

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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AXONICS, INC.,  
Petitioner,

v.

MEDTRONIC, INC.,  
Patent Owner.

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IPR2020-00680  
Patent 8,457,758 B2

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Before JAMES A. TARTAL, ERIC C. JESCHKE, and  
BRENT M. DOUGAL, *Administrative Patent Judges*.

TARTAL, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision on Remand  
Determining No Challenged Claims Unpatentable  
*35 U.S.C. §§ 144, 318*

This case is on remand from the United States Court of Appeals for the Federal Circuit. *Axonics, Inc. v. Medtronic, Inc.*, 75 F.4th 1374 (Fed. Cir. 2024). In *Axonics*, the Federal Circuit stated that Axonics, Inc. (“Petitioner”) appealed our determination that Petitioner had not shown by a preponderance of the evidence that any of claims 1, 5, or 9 of U.S. Patent No. 8,457,758 B2 (Ex. 1001, “the ’758 patent”) is anticipated by any of the asserted prior art. *Axonics*, 75 F.4th at 1376 n.3. The Federal Circuit further stated that Petitioner did not dispute on appeal our claim construction, “only that the Board erred in refusing to consider [Petitioner’s] reply arguments and evidence” under the claim construction applied. *Id.* at 1379–80. Accordingly, the Federal Circuit’s decision in *Axonics* to vacate and remand requires us to consider whether Petitioner shows any of claims 1, 5, or 9 of the ’758 patent is anticipated by any of the asserted references in light of Petitioner’s new arguments and evidence presented in its reply. For the reasons discussed below, we determine that Petitioner does not show by a preponderance of the evidence that any of claims 1, 5, or 9 of the ’758 patent is anticipated by any of the asserted prior art.

## I. INTRODUCTION

### A. *Summary of Procedural History Prior to Remand*

Petitioner<sup>1</sup> filed a Petition pursuant to 35 U.S.C. §§ 311–319 requesting an *inter partes* review of claims 1–12 of the ’758 patent. Paper 1 (“Pet.”). We instituted an *inter partes* review of claims 1–12 on all grounds of unpatentability asserted in the Petition. Paper 8 (“Inst. Dec.”).

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<sup>1</sup> During the trial, the name of Petitioner when the Petition was filed, Axonics Modulation Technologies, Inc., was changed to Axonics, Inc. See Paper 32. Petitioner identifies no additional real parties in interest. Pet. 107.

Medtronic, Inc. (“Patent Owner”)<sup>2</sup> filed a Patent Owner Response. Paper 15 (“PO Resp.”). In its Response, Patent Owner stated that it disclaimed claims 3, 7, and 11. PO Resp. 1 (citing Ex. 2007 (a copy of a “Disclaimer in Patent Under 37 CFR 1.321(a)” (the “Disclaimer”))).

Petitioner filed a Reply to the Patent Owner Response. Paper 19 (“Pet. Reply”). Patent Owner filed a Sur-reply. Paper 34 (“PO Sur-reply”). Patent Owner filed a list of allegedly improper arguments and evidence from Petitioner’s Reply (Paper 23), to which Petitioner responded (Paper 26). Petitioner filed a list of allegedly improper arguments and evidence from Patent Owner’s Sur-reply (Paper 37), to which Patent Owner responded (Paper 38). The first oral argument was held on June 17, 2021, and a transcript of that hearing appears in the record. Paper 44.

We entered a Final Written Decision on September 22, 2021, determining that Petitioner failed to show by a preponderance of the evidence the unpatentability of any challenged claim not subject to the Disclaimer. Paper 45 (“FWD”). In the FWD, we addressed at length the construction of two claim terms: “a value associated with said current” and “a measured current associated with said current.” FWD 16–26. In regard to the limitations that recite these terms, which we refer to as the “Value Limitation” and the “Measured Current Limitation,” respectively, we determined in the FWD as follows:

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<sup>2</sup> Patent Owner states that it is the real party in interest, that “Medtronic plc is the ultimate parent of Medtronic, Inc.,” and that “Medtronic, Inc. has granted certain rights with respect to the patent-at-issue to Medtronic Puerto Rico Operations Co., which in-turn has granted certain rights to Medtronic Logistics, LLC, which in-turn has granted certain rights to Medtronic USA, Inc.” Paper 4, 1, n.1.

Although the '758 patent makes clear that “a value” may include “current,” we agree with Patent Owner that the two independent limitations should be construed such that the Value Limitation does not render superfluous the Measured Current Limitation. Our determination is further supported, as explained above, by Petitioner’s failure to show that its proposed construction is supported by the Specification or the prosecution history. Patent Owner has shown that if the Measured Current Limitation does no more than further limit the Value Limitation, as Petitioner contends, then the Value Limitation is rendered superfluous. Accordingly, we conclude that Petitioner has not sufficiently supported its proposed construction and determine that the Value Limitation and the Measured Current Limitation require two separate inputs to the external power source.

*Id.* at 26. We generally refer to the dispute over the Value Limitation and the Measured Current Limitation as corresponding to whether the claims require “one input” (i.e., a “single input”) or “two inputs” (i.e. a “second input”).

In the FWD, we found that Petitioner did not contend in the Petition that any of the asserted prior art references disclose an external power source that “automatically varies its power output based on two inputs, one corresponding to the Value Limitation and another to the Measured Current Limitation.” *Id.* at 33. We also found in the FWD that Petitioner improperly argued in its Reply “for the first time that features of each of the asserted references correspond to a second input that automatically varies the power output of the external power source.” *Id.* at 34. We determined in the FWD that “Petitioner’s arguments that each of the asserted references discloses two inputs are improper reply arguments based on improper reply testimony, and we do not give them weight.” *Id.* at 36–37. We concluded in the FWD

that Petitioner failed to show the unpatentability of any of claims 1, 2, 4–6, 8–10, and 12 of the ’758 patent.<sup>3</sup> FWD 46.

Following entry of the FWD, Petitioner filed a Request for Rehearing by the Director (Paper 46), which was denied (Paper 47). Petitioner filed a Notice of Appeal of the Final Written Decision with the Federal Circuit. *See* Paper 48. On August 7, 2023, the Federal Circuit issued a decision in the appeal. At the outset of its decision, the Federal Circuit recognized that, on appeal, Petitioner “does not argue the Board erred in adopting the two-input claim construction, only that the Board erred in refusing to consider [Petitioner’s] reply arguments and evidence under the two-input construction.” *Axonics*, 75 F.4th at 1379–80. The Federal Circuit concluded as follows:

We hold that where a patent owner in an IPR first proposes a claim construction in a patent owner response, a petitioner must be given the opportunity in its reply to argue and present evidence of anticipation or obviousness under the new construction, at least where it relies on the same embodiments for each invalidity ground as were relied on in the petition. We vacate the Board’s decisions in these IPRs and remand for the Board to consider [Petitioner’s] arguments and evidence under the two-input claim construction and, correspondingly, to consider any request by [Patent Owner] to present new evidence in support of its surreply.

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<sup>3</sup> We explained in the FWD that, in light of the Disclaimer, “we treat claims 3, 7, and 11 as if they never existed.” FWD 4. Accordingly, in the FWD, we only considered Petitioner’s allegations of unpatentability directed to claims 1, 2, 4–6, 8–10, and 12 of the ’758 patent. Because Petitioner only appealed the FWD as to claims 1, 5, and 9 of the ’758 patent in this case, claims 1, 5, and 9 are the only claims at issue on remand. *Axonics*, 75 F.4th at 1376 n.3.

*Axonics*, 75 F.4th at 1384; *see also* Paper 63 (Mandate of the Federal Circuit in the appeal, dated September 13, 2023).

*B. Summary of Procedural History After Remand*

Following the issuance of *Axonics* by the Federal Circuit, the Parties filed a Joint Brief Regarding Post-Remand Procedures (“JBRPRP,” Paper 65). We entered an Order on Procedures on Remand (“OPR,” Paper 67), which authorized Patent Owner to file an amended sur-reply and supporting declaration, authorized Petitioner to depose Patent Owner’s declarant, and authorized additional briefing from both Parties. As required by the Federal Circuit, we considered Patent Owner’s request to file a supporting declaration over the opposition of Petitioner and found the request to be warranted. *See Axonics*, 75 F.4th at 1384 (the Federal Circuit stating it is “confident that in circumstances such as these, the Board will allow an appropriate opportunity for a patent owner to submit evidence with a sur-reply”); OPR 5–7 (finding “Patent Owner has shown a need for the opportunity to support its arguments in opposition to Petitioner’s replies with a supplemental declaration,” and rejecting Petitioner’s assertions that Patent Owner “waived” making such a request).

Patent Owner filed a Rebuttal Declaration of Dr. Richard T. Mihran, dated October 31, 2023 (Ex. 2010), and an Amended Patent Owner’s Sur-reply (Paper 68, “APO Sur-reply”), which is identical to the original sur-reply filed by Patent Owner with the addition of citations to the supporting rebuttal declaration of Dr. Mihran. *See* Ex. 2011 (comparison of PO Sur-reply to APO Sur-reply). Petitioner deposed Dr. Mihran for a second time in this case on November 14, 2023, and the transcript of the deposition was filed by Petitioner as Exhibit 1019. Petitioner filed a Post Remand Brief (Paper 79, “Pet. PRB”) and Patent Owner filed a Post Remand Brief

(Paper 80, “PO PRB”). Petitioner’s request for a second oral argument (Paper 81) was granted and a transcript of the second hearing in this case, held on February 8, 2024, was entered in the record (Paper 88).

*C. Related Proceedings*

The Parties identify the ’758 patent as a subject of *Medtronic, Inc. v. Axonics Modulation Technologies, Inc.*, Case No. 8:19-cv-02115-DOC-JDE (C.D. Cal.). Pet. 107; Paper 4, 2. The Parties also identify as related matters IPR2020-00678, concerning U.S. Patent No. 7,774,069 B2 (“the ’069 patent”), and IPR2020-00712, concerning U.S. Patent No. 8,738,148 B2 (“the ’148 patent”). Pet. 107; Paper 4, 2. The ’758 patent issued from an application that was a continuation of an application that was a division of an application that issued as the ’069 patent. Ex. 1001, code (60). The ’148 patent issued from an application that was a continuation of the application that issued as the ’758 patent. *Id.* The Federal Circuit addressed both this case and IPR2020-00712 in *Axonics*. *See* 75 F.4th at 1376.

*D. The ’758 Patent*

The ’758 patent issued June 4, 2013, from an application filed on August 16, 2011, and is directed to a “[s]ystem for transcutaneous energy transfer.” Ex. 1001, codes (22), (45), (57). As background to the invention, the ’758 patent explains that “[s]everal systems and methods have been used for transcutaneously inductively recharging a rechargeable used in an implantable medical device,” including “the use of inductive coupling involv[ing] the placement of two coils positioned in close proximity to each other on opposite sides of the cutaneous boundary.” *Id.* at 1:65–67, 2:16–19. According to the ’758 patent, “[f]or implanted medical devices, the efficiency at which energy is transcutaneously transferred is crucial.” *Id.*

at 2:66–67. The ’758 patent further explains that inductive coupling “has a tendency to heat surrounding components and tissue,” which limits “the amount of energy transfer which can be accomplished per unit time”; that a patient’s mobility is impaired during charging; and that the amount of charging “can be limited by the amount of time required for charging,” thereby limiting “the size of the internal power source.” *Id.* at 2:67–3:25.

The ’758 patent states that “[a]lignment of an external primary coil with the internal secondary coil is important in achieving efficiency in transcutaneous energy transfer” and that “it is not always easy for the user to know when the primary and secondary coils are properly aligned.” *Id.* at 3:33–37. The ’758 patent further states that, even when aligned, “the physical package containing the primary coil with the protrusion of the implanted medical device may not result in optimum alignment of the primary and secondary coils,” because the coils may not be centered in the package and “even perfect alignment of the packages may result in actual misalignment of the primary and secondary coils.” *Id.* at 3:37–48.

According to Patent Owner, the ’758 patent solved the problem of proper alignment “through an inventive system including an external power source that, among other things, automatically varies the power output of the external charging device as a function of parameters associated with the current passing through the internal power source.” PO Resp. 4 (citing Ex. 1001, 3:52–4:12, 20:63–22:15, Fig. 19).

Figure 3 of the '758 patent is reproduced below.

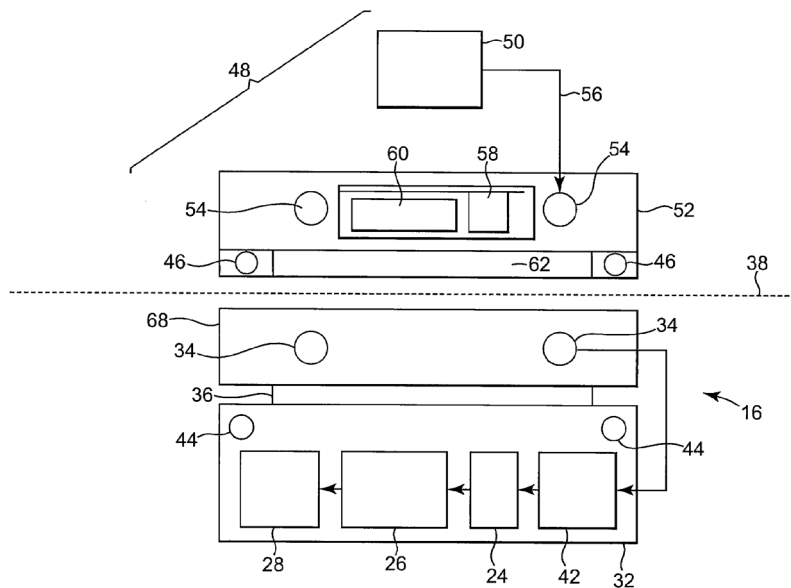


**Fig. 3**

Figure 3 illustrates implantable medical device 16, situated under cutaneous boundary 38, and associated external charging device 48. Ex. 1001, 6:1–4, 7:55–56, 8:19–21. Implantable medical device 16 includes rechargeable power source 24, which powers electronics 26 and therapy module 28 “in a conventional manner,” charging regulation module 42, and internal telemetry coil 44. *Id.* at 7:31–34, 7:57–8:1. External charging device 48, including external telemetry unit 46, charging unit 50, and external antenna 52, is used to charge rechargeable power source 24 of implantable medical device 16 while implantable medical device 16 is in place in a patient. *Id.* at 7:60–8:1, 8:19–8:23. “[I]nternal telemetry coil 44 [is] configured in [a] conventional manner to communicate through external telemetry coil 46 to an external programming device (not shown), charging unit 50 or other device in a conventional manner in order to both program and control [the] implantable medical device and to externally obtain information from implantable medical device 16 once implantable medical

device has been implanted.” *Id.* at 7:60–8:1. “Charging unit 50 contains the electronics necessary to drive primary coil 54 with an oscillating current in order to induce current in secondary coil 34 when primary coil 54 is placed in the proximity of secondary coil 34.” *Id.* at 8:23–26.

Figure 19 of the ’758 patent is reproduced below.

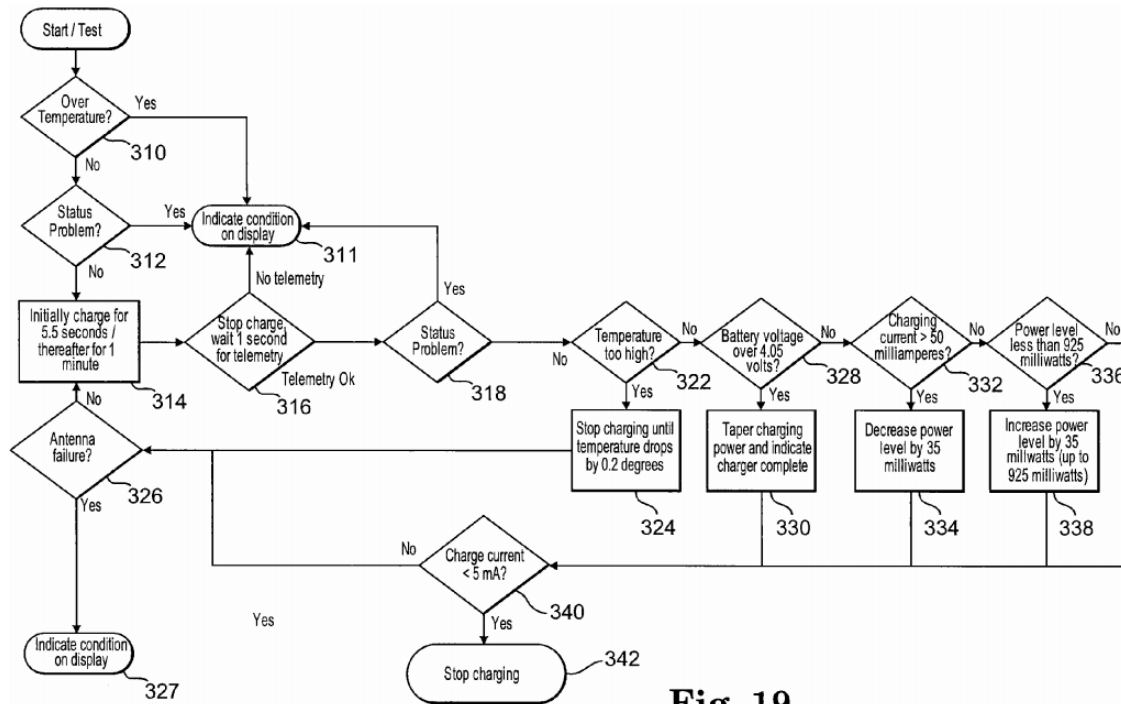


**Fig. 19**

Figure 19 is a flow chart illustrating the operation of charging unit 50 to charge an implantable medical device. Ex. 1001, 6:42–43, 21:24–25. The steps shown in Figure 19 are described in the ’758 patent as follows:

- at step 310, charging unit 50 determines “whether external antenna 52 is over the temperature limit set for charging operation,” where the “temperature limit can help prevent patient 18 from being exposed to temperatures that are higher than desired”;
- at steps 311 to 313, “[i]f external antenna 52 of charging unit 50 is over temperature, an alert condition is indicated,” “[i]f external antenna [52] is not over the temperature limit, charging unit 50 then

checks . . . for a status problem with charging unit 50,” and “[i]f a status problem is found, an alert condition is indicated”;

- at steps 314 and 316, “[i]f a status problem is not found, charging unit 50 initially charges . . . rechargeable power source 24 of implantable medical device 16 for 5.5 seconds,” and “[c]harging unit 50 then stops charging and waits . . . one second to check for reception of a telemetry signal from implantable medical device 16,” such as “the value of the current flowing through secondary coil 34,” and “[i]f no telemetry signal is detected, an alert condition is indicated,” returning the operation to step 311;

- at step 318, “[i]f telemetry is received, charging unit 50 then checks . . . for a status problem with implantable medical device 16,” and “[i]f a status problem is detected, an alert condition is indicated,” returning the operation to step 311;

- at step 322, “[i]f no status problem exists, charging unit 50 checks . . . to determine if the temperature is too high,” and “[i]f an over temperature condition is detected, charging is stopped and a status indication is displayed until the temperature drops below a predetermined level”;

- at step 328, “[i]f no over temperature condition exists, charging unit 50 checks . . . to determine if the voltage across rechargeable power source 24 is over a voltage at which the charging rate should begin to decrease, e.g., 4.05 volts”;

- at steps 330 and 332, “[i]f the voltage across rechargeable power 24 is greater than 4.05 volts, then charging unit 50 begins to taper charging power,” but “[i]f the voltage across rechargeable power source 24 is not over 4.05 volts, charging unit 50 checks . . . to determine whether the

charging current through rechargeable power source 24 is over a current rate that is not desirable, e.g., 50 milliamperes”;

- at step 334, “[i]f the charging current is over 50 milliamperes, then the charging power level is decreased . . . by an appropriate [amount], e.g., by 35 milliwatts”;

- at steps 336 and 338, “[i]f the charging current is not over 50 milliamperes, charging unit 50 checks . . . to determine if the charging power level is less than [an] appropriate amount, e.g., 925 milliwatts,” and “[i]f the power level is less than 925 milliwatts, the charging power level is increased . . . by 35 milliwatts, up to a maximum of 925 milliwatts”; and

- at steps 340 and 342, “[i]f the charge current is below . . . five (5) milliamperes, then charging unit 50 stops . . . charging and indicates that charging is complete, e.g., by lighting the charging complete indicator light,” and “[i]f not, [operation returns to step 314 and] charging unit 50 then charges . . . rechargeable power source for one (1) minute and then conducts the aforementioned tests, checks and actions as performed after the initial 5.5 second charge.”

Ex. 1001, 21:24–22:14.

#### *E. Illustrative Claim of the '758 Patent*

Each of claims 1, 5, and 9 of the '758 patent is independent.

Ex. 1001, 22:25–46, 23:46–65, 24:61–25:10. Claim 1 is directed to a “system for transcutaneous energy transfer,” claim 5 is directed to an “external power source,” and claim 9 is directed to a “method of transcutaneous energy transfer.” *Id.*

Claim 1 is illustrative of the claimed subject matter and is reproduced below:

1. A system for transcutaneous energy transfer, comprising:  
an implantable medical device having componentry for providing a therapeutic output, said implantable medical device having an internal power source and a secondary coil operatively coupled to said internal power source, said implantable medical device adapted to be implanted in a patient; and  
an external power source having a primary coil, said external power source providing energy to said implantable medical device when said primary coil of said external power source is placed in proximity of said secondary coil of said implantable medical device and thereby generating a current, having a value, passing through said internal power source;  
wherein said external power source automatically varies its power output based on a value associated with said current passing through said internal power source;  
wherein said external power source automatically varies its power output based on a measured current associated with said current passing through said internal power source.

Ex. 1001, 22:25–46.

#### *F. References and Testimony*

Below we provide an abbreviated summary of the qualifications of Dr. Dorin Panescu, who provides testimony in support of Petitioner, and Dr. Richard T. Mihran, who provides testimony in support of Patent Owner. We also provide a table identifying the primary references relied upon by Petitioner, as well as the exhibits corresponding to the declarations and deposition testimony in the record for Dr. Panescu and Dr. Mihran.<sup>4</sup>

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<sup>4</sup> The table provided identifies only a select number of documents. A complete identification of the papers and exhibits that form the record of this case is available in the docket of this proceeding.

Petitioner's contentions are primarily supported by Dr. Panescu.<sup>5</sup> Dr. Panescu has a Bachelor of Science degree in Electronics and Telecommunications, as well as Master of Science and Doctorate degrees in Electrical and Computer Engineering. Ex. 1003 ¶ 4; Ex. 1004 (*curriculum vitae* of Dr. Panescu). Dr. Panescu is Chief Scientific Engineer at Biotronik and indicates his work there concerns the "[d]evelopment of novel catheters and systems for treatment of cardiac arrhythmias." Ex. 1004, 1. Dr. Panescu states that he has "over 25 years of direct technical experience in electrical medical device technology including systems with implantable medical devices"; that he is "an inventor on over 175 issued U.S. patents," including over 20 patents related to medical implants; and that he is "the author of over 200 industry publications." Ex. 1003 ¶¶ 4, 5; Ex. 1004, 1–9.

Patent Owner's arguments are primarily supported by Dr. Mihran. Dr. Mihran has a Bachelor of Science degree in Electrical Engineering and Applied Physics, a Master of Science degree in Electrical and Computer Engineering, and a Doctorate in Electrical Engineering. Ex. 2002 ¶ 8; Ex. 2003 (*curriculum vitae* of Dr. Mihran). Dr. Mihran states that he is "a Professor Adjunct in the Department of Electrical, Computer and Energy Engineering at the University of Colorado at Boulder," where he has "been on the faculty since 1990." Ex. 2002 ¶ 6. Dr. Mihran further states that he has taught and performed research "pertaining to the development of electronic, optical and ultrasonic devices and systems for medical and other applications for over 35 years"; that he has "authored numerous publications addressing cardiac and nerve cell electrophysiology"; and that he has

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<sup>5</sup> Petitioner also provides a Declaration of Rachel J. Watters (Ex. 1008) concerning the availability of Exhibit 1006.

“consulted extensively in the area of inductively-powered RFID devices and networks for over twenty-five years.” *Id.* ¶¶ 6, 9, 13. Dr. Mihran also states that he has “served as an expert witness in many patent litigation matters in the areas of implantable medical devices, including spinal cord stimulation, vagal nerve stimulation, pacemakers, implantable cardioverter/defibrillators (ICDs), syringe-implantable RFID devices, orthopedic implants, RF tissue ablation, and stereotactic medical imaging” as well as “other technology areas, including wired and wireless telecommunications, radio frequency identification systems, power management in portable devices, computers and computer networks, and others.” *Id.* ¶ 14.

| References and Witness Testimony                                                                                                                         | Date          | Ex. No.  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------|
| U.S. Patent No. 3,942,535 (“Schulman”)                                                                                                                   | Mar. 9, 1976  | Ex. 1005 |
| Fischell et al., <i>A Long-Lived, Reliable, Rechargeable Cardiac Pacemaker, Engineering in Medicine</i> , 357 (Schaldach et al. eds., 1975) (“Fischell”) | 1975          | Ex. 1006 |
| U.S. Patent No. 6,227,204 B1 (“Baumann”)                                                                                                                 | May 8, 2001   | Ex. 1007 |
| Declaration of Dr. Dorin Panescu                                                                                                                         | Mar. 2, 2020  | Ex. 1003 |
| Supplemental Declaration of Dr. Dorin Panescu                                                                                                            | Mar. 19, 2021 | Ex. 1012 |
| Deposition Transcript of Dr. Dorin Panescu                                                                                                               | Nov. 19, 2020 | Ex. 2004 |
| Declaration of Dr. Richard T. Mihran                                                                                                                     | Dec. 22, 2020 | Ex. 2002 |
| Deposition Transcript of Dr. Richard T. Mihran                                                                                                           | Feb. 25, 2021 | Ex. 2008 |
| Rebuttal Declaration of Dr. Richard T. Mihran                                                                                                            | Oct. 31, 2023 | Ex. 2010 |
| Deposition Transcript of Dr. Richard T. Mihran                                                                                                           | Nov. 14, 2023 | Ex. 1019 |

*G. Asserted Grounds of Unpatentability*

On remand, we consider Petitioner’s allegations of unpatentability of claims 1, 5, and 9 on the following grounds:

| <b>Claim(s) Challenged</b> | <b>35 U.S.C. §<sup>6</sup></b> | <b>Reference(s)/Basis</b> |
|----------------------------|--------------------------------|---------------------------|
| 1, 5, 9                    | 102                            | Schulman                  |
| 1, 5, 9                    | 102                            | Fischell                  |
| 1, 5, 9                    | 102                            | Baumann                   |

Pet. 9–10; *Axonics*, 75 F.4th at 1376 n.3.

**II. ANALYSIS OF PATENTABILITY**

In *Axonics* the Federal Circuit directed us to consider the new arguments and evidence Petitioner first presented in its Reply concerning allegations that claims 1, 5, and 9 are anticipated by Schulman, Fischell, and Baumann. *Axonics*, 75 F.4th at 1376 (stating, “[w]e hold that the Board’s refusal to consider the new arguments and evidence was erroneous, and we vacate and remand for the Board to consider the merits of [Petitioner’s] responsive arguments and evidence under the new claim construction”); *see also* ORP 3 (order on remand procedures stating that on remand the claims and grounds for further consideration in this case are claims 1, 5, and 9 as allegedly anticipated by Schulman, Fischell, and Baumann).

In addition to the Petition arguments and supporting evidence we previously considered, below we further consider Petitioner’s contentions in light of the arguments and evidence addressed in the portion of Petitioner’s

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<sup>6</sup> The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 102 that became effective on March 16, 2013. Pub. L. No. 112-29, §§ 3(b)–3(c), 3(n)(1), 125 Stat. 284, 285–87, 293 (2011). Because there is no dispute that the ’758 patent claims have an effective filing date before March 16, 2013, we apply the pre-AIA version of this statute.

Reply that we previously found to be improper new argument and did not consider for purposes of the FWD. We also consider Patent Owner's Amended Sur-reply, as supported by the Rebuttal Declaration of Dr. Mihran, and the arguments and evidence advanced in the post remand briefs of the Parties. Based on the totality of the record in this case, we determine, for the reasons that follow, that Petitioner does not show by a preponderance of the evidence that any of claims 1, 5, or 9 is anticipated by Schulman, Fischell, or Baumann.

*A. Principles of Law*

A claim is anticipated if a single prior art reference either expressly or inherently discloses every limitation of the claim. *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 975 (Fed. Cir. 2010). “A single prior art reference may anticipate without disclosing a feature of the claimed invention if such feature is necessarily present, or inherent, in that reference.” *Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 958 (Fed. Cir. 2014) (citing *Schering Corp. v. Geneva Pharm.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003)).

*B. Level of Ordinary Skill in the Art*

The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *Id.* (citation omitted).

Petitioner contends that a person of ordinary skill in the art at the time of the invention “would have had at least a bachelor’s degree in electrical engineering or an equivalent as well as at least five years of experience in the industry working with implantable medical devices such as cardiac pacemakers or defibrillators.” Pet. 7. Patent Owner argues that a person of ordinary skill “would have had at least a bachelor’s degree in a relevant field (e.g., electrical, mechanical, or biomedical engineering) with at least two years of experience with the design of components (e.g., circuitry) for implantable medical devices and associated external devices (e.g., a charging unit),” and that “[m]ore education can substitute for practical experience and *vice versa*.” PO Resp. 5 (citing Ex. 2002 ¶¶ 21, 22).

Our analysis here, as in the FWD, does not turn on which of the Parties’ competing definitions of ordinary skill is applied. *See* FWD 16. Moreover, the appropriate level of ordinary skill is not in dispute on remand. Consistent with the FWD and the Decision on Institution, we apply the level of ordinary skill in the art proposed by Petitioner. *See* Inst. Dec. 11–12 (stating that “the ’758 patent and the cited prior art references reflect the appropriate level of skill at the time of the claimed invention and that the level of appropriate skill reflected in these references is consistent with the definition of a person of ordinary skill in the art proposed by Petitioner” (citing *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001))); FWD 16.

### *C. Claim Construction*

“In an *inter partes* review proceeding, a claim of a patent . . . shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b). That standard “includ[es] construing the claim in accordance

with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*; *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). “When a patentee explicitly defines a claim term in the patent specification, the patentee’s definition controls.” *Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1380 (Fed. Cir. 2009).

In the Petition, Petitioner proposes no express construction for any claim term. Pet. 6. Petitioner asserts that “all claim terms should be given their plain and ordinary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention, in light of the language of the claims, the specification, and the prosecution history.” *Id.* In response, Patent Owner argues that certain claims include “two distinct ‘wherein’ clauses,” which require “two separate inputs to the external power source for automatic variation of the power output” that cannot be satisfied “by a single disclosure in the prior art.” PO Resp. 7.

1. “*a value associated with said current*” and “*a measured current associated with said current*” (claims 1, 5, and 9)

Claim 1 is directed to “[a] system for transcutaneous energy transfer” and recites, in relevant part, as follows:

an external power source . . .

wherein said external power source automatically varies its power output based on *a value associated with said current* passing through said internal power source [(the “Value Limitation”)];

wherein said external power source automatically varies its power output *based on a measured current associated with said current* passing through said internal power source [(the “Measured Current Limitation”)].

Ex. 1001, 22:25–46 (emphases added). Claim 5 is directed to “[a]n external

power source” and includes an identical Value Limitation and Measured Current Limitation. *Id.* at 23:46–65. Claim 9 is directed to “[a] method of transcutaneous energy transfer,” and includes the same disputed claim language, reciting, in relevant part, as follows:

said charging unit automatically varying its power output based on *a value associated with said current* passing through said internal power source;

wherein said automatically varying step automatically varies its power output based on *a measured current associated with said current* passing through said internal power source.

*Id.* at 24:61–25:10 (emphases added).

The Specification of the ’758 patent states that “an alignment measurement may be made by measuring a value, e.g., current or voltage, associated with, e.g., proportional to, the current passing through [the] rechargeable power source.” *Id.* at 20:67–21:3. We therefore find that the Specification expressly identifies “current or voltage” as examples of “a value.” *Id.* In the FWD, we stated that “[a]lthough the ’758 patent makes clear that ‘a value’ may include ‘current,’ we agree with Patent Owner that the two independent limitations should be construed such that the Value Limitation does not render superfluous the Measured Current Limitation.” FWD 26. We further determined that “the Value Limitation and the Measured Current Limitation require two separate inputs to the external power source.” *Id.* That determination is not at issue here. *See Axonics*, 75 F.4th at 1379–80 (stating that Petitioner did “not argue the Board erred in adopting the two-input claim construction”).

## 2. *Additional Claim Terms*

We find no additional claim term requires express construction. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013,

1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

*D. Scope and Content of the Prior Art*

To demonstrate the unpatentability of claims 1, 5, and 9 of the ’758 patent, Petitioner relies on Schulman, Fischell, and Baumann. Pet. 8–10. A brief summary of each of these references, focused on the teachings relied upon by Petitioner, is provided below.

*1. Summary of Schulman*

Schulman, titled Rechargeable Tissue Stimulating System, generally “relates to a rechargeable tissue stimulating system for providing a charge to a voltage source implanted in a living being, and for regulating recharging of the voltage source through the use of a telemetry circuit.” Ex. 1005, 1:7–11. Schulman describes the use of an induction coil external to the patient that “is used to induce current flow in a charging circuit located beneath the skin of the patient” and “external means” that “modulate the strength of the charging magnetic field, as well as provide visual or audio indication of proper charging as well as the proper positioning of the external power source with respect to the implanted charging circuit, completion of the proper charging interval to restore the amount of current used, and improper charging.” *Id.* at code (57).

Figure 1 of Schulman is reproduced below.

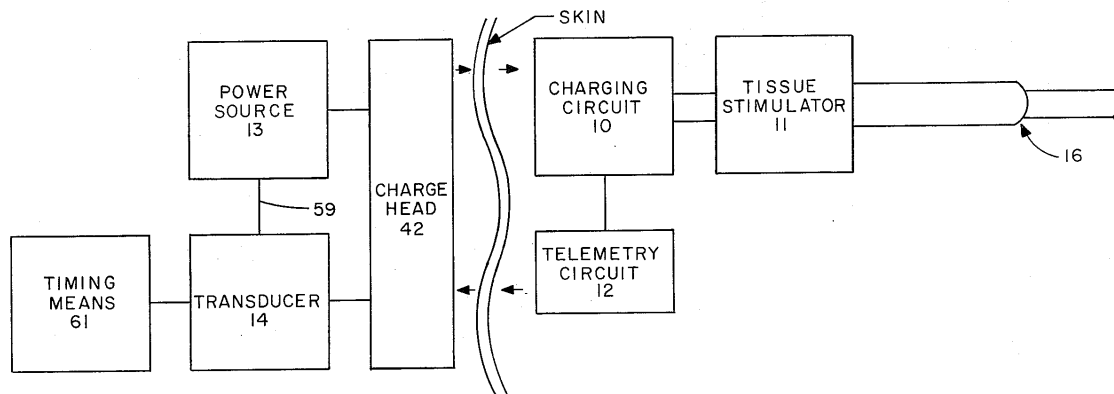


FIG. 1

Figure 1 is a block diagram of a rechargeable tissue stimulating system of Schulman. *Id.* at 3:16–17, 3:42–46. The system includes charging circuit 10, with telemetry circuit 12 and tissue stimulator 11, for implantation in the body. *Id.* at 3:42–46. External to the patient, the system further includes power source 13 with transducer 14 “in the form of a detector circuit for recharging and for verifying the charging condition of the implanted portions of the tissue stimulating system,” charge head 42, and timing means 61. *Id.* at 3:47–53. “The output of transducer 14 is used to control the power oscillator output energy and is used to drive the timing means 61, which includes a timing and indicator circuit.” *Id.* at 3:55–58.

## 2. *Summary of Fischell*

Fischell, titled “A Long-lived, Reliable, Rechargeable Cardiac Pacemaker,” describes a cardiac pacemaker system with a “rechargeable cell specifically adapted for use at body temperature.” Ex. 1006, 357. The system includes an external device with a charger head that transfers energy to a pickup coil in the implant in order to recharge the battery. *Id.* at 372 (disclosing “the external charger applies an alternating magnetic field which

is picked up through the intact skin by the pulse generator's pickup coil"),  
Fig. 8.

Figure 8 of Fischell is reproduced below.

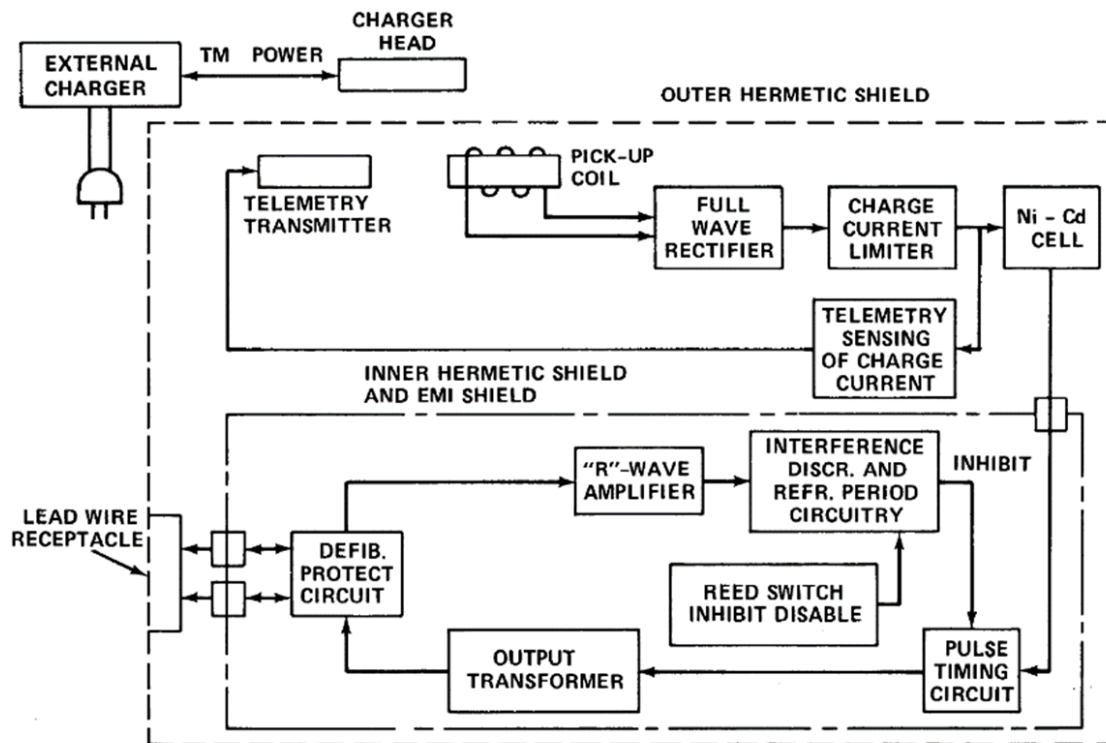


Fig. 8 Block diagram of rechargeable demand pacemaker

Figure 8 of Fischell is a block diagram of the rechargeable cardiac pacemaker system described in Fischell. *Id.* at 369. Petitioner describes the system shown in Figure 8 as follows:

a block diagram of a rechargeable pacemaker system showing an "external charger" and a hermetically sealed rechargeable pacemaker or "pulse generator" that is implanted beneath the skin of the patient. The implantable device includes a "pick-up coil" that interfaces with an induction coil in the "charger head" of the external device, circuitry to convert the magnetic energy to current for charging an internal rechargeable battery, a "Ni-Cd cell," a block titled "telemetry sensing of charge current" that is coupled between the battery and a "telemetry transmitter" that transmits information back to the external charger. "When the external charger applies an alternating magnetic field which is picked up through the intact skin by the pulse generator's pickup

coil, a telemetry system is powered whose output frequency from the pacer is proportional to the charge current in the battery.” Ex. 1006 at 372–373. The charger head of the external charger detects this frequency and “closed-loop controls the battery charge current” to bring it to a desired value (e.g., 40 mA). Ex. 1006 at 373.

Pet. 28–29.

A telemetry transmitter in Fischell communicates back to the external device the charge current in the battery. Ex. 1006, 370–373 (disclosing “a telemetry system is powered whose output frequency from the pacer is proportional to the charge current in the battery”), Fig. 8 (noting a box for telemetry sensing of charge current), Table 3 (noting a “Battery charge current telemetry” item). If the battery is not charging properly due to misalignment (i.e., the current level is too low), the user is made aware by a beeping sound and flashing lights on the external device. *Id.* at 377–378. If the battery is receiving too much current, a feedback control system maintains charge at the appropriate level. *Id.* at 367 (“The charging circuit for the rechargeable pacer limits the charge (and overcharge) current into the battery to 40 mA.”), 372 (disclosing “telemetry . . . to measure and control charge current into the battery”), 373 (“The external charg[ing] detects [the telemetry] and closed-loop controls the battery charge current to a value of 40 mA.”), 378 (“A feedback control system in the charger maintains the battery charge current at the proper 40 mA level.”).

### 3. *Summary of Baumann*

Baumann, titled Device and Process for Charging of Rechargeable Batteries of Implants, generally “relates to a charging device for charging of rechargeable NiCd, Ni-metal hydride or lithium batteries of implants . . . by transcutaneous transmission of electric power from an external power

transmission part to a power receiving part which forms a part of the implant.” Ex. 1007, 1:7–19. Baumann explains that “[w]hen a battery is charged, only one part of the supplied electric power is converted into charge,” that “[a]nother part of this power is converted into heat on the internal resistance of the battery and is lost for charging,” and that the “power loss can lead to an impermissible temperature rise of the implant housing, and thus, to damage of the surrounding tissue.” *Id.* at 1:29–34. Baumann seeks to avoid such problems and further describes a process for charging implanted batteries where, in a first charging phase, “a relatively high charging current flows,” and “after the cell voltage of the battery has reached a predetermined limiting charging voltage, in a second charging phase, the charging current is reduced compared to the charging current flowing at the end of the first charging phase.” *Id.* at 1:20–27.

Figure 1 of Baumann is reproduced below.

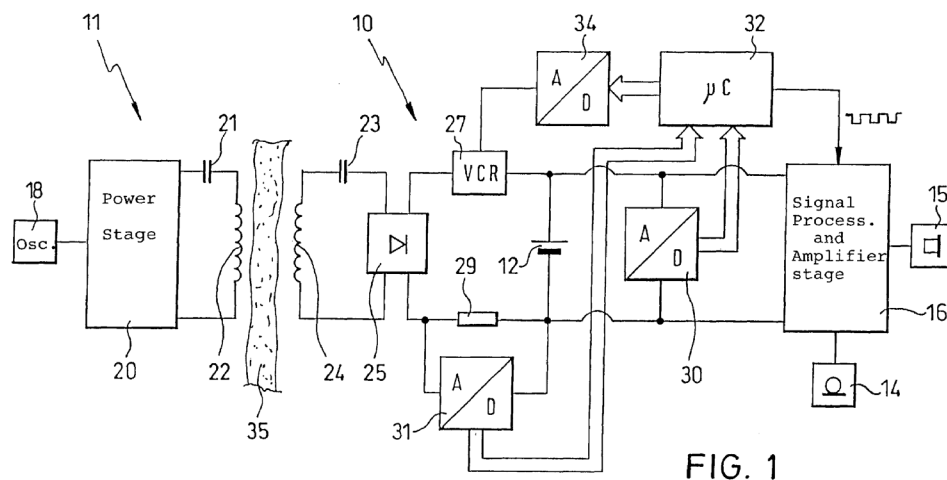


FIG. 1

Baumann Figure 1 “shows a schematic circuit diagram of an electronic hearing implant with a charging device.” *Id.* at 3:47–49. The charging device illustrated in Figure 1 includes implantable power receiving part 10,

external power transmission part 11, and rechargeable battery 12. *Id.* at 3:60–65. Baumann further explains the following:

A charging process begins with the external field coil 22 being placed on the outside of the skin 35 of the implant wearer such that it is aligned at least approximately with the implant coil 24. The electronic power stage 18, in interaction with the oscillator 18, . . . an alternating current supplies to the field coil 22 which has a frequency in the range from 40 kHz to 50 MHz. The alternating electromagnetic field produced by the field coil 22 transcutaneously induces in the implant coil 24 an alternating current which is rectified in the rectifier stage 25. The battery 12 is charged with the rectified charging current  $I_L$ , via the VCR 27 which is in series with the output of the rectifier stage 25, the instantaneous resistance value of the VCR 27, which is controlled by the microcontroller 32 via the D/A converter 34, determining the charging current  $I_L$  supplied to the battery from the rectifier stage 25. The size of the charging current  $I_L$  is determined from the voltage drop on the current measuring resistor 29, and a corresponding measured quantity travels to the microcontroller 32 via the A/D converter 31.

*Id.* at 4:36–55. Additionally, Baumann states that “[t]he means necessary to set the charging current  $I_L$  . . . can . . . be housed in an implantable power receiving part 10,” or “it can also be in the external power transmission part 11 or distributed between both parts 10 and 11.” *Id.* at 5:59–64.

According to Baumann, battery charging “is regulated depending on the internal resistance of the battery,” such that “the cell is charged only with as much energy as the electrochemical state allows, without excess gassing or heating of the cell occurring.” *Id.* at 2:33–38. Baumann also discloses that when the voltage reaches a certain level it “sets back,” or lowers, the current. *Id.* at 5:14–22 (“When monitoring of the cell voltage  $U_Z$  . . . indicates that the cell voltage has reached a limiting [value]  $U_G$ , the microcontroller 32 . . . sets back the charging current  $I_L$  for a second charging phase T2.”).

Figure 3 of Baumann is reproduced below:

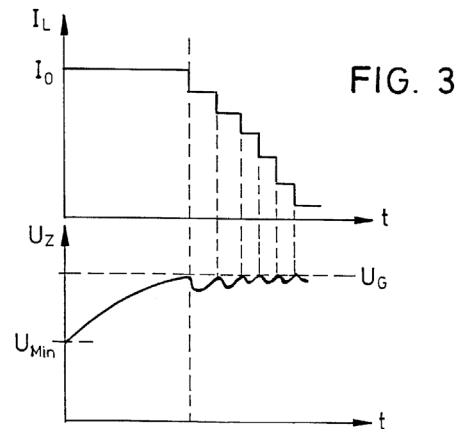


Figure 3 depicts two graphs showing the relationship between charge current  $I_L$  over time, and battery voltage  $U_Z$  over time. *See id.* at 4:63–5:35. As shown in Figure 3, after the voltage  $U_Z$  hits a threshold value  $U_G$ , current  $I_L$  is varied in a stepwise function over time. *Id.* at 5:14–22.

*E. Alleged Anticipation by Schulman*

Petitioner contends that claims 1, 5, and 9 of the '758 patent are anticipated by Schulman. Pet. 10–27; Pet. Reply 10–12. In regard to claim 1, for example, Petitioner contends Schulman discloses an implantable electrical tissue stimulator with an internal power source (battery 15) coupled to a secondary coil (coils 17 and 18) and an external electrical charging power source with a primary coil (coil 24). Pet. 12–14 (citing, *e.g.*, Ex. 1005, 1:7–11, 2:27–33, 2:36–40, 3:42–46, Figs. 1–4). We focus our discussion on Petitioner's arguments with regard to the Value Limitation and Measured Current Limitation because it is dispositive.

Each of claims 1, 5, and 9 includes the Value Limitation and the Measured Current Limitation. In the Petition, Petitioner contends that the Measured Current Limitation and the Value Limitation of claims 1, 5, and 9 are disclosed by a single input in Schulman. Pet. 19, 20, 23, 24, 26, 27, 35,

36, 40, 44, 45, 52–56, 64, 65, 69, 70. As explained above (*see* Section II.C.1), and not at issue on remand, we determined in the FWD that “the Value Limitation and the Measured Current Limitation require two separate inputs to the external power source.” FWD 26; *Axonics*, 75 F.4th at 1379–80. It is undisputed that Petitioner did not show in the Petition by a preponderance of the evidence that Schulman anticipates any of claims 1, 5, or 9 of the ’758 patent. *See Axonics*, 75 F.4th at 1379–80. We further consider Petitioner’s contentions on remand in light of the new arguments and evidence Petitioner presented in its Reply. *See id.* at 1384.

Petitioner argues in its Reply that “[e]ven if the Board adopts [Patent Owner’s] understanding that the claims require a *separate* input for ‘a value’ and ‘a measured current,’ Schulman still anticipates claims 1, 5, and 9.” Pet. Reply 10 (emphasis added).

Specifically, Petitioner argues for the first time in its Reply as follows:

Schulman discloses two inputs associated with the current passing through the internal power source to vary the external power source’s power output. Schulman teaches both “a measured current” (which Medtronic does not dispute) and also teaches a second input. Schulman discloses that the current through R9 can increase: (1) when the magnitude of charging current passing through the internal battery 15 exceeds a predetermined current (Ex. 1001, 5:22–24; Ex. 1003, ¶70), as described in the Petition (Pet., 34–36, 40, 44–45; Ex. 1003, ¶¶90–91); and (2) when the voltage across the output leads 51 and 52 exceeds the predetermined maximum amount (Ex. 1001, 5:7–14, 5:36–59, Ex. 1012, ¶¶16–18).

Pet. Reply 10.

Petitioner’s position is in contrast to Dr. Panescu’s original declaration testimony, which Petitioner relied upon as support for the arguments asserted in the Petition, where Dr. Panescu explained the

operation of Schulman and did not state that Schulman disclosed two separate inputs for “a value” and for a “measured current.” *See, e.g.*, Ex. 1003 ¶¶ 60–81. Instead, Dr. Panescu explained that “Schulman refers to resistor R9 as a ‘current sampling resistor’ because resistor R9 provides a measure of the charging current that is supplied to internal battery 15” (citing Ex. 1005, 6:17–19), that “[i]t is in response to the magnitude of this charging current, as sampled by R9, that the frequency of the multivibrator circuit (made up, in part, of transistors Q2 and Q3) is controlled” (citing *id.* at 4:36–42), and that “[t]his frequency is then telemetered back to the external power source via coil 18” (citing *id.* at 4:45–53). Ex. 1003 ¶ 68. Dr. Panescu proceeded to explain “in greater detail how Schulman teaches that the measured current through charging current sampling resistor R9 . . . is telemetered back to the external power source,” as follows:

The charging and telemetry circuit shown in FIG. 2 of Schulman includes a “shunt current regulator” made up of transistor Q7 and resistor R8 . . . . The function of this shunt current regulator circuit is to regulate the magnitude of the charging current passing through internal battery 15 “at a predetermined current.” [Ex. 1005], 5:22–24. This is accomplished by connecting resistor R8 “in series with the rectified output leads 51 and 52.” [*Id.* at] 5:1–7. The current through R8 is therefore approximately equal to the charging current passing through internal battery 15.

During the initial phase of charging, the current through R8 tracks the current through R9. The value of the current through R8 is measured by comparing the resulting voltage across R8 to the base-emitter ON-voltage threshold of Q7. As the charging current through R9 increases the current through the battery and therefore the current through R8 also increases. The increased current through R8 will cause the voltage differential at the base-emitter junction of transistor Q7 to increase, which will at some point cause transistor Q7 to turn on and draw an increasing amount of current. [*Id.* at] 5:15–20.

This additional current drawn by the collector terminal of Q7 is supplied by the current through current sampling resistor R9. The increased current through resistor R9 results in an increased frequency of the multivibrator Q2/Q3 as explained above. This increase in multivibrator frequency is telemetered back via coil 18 to the external power source, lowering the power output of the external charger to in turn lower the amount of charge current. I will explain the operation of this feedback control loop further below. The point explained here, however, is that the shunt current regulator, along with the feedback loop controlling external charging signal, operates to regulate the charge current at a predetermined target level. Schulman explains that this base-emitter voltage threshold is 0.4 V: “For example, if one wanted to maintain a charging current of 40 milliamperes into the battery 15, and the base-emitter voltage drop required to initiate conductance in transistor Q7 is 0.4 volts, one would select a resistance value for resistor R8 such that 40 milliamperes would produce a 0.4 voltage differential between the base-emitter leads of transistor Q7.” [*Id.* at] 5:25–31.

Ex. 1003 ¶¶ 70–71.

In a separate portion of his declaration discussing the alleged obviousness of claim 2 over the combination of Schulman and Baumann, a ground of unpatentability not at issue on remand, Dr. Panescu stated in regard to leads 51 and 52 as follows:

Schulman discloses that “[a]ll current up to a maximum level will flow through the rectified output leads 51 and 52 to charge the battery 15.” [Ex. 1005], 6:17–19. Schulman further discloses that “any current less than this maximum passing through [current sampling] resistor R9 is indicative of inadequate charging of the battery 15.” [*Id.* at] 6:19–21. If a current less than this maximum is detected at current sampling resistor R9, Schulman discloses varying the charging current by “alter[ing] the output of a current control means” in order to attain the maximum charging current. [*Id.* at] 6:41–43. Similarly, if charging current “exceeds a maximum operating level,” the output current is lowered, “result[ing] in a reduced magnetic field strength acting between the induction coils 19, 20 and 21 of the

power source and induction coils 17 and 18 the charging circuit.” [Id. at 7:25–29.] In other words, Schulman also teaches ensuring that the charging current does not exceed a maximum value so as to maintain the charging current at the maximum level. Additionally, elements Q7/R8 and VR1 provide further protection in ensuring that the battery 15 charging current does not exceed a maximum level. Thus Schulman monitors and regulates the charging current such that *current passing through the battery comprises a maximum amount of current for charging the battery.*

Ex. 1003 ¶ 127. Thus, Dr. Panescu’s testimony makes clear that the only input to the external power source he identified in his original declaration as being disclosed by Schulman is the current sampled by R9, corresponding to the Measured Current Limitation. Indeed, Dr. Panescu maintained throughout the proceeding that nothing more was required of the challenged claims. Ex. 1012 ¶ 11 (Dr. Panescu stating that he understood that “Dr Mihran’s opinion is that a person of ordinary skill in the art would have understood each wherein clause to require a separate respective input (first, a ‘value associated with said current’; and second, a ‘measured current associated with said current’) used by the external power source as a basis for automatically varying its power output,” and that he “disagree[d], at least for the reasons set forth in [his] prior declaration”).

In his Supplemental Declaration, Dr. Panescu stated that “if” the challenged claims require two separate inputs that are “used by the external power source,” then Schulman discloses “two situations” when the current through “current sampling resistor R9” can increase, which results in there being two inputs. Ex. 1012 ¶ 13. As to the first “situation,” Dr. Panescu identifies “when the magnitude of the charging current passing through the internal battery 15 exceeds a predetermined current,” as corresponding to “automatically varying the output power of the external power source based

on a measured current.” *Id.* ¶¶ 12–15. According to Dr. Panescu, Schulman discloses as follows:

When the current through the internal battery, as measured by current regulator R8/Q7, increases above a predetermined target value (40mA), the current regulator turns on, increasing the current through current sampling resistor R9. That in turn increases the telemetered multivibrator output frequency which causes the power supplied by the external power source to decrease. This feedback loop operates in reverse as well, whereby when there is inadequate charging, the loop operates to increase the power supplied by the external power source. In this manner Schulman teaches *automatically varying the output power of the external power source based on a measured current*.

Ex. 1012 ¶ 15. In his Supplemental Declaration, Dr. Panescu cites no support from Schulman for his opinion in this regard. *See id.* ¶¶ 13–15.

By contrast, in his Rebuttal Declaration, Dr. Mihran disputes Dr. Panescu’s new description of the operation of Schulman, noting that the current through R9 is not increased as a result of the current regulator R8/Q7 turning on, but that “[i]nstead, it is the increase in current through R9 in excess of the desired 40 mA operating current that causes the current regulator R8/Q7 to turn on, which acts to shunt this excess current through Q7, thereby diverting it away from the battery to maintain the desired operating condition during charging.” Ex. 2010 ¶ 6 n.2 (citing Ex. 1005, 5:2–7, 5:15–38, 9:57–68). We credit the testimony of Dr. Mihran, as supported by the cited portions of Schulman, over the unsupported testimony of Dr. Panescu in regard to how Schulman operates to measure current at R9. *See id.* However, whether Schulman discloses automatically varying the output power of the external power source based on a measured current, as required by the challenged claims, is not in dispute. Dr. Mihran,

for example, states that “Schulman discloses that the sole input provided to the external power source that the external power source uses to automatically regulate its power output is the input that derives from the amount of current flowing through the current sampling resistor R9.”

Ex. 2010 ¶ 5 (citing, *e.g.*, Ex. 1005, 4:45–53, 6:35–38).

As to the second “situation,” Dr. Panescu identifies “when the voltage across the output leads 51 and 52 exceeds the predetermined maximum amount” as corresponding to “automatically varying the output power of the external power source based on a value.” Ex. 1012 ¶¶ 13, 16–17.

Specifically, Dr. Panescu states as follows:

When the voltage across leads 51 and 52 exceeds a predetermined amount, a current starts to flow through the zener diode VR1 to limit this increased voltage. As the zener diode VR1 draws current, the current through current sampling resistor R9 increases. That in turn increases the telemetered multivibrator output frequency which causes the power supplied by the external power source to decrease. In this manner Schulman teaches automatically varying the output power of the external power source based on a value, where the value is the voltage across the output leads 51 and 52.

*Id.* ¶ 17 (emphasis omitted). In his Supplemental Declaration, Dr. Panescu cites no support from Schulman for his opinion in this regard. *See id.*; *see also* APO Sur-reply 12 (Patent Owner arguing that Petitioner “simply alleges that the current through R9 will be increased if the zener diode turns on”). Dr. Panescu also does not address why the voltage across leads 51 and 52 would constitute a “separate” input from the measured current at R9, where, as here, the Value Limitation and the Measured Current Limitation require two separate inputs to the external power source.

Patent Owner argues, and we agree, that the measured current through R9 is the only input to the external power source Schulman

discloses to automatically vary the output of the external power source. *See* APO Sur-reply 11. Patent Owner further argues, and we further agree, that the voltage across output leads 51 and 52 of Schulman is not an input to the external power source separate from the measured current through R9 in Schulman. *See* APO Sur-reply 11–13 (citing Ex. 2010 ¶¶ 3–8).

In support of Patent Owner, Dr. Mihran states that “[t]he voltage between nodes 51 and 52 is never provided to the external power source in Schulman.” Ex. 2010 ¶ 4. According to Dr. Mihran, “Schulman discloses that the sole input provided to the external power source that the external power source uses to automatically regulate its power output is the input that derives from the amount of current flowing through the current sampling resistor R9.” *Id.* ¶ 5 (emphasis omitted) (citing Ex. 1005, 4:45–53, 6:35–38; Ex. 2002 ¶¶ 38–39). Dr. Mihran further states as follows:

My understanding of Dr. Panescu’s opinion is that he does not contend that the voltage between nodes 51 and 52 is ever sent to the external power source as an input, and instead simply asserts that if “the voltage across leads 51 and 52 exceeds a predetermined amount,” then the current through R9 increases, which in turn “causes the power supplied by the external power source to decrease.” (Ex. 1012 at ¶17.) This does not represent a separate input, however, because the input derived from the current flowing through the current sampling resistor R9 (i.e. the load modulation frequency of telemetry circuit 12, the components of which “form a free-running multivibrator”) is what Dr. Panescu also identifies as satisfying the second input, “a measured current associated with said current passing through said internal power source.” (Ex. 1012 at ¶15 (“when the current through the internal battery . . . increases above a predetermined target value, the current regulator turns on, increasing the current through current sampling resistor R9.”))

Ex. 2010 ¶ 5 (emphasis omitted). According to Dr. Mihran, “various operating conditions may influence the value” of the amount of current

flowing through current sampling resistor R9, and the current through R9 is the “only value that is communicated to the external power source,” corresponding to a single input that “cannot satisfy both of the two inputs required by claims 1, 5, and 9.” *Id.* ¶ 6. Dr. Mihran further states as follows:

I understand Dr. Panescu’s opinion to be that, because Schulman discloses that the current through R9 is used by the external charger to automatically vary its output, any “value” that influences the amount of current through resistor R9 is a “separate respective input[] used by the external power source as a basis for automatically varying its power output.” ([Ex. 1012 ¶18].) In other words, Dr. Panescu simply identifies a voltage across two points in the circuit that he claims affects the current through R9 and contends that that voltage satisfies one of the two required separate inputs based on its alleged *indirect* impact on the output of the external charger. This strained interpretation of the claims renders superfluous the two separate inputs to the external power source required by claims 1, 5, and 9 of the ’758 patent: (1) “a value associated with said current passing through said internal power source” and (2) “a measured current associated with said current passing through said internal power source.” In any circuit, there may be multiple components (e.g., transistors, switches, diodes, etc.) that can influence the current through a particular resistor. For example, in Schulman the current drawn by the stimulation portion of the implant circuit will influence the amount of current through R9. Dr. Panescu’s interpretation that a voltage or current at these components represents a “separate input” in Schulman is incorrect, because the sole input that is telemetered back to the external charger is the input derived from the amount of current flowing through R9.

Ex. 2010 ¶ 7.

We find that because it is largely unsupported and conclusory, the opinion of Dr. Panescu in his Supplemental Declaration that “Schulman teaches automatically varying the output power of the external power source based on a value, where the value is the voltage across the output leads 51

and 52,” is entitled to little weight. *See* Ex. 1012 ¶ 15 (emphasis omitted). In his original declaration, Dr. Panescu made clear that, according to Schulman, the output of the external power source was lowered if the charging current, as measured at sampling resistor R9, “exceeds a maximum capacity,” not because of the voltage across output leads 51 and 52. *See* Ex. 1003 ¶ 127 (quoting Ex. 1005, 7:25–29). Petitioner does not allege that any measurement of voltage across output leads 51 and 52 in Schulman is conveyed to an external power source to automatically vary its power output. Instead, Petitioner’s argument is premised on the notion that if the voltage across leads 51 and 52 exceeds a predetermined amount, then it will affect the current sampled by resistor R9. We also find persuasive Dr. Mihran’s testimony that Petitioner’s strained interpretation renders the Value Limitation superfluous to the Measured Current Limitation because the voltage across leads 51 and 52 was not shown by Petitioner to be a separate input to the external power source. *See* Ex. 2010 ¶ 7 (explaining that “there may be multiple components (e.g., transistors, switches, diodes, etc.) that can influence the current through a particular resistor,” and that influencing the current measured at R9 does not constitute a separate input to the external charger from the measured current at R9).

To be clear, we need not resolve whether the challenged claims require each separate input be separately conveyed to the external power source. Here, the burden to show anticipation is on Petitioner and Petitioner offers no persuasive evidence or explanation to establish by a preponderance of the evidence that a person of ordinary skill in the art would have understood the voltage across output leads 51 and 52 corresponds to “a value” based upon which the external power source “automatically” varies its power output, as required by the challenged claims. Nor does

Petitioner explain, based on persuasive evidence, why a person of ordinary skill in the art would have understood the voltage across leads 51 and 52 in Schulman to be a separate input from the measured current at R9 when, at most, Petitioner alleges the voltage across leads 51 and 52 may, in certain circumstances, have some effect on the measured current at R9, itself. Thus, Petitioner does not show by a preponderance of the evidence that Schulman discloses to a person of ordinary skill in the art two separate inputs to the external power source, as Petitioner conceded is required by the Value Limitation and the Measured Current Limitation.

Petitioner's additional new arguments in its Post Remand Brief do not lead to a different conclusion. Pet. PRB 1–5. According to Petitioner, Dr. Mihran confirmed that in Schulman “current through R9 is used by the external power source to automatically vary its output, and the voltage has at least an ‘indirect impact on the output.’” *Id.* at 2 (citations omitted). Petitioner directs us to no argument in its Reply that expressly asserted an “indirect impact” on measured current corresponded to the Value Limitation and neither of Petitioner's allegations show that the voltage across leads 51 and 52 is a separate input to the external power source for the same reasons discussed above.

The remainder of Petitioner's arguments in its Post Remand Brief are directed to accusations that Patent Owner's arguments are “untimely and wrong,” “incorrect,” and “contradictory of the positions on infringement it has taken in district court.” *Id.* at 2–5. Our decision, however, does not turn on any of the alleged Patent Owner arguments or district court positions that Petitioner disputes. As the Federal Circuit has explained, “[i]n an inter partes review, the burden of persuasion is on the petitioner to prove ‘unpatentability by a preponderance of the evidence,’ 35 U.S.C. 316(e), and

that burden never shifts to the patentee.” *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

Specifically, we find no merit in Petitioner’s argument that, based on the deposition testimony of Dr. Mihran, Patent Owner “abandoned” arguments made in Patent Owner’s Sur-reply. Pet. PRB 2 (citing Ex. 1019, 86:1–24). Dr. Mihran explained that whether “an input needs to be telemetering from the implant to charger” was not the basis of his opinion, but that the challenged claims require “two separate” inputs to the external power source “used as distinct or separate considerations or inputs for making decisions about controlling output power.” Ex. 1019, 86:1–24. Petitioner also mischaracterizes Patent Owner’s arguments on whether a “value” must be a “measurement,” and alleges Patent Owner “disavowed making a measurement argument.” Pet. PRB 2 (citing JBRPRP 79; APO Sur-reply 11–12). Contrary to Petitioner’s assertions, Patent Owner argued that Petitioner relied “on the current through R9 [in Schulman] as the ‘measured current,’ and that single measurement cannot satisfy the requirements of two inputs.” APO Sur-reply 11–12.

We also are not persuaded by Petitioner’s argument that Patent Owner’s “only remaining theory” is that Petitioner failed to show that “the voltage ‘can be *determined* from the current through R9.” Pet. PRB 2 (citing APO Sur-reply 11–12). Petitioner again mischaracterizes Patent Owner’s argument, which stated “Petitioner does not explain how the voltage across leads 51 and 52 can be determined from the current through R9 and simply alleges that the current through R9 will be increased if the zener diode turns on.” APO Sur-reply 12 (emphasis omitted).

Petitioner also asserts that Dr. Mihran explained in his deposition that in his view a person of ordinary skill in the art would have understood

“separate inputs” as meaning that they are “distinguishable,” particularly upon receipt at the external source. Pet. PRB 3 (citing Ex. 1019, 87:2–88:8). Our determination does not turn on whether two inputs must be distinguishable at the external source, but on Petitioner’s failure to show that a person of ordinary skill in the art would have understood Schulman to disclose two inputs, as explained above. Petitioner further argues that “the claims do not impose the requirements [Patent Owner] seeks: the charger distinguishing or determining the values, telemetry, or two measurements.” *Id.* According to Petitioner, the challenged claims “do not require charger side software that determines or distinguishes values on the charger side,” “do not require multiple communication pathways,” and do not require a “measure” value. *Id.* at 4. Petitioner’s arguments are not persuasive because our determination is not based on any of the “requirements” Petitioner alleges Patent Owner seeks to impose.

Moreover, we don’t find Patent Owner’s identification of an absence of evidence from Petitioner to be equivalent to an effort by Patent Owner to impose “new” requirements. For example, Patent Owner arguing that Schulman does not disclose a separate input separately conveyed to the external power source is relevant to whether Schulman discloses two inputs, even if the challenged claims do not require that each separate input be separately conveyed. That is because, had Petitioner identified evidence that Schulman discloses a value conveyed to the external charger separate from the measured current, that would have been relevant to whether Schulman discloses two inputs. The absence of such evidence is likewise relevant, even if the challenged claims do not require each separate input be separately conveyed from the implant to the external charger. Ultimately, however, our determination is based on Petitioner’s failure to show that

Schulman discloses two inputs to the external power source corresponding to the Measured Current Limitation and the Value Limitation.

Petitioner also argues that Patent Owner takes positions “directly contradictory of the positions on infringement it has taken in district court.” Pet. PRB 4–5. According to Petitioner, Patent Owner alleges in district court infringement based on “source code variables that are never sent to the charger.” *Id.* at PRB 5 (citing Ex. 1020; Ex. 1032, 3–4). As noted above, we need not resolve whether the challenged claims require each separate input be separately conveyed to the external power source. Moreover, our determination is not based on contentions either Party makes in district court. *See also* PO PRB 5 (arguing that Petitioner’s characterizations of infringement contentions “is irrelevant as to how Petitioner alleges Schulman discloses the two-input limitation” and that there is no conflict in the positions Patent Owner has taken in district court). For the foregoing reasons, we determine Petitioner does not show by a preponderance of the evidence that Schulman anticipates any of claims 1, 5, or 9 of the ’758 patent.

*F. Alleged Anticipation by Fischell*

Petitioner contends that claims 1, 5, and 9 of the ’758 patent are anticipated by Fischell. Pet. 27–45; Pet. Reply 12–13. For example, in regard to claim 1, Petitioner contends that Fischell discloses an implantable cardiac pacemaker with a pick-up coil, an external charger with a charger head and inductive coil, and a system that uses a “telemetry system . . . whose output frequency from the pacer is proportional to the charge current in the battery,” Pet. 29–36 (citing, *e.g.*, Ex. 1003 ¶¶ 84–91; Ex. 1006, 357, 368, 371–373, 378, Fig. 8). Petitioner did not address anticipation by Fischell in its post remand brief or at the oral argument

following remand. *See* Pet. PRB; Paper 85, 15:13–16:4 (Petitioner stating that it “rested on the prior briefing” in regard to allegations based on Fischell). We focus our discussion on Petitioner’s arguments with regard to the Value Limitation and Measured Current Limitation because it is dispositive.

Each of claims 1, 5, and 9 includes the Value Limitation and the Measured Current Limitation. In the Petition, Petitioner contends that the Value Limitation and the Measured Current Limitation are disclosed by the same disclosure of a single input in Fischell. *See* Pet. 27–45. As explained above (*see* Section II.C.1), and not at issue on remand, we determined that “the Value Limitation and the Measured Current Limitation require two separate inputs to the external power source.” FWD 26; *Axonics*, 75 F.4th at 1379–80. It is, therefore, undisputed on remand that Petitioner did not show in the Petition by a preponderance of the evidence that Fischell anticipates any of claims 1, 5, or 9 of the ’758 patent. *See Axonics*, 75 F.4th at 1379–80. We further consider Petitioner’s contentions on remand in light of the new arguments and evidence Petitioner presented in its Reply. *See id.* at 1384.

Petitioner argues in its Reply that “[e]ven if the Board adopts [Patent Owner’s] understanding that the claims require a separate input for ‘a value’ and ‘a measured current,’ Fischell still anticipates claims 1, 5, and 9.” Pet. Reply 12. Specifically, Petitioner argues that Fischell discloses a telemetry system that provides battery voltage and charge current. *Id.* at 12–13 (citing Ex. 1006, 370, 372, 373, 380; Ex. 1012 ¶¶ 24–27). Fischell states that it provides a “telemetry system . . . by means of which battery voltage and charge current can be accurately determined.” Ex. 1006, 380. Petitioner directs us to no persuasive evidence that Fischell expressly discloses both

the Measured Current Limitation and the Value Limitation. Instead, according to Dr. Panescu, “Fischell clearly teaches that the charge current value . . . is strongly linked to the charge voltage value.” Ex. 1012 ¶ 24. Dr. Panescu further states as follows:

In Fig. 8 Fischell teaches how telemetry can be used to control the amount of charging energy emitted by the external charger. Fischell explicitly explains how the charging current value can be used to automatically control the external charger to achieve an optimal charging of the implanted device battery. . . . [T]he values of charging current and of charging voltage are strongly correlated. Therefore, Fischell’s telemetry circuit can be indirectly understood to be capable of controlling the charging energy of the external charger based on the charging voltage determined for the implanted device battery.

*Id.* ¶ 26. From this, Dr. Panescu states that he believes that “Fischell teaches separate respective inputs used by the external power source as a basis for automatically varying its power output” and believes that claims 1, 5, and 9 are anticipated by Fischell. *Id.* ¶ 27. Petitioner did not address anticipation by Fischell at the oral argument following remand or in its post remand brief. *See* Paper 88, 15:13–16:4 (Petitioner stating that it “rested on the prior briefing” in regard to anticipation by Fischell).

Patent Owner argues, and we agree, that Petitioner’s allegations and evidence of how Fischell “can be indirectly understood to be capable of” controlling charging based on charging voltage are insufficient to show anticipation of any challenged claim by Fischell, because Petitioner’s allegations are based only on insufficiently supported speculation and do not show that a person of ordinary skill in the art would have understood Fischell to disclose two inputs to the external charger. APO Sur-reply 13–15. Moreover, Patent Owner establishes that in Fischell the “battery voltage is not used to control charge into the battery.” *Id.* at 14–15 (citing Ex. 1006,

372–373; Ex. 2010 ¶¶ 11–12). Even if the “charge current value . . . is strongly linked to the charge voltage value,” as asserted by Petitioner, that does not show Fischell contemplates, much less discloses to a person of ordinary skill in the art, what is required by the Value Limitation and the Measured Current Limitation. We further find Dr. Mihran’s supporting testimony deserves greater weight than Dr. Panescu in this regard, because Dr. Mihran’s testimony is supported by and consistent with the express disclosures of Fischell he cites. *See* Ex. 2010 ¶¶ 11–12 (citing Ex. 1006, 272, 370–373). Accordingly, we determine Petitioner does not show by a preponderance of the evidence that Fischell anticipates any of claims 1, 5, or 9 of the ’758 patent.

*G. Alleged Anticipation by Baumann*

Petitioner contends that claims 1, 5, and 9 of the ’758 patent are anticipated by Bauman. Pet. 45–72; Pet. Reply 13–20. For example, in regard to claim 1, Petitioner contends that Baumann discloses an implantable medical device with an implant coil 24 and battery 12 and an external power transmission part 11 with external field coil 22, and that a charging current circuit of battery 12 includes a current measuring resistor 29, whereby the charging current “is determined from the voltage drop on the current measuring resistor 29.” Pet. 48–56 (citing, *e.g.*, Ex. 1003 ¶¶ 94, 96, 100, 102; Ex. 1007, 1:7–13, 2:47–53, 3:60–62, 4:10–20, 4:23–26, 4:36–47, 4:52–55, 4:60–65, 5:9–12, 5:59–64, Figs. 1, 3). Petitioner did not address anticipation by Baumann in its post remand brief or at the oral argument following remand. *See* Pet. PRB; Paper 88, 15:13–16:4 (Petitioner stating that it “rested on the prior briefing” in regard to anticipation by Baumann). We focus our discussion on Petitioner’s arguments with regard to the Value Limitation and Measured Current Limitation because it is dispositive.

Each of claims 1, 5, and 9 includes the Value Limitation and the Measured Current Limitation. In the Petition, Petitioner contends that the Value Limitation and the Measured Current Limitation are disclosed by the same disclosure of a single input in Baumann. *See* Pet. 45–72. As explained above (*see* Section II.C.1), and not at issue on remand, we determined that “the Value Limitation and the Measured Current Limitation require two separate inputs to the external power source.” FWD 26; *Axonics*, 75 F.4th at 1379–80. It is, therefore, undisputed on remand that Petitioner did not show in the Petition by a preponderance of the evidence that Baumann anticipates any of claims 1, 5, or 9 of the ’758 patent. *See Axonics*, 75 F.4th at 1379–80. We further consider Petitioner’s contentions on remand in light of the new arguments and evidence Petitioner presented in its Reply. *See id.* at 1384.

Petitioner argues in its Reply that “[e]ven if the Board adopts [Patent Owner’s] understanding that the claims require separate inputs for ‘a value’ and ‘a measured current,’ Baumann still anticipates claims 1, 5, and 9.” Pet. Reply 13. Specifically, Petitioner argues in its Reply that a measured current and voltage are two separate inputs as follows:

In addition to the input derived from the current measuring resistor 29 which controls the charging current IL during the high current charging phase (T1), Baumann teaches measuring a voltage input to switch from the first charging phase (T1) to a second charging phase (T2) and to control the charging current IL in the second charging phase (T2). Baumann discloses “monitoring of the cell voltage UZ of the battery 12 by the microcontroller 32” to determine when “the cell voltage has reached a limited charging current UG.” Ex. 1007, 5:14–17. The measurement of the cell voltage UZ is a voltage or a “value” associated with the current passing through the internal power source. Baumann further discloses using this voltage to determine when the limited charging current UG is reached,

causing the microcontroller 32 to “set[] back the charging current IL for a second charging phase T2” such that the cell voltage UZ remains roughly constant for the remaining of the charging process. Ex. 1007, 5:17-22.

Thus, Baumann teaches both a value (voltage) and a measured current used to regulate the external power source.

Pet. Reply 14.

Patent Owner argues that “Petitioner failed to show that Baumann discloses varying the power output of an external power source in any manner.” APO Sur-reply 20 (citing PO Resp. 36–40). Patent Owner explains that “Baumann discusses setting the charging current by controlling the resistance value of a voltage-controlled resistor located within the implant, and setting that charging current does not involve automatically varying the power output from the external power source.” *Id.* at 20–21 (citing PO Resp. 32–33; Ex. 2002 ¶ 65; Ex. 1007, 4:46–52, 5:14–22). Baumann describes in detail a system in which only the internal implant, not the external power source, sets the charging current. *See, e.g.*, Ex. 1007, 4:46–55, Fig. 1. Baumann does not describe any external power source that ‘automatically varies its power output,’ as required by the challenged claims. Instead, Petitioner relies on the following disclosure in Baumann:

The means necessary to set the charging current I, in the described manner, depending on the cell Voltage U2 of the battery 12 can, as shown in FIG. 1, be housed in an implantable power receiving part 10. Basically however it can also be in the external power transmission part 11 or distributed between both parts 10 and 11.

Ex. 1007, 5:59–64; *see also* Pet. Reply 19 (citing same). Baumann does not expressly disclose what is meant by the “means necessary,” but Petitioner asserts it must be microcontroller 32. Pet. Reply 19. Baumann also does not disclose any telemetry system between the implant and the external power

supply that would enable the external power source to automatically vary its power output, as required by the challenged claims. Petitioner argues that such a telemetry system must be “necessarily present” because “Baumann explicitly considers the components for setting the charging current  $I_L$  in the internal device can be located in the external device,” such that “Baumann inherently discloses a telemetry system to allow for communication between the internal and external devices.”<sup>7</sup> Pet. Reply 20 (citing Ex. 1012 ¶¶ 40–42). According to Petitioner, its allegations are not based on “a backdoor obviousness analysis” because a person of ordinary skill in the art “would easily understand how to incorporate a well-known telemetry system to allow Baumann to communicate between the internal and external devices.” *Id.* at 20–21 (citing Ex. 1003 ¶ 102; Ex. 1012 ¶¶ 40–42).

We find Baumann’s reference to situating “the means necessary” to set the charging current in the “external power transmission part” ambiguous and insufficient to disclose to a person of ordinary skill in the art an external

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<sup>7</sup> As Patent Owner points out, at no point in the Petition did Petitioner allege a missing feature of any challenged claim was “inherently” disclosed by Baumann in regard to the limitations at issue here. *See* APO Sur-reply 21 (arguing that “Petitioner’s new argument that “Baumann inherently discloses a telemetry system to allow for communication between the internal and external devices” (Reply, 20) is untimely and should not be considered”). Indeed, the only reference to any “inherent” property in the Petition concerning allegations based on Baumann is the statement that “internal resistance” is “an inherent property of batteries.” *See, e.g.*, Pet. 68. We agree with Patent Owner that Petitioner’s inherency arguments are improper reply arguments outside the scope of the Petition, providing an independent basis for our determination that Petitioner fails to make the necessary showing of anticipation based on Baumann. Petitioner’s improper inherency arguments were not addressed in the FWD and were not at issue in the appeal. We nevertheless address Petitioner’s improper reply arguments on remand and find them not persuasive on the merits as well.

power source that “automatically varies its power output,” as required by the challenged claims. We credit the testimony of Dr. Mihran over the testimony of Dr. Panescu in this regard because Dr. Panescu’s opinion suggests, at most, combining and modifying the teachings of Schulman’s telemetry system with Baumann, and does not show what Baumann, itself, discloses to a person of ordinary skill in the art. *See, e.g.*, Ex. 1012 ¶¶ 35–36 (conceding that Baumann only provides as examples systems that “house circuitry for controlling charging current IL in the implant” and that Baumann “does not describe how to construct a telemetry system,” but that “simple modifications” of the telemetry circuit of Schulman could be made to operate in the system of Baumann). Thus, Bauman does not expressly disclose each limitation of the challenged claims. The remaining issue raised in Petitioner’s Reply is whether the limitations not disclosed by Baumann are inherent to Baumann.

“To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.” *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). “Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Id.* We find Baumann’s reference to situating “the means necessary” to set the charging current in the “external power transmission part” insufficient to disclose to a person of ordinary skill in the art that Baumann necessarily discloses an external power source that “automatically varies its power output,” as required by the challenged claims. We credit the testimony of Dr. Mihran in this regard, who explains as follows:

While Baumann indicates that certain functionality may be implemented in the external device, Baumann nevertheless teaches that the current is set “in the manner described” with respect to the operation of the implant. The “manner described” in the detailed embodiment involves setting the charging current by controlling the resistance value of a voltage-controlled resistor *located within the implant*, VCR 27, which in turn regulates or limits the current used to charge the battery. (See, e.g., Ex. 1007 at 4:46–52, 5:14–22.) Thus, Baumann does not teach variation of *output power from the external device* to set charge current, but rather teaches an internal regulation of power received by the internal device by varying the resistance of VCR 27. Even if the control signals for performing such regulation of VCR 27 were sent from an external device to the implant – which Baumann does not disclose – this does not involve automatically varying the power output from the external power source as the means to set the internal charge current.

Ex. 2002 ¶ 65. Patent Owner argues that Petitioner’s “argument amounts to an assertion that, assuming the control of the charging current is somehow present in the external device, control of that charging current necessarily requires varying the external device’s power output,” but “[a]s Dr. Mihran’s *unchallenged* testimony establishes, that is simply not the case.” APO Sur-reply 22 (citing Ex. 2002 ¶65). We agree with Patent Owner and find that Petitioner does not show by a preponderance of the evidence that Baumann discloses, either expressly or inherently, every limitation of claims 1, 5, and 9 of the ’758 patent. Accordingly, we determine Petitioner does not show by a preponderance of the evidence that Baumann anticipates any of claims 1, 5, or 9 of the ’758 patent.

### III. CONCLUSION

In sum, based on the entire record, Petitioner does not show the unpatentability of any of claims 1, 5, or 9 of the '758 patent by a preponderance of the evidence, as summarized in the table below:

| <b>Claim(s)</b>            | <b>35<br/>U.S.C.<br/>§</b> | <b>Reference(s)</b> | <b>Claim(s)<br/>Shown<br/>Unpatentable</b> | <b>Claims<br/>Not Shown<br/>Unpatentable</b> |
|----------------------------|----------------------------|---------------------|--------------------------------------------|----------------------------------------------|
| 1, 5, 9                    | 102                        | Schulman            |                                            | 1, 5, 9                                      |
| 1, 5, 9                    | 102                        | Fischell            |                                            | 1, 5, 9                                      |
| 1, 5, 9                    | 102                        | Baumann             |                                            | 1, 5, 9                                      |
| <b>Overall<br/>Outcome</b> |                            |                     |                                            | 1, 5, 9                                      |

### IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 5, and 9 of the '758 patent were not proven by a preponderance of the evidence to be unpatentable; and

FURTHER ORDERED that, as this is a Final Written Decision, a party seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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FOR PETITIONER:

Samantha A. Jameson  
Matthew D. Powers  
William P. Nelson  
Azra Hadzimehmedovic  
Aaron M. Nathan  
Danielle L. Pfifferling  
TENSEGRITY LAW GROUP  
samantha.jameson@tensegritylawgroup.com  
matthew.powers@tensegritylawgroup.com  
william.nelson@tensegritylawgroup.com  
azra@tensegritylawgroup.com  
aaron.nathan@tensegritylawgroup.com  
danielle.pfifferling@tensegritylawgroup.com

For PATENT OWNER:

Naveen Modi  
Chetan R. Bansal  
Quadeer Ahmed  
Paul Anderson  
PAUL HASTINGS LLP  
naveenmodi@paulhastings.com  
chetanbansal@paulhastings.com  
quadeerahmed@paulhastings.com  
paulanderson@paulhastings.com