a normally constant quantity," IEEE Dictionary at 749, and as "[a] brief sudden change in a normally constant quantity," AHC Dictionary at 1108. For these reasons, the Court need not specially construe the terms "stimulation signals," "stimulation pulses," and "stimulation signals are pulses." The dictionary definitions are sufficient in furnishing an ordinary meaning.

The Court should reject Cochlear's argument that the stimulation signals and pulses must be applied to intracochlear electrodes. Cochlear's argument ignores the fact that the "Summary of the Invention" section of the '691 patent addresses only "[a] preferred embodiment . . . ." '691 patent, col. 3 l. 10. Additionally, the ICS "is capable of selectively stimulating the electrodes in a unipolar . . . mode," in which

---

application here. The ICS structure described in the patents has the main coil/antenna separate from the telemetry coil/antenna, and that separate structure was a critical fact AMF relied on in distinguishing its invention from the '844 patent.

"the current source FET **62** and storage capacitors **60** [are] connected . . . to individual electrodes and the indifferent electrode **49** . . . ." '691 col. 9 ll. 46-57. Cochlear admits that the indifferent electrode is not intracochlear. *See infra* at 21 n.15.

"processor means for processing such transmissions to generate stimulation signals" ('691 patent, claims 1, 14); and "processor means for processing the data-containing signals to generate stimulation signals" ('616 patent, claim 1).[14]

AMF's Proposed Construction: "A processor."

The MPF presumption does not apply because the claim element contains sufficient structure to perform the recited function. *See Phillips*, 415 F.3d at 1311. Indeed, "processor means" specifies the exact structure—a processor—that performs the recited function of processing the transmissions to generate stimulation signals. Therefore, this is not a MPF clause. *See Data General*, 93 F. Supp. 2d at 97. The term "processor" has an ordinary and customary meaning in the art; accordingly, the Court need not construe this term any further. *See Phillips*, 415 F.3d at 1314.

Cochlear's proposed construction improperly seeks to confine the claim terms to specific embodiments recited in the specification. *Phillips*, 415 F.3d at 1323; *Liebel-Flarsheim*, 358 F.3d at 906. The specifications provide that the additional structure that Cochlear reads into the term "processor" is merely a preferred embodiment of the invention. *See, e.g.*, '691 patent, col. 5 ll. 43-44 (referring to the ICS **12** as "the embodiment thereof illustrated in Fig. 2"); '691 patent, col. 9, ll. 58-59 ("[w]hile Fig. 2 illustrates a basic ICS, FIGS. 3 and 4A-4H illustrate a preferred form of the ICS").

"a processor for processing such transmissions to generate stimulation signals" ('691 patent, claim 9).

[14] Claim 12 of the '616 patent includes a claim term almost identical to this term, with differences that are not relevant to claim construction.

AMF's Proposed Construction: "A processor."

As Cochlear concedes, this clause is presumptively not a MPF clause because it does not use the term "means." *Lighting World*, 382 F.3d at 1358. Moreover, "a processor" is sufficient structure to accomplish the recited "processing" function. The Court should reject Cochlear's invitation to import limitations from disclosed embodiments and should interpret "a processor for processing such transmissions to generate stimulation signals" simply as a "processor."

"processor means for processing such transmissions to generate stimulation pulses and for controlling the pulse width of the stimulation pulses" ('691 patent, claim 6); and "means in the processor for selectively controlling the pulse width of the stimulation signals" ('691 patent, claim 4).

AMF's Proposed Construction: The first of these terms should be construed as "a processor" and the second should be construed as "a timing circuit capable of turning the stimulation current on and off."

The first term is not a MPF clause because it includes sufficient structure—a processor—for accomplishing the function of processing such transmissions to generate stimulations pulses and for controlling the pulse width of the stimulations pulses. Thus, the first clause should be construed simply as a "processor."

The second term is a MPF clause whose function is to control the pulse width of stimulation signals. The '691 patent identifies a timing circuit as the structure that performs the recited function: "[t]he processor **46** included in the ICS **12** includes means (**88** and **90**) for selectively controlling the pulse width of the stimulation signals applied to electrode **48**. Such means preferably comprises a timing circuit capable of turning the stimulus current of a particular channel on and off . . . ." '691 patent, col. 9 ll. 1-5. The Court should reject Cochlear's improper efforts to read limitations from an embodiment into this claim term.

Cochlear's Position on Group 5 Claim Terms:

This group of terms from claims 1, 4, 6, 9 and 14 of the '691 patent and

claims 1 and 12 of '616 patent relates to the implant's processing of data to generate stimulation signals. Cochlear believes that the terms should be construed as follows:

"stimulation signals" means "voltages and currents applied to intra-cochlear electrodes for stimulating the cochlea"

"stimulation pulses" and **"stimulation signals are pulses"** mean "voltages and currents applied to intra-cochlea electrodes for a specified period of time for stimulating the cochlea"

"processor means for processing … to generate stimulation signals" and **"processor for processing … to generate stimulation signals"** correspond to the following structure: "a regulator, voltage reference, voltage regulator error amplifier, data decoder, VCO, loop filter, bit and word counters, initialization, serial to parallel converter, data amplitude latch, command latch, word strobe generator, D/A current reference, exponential D/A converter, analog mux, voltage down-converter, eight storage/refresh capacitors, and eight current source FETs, as shown in Figure 2" or "series regulator, voltage error amplifier, voltage reference, down converter clock, voltage downconverter (including 5 off-chip capacitors), powerbad detector, initialization, parity error detector, multiple chip control, data conditioner; clock decoder; serial to parallel converter; word strobe generator; polarity and amplitude data latch; command latch; command decoder; current reference generator; logarithmic D to A converter; analog multiplexer; eight refresh voltage controls; eight switching transfer capacitors; eight refresh voltage capacitors; eight current sources; and refresh voltage logic, as shown in Figure 4"

"processor means for processing such transmissions to generate stimulation pulses and for controlling the pulse width of the stimulation pulses" corresponds to the structure described above for the "processor means for processing … to generate stimulation signals" plus the following structure: "a pulse width control (comprising two downcounters) and eight electrode switching

matrices"

"<u>means in the processor for selectively controlling the pulse width of the stimulation signals</u>" corresponds to the following structure: "a pulse width control (comprising two downcounters) and eight electrode switching matrices"

As a preliminary matter, the parties dispute the meaning of the terms "stimulation signals," "stimulation pulses" and "stimulation signals are pulses." AMF's suggestion (here and elsewhere) that such terms need not be construed and be accorded there "plain meaning" is incorrect. That is especially true where, as here, the plain meaning (in which AMF includes "audible" indications) makes no sense in the context of prostheses for profoundly deaf people. When the parties have a fundamental dispute regarding claim terms, the Court must resolve that dispute. *O2 Micro Int'l Ltd. v. Beyond Innov. Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008). Accordingly, we turn to the terms "stimulation signals" and "stimulation pulses."

First, it is clear (and probably without much controversy) that the "stimulation signals" and "stimulation pulses" are electrical stimulation by voltage and current. *See e.g.* '691 patent 9:53-55 (switching matrix 66 connects the current source 62 and voltage stored on capacitor 60 to pairs of intra-cochlea electrodes).

Second, it is equally clear (but disputed) that "stimulation signals" and "stimulation pulses" are applied to electrodes within the cochlea (*i.e.*, intra-cochlear electrodes). As the claim language states, the signals and pulses are for "stimulation." And what is being stimulated is the cochlea. '691 patent, 1:17-22 ("system for artificially stimulating the cochlea"). As such, it is not surprising that the written description consistently refers to stimulation signals in conjunction with intra-cochlear electrodes. *See e.g. id.* "Summary of the Invention" 3:20-24 ("apply stimulation signals to a plurality of cochlea stimulating channels *each having* capacitor coupled *electrodes implanted within the cochlea* of the patient"); *id.* 5:14-18 ("stimulation signals applied to one or more of a plurality of capacitor coupled

electrodes in an intra-cochlear electrode 48").[15] Thus "stimulation signals" are voltages and currents applied to intra-cochlear electrodes for stimulating the cochlea.

Finally, although "stimulation signals" and "stimulation pulses" are both applied to the intra-cochlear electrodes, they are different in that a "stimulation pulse" is a "stimulation signal" applied for a specified period of time. *See e.g.* '691 patent 9:1-11 (timing circuit used to turn stimulation current on and off to set a pulse duration); *id.*, 31:49-56 (same). Thus "stimulation pulses" and "stimulation signals are pulses" refer to currents and voltages applied to intra-cochlea electrodes for a specified period of time for stimulating the cochlea.

The parties also dispute the structure that corresponds to the variously recited "processor means" in claims 1, 6, and 14 of the '691 patent and claims 1 and 12 of the '616 patent, and even dispute the applicability of § 112, ¶ 6. But the presumption that the use of "means" (in "processor means") invokes § 112, ¶ 6 can only be overcome if the claim limitation recites no function corresponding to the means or the claim limitation recites sufficient structure for performing the recited function. *Rodime v. Seagate Tech.*, 174 F.3d 1294, 1302 (Fed. Cir. 1999). Here, the "processor means" plainly recites a function (processing transmissions or data-containing signals to generate stimulation signals). Moreover, the term "processor" does not evoke a particular structure at all: it could be implemented by some combination of significantly different types of hardware or it could be implemented by programming a general purpose microcomputer. Wooley ¶ 41; Nelson Ex. E, E554 (processor) & E552 (data processor).[16] Indeed, "courts have found that a

[15] *See also* '691 patent, Fig. 1 (electrode 48 is intra-cochlea electrode); 1:24-28 (prior art stimulation of auditory nerve inside the cochlea by intra-cochlea electrodes); 1:38-43 (prior art stimulation of auditory nerve inside the cochlea using intra-cochlea electrodes); 22:49-51 (as shown in Fig. 4D "coupling capacitors CA1 and CB1 ... are connected to the stimulating electrodes" which are intra-cochlea electrodes, not the single indifferent electrode shown in Fig. 4-H). The '616 patent has identical descriptions.

[16] To the extent implemented on a microprocessor, § 112, ¶6 would only be satisfied if an algorithm were also disclosed. *See Aristocrat*, 521 F.3d 1332-1338.

'processor' by itself is not sufficient structure to avoid § 112, ¶ 6." *Connectel v. Cisco Systems*, 428 F.Supp.2d 564, 575 (E.D. Tex. 2006).[17] As such, § 112, ¶ 6 applies.

Under § 112, ¶6 it is necessary to look to the AMF patents to identify the structure that performs the processing function. The "transmissions" (or "data containing signals" in the '616 patent) to be processed to generate stimulation signals are the transmissions received by the ICS "means for receiving". The patent does not specifically link any particular structure to the recited function, but one of skill in the art may glean the necessary processing structure by examining the patents. Wooley, ¶¶ 44-63.

Independent claim 6 and dependent claim 4 of the '691 patent require additional structure corresponding to the function controlling the pulse width of the stimulation signals. The pulse width is formed by controlling the duration of the stimulation signals by turning on and off the outputs to one or more channels. '691 patent 29:49-58. The only structure for doing this is shown in the embodiment of Figure 4A-4H, where the additional corresponding structure is the pulse width control 209 and the electrode switching matrix 212C.[18] The pulse width control comprises two downcounters. '691 patent 17:52-56; Wooley ¶64.

Claim 9 of the '691 patent recites "a processor for processing such transmissions to generate stimulation signals." Because this limitation does not use "means", there is a rebuttable presumption that § 112, ¶ 6 does not apply. *Lighting*

[17] AMF's reliance on *Data Gen. Corp. v. IBM Corp.*, 93 F. Supp. 2d 89, 97 (D. Mass. 2000) is misplaced. In that case, the court used expert testimony to determine that "processor means" was sufficient structure meaning a "central processing unit [CPU] of a general purpose computer system." *Id.*, at 97. Such a construction would be completely contrary to the facts here, where the ICS does not include a general purpose computer system or a central processing unit.

[18] The embodiment of Fig. 2 does not have sufficient "structure" for performing this function to be relevant, because it merely describes pulse width control and "output control logic" blocks. "Control" and "control logic" are functional terms without particular structure (Nelson Ex. E, E547 (control), E553 (logic); *id.*, Ex. F, F561 (control, control logic), F562 (logic)).

World v. Birchwood Lighting, 382 F.3d 1354, 1358 (Fed. Cir. 2004). That presumption is overcome if the limitation (i) fails to recite sufficiently definite structure or (ii) recites function without reciting sufficient structure to perform that function. *Id.* Here, the "processor for processing such transmissions to generate stimulation signals" of claim 9 of the '691 patent is nearly identical to recitations of claims 1 and 14 "processor means for processing such transmissions to generate stimulation signals," all of which recite the same function. Second, a "processor" alone is not sufficiently definite structure to perform the function "processing such transmissions to generate stimulation signals." Wooley ¶¶ 41, 67-68. Thus, "processor for processing" should be interpreted the same as "processor means for processing."

F. Group 6

"tissue-stimulating electrodes" ('616 patent, claims 1, 10, 12);

"one pair of the multiplicity of tissue stimulating electrodes" ('616 patent, claim 10); and

"selected pairs of the multiplicity of tissue stimulating electrodes" ('616 patent, claim 12).

AMF's Proposed Construction: The Court should construe "tissue-stimulating electrodes" as "electrodes used in stimulating tissue." AMF does not believe the other two terms need construction.

"Tissue-stimulating electrodes" has an ordinary meaning—"electrodes used in stimulating tissue." The terms "one pair of a multiplicity" or "selected pairs of the multiplicity" likewise have an ordinary meaning.

"a plurality of electrically isolated capacitor-coupled cochlea stimulating electrodes for receiving the stimulation signals [respectively pulses]" ('691 patent, claims 1, 9, 14; respectively *id.*, claim 6).

AMF's Proposed Construction: "Electrodes used in stimulating the cochlea that are (a) isolated from (i) the current flow in other electrodes, or (ii) other ICS

circuitry; and (b) coupled with a capacitor." The phrase should be construed as a single phrase rather than parsed into its constituent elements.

When discussing the prior art, the '691 patent states that "output on all channels and the electrode pairs for each channel [in the device disclosed in United States Patent No. 4,592,539] are not electrically isolated from all other electrode pairs whereby undesired current leakage might occur." '691 patent, col. 2 ll. 7-10. The patent also discloses that "electrically isolated" means isolated from other circuitry in the ICS. *See, e.g.*, '691 patent, col. 8 ll. 59-67 (discussing use of floating current sources); *id.*, col. 28 ll. 58-63 (discussing the use of switches). The Court should not restrict this claim term to the disclosed embodiments, as Cochlear suggests, instead the Court should construe "electrically isolated" to mean "isolated from (i) the current flow in other electrodes, or (ii) other ICS circuitry."

The term "capacitor-coupled" should be given its ordinary and customary meaning: "coupled or connected to a capacitor." *See, e.g., Intel Corp. v. Broadcom Corp.*, 172 F. Supp. 2d 478, 490 (D. Del. 2001) ("[t]he term coupled is a term of art in patent parlance that means electrically (or otherwise) connected to allow the transfer of signals"). The Court should reject Cochlear's attempt to improperly limit the claim by requiring a "direct coupling." *See, e.g., Silicon Graphics, Inc. v. nVidia Corp.*, 58 F. Supp. 2d 331, 346 (D. Del. 1999) (noting that "the ordinary and customary meaning of the term 'couple' even when used in an electronics context does not solely mean 'directly coupled'"). Similarly the term "cochlea stimulating electrodes" should be given its ordinary and customary meaning to one of skill in the art; that is, "electrodes used in stimulating the cochlea." Cochlear interprets this clause as "intra-cochlea stimulating electrodes," an attempt that should be rejected because it improperly reads a limitation into the claim. *See also* AMF's discussion relating to "stimulation signals" *supra* at 16-17.

"means for applying the stimulation signals to selected pairs of the multiplicity of tissue stimulating electrodes" ('616 patent, claim 12).

AMF's Proposed Construction: "A switch or switches."

This is a MPF clause whose function is "applying the stimulation signals to selected pairs of the multiplicity of tissue stimulating electrodes." The structure used to apply the stimulation signals to selected pairs of the multiplicity of tissue stimulation electrodes are a switch or switches. '616 patent, col. 29 ll. 33-39 (referring to "the electrode switching matrix **212C**," and "the indifferent electrode switch **212D**"); *id.*, col. 22 ll. 61-63 ("[e]lectrode switching matrix **212C**"); *id.*, col. 29 ll. 23-25 ("the switching network **212C**"); *id.*, col. 29 ll. 33-39 ("indifferent electrode switch **212D**"). To avoid importing "structural limitations from the written description that are unnecessary to perform the claimed function," *Wenger*, 239 F.3d at 1233, the Court should construe this term as "a switch or switches."

Cochlear's proposed construction not only violates the rule stated in *Wenger*, but it also violates the Federal Circuit's admonition against reading limitations from preferred embodiments into claim terms. *See, e.g., JVW Enters., Inc.*, 424 F.3d at 1331; *Liebel-Flarsheim Co.*, 358 F.3d at 906.

"applying the stimulation signals" ('616 patent, claim 10).

AMF's Proposed Construction: The Court need not construe this term as it has a customary and ordinary meaning. *See Phillips*, 415 F.3d at 1314. Cochlear once again attempts to read limitations from embodiments into this claim. As with its arguments relating to "receiving means," Cochlear's arguments based on AMF's alleged attempts to distinguish the '844 patent overreach.

Cochlear's Position on Group 6 Claim Terms:

This group of terms from claims 1, 6, 9 and 14 of the '691 patent and claims 1, 10 and 12 of the '616 patent relate to the electrodes that stimulate the cochlea. Cochlear believes that the terms should be construed as follows:

"tissue-stimulating electrodes" means "electrodes implanted within the cochlea (intra-cochlear electrodes) for stimulating tissue"

"electrically isolated capacitor-coupled cochlea stimulating electrodes

for receiving the stimulation signals" means "electrodes implanted within the cochlea (intra-cochlear electrodes) for stimulating tissue that are directly connected to a capacitor and electrically isolated from the power supplies, from logic circuitry and from other channels within the implanted cochlear stimulator (ICS) tissue-stimulating electrodes"

"applying the stimulation signals" from claim 10 means "capacitively coupling the stimulation signals through switches"

"means for applying the stimulation signals to selected pairs of the multiplicity of tissue stimulating electrodes" corresponds to "a command decoder, output mode register, pulse width control comprising two downcounters, eight electrode switching matrices, eight coupling capacitors CA, and eight coupling capacitors CB"

All of the claims of the'616 patent have "tissue-stimulating electrodes," and all of the claims in the '691 patent have "cochlea stimulating electrodes." In this regard, the "Summary of the Invention" says that the ICS applies stimulation signals to electrodes implanted within the cochlea: "The ICS includes means for receiving transmissions from the WP as well as a processor for processing such transmissions to sequentially update and simultaneously or sequentially generate and apply stimulation signals to a plurality of cochlea stimulating channels *each* having capacitor coupled *electrodes implanted within the cochlea* of the patient." '616 patent 3:19-24 (emphasis added).[19] An explanation from the "Summary of the Invention" is likely to provide the proper claim interpretation. *C.R. Bard v. U.S. Surgical*, 388 F.3d 858, 864 (Fed. Cir. 2004). Thus, "tissue-stimulating electrodes" and "cochlea stimulating electrodes" are implanted within the cochlea.

[19] Also see the "Detailed Description": "Data signals from the receiver 40 are ... transmitted to the processor 46 for processing to generate stimulation signals applied to one or more of a plurality of capacitor coupled electrodes in an *intra-cochlear electrode 48*." '616 patent 5:19-23 (emphasis added); "The processor 46 included in the ICS 12 includes means (88 and 90) for selectively controlling the pulse width of the stimulation signals applied to the *electrode 48*." *Id.* 9:11-13.

The "cochlea stimulating electrodes" in the claims of the '691 patent are also "electrically isolated capacitor-coupled." "Electrically isolated" is described in the '691 patent as a combination of things: "*complete isolation of* ... electrode pairs for *each channel*" (2:67-3:1); "electrodes which are independent and *isolated from the stimulating signals supplied to the output of all other channels*" (3:40-45); "the use of an intermediate storage device, CF1[-8] alternately connected to the power supply voltages and [then] to [*floating power source*] CRV1[-8] of the output stage[s] 1[-8] ... *provides electrical isolation for [each] output stage*" (21:46-50); "non-selected current sources are *isolated from each other and the rest of the ICS circuitry*" (22:45-48); floating power sources allow "each output channel [to be] *electrically isolated from all other channels and also from the logic circuitry*" (28:61-63); "The *isolated power supply voltages* for the stimulus currents *from each of the 8 output channels* is provided by charge stored on the refresh capacitors, CRV1 through 8" (30:30-32). Taken together, "electrically isolated" requires that the electrodes be electrically isolated from power supplies, from logic circuitry, and from other channels within the ICS. "Capacitor-coupled" refers to the intra-cochlea electrodes that are directly connected to capacitors. For example, Figure 1 shows the intra-cochlea electrodes 48 connected to (unnumbered) capacitors. Figure 2, which provides details about the "processor 46" from Figure 1, shows the same 16 intra-cochlea electrodes 48 (numbered 1-16) connected to capacitors.[20] The coupled electrodes are "directly connected," because "coupled" must be interpreted in light of the written description, which is unambiguous: "Electrode switching matrix 212C is the final subsection leading to the *output coupling capacitors CA1 and CB1 which are connected to the stimulating electrodes*" '691 patent 21:49-51.

[20] *See also* '691 patent 5:16-19 (stimulation signals applied to "plurality of capacitor coupled electrodes in an intra-cochlear electrode 48"); 5:66-6:3 ("[As shown in Fig. 2,] output of current sources 62 are connected to [intra-cochlear] electrodes 48 and an indifferent electrode .... The output of the electrode switch matrix 66 is capacitor coupled to each of 16 electrodes [of intra-cochlear electrode 48]").

Claim 12 of the '616 patent recites "means for applying the stimulation signals to selected pairs of the multiplicity of tissue stimulating electrodes." The function is applying the stimulation signals to selected pairs of the multiplicity of tissue stimulating electrodes.[21] Once again, the patent fails to clearly link this function to specific structure, but a person skilled in the art can glean the structure that would be needed to carry out the function. Wooley ¶¶ 77-78.[22]

Claim 10 of the '616 patent requires "applying the stimulation signals." Although this language is broad, the Federal Circuit narrowly construes facially broad claims when the specification describes the invention narrowly. *See e.g. Network v. Centraal*, 242 F.3d 1347, 1351-1353 (Fed. Cir. 2001); *Microsoft v. Multi-Tech Sys*, 357 F.3d 1340, 1346-1349 (Fed. Cir. 2004).

As discussed above, AMF distinguished its invention from the '844 patent, in part by criticizing McDermott's lack of coupling capacitors. '616 patent 2:43-47 (The '844 patent "lacks output coupling capacitors in series with each electrode"). As a result, in the "Summary of the Invention" AMF described its invention as follows: "The ICS includes means … to … apply stimulation signals to a plurality of cochlea stimulating channels *each having capacitor coupled electrodes* …." '616 patent 3:19-24 (emphasis added). In other words, AMF stated that it had an invention because each stimulating electrode was capacitively coupled. Fidelity to AMF's representation requires that "applying a stimulation signal" be interpreted as capacitively coupling the stimulation signals through switches.

G. Group 7

"ICS status indicating signals" ('691 patent, claim 1);[23] and "stimulator

[21] AMF identifies structure that it says performs this function ("electrode switching matrix" and "indifferent electrode switch"), but fails to use that structure in its proposed construction in violation of § 112, ¶ 6.

[22] Once again, the embodiment of Fig. 2 does not have sufficient "structure" for performing this function to be relevant, because it merely describes pulse width control and output control logic blocks in functional language.

[23] Claims 6, 9, and 14 of the '691 patent include a claim term almost identical to this term, with differences that are not relevant to claim construction.

status-indicating signals" ('616 patent, claims 1, 10, 12).

AMF's Proposed Construction: The Court should construe all of these terms as "signals that indicate the status of various components of the ICS." The claim terms should be given their ordinary meaning; that is, they are "signals that indicate the status of various components of the ICS." *See, e.g.*, '691 patent, col. 5 ll. 23-26 ("the processor **46** monitors voltage applied to the regulator **44**, the impedance of the electrodes and other voltages within the processor to generate the status indicating signals").

"as one of the stimulation signals is applied thereto" ('616 patent, claim 1, 12); and "at the same time the stimulation signals are applied thereto" ('616 patent, claim 10).

AMF's Proposed Construction: The Court need not construe these claim terms as they have a customary and ordinary meaning. *See Phillips*, 415 F.3d at 1314. The terms "as one of the stimulation signals is applied thereto" and "at the same time the stimulation signals are applied thereto" do not have any special technical meaning to one of ordinary skill in the art.

Cochlear's proposed construction replaces "monitoring" with "measuring." The evidence Cochlear relies on emphasizes that the focus is on "monitoring," not "measuring." Nelson Decl. Exh. B at COC-0002214 ("[s]uch simultaneous application of the stimulating signal to the electrode at the same time the electrode is ***monitored*** is not done in the pacemaker art") (emphasis added).

"voltage associated with said pair of electrodes" ('616 patent, claim 1); and "voltage associated therewith" ('616 patent, claims 10, 12).

AMF's Proposed Construction: The Court need not construe specially these claim terms as they have a customary and ordinary meaning. The terms "voltage associated with said pair of electrodes" and "voltage associated therewith" do not have any special technical meaning to one of ordinary skill in the art.

For the reasons discussed above, *supra* at 16-17 (discussing "stimulation

signal"), the Court should reject Cochlear's attempt to read the limitation "intracochlear" into this claim. *See also* '616 patent, col. 31 ll. 47-50.

"the measurements made within the implanted stimulator" ('616 patent, claim 10).

AMF's Proposed Construction: The Court need not specially construe this claim term as it has a customary and ordinary meaning. The term "the measurements made within the implanted stimulator" does not have any special technical meaning to one of ordinary skill in the art. As above, the Court should reject Cochlear's attempts to read "intracochlear" into this claim term.

"means in the ICS responsive to data from the WP for selectively monitoring at least one of the electrodes or voltages in the processor and for generating ICS status indicating signals" ('691 patent, claim 1);[24] "monitor means in the processor means and responsive to the data-containing signals for (1) selectively monitoring at least one pair of the tissue-stimulating electrodes as one of the stimulation signals is applied thereto to measure a voltage associated with said pair of electrodes, and (2) generating stimulator status-indicating signals" ('616 patent, claim 1); and "monitor means in the processor and responsive to the data-containing signals received by the receiver means for (1) monitoring a selected pair of the multiplicity of electrodes as one of the stimulation signals is applied thereto to measure a voltage associated therewith, and (2) generating stimulator status-indicating signals, said stimulator status-indicating signals including the voltage measured at the selected pair of electrodes by the monitor means as one of the stimulation signals is applied thereto" ('616 patent, claim 12).

AMF's Proposed Construction: "a decoder and a signal multiplexer."

These are MPF clauses whose functions are (a) monitoring a pair of the electrodes, and (b) generating an ICS status-indicating signal. The structure

[24] Claims 6, 9, and 14 of the '691 patent include a claim term almost identical to this term, with differences that are not relevant to claim construction.

associated with these functions are: "the ICS back telemetry system described briefly relative to FIG. 1, consists of a signal multiplexer (MUX) **94** programmed by the command decoder **84** to monitor various voltages throughout the processor **46** and ICS **12**. The output of the multiplexer **94** is amplified through a series of telemetry gain stages **96** which are connected to an A to D converter **98**." '616 patent, col. 7 ll. 29-35; '691 patent, col. 7 ll. 20-26.

The structure associated with the functions of monitoring and generating status-indicating signals are the multiplexer and command decoder. The Court should reject Cochlear's improper attempt to include multiple structures that are unnecessary to perform these functions. *See Wenger*, 239 F.3d at 1233.

Cochlear's Position on Group 7 Claim Terms:

This group of terms from claims 1, 6, 9 and 14 of the '691 patent and claims 1, 10 and 12 of the '616 patent relates to the implant's monitoring of electrode voltages. Cochlear believes that the terms should be construed as follows:

"stimulator status indicating signals" and **"ICS status indicating signals"** mean "signals indicative of the status of the implanted stimulator, including voltage measured across a pair of intra-cochlear electrodes and power-level indicating signals"

"at the same time the stimulation signals are applied thereto" and **"as one of the stimulation signals is applied thereto"** mean "the measurement is made at the same time the stimulation signal is applied to the intra-cochlear electrode"

"voltage associated with said pair of electrodes [or therewith]" means "voltage across a pair of intra-cochlea electrodes is measured"

"the measurements made within the implanted stimulator" means "the measured voltage across the pair of intra-cochlear electrodes"

"means … for … monitoring" and **"monitor means … for … monitoring"** correspond to the following structure: "a word strobe generator,

command latch, command decoder, polarity and amplitude data latch, output mode register, pulse width control including two downcounters, eight electrode switching matrices, conductive signal paths, telemetry function decoder, telemetry multiplexer, A/D converter and telemetry modulator"

Claims 1, 10 and 12 of the '616 patent recite "stimulator status-indicating signals." Claims 1, 6, 9 and 14 of the '691 patent similarly recite "ICS status indicating signals." From the claim language itself, these status indicating signals include both measured voltage and power level signals. For example, claim 12 of the '616 patent recites "generating stimulator status-indicating signals, said stimulator status-indicating signals including the voltage measured." Additionally, claim 14 of the '691 patent uses the "status indicating signals" to "control the power level." The written description supports this understanding. For example, the '616 patent 5:7-16 refers to the "power level indicating signals transmitted by the telemetry transmitter."

The '616 patent also requires the voltage of the stimulating electrode be measured "at the same time the stimulation signals are applied thereto" (claim 10) or "as one of the stimulation signals is applied thereto" (claims 1, 12). This limitation is critical. The PTO originally rejected AMF's claims based on pacemaker prior art. Nelson Ex. B, B263-65, B277. To distinguish its invention, AMF represented that pacemakers cannot monitor the electrodes at the same time that stimulation signals are applied. *Id.*, B278-80. AMF then repeatedly emphasized that its invention was different because it measured electrode currents and voltages "simultaneously with the application of the stimulating signal to the output electrodes." *Id.* In other words, "at the same time" and "as" mean the measurement is made at the same time the stimulation signal is applied to the intra-cochlear electrode.

Claims 1, 10 and 12 of the '616 patent require monitoring a pair of electrodes to measure a voltage associated therewith. The prosecution history again clarifies

what this means: "The present invention ... sends command information to the ICS causing it to … to make a measurement of a selected parameter in the ICS, e.g., the *voltage across a selected pair of electrodes ….*" *Id.*, B279. Thus, the "voltage associated with said pair of electrodes" (claim 1) and the similar "voltage associated therewith" the pair of monitored electrodes (claims 10 and 12) mean that voltage across a pair of intra-cochlea electrodes is measured.

Claim 10 of the '616 patent also recites "the measurements made within the implanted stimulator." To be consistent with the meaning of "measure a voltage associated," "the measurements made within the implanted stimulator" must refer to the measured voltage across the pair of intra-cochlea electrodes.

Claims 1, 6, 9 and 14 of the '691 patent require "means ... responsive to data from the WP for selectively monitoring at least one of the electrodes or voltages in the processor and for generating ICS status indicating signals". Claims 1 and 12 of the '616 patent are similar.[25] The recited function is monitoring at least one of the electrodes or voltages in the processor and generating ICS status indicating signals in response to data from the WP. The AMF patents do not clearly link this function to any particular structure, but one skilled in the art can glean the structure from the section of the patents labeled "Structure" and from Figure 4. Wooley ¶¶ 90-92.[26]

H. Group 8

"means in the ICS for transmitting such ICS status indicating signals to the WP" ('691 patent, claim 1);[27] and "telemetry means for transmitting the stimulator status-indicating signals to the external headpiece/transmitter means" ('616 patent,

[25] Claim 1 requires "monitor means in the processor ... responsive to the data-containing signals [from the WP] for (1) selectively monitoring at least one pair of the tissue-stimulating electrodes as one of the stimulation signals is applied thereto to measure a voltage associated with said pair of electrodes, and (2) generating stimulator status-indicating signals." Claim 12 is very similar.

[26] As before, the embodiment of Fig. 2 does not have sufficient "structure" for performing this function to be relevant, because it merely describes telemetry "control logic" (102) in a functional way.

[27] Claims 6, 9, and 14 of the '691 patent include a claim term almost identical to this term, with differences that are not relevant to claim construction.

claim 1).[28]

AMF's Proposed Construction: "A transmitter and an antenna."

These are MPF clauses whose function is transmitting status indicating signals from the ICS to the WP. The patents identify the following structure with this function: "[t]he telemetry modulator switch **104** modulates the telemetry transmitter **42** which energizes a telemetry coil **106**." '691 patent, col. 7 ll. 34-36. *See also* '691 patent, col. 18 ll. 52-55 ("[t]he backtelemetry section **211** comprises . . . a telemetry modulator **211D** and a telemetry transmitter **211E**"). The only structure linked to the function at issue is "a transmitter and an antenna."

For the reasons discussed above with relation to "receiving means," *supra* at 15-16, Cochlear's arguments regarding a "main coil/antenna" separate from a "telemetry coil/antenna" overreach and should be rejected.

"transmitting the stimulator status-indicating signals to an external receiver coupled to the external transmitter" ('616 patent, claim 10).

AMF's Proposed Construction: The Court need not construe this claim term as it has a customary and ordinary meaning. *See Phillips*, 415 F.3d at 1314. The term "transmitting the stimulator status-indicating signals to an external receiver coupled to the external transmitter" does not have any special technical meaning to one of ordinary skill in the art.

Cochlear's Position on Group 8 Claim Terms:

This group of terms from claims 1, 6, 9 and 14 of the '691 patent and claims 1 and 12 of the '616 patent relate to the implant's telemetering of measured electrode voltages. Cochlear believes that the terms should be construed as follows:

"**means in the ICS for transmitting such ICS status indicating signals to the WP**" and **"telemetry means for transmitting …"** correspond to the following

[28] Claim 12 of the '616 patent includes a claim term almost identical to this term, with differences that are not relevant to claim construction.

structure: "telemetry transmitter connected to a telemetry antenna/coil that is separate from the receiving or main coil in the ICS"

"**transmitting the stimulator status-indicating signals to an external receiver coupled to the external transmitter**" means "transmitting the stimulator status-indicating signals using a telemetry coil that is separate from the main receiving coil."

The function of these claim terms is transmitting ICS (or stimulator) status indicating signals to the WP or physician's tester. In Figures 1 and 7 of both patents, the structure for performing the recited function is telemetry transmitter 42 connected to an un-numbered telemetry antenna/coil that is separate from the antenna/coil connected to the receiver 40. Wooley ¶¶ 94-100.

As discussed above, AMF distinguished its invention from the prior art '844 patent by arguing that the '844 patent only used a single coil/antenna in the implant for both receiving data and transmitting data, resulting in potentially serious problems. '616 patent 2:48-61. AMF fixed this "problem" by using two coils and two different frequencies for transmitting data to and from the implant. The claims must reflect the difference between the alleged invention and the prior art '844 patent. As such, the step of "transmitting the stimulator status-indicating signals to an external receiver coupled to the external transmitter" recited in claim 10 of the '616 patent requires transmitting the stimulator status-indicating signals using a telemetry coil that is separate from the main receiving coil in order to be consistent with AMF's statement regarding differences between its invention and the prior art. Wooley, ¶¶ 101-104.

I. Group 9

"means in the processor for selectively controlling the frequency with which stimulating signals are applied to selected ones of the electrodes" ('691 patent, claim 5); and "means for selectively controlling the frequency at which stimulating signals are applied to selected ones of the electrodes" ('691 patent, claim 9).

AMF's Proposed Construction: "a part of a processor that can process signal frames of varying length."

These are MPF clauses whose function is controlling the frequency at which stimulating signals are applied to the electrodes. The'691 patent describes that a portion of the processor performs the recited function:

> Further, the processor **46** included in the ICS **12** includes means for selectively controlling the frequency at which stimulating signals are applied to select ones of the electrodes. ***This is preferably accomplished by providing a signal frame (or set of signals to the multiplicity of electrodes) of varying length.*** The use of short frames allows a subset of channels to be refreshed or updated more often than would be possible if all channels were always updated by a fixed, long frame. Such reduced frame length may be implemented either as a frame length encoded in the frame data or (in the preferred implementation) as a unique end of frame signal.

'691 patent, col. 9 ll. 12-23 (emphasis added). Thus, the structure corresponding to the function of controlling the frequency at which stimulating signals are applied is "a part of a processor that can process signal frames of varying length."

Cochlear improperly attempts to read limitations from an embodiment into the claim. *See JVW Enters.*, 424 F.3d at 1331; *Liebel-Flarsheim*, 358 F.3d at 906. Additionally, Cochlear's proposed construction attempts to import additional "structural limitations from the written description that are unnecessary to perform the claimed function." *Wenger*, 239 F.3d at 1233.

Cochlear's Position on Group 9 Claim Terms:

This group of terms from claims 5 and 9 of the '691 patent relate to the frequency (or rate) of stimulation. Cochlear believes that the terms should be

construed as follows:

"<u>means … for selectively controlling the frequency at which stimulating signals are applied to selected ones of the electrodes</u>" corresponds to the entire ICS except for back-telemetry circuitry, that is the "receiving means" structure plus the "processor means" structure plus the "means for applying" structure, as set forth above.

The function at issue here is selectively controlling the frequency at which stimulating signals are applied to selected ones of the electrodes. The specification parrots the claim language, referring to variable length data "frames" and provides no structure in the ICS. '691 patent 9:23-23. Notably, the "data frames" are *generated and sent by the WP to ICS*. *Id.*, 9:64 - 10:10. The ICS merely *responds* to the frequency set by the WP. *Id.*, 10:10-51; Wooley ¶¶ 105-113. To the extent these claims can be construed at all under §112, ¶ 6 and are not simply invalid under §112, ¶ 2, the structure in the ICS for "controlling" (responding to) the stimulation frequency, must be the entire structure in the ICS for generating stimulation signals in response to data frames. Wooley ¶ 113.[29]

J. Group 10

<u>"means for transmitting power signals from the WP to the ICS"</u> ('691 patent, claims 7 and 14).

<u>AMF's Proposed Construction:</u> The Court should construe each of these terms as "a transmitter and an antenna."

These are MPF clauses whose function is transmitting power signals from the WP to the ICS. As with the terms in Group 3, *supra* at 11-12, two structural components are required to transmit power signals from the WP to the ICS: (1) an antenna that is part of the headpiece, and (2) a transmitter. *See* '691 patent, col. 4 ll. 30-33; *id.*, col. 7 ll. 59-65. Thus the only structures necessary to perform the

[29] Although AMF asserts that the structure is "a part of a processor," it fails to identify any particular part or structure in the ICS to support such a construction.

function of transmitting data are the antenna and the transmitter.

The Court should reject Cochlear's attempt to import a gate array as part of the means for transmitting power signals. The gate array does not transmit power signals; it (along with the microprocessor) processes status-indicating signals to generate signals controlling the power level of the transmissions. '691 patent, col. 5 ll. 5-7.

"means in the ICS for processing the power signals and for generating power for the ICS" ('691 patent, claim 7).[30]

AMF's Proposed Construction: "A power rectifier."

This is a MPF clause whose functions are processing the power signals and generating power for the ICS. The '691 patent discloses "a power rectifier" as the structure that performs these functions: "power and data are sent through a main coil **50** to the receiver **40** comprising a power rectifier which filters out DC power for the regulator **44** . . . ." '691 patent, col. 5 ll. 43-46. Therefore, the only necessary structure to perform the function of processing the power signals and generating power for the ICS is "a power rectifier."

The Court should reject Cochlear's attempt to import a "receiver," "regulator," "voltage reference" and an "error amplifier" in the structure corresponding to the function of processing the power signals and generating power for the ICS, because these structures are unnecessary to perform these functions. *See Wenger*, 239 F.3d at 1233.

"means in the ICS and responsive to the power signals for generating a plurality of voltages for powering different components in the ICS" ('691 patent, claim 8).

AMF's Proposed Construction: "A regulator and a voltage downconverter."

This is a MPF clause whose function is generating a plurality of voltages for

[30] Claim 14 of the '691 patent includes a claim term almost identical to this term, with differences that are not relevant to claim construction.

powering different components in the ICS. A regulator and a voltage downconverter are the structures that performs this function: "The regulator **44** in conjunction with a voltage reference **54** and voltage regulator error amplifier **56** produces a precise 14 volts for powering the balance of the processor **46**. More particularly, the 14 volts powers a voltage downconverter **58** which generates three additional voltages, 10.5, 7.0 and 3.5 volts. The three voltages are used to power various other circuits, including the output circuits of the processor 46." '691 patent, col. 5 ll. 48-55.

"means in the WP responsive to at least a portion of the status indicating signals for controlling the power level of transmissions to the ICS" ('691 patent, claims 7 and 14).

AMF's Proposed Construction: "A switching regulator whose output voltage can be varied."

This is a MPF clause whose function is controlling the power level of transmissions to the ICS. The structure used to perform the recited function is "a conventional switching regulator included in the gate array **32** whose output voltage may be varied based upon the duty cycle of a switching transistor or multiple switching transistors in the switching regulator. The output of the power control circuit powers the transmitter **34** and by varying its output voltage can vary the transmitter power." '691 patent, col. 7 ll. 55-61. Therefore, the only structure corresponding to the function of controlling the power level of transmissions to the ICS is a "a switching regulator whose output voltage can be varied."

The Court should reject Cochlear's attempt to include the receiver, the microprocessor, and gate array as structures that performs the function of controlling the power level of transmissions to the ICS. The microprocessor and gate array process status-indicating signals telemetered back from the ICS to generate signals controlling the power level, '691 patent, col. 5 l. 5-7, but they do not control the power level. Similarly, the receiver receives status-indicating

signals, it does not control the power level. *Id.*, col. 5 ll. 3-4. As discussed above, the function of controlling the power level is performed by the switching regulator whose output voltage can be varied. The Court should not import these structures into this limitation. *Wenger*, 239 F.3d at 1233.

Cochlear's Position on Group 10 Claim Terms:

This group of terms from claims 7, 8 and 14 of the '691 patent relates to the transmission of power to the implant. Cochlear believes that the terms should be construed as follows:

"**means for transmitting power signals from the WP to the ICS**" corresponds to the following structure: "a custom gate array, data transmitter, and antenna"

"**means in the ICS for processing the power signals and for generating power for the ICS [or processor]**" corresponds to the following structure: "a receiver, a regulator, a voltage reference and an error amplifier"

"**means in the ICS and responsive to the power signals for generating a plurality of voltages for powering different components in the ICS**" corresponds to the following structure: "voltage downconverter" or a "downconverter clock and voltage downconverter"

"**means in the WP responsive to at least a portion of the status indicating signals for controlling the power level of transmissions to the ICS**" corresponds to the following structure: "a microprocessor, gate array, and telemetry receiver."

The AMF patents describe an antenna for transmitting electromagnetic energy. '691 patent 4:31-34. To drive this antenna, the patents explain that "[t]he output of the microprocessor 30 is coupled through a custom gate array 32 that converts data from the microprocessor into a serial bit stream going to a data transmitter 34." *Id.*, 4:59-61. As such, the function of "transmitting power signals from the WP to the ICS" is performed by a custom gate array, data transmitter, and an antenna.

Figure 2 shows a structure in the implant for processing the power signals and generating power for the processor. That structure is a receiver 40, a regulator 44, a voltage reference 54 and error amplifier 56. '691 patent, 5:43-55; Wooley ¶¶ 118-120. Figure 4 identifies similar structure to perform the same function. '691 patent 11:7-26; 12:60 - 13:9; Wooley ¶ 121.

Claim 8 of the '691 patent requires generating a plurality of voltages for powering different components in the ICS. The Figure 2 structure that performs this function is voltage downconverter 58. See '691 patent 5:43-55; 9:24-35; Wooley ¶¶ 122-123. The Figure 4 structure that performs the function is downconverter clock 203A and voltage downconverter 203B. See '691 patent, 13:10-57; Wooley ¶ 124.

Claims 7 and 14 of the '691 patent require structure in the WP responsive to at least a portion of the status indicating signals for controlling the power level of transmissions to the ICS. In this regard, the '691 patent explains that "power level indicating signals transmitted by the telemetry transmitter 42 are received by the telemetry receiver 36 and processed in the microprocessor 30 and gate array 32 to generate signals controlling the power level of the transmissions." '691 patent 4:65 - 5:11. Thus, the structure that controls the power level corresponds to microprocessor, custom gate array, telemetry receiver.[31]

K. Group 11

"a physician's tester" ('616 patent, claim 1); and

"a portable physician's tester" ('616 patent, claim 12).

AMF's Proposed Construction: The terms should be construed as "a device used for testing," and "a portable device used for testing," respectively.

The terms "a physician's tester" and "a portable physician's tester" do not

[31]The failure to disclose an algorithm to program the microprocessor, as required by §112, ¶ 6, renders the claim invalid under 35 U.S.C. §112, ¶ 2. *See Aristocrat Techs. Austl. Pty*, 521 F.3d at 1332-1338.

have any special technical meaning to one of ordinary skill in the art. Cochlear's proposed construction that "a physician's tester" be a "portable testing device" ignores the fact that claim 1 of the '616 patent, unlike claim 12 of the '616 patent, does not claim a portable physician's tester. The Court should reject this proposed construction. *See Sunrace Roots*, 336 F.3d at 1302.

Cochlear's proposal that the physician's tester has to be "separate from a programming system" ignores language in the specification indicating that the tester can be part of a programming system: "[t]he present invention also contemplates . . . presetting of parameters in the ICS during testing of the ICS and/or a patient's response to data transmitted by the WP to the ICS." '616 patent, col. 32 ll. 42-46.

Cochlear's Position on Group 11 Claim Terms:

This group of two terms from claims 1 and 12 of the '616 patent relates to the make-up of a physician's tester. Cochlear believes that the terms should be construed as follows:

"**physician's tester"** and **"portable physician's tester"** mean "a portable testing device, separate from a programming system"

A physician's tester is not the same as a clinician's programming (i.e., mapping) system and the AMF patent discusses the use of both. The physician's tester is described at '616 patent at 32:32-33:54 as a modification of the WP having a portable housing with a control panel and visual display. The clinician's programming (mapping) system, which has existed since the first multi-channel cochlear implants, is separately described in the '616 patent: "Following this initial handshake between the WP and the ICS, a series of patient-specific parameters which have been embedded in the WP *via a clinician's programmer* will be sent into the ICS." '616 patent 27:24-27 (emphasis added). The "physician's tester" and "portable physician's tester" should be construed to be separate from a programming system.

L. Group 12

"selectively controlling the data-containing signals as they are thus transmitted" ('616 patent, claim 10).

AMF's Proposed Construction: The Court need not construe this claim term as it has a customary and ordinary meaning. *See Phillips*, 415 F.3d at 1314. The term "selectively controlling the data-containing signals as they are thus transmitted" does not have any special technical meaning to one of ordinary skill in the art.

Cochlear's attempt to restrict "data-containing signals" to "signals that control stimulation," *infra* at 44-45, ignores the specification of the '616 patent that explain that data-containing signals are used for functions in addition to stimulation. *See, e.g.*, '616 patent, col. 10 ll. 45-52. The Court should reject Cochlear's attempt to read limitations from embodiments into the claim. *Liebel-Flarsheim*, 358 F.3d at 906.

Cochlear's Position on Group 12 Claim Terms:

This group consists of the "controlling" step in claim 10 of the '616 patent. Cochlear believes that the term should be construed as follows:

"selectively controlling the data-containing signals as they are thus transmitted" in claim 10 of the '616 patent means "adjusting the signals setting the stimulation levels"

The "data-containing signals" that are being controlled in this step are, by the plain language of the claim, signals that control *stimulation*. Table 7 of the '616 patent at 33:25-54 shows the parameters that can be set by the physician's tester. Only knob 310 controls *stimulation* parameters, and the stimulation parameters are peak output currents.[32] To be consistent with the plain meaning and the written

[32] Knobs 306 and 308 control the parameters being monitored, and thus do not affect "data-containing signals" for generating stimulation signals.

description, "selectively controlling the data-containing signals as they are thus transmitted" means adjusting the signals setting the stimulation levels.

M. Group 13

"user-controllable means connected to the external processor means for selectively generating and controlling the data-containing signals transmitted by the transmitting means of the external headpiece/transmitter means" ('616 patent, claim 1); and "user-controllable means for selectively generating the data-containing signals" ('616 patent, claim 12).

AMF's Proposed Construction: The terms should be construed as "one or more controls connected to the external processor" and "one or more controls," respectively.

These are MPF clauses whose functions are generating and controlling the data-controlling signals and selectively generating the data-containing signals. These functions are performed by one or more controls that describe "typical parameter settings." '616 patent, col. 33 ll. 23-24. Because the first term specifies that the user-controllable means are "connected to the external processor means," the Court should construe that term to mean "one or more controls connected to the external processor." Because the second claim term does not have this additional restriction, the Court should simply construe it as "one or more controls." *Cf. Sunrace Roots*, 336 F.3d at 1302.

Cochlear's proposed constructions for these clauses attempt to read structures from an embodiment that are not needed to perform the relevant functions into this limitation. For at least that reason the Court should reject Cochlear's proposed construction. *See JVW Enters.*, 424 F.3d at 1331; *Wenger*, 239 F.3d at 1233.

"manual means for specifying a peak output current for the stimulation signals to be applied to the at least one pair of tissue-stimulating electrodes" ('616 patent, claim 1); and "manual means for manually specifying a peak output current to be included in the data-containing signals" ('616 patent, claim 12).

AMF's Proposed Construction: The Court should construe each of these terms as "one or more manual controls."

These are MPF clauses whose function is specifying a peak output current for the stimulation signals. These terms are a refinement of the "user-controllable means" clauses discussed above. The only additional limitation is that these means be "manual." There is no evidence that "manual" should not be given its ordinary and customary meaning.

Cochlear's Position on Group 13 Claim Terms:

This group of terms from claims 1 and 12 of the '616 patent relate to the control for the physician's tester. Cochlear believes that the terms should be construed as follows:

"**user-controllable means [connected to the external processor means] for selectively generating [and controlling] the data-containing signals [transmitted by the transmitting means of the external headpiece/transmitter means]**" of claims 1 and 12 of the '616 patent corresponds to "three rotary knobs (306, 308, 310), potentiometers coupled to the rotary control knobs, and a microprocessor coupled to the potentiometers"

"**manual means for [manually] specifying a peak output current for the stimulation signals to be applied to the at least one pair of tissue-stimulating electrodes [or to be included in the data-containing signals]**" of claims 1 and 12 of the '616 patent corresponds to the "rotary control knob adjustable to different positions corresponding to peak output currents"

The physician's tester described in the '616 patent is user controllable by the following structure: "Panel knob[s] 306, 308, and 310 control potentiometers, the position of which are read by the microprocessor 30 to control the commands generated." '616 patent 32:15-22. Thus, the structure for "selectively generating [and controlling] the data-containing signals" is three rotary knobs, potentiometers coupled to the rotary control knobs, and a microprocessor coupled to the

potentiometers. Similarly, the function "specifying a peak output current for the stimulation signals" corresponds to the rotary control knob 310, which is adjustable to different positions corresponding to peak output current, as shown in the '616 patent Fig. 6. Indeed, AMF concedes that the '616 patent describes "control knobs" for performing the controlling and specifying functions, but then fails to include that structure in its proposed construction. Under § 112, ¶ 6, the disclosed structure must be used for the construction.

N. Group 14

"the results of the measurements made within the implanted stimulator" ('616 patent, claim 10).

AMF's Proposed Construction: The Court need not construe this claim term as it has a customary and ordinary meaning.

Cochlear's argument based on statements made by the examiner are unavailing. *See Salazar v. Procter & Gamble, Co.*, 414 F.3d 1342, 1347 (Fed. Cir. 2005) ("[T]he examiner's unilateral remarks did not alter the scope of the claim. An examiner's statement cannot amend a claim.").

"information derived from the status-indicating signals" ('616 patent, claims 1 and 12).

AMF's Proposed Construction: The Court need not construe this claim term as it has a customary and ordinary meaning. *See Phillips*, 415 F.3d at 1314. The term "information derived from the status-indicating signals" does not have any special technical meaning to one of ordinary skill in the art.

"display means for displaying the information derived from the status-indicating signals" ('616 patent, claims 1 and 12).

AMF's Proposed Construction: "A display."

This is not a MPF clause because it discloses sufficient structure—a "display"—for performing the described functions in their entirety. *Phillips*, 415

F.3d at 1311. Additionally, display has an ordinary and customary meaning in the art and the Court need not construe this term any further.

Cochlear's proposed construction should be rejected because it improperly confines the claims to specific embodiments of the invention described in the specification. *Phillips*, 415 F.3d at 1323; *Liebel-Flarsheim Co.*, 358 F.3d at 906. Here, the written description states in that the additional structure that Cochlear would have the Court read into the claim term "display" constitute nothing more than preferred embodiments of the inventions disclosed in the '616 patent. *See, e.g.*, '616 patent, col. 32 ll. 46-47 ("[b]asically such physician's tester is ***embodied*** in a portable tester . . .") (emphasis added).

Cochlear's Position on Group 14 Claim Terms:

This group of multiple terms from claims 1, 10 and 12 of the '616 patent relates to the display on the physician's tester. Cochlear believes that the terms should be construed as follows:

"**the results of the measurements made within the implanted stimulator, may be made known**" means "the voltage measured across two intra-cochlear electrodes at the time of stimulation"

"**information derived from the status-indicating signals**" means "processed information indicative of the status of the ICS, including the voltage measure across a pair of intra-cochlear electrodes"

"**display means for displaying the information derived from the status-indicating signals**" corresponds to "a microprocessor with a display port and a display"

Measurements made in the ICS are displayed on the physician's tester. The term "measurement" in claim 10 is defined by the surrounding claim language. That is, the only measurement in the claim is a voltage across a pair of tissue stimulating electrodes measured at the same time as stimulation. Indeed, these claims were allowed because of the PTO's view that they performed "measuring of

the electrode voltage for external display." Nelson Ex. B, B285. As such, making known the results of the measurements in claim 10 inherently requires that the voltage measured across two intra-cochlear electrodes at the time of stimulation be displayed.

The structure for "displaying the information derived from the status-indicating signal" is identified in the'616 patent: "The Physician's Tester microprocessor 30 has ... a display port …. The display port drives display 304 ...." '616 patent 33:8-10. As such, "display means for displaying the information derived from the status-indicating signal" corresponds to "a microprocessor 30 with a display port that drives a display 304."

IV. CONCLUSION

For the foregoing reasons, each party asks that the Court construe the disputed claim terms as proposed by that party.

Dated this 31st day of October, 2008.

BRUCE G. CHAPMAN
CONNOLLY BOVE LODGE & HUTZ LLP

By: /s/ Bruce G. Chapman
Bruce G. Chapman

Attorneys for Defendant and Counterclaimants Cochlear Corp. (a/k/a Cochlear Americas) and Cochlear Ltd.

CHARLES S. BARQUIST
MORRISON & FOERSTER LLP

BRIAN G. BODINE
PETER A. GERGELY
BRETT A. HERTZBERG
KAUSTUV M. DAS
MERCHANT & GOULD

By: /s/ Brian G. Bodine
Charles S. Barquist

Attorneys for Plaintiff Alfred E. Mann Foundation for Scientific Research