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Paper No. 42
Entered: January 19, 2021

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NEVRO CORP.,
Petitioner,

v.

BOSTON SCIENTIFIC NEUROMODULATION CORPORATION,
Patent Owner.

IPR2019-01341
Patent 8,682,447 B2

Before MICHAEL W. KIM, *Vice Chief Administrative Patent Judge*, ROBERT A. POLLOCK, and JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

JUDGMENT
FINAL WRITTEN DECISION
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Petitioner, Nevro Corp., filed a Petition (Paper 2, "Pet.") requesting *inter partes* review of claims 1, 3, 5–7, and 9 ("the challenged claims") of U.S. Patent No. 8,682,447 B2 (Ex. 1001, "the '447 patent"). Patent Owner, Boston Scientific Neuromodulation Corp.,[1] timely filed a Preliminary Response. Paper 6. We instituted review of the challenged claims. Paper 7.

Patent Owner filed a Response. Paper 21 ("PO Resp."). Petitioner filed a Reply. Paper 30 ("Pet. Reply"). Patent Owner filed a Sur-Reply. Paper 32 ("PO Sur-Reply"). We held a hearing on November 10, 2020, and a transcript appears in the record. Paper 41 ("Tr.").

This is a final written decision as to the patentability of the challenged claims. For the reasons discussed below, we determine Petitioner has shown by a preponderance of the evidence that claim 1, 3, 5, 6, and 9 are unpatentable, but has now shown that claim 7 is unpatentable.

A. THE '447 PATENT

The '447 patent relates to neurostimulation systems, such as for spinal-cord stimulation. Ex. 1001, 1:15–16. It addresses the need for verifying the position of electrode leads. *Id.* at 1:20–52. The '447 patent describes two techniques for determining orientation of an electrode on one lead relative to electrodes on another lead—measuring interelectrode impedance and measuring field potentials. *Id.* at 1:44–52, 3:9–14. Figure 1 of the '447 patent is reproduced below:

[1] Patent Owner is a wholly owned subsidiary of Boston Scientific Corp., which Patent Owner identifies as a real party in interest. Paper 4, 2.

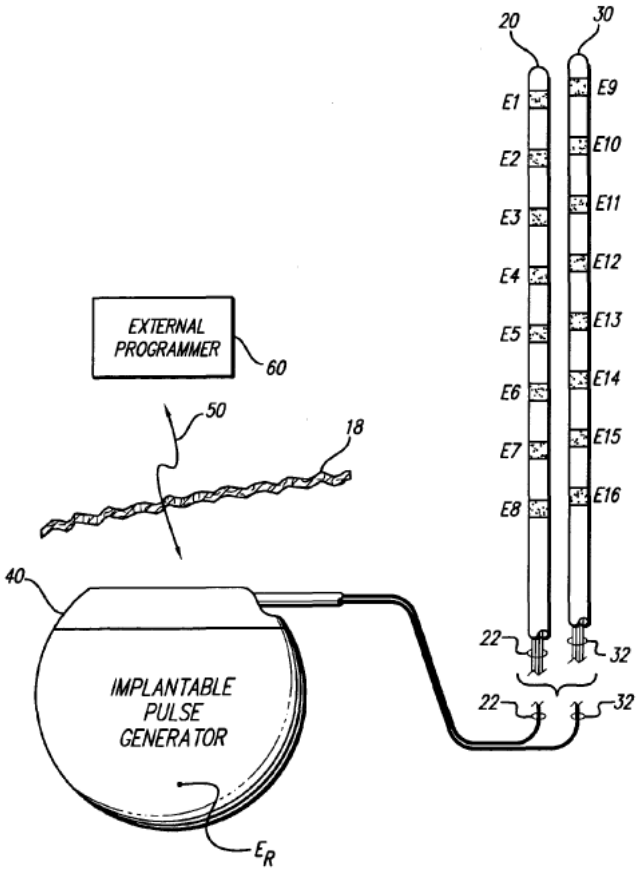


FIG. 1

Figure 1 depicts a neurostimulation system, as used in the '447 patent, containing implantable pulse generator (IPG) 40 connected to first implantable lead 20 with a series of in-line electrodes, E1 through E8, and second implantable lead 30 with a series of in-line electrodes, E9 through E16. *Id.* at 3:15–37. Each electrode may be individually selected to receive an electrical stimulus from the IPG. *Id.* at 3:38–58. The IPG may source or sink current having a desired amplitude through a given electrode, and also may measure an electrode's voltage, regardless of whether current is flowing through the electrode. *Id.* at 4:50–65.

To measure electrode relative locations, the described system can measure impedance vectors—the impedance values between pairs of

electrodes in the body. *Id.* at 6:23–39. The '447 patent also describes an alternative technique for determining relative electrode positions, using electric field measurements of the electrodes. *Id.* at 7:51–9:8. Once determined, relative electrode locations "may be used to track lead migration, to setup stimulation configurations and parameters for nominal stimulation and/or navigation, and to automatically adjust stimulation energy to a previously-defined optimal potential field in the case of lead migration or postural changes." *Id.* at 9:8–13.

B. CHALLENGED CLAIMS

Challenged claim 1 is independent and is reproduced below:

1. A method, comprising:

determining, using circuitry, a relative two-dimensional orientation of first and second multiple-electrode leads implanted within a user;

conveying electrical stimulation energy from a pulse generator implanted within the user into tissue of the user via the first and second multiple-electrode leads; and

displaying the relative two-dimensional orientation of the first and second multiple-electrode leads.

Id. at 10:51–59. Claims 3, 5–7, and 9 each directly depend from claim 1. *Id.* at 10:66–11:38.

C. Prior Art and Asserted Grounds

Petitioner asserts the following grounds of unpatentability:

Claims Challenged	35 U.S.C. §	References
1, 3, 5, 9	103[2]	Barreras,[3] Swanson[4]
6, 7	103	Barreras, Swanson, Meadows[5]

Pet. 4. Petitioner also relies on the Declaration of Dr. Mark Kroll (Ex. 1003). *See generally* Pet. 2–57 (citing Dr. Kroll's Declaration throughout).

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner submits that a person of ordinary skill in the art at the time of invention would have had "(1) at least a bachelor's degree in electrical engineering, biomedical engineering, or equivalent coursework, and (2) at least one year of experience researching or developing implantable medical devices." Pet. 15 (citing Ex. 1003 ¶¶ 15–18). Petitioner further submits that such a person "would have had general knowledge of implantable medical devices and various related technologies as of December 4, 2001." *Id.* (citing same). Patent Owner adopts Petitioner's definition of a skilled artisan. PO Resp. 6. We agree that Petitioner's definition of the level of ordinary

[2] The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"), included revisions to 35 U.S.C. § 103 that became effective after the filing of the application that led to the '447 patent. Therefore, we apply the pre-AIA version of 35 U.S.C. § 103.
[3] US 5,895,416, issued Apr. 20, 1999 (Ex. 1005).
[4] US 5,876,336, issued Mar. 2, 1999 (Ex. 1006).
[5] WO 02/09808 A1, published Feb. 7, 2002, filed July 26, 2000 (Ex. 1007).

skill in the art reflects the disclosures of the '447 patent and the prior art at issue, and therefore adopt it.

B. Claim Construction

For an *inter partes* review petition filed after November 13, 2018, we construe claim terms "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) (2019).

Petitioner asserts that the terms in the challenged claims should receive their plain meaning and that none requires an express construction. Pet. 15–16. Patent Owner agrees that no term requires express construction. PO Resp. 6–7. We agree that no express constructions are required to resolve the unpatentability issues before us. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

C. Declaration support

Patent Owner criticizes Petitioner's reliance on a declaration that follows the language of the Petition. PO Resp. 19–21. We do not agree that the declaration should be afforded no weight simply because it and the Petition contain the same assertions. Rather, such a declaration lends the declarant's credibility to factual assertions. To be sure, a declaration inadequately supporting a particular assertion will not automatically help establish that assertion. *See* 37 C.F.R. § 42.65(a) ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight."). Thus, our determinations regarding the

contested issues include determining whether the record supports Petitioner's and its declarant's contentions.

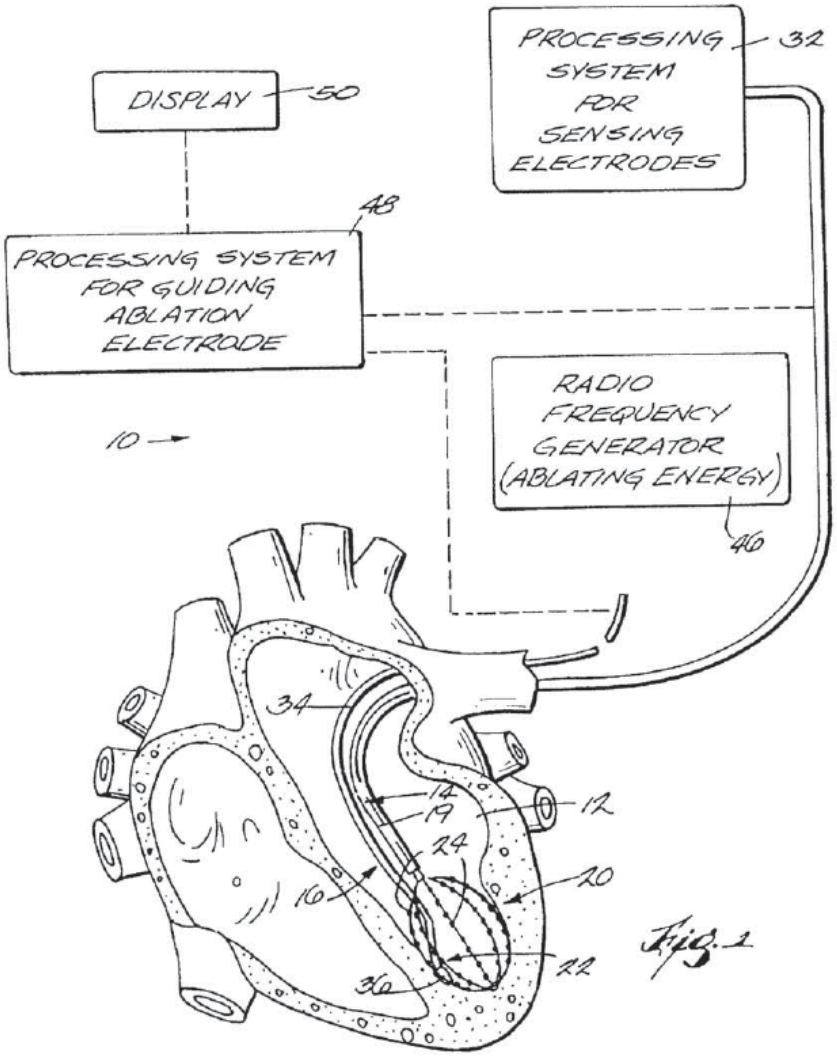
D. Unpatentability over Barreras and Swanson

Barreras describes a method and apparatus for electrically stimulating nerve tissue using implanted electrodes. Ex. 1005, 1:8–27. Barreras includes embodiments with multiple leads, each with multiple electrodes. *Id.* at 5:6–30, Figs. 5, 6. An implanted stimulator can assign individual electrodes as positive (an anode) or negative (a cathode) to create the desired stimulation field. *Id.* at 5:6–30. Barreras refers to that approach as field steering. *Id.* at code (57), 1:7–27. Further, Barreras discloses a technique of measuring electrode impedance and using it to determine the applied voltage, thus maintaining a desired stimulation pattern. *Id.* at 2:60–65, 8:22–34.

Barreras additionally describes a mechanical steering system, used by a physician to achieve the desired positioning when implanting the electrodes. Ex. 1005, 2:18–31, 3:15–24. The system allows the physician to guide a lead's distal end to navigate away from obstacles and achieve the desired final implantation position. *Id.*

Swanson describes "systems and methods for guiding or locating diagnostic or therapeutic electrode elements in the interior regions of the body." Ex. 1006, 1:13–15. To guide an electrode such as an ablation probe relative to another electrode, such as one that is part of a mapping probe having electrodes 24, Swanson uses "processing element 48 electrically coupled to the mapping probe 14 and the ablation probe 16." *Id.* at 6:61–63. Swanson's processing element "collects and processes information regarding the location of the ablation probe 16 within the space 22 defined by the

basket structure 20, in term of its position relative to the position of the electrodes 24." *Id.* at 6:63–67. Swanson's Figure 1 is reproduced below:



Swanson's Figure 1 depicts system 10 with processing element 48 electrically coupled to ablation probe 16 and mapping probe 14, which has electrodes 24 making up basket structure 20. Ex. 1006, 6:61–67, Fig. 1.

Swanson discloses multiple modes of operation to determine the relative position of the ablation and mapping probes. Petitioner relies on Swanson's impedance-sensing mode, in which the processor measures the

impedance between the ablation electrode and the electrodes on the mapping probe. *Id.* at 15:27–16:41.

1. Claim 1

Petitioner relies on Barreras's stimulation system, modified to use Swanson's method of determining and displaying lead orientation. Pet. 30–40. Petitioner notes that Barreras includes a mechanical steering system to help position the electrode leads during implantation. *Id.* at 27 (citing Ex. 1005, 2:18–31, 3:14–24). Thus, reasons Petitioner, "[a] physician engaged in attempting to mechanically steer the leads upon initial insertion would thus clearly benefit from knowing the relative orientation of the second lead to be implanted relative to first implanted lead." *Id.* at 27–28 (citing Ex. 1003 ¶¶ 66–67).[6] In light of the similarities between Barreras's need for guiding an electrode lead and Swanson's ability to help guide such leads, Petitioner asserts that skilled artisans would have improved Barreras's system with Swanson's method. *Id.* at 28–29 ("The use of Swanson's method for determining and displaying the relative two-dimensional orientation of an implanted, multi-electrode cardiac ablation lead relative to a plurality of implanted, multi-electrode, mapping leads would have been applicable in improving Barreras's mechanical steering embodiment.").

a. Reason to combine

Patent Owner challenges whether skilled artisans considering Barreras's device would have had reason to incorporate Swanson's teachings

[6] Petitioner argues further that "a physician adjusting the programming would benefit from knowing whether and how the leads had shifted over time, allowing more precise programming of the device." *Id.* at 28 (citing Ex. 1003 ¶¶ 67–68).

as asserted by Petitioner. PO Resp. 18–50. Patent Owner asserts that "Barreras itself contains no teaching, motivation, or suggestion to modify its device to use circuitry to determine lead orientation." PO Resp. 21. In particular, Patent Owner contends that, without any identified deficiency in Barreras, Petitioner has no support for the contention that the combination would have improved Barreras. *Id.* at 21–22. Patent Owner focuses on Barreras's constant-current approach, which maintains the desired stimulation field without measuring impedance, and points out that Barreras does not measure electrode impedance in order to maintain the stimulation field. *See id.* at 23–28. Petitioner asserts, however, that capability in Barreras is not required. *See* Pet. Reply 11. Rather, Petitioner notes that Barreras recognizes the significance of impedance on field measurements. Pet. 27 (citing Ex. 1005, 2:13–17, 2:60–65, 8:22–34). Petitioner points to Barreras's recognition that correctly placing leads during implantation poses a challenge to physicians. *Id.* (citing Ex. 1005, 2:18–31). Thus, reasons Petitioner, "knowing the relative orientation of the second lead to be implanted relative to [the] first implanted lead" would have offered a distinct benefit to physicians. *Id.* at 27–28. In Petitioner's asserted combination, that benefit would have come from using Swanson's measurement system. *See id.* at 28–29.

Barreras need not have identified the claimed solution, which is disclosed in Petitioner's asserted combination. As set forth by Petitioner, Barreras's disclosures support Petitioner's reasoning because Barreras identifies both the relationship of impedance to lead positioning and the need for accuracy in initial lead placement. Ex. 1005, 2:6–31. Petitioner contends that Swanson's method for determining relative lead orientation "would

have been applicable in improving Barreras's mechanical steering embodiment." Pet. 29.

Patent Owner challenges Swanson's applicability, reasoning that Swanson's cardiac-ablation electrodes, designed for a homogeneous blood pool, would not have worked in the heterogeneous spinal tissues targeted with Barreras's device. PO Resp. 29–44. Petitioner, on the other hand, contends that the challenged claims do not require any degree of precision, and that any positioning uncertainty therefore would not impact how the claims read on the proposed combination. Pet. Reply 8–9. Petitioner points out that Patent Owner's declarant confirmed during his deposition that, within the heterogeneous epidural space, Swanson's approach would permit general, relative positioning, due to impedance between two electrodes decreasing as they get closer together. Pet. Reply 6–9 (citing Ex. 1010, 107:6–113:13). Patent Owner characterizes that view as overly simplified and failing to recognize the complexity introduced by heterogeneous tissue. PO Sur-Reply 8–9.

Patent Owner contends that the '447 patent corrects for the confounding effects of heterogeneous tissue. PO Resp. 34 (citing Ex. 1001, 6:35–7:34, 7:66–8:3). Significantly, however, that description includes measuring monopolar impedances to correct bipolar impedances. Ex. 1001, 6:65–7:9 ("The monopolar impedances are used to 'correct' the bipolar impedances for the first factor of bulk impedance, the strongly-weighted impedance near the electrode"). Although the '447 patent's Specification discloses using monopolar impedances to measure and correct for heterogeneous tissues, that technique does not appear in the challenged claims. *See* Pet. Reply 10. Thus, we agree with Petitioner that the claims do

not incorporate the Specification's description of correcting for heterogeneous tissue.

Although the claims do not require correcting for heterogeneous tissue, the differences between Barreras's and Swanson's applications may demonstrate that skilled artisans would not have made the asserted combination. *See Intelligent Bio-Sys. Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1368 (Fed. Cir. 2016) (holding that a difference between prior art references, although not within a claimed requirement, may nonetheless show a lack of motivation to combine). Indeed, Patent Owner stresses that, even though the claims do not require a particular degree of precision, the differences between Barreras's and Swanson's applications are important considerations that would have counseled against the asserted combination. PO Sur-Reply 5. In Patent Owner's view, Swanson's techniques could not have improved Barreras's device because those techniques were limited to operating in a blood pool. PO Resp. 35–39; PO Sur-Reply 10.

We are persuaded by Petitioner's position. As an initial note, Patent Owner does not contend that Swanson is nonanalogous art. *See* Tr. 30:16–26, 33:8–17. The disputed issue therefore relates to how Swanson's teachings would have benefited Barreras's device. Although Swanson describes operation in a blood pool, Petitioner has established that Swanson's technique would have been able to determine relative electrode position when applied to Barreras's device. *See* Ex. 1003 ¶¶ 67, 69, 72, 81; Ex. 1010, 110:6–18, 112:9–113:9. Stated otherwise, the uncertainty introduced by heterogeneous tissue does not undermine Swanson's technique, which would still have provided a benefit during implantation of Barreras's device.

We agree with Petitioner that Barreras's emphasis on the importance of placing its electrodes during implantation would have given skilled artisans reason to look at techniques to improve the implantation process. *See* Ex. 1005, 2:24–31. Swanson teaches a method of determining relative electrode position and we find any constraints of that method would not have overcome motivation for skilled artisans to use Swanson's teachings in Barreras.

We note that Patent Owner at times makes a distinction that the challenged claims require determining electrode position in an "implanted" device. *See* PO Sur-Reply 6. Petitioner takes the position that Barreras's lead is "implanted" once placed in a patient's body, while being advanced to the final position. *See* Tr. 6:1–25. And Patent Owner agrees that the term does not exclude initial implantation. *Id.* at 26:3–18 (agreeing that the claim language does not rule out Petitioner's motivation-to-combine argument based on initial implantation). Indeed, the '447 patent expressly contemplates positioning during initial implantation. Ex. 1001, 2:19–25 ("verify the position of the leads at numerous times during the lifetime of the implanted leads, e.g., during initial implantation and programming"). Thus, any distinction Patent Owner draws based on whether Barreras's device has been fully implanted or is merely within a patient's body is not persuasive.

Patent Owner contends that the use of mechanical steering by both Barreras and Swanson is insufficient reason to combine their teachings. PO Resp. 48–50. We agree that the common ability for mechanical steering by itself may not be sufficient to show that skilled artisans would have made the combination. But that was not all Petitioner relied on. Rather, as discussed above, the desire to place Barreras's electrodes with accuracy

would have motivated using techniques that could have improved that aspect of Barreras. Barreras's emphasis on steering is significant not simply because it is a parallel capability to Swanson, but because it expressly highlighted an area that would have benefited from improvement. We conclude that Petitioner has established that skilled artisans would have had reason to address Barreras's need for accurate initial placement by supplementing Barreras's system with Swanson's teachings.

b. Expectation of success

Patent Owner challenges additionally whether skilled artisans would have had a reasonable expectation of success, with the "determining" step, when combining Barreras and Swanson as Petitioner asserts. PO Resp. 29–48. In ways, the argument blends with Patent Owner's challenge to whether skilled artisans would have had reason to combine the references. Patent Owner agrees, however, that a reasonable expectation of success must be shown only to the extent of the claim scope. *See* Tr. 23:20–22, 25:18–21. Thus, Petitioner need show only that skilled artisans would have had a reasonable expectation of achieving what is claimed—"determining, using circuitry, a relative two-dimensional orientation of first and second multiple-electrode leads implanted within a user."

Patent Owner contends Swanson's teachings would not have worked in the heterogeneous tissue targeted by Barreras. *See* PO Resp. 43. As addressed above, Petitioner has established that Swanson's locating technique would have benefited Barreras's device. Ex. 1003 ¶¶ 67, 69, 72, 81. That benefit is consistent with testimony by Patent Owner's declarant that Swanson's approach would have been able to determine general positioning, even in heterogeneous tissue. *See* Pet. Reply 6–8; Ex. 1010,

110:6–18, 112:9–113:9. Thus, Patent Owner's argument that Swanson's approach would not work "in the heterogeneous environment of the epidural space" (PO Resp. 36) is not persuasive.

Patent Owner contends also that encapsulation—a body's inflammatory response to foreign objects—would also have hindered applicability of Swanson's method in Barreras's device. *Id.* at 44–48. Against Petitioner's assertion that encapsulation is irrelevant to the initial implantation (*see* Pet. Reply 3–4), Patent Owner argues that initial implantation is insufficient to measure whether skilled artisans would have expected success with the proposed combination. Tr. 25:22–26:2, 44:15–45:18. But Patent Owner agrees that the "implanted" claim language does not exclude the initial implantation phase, i.e., when the device is being steered while inserted into the body. *Id.* at 26:3–18; *accord* Ex. 1010, 75:5–21. Encapsulation does not occur for some time after initial implantation. Ex. 1010, 95:17–96:5. Because Petitioner need only show a reasonable expectation of success commensurate with the claim language, we agree that potential encapsulation does not undermine that skilled artisans would have had a reasonable expectation of success with the asserted combination.

Accordingly, we find that Petitioner has shown that skilled artisans would have had a reasonable expectation of success of achieving the claimed invention with the combination of Barreras and Swanson.

c. Disclosure of claim limitations

Petitioner explains how the combination of Barreras and Swanson discloses "determining, using circuitry, a relative two-dimensional orientation of first and second multiple-electrode leads implanted within a user." Pet. 30–37. Other than as discussed above, Patent Owner does not

contest Petitioner's showing in this regard. *See* Paper 8, 7 ("Patent Owner is cautioned that any arguments for patentability not raised in the response may be deemed waived."). We agree with Petitioner that the combination of Barreras and Swanson renders obvious the "determining" limitation.

Petitioner relies on Barreras as disclosing "conveying electrical stimulation energy from a pulse generator implanted within the user into tissue of the user via the first and second multiple-electrode leads." Pet. 38. Patent Owner does not contest Petitioner's showing in this regards. *See* Paper 8, 7. We agree with Petitioner that Barreras discloses the "conveying" limitation. Pet. 38.

Petitioner explains how Swanson's techniques include "displaying the relative two-dimensional orientation of the first and second multiple-electrode leads," and that skilled artisans would have incorporated such display functionality along with Swanson's measurement techniques. Pet. 29, 39–40. Patent Owner does not contest Petitioner's showing in this regard. *See* Paper 8, 7. We agree with Petitioner that the combination of Barreras and Swanson renders obvious the "displaying" limitation. *See* Pet. 27–29, 38–40.

d. Summary

Based on the foregoing, we determine Petitioner has shown by a preponderance of the evidence that claim 1 would have been obvious over Barreras and Swanson.

2. Dependent claims

For claims 3, 5, and 9, which each depend from claim 1, Petitioner identifies disclosures in Barreras and Swanson that Petitioner asserts render

obvious the additional limitations. Pet. 41–50. Other than as discussed above regarding the limitations of claim 1, Patent Owner does not contest Petitioner's assertions for claims 3, 5, or 9. *See* Paper 8, 7.

We have reviewed Petitioner's contentions regarding claims 3, 5, and 9, and agree that those claims would have been obvious over Barreras and Swanson, as explained by Petitioner.

E. OBVIOUSNESS OVER BARRERAS, SWANSON, AND MEADOWS

Claims 6 and 7 each depend from claim 1 and further recite a comparing step. Claim 6 requires comparing the displayed relative two-dimensional orientation (recited in claim 1) "with a display of a previously measured" orientation, while claim 7 requires comparing the displayed orientation "with a display of a previously entered" orientation. Ex. 1001, 11:17–28. Petitioner asserts that, in order "to ascertain relative motion between two leads," a physician practicing prior-art methods had to "compar[e] the displayed orientation to a previously obtained orientation (whether measured or entered)." Pet. 51 (citing Ex. 1003 ¶¶ 122–123). Petitioner contends further that Meadows shows the state of the art at the time, and that it would have been obvious to perform a comparison. *Id.* at 51, 53–54, 56.

1. Meadows's status as prior art

Patent Owner argues that Meadows does not qualify as prior art under § 102(e), and even if it did, could not be used as part of a § 103 obviousness challenge because it is co-owned with the '447 patent. PO Resp. 52–54.

Petitioner responds that it does not rely on Meadows as prior art but as "evidence of the state of the art at the relevant time." Pet. Reply 18. Thus,

Petitioner concedes that Meadows does not qualify as prior art under § 102(e) and cannot be used as an obviousness reference *per se*.

2. Meadows's impact in Petitioner's challenge

Petitioner contends that Meadows provides "evidence of the state of the art at the relevant time" and can inform our analysis notwithstanding its unavailability as an obviousness reference. Pet. Reply 18; *accord id.* at 21–23; Pet. 53 ("The state of the art at the time of invention shown in Meadows confirms that it would have been obvious for the device to also perform a comparison with a previously measured and saved value.").

Patent Owner argues that even considering Meadows together with Barreras and Swanson does not benefit Petitioner's case, because Meadows does not disclose impedance measurements for determining lead orientation. PO Resp. 54–56. Patent Owner points out that Meadows discloses comparing currently measured impedance values to previously measured values only for electrical diagnosis, not for positioning information. *Id.* at 55–56. In our view, Patent Owner's distinction is not significant. Petitioner does not assert that Meadows shows comparing position measurements; only that Meadows shows that skilled artisans understood the benefit of comparing a measured value with a previously measured value. Pet. 53.

That said, to the extent Meadows informs Petitioner's obviousness analysis, it does so by disclosing evidence of a claim limitation not disclosed by the other references. *See* Pet. 51 ("Swanson and Barreras do not expressly disclose a comparison, either with previously measured or previously entered orientations."). The Federal Circuit has recognized that evidence unavailable as a prior-art reference "can be relied on for their proper

supporting roles, e.g., indicating the level of ordinary skill in the art, what certain terms would mean to one with ordinary skill in the art, and how one with ordinary skill in the art would have understood a prior art disclosure." *Yeda Research v. Mylan Pharms., Inc.*, 906 F.3d 1031, 1041 (Fed. Cir. 2018) (quoting *Dominion Dealer Sols., LLC v. AutoAlert, Inc.*, IPR2014-00684, Paper 9, 8 (PTAB Oct. 6, 2014)); *accord Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1365 (Fed. Cir. 2015) ("Art can legitimately serve to document the knowledge that skilled artisans would bring to bear in reading the prior art identified as producing obviousness."). That is not the role that Meadows plays in Petitioner's assertions. Petitioner asserts that "Meadows confirms the state-of-the-art" as including the claimed comparisons. *Id.* (citing Ex. 1003 ¶ 124). But we read that as asserting Meadows shows the art included a claim element, not as asserting Meadows shows how skilled artisans would have understood the disclosure of another reference. Petitioner may not rely on a reference that was not prior art to the challenged claims in order to prove the obviousness of a particular limitation of those claims. Thus, we do not consider Meadows.

3. Obviousness over Barreras and Swanson

Petitioner contends that it has shown claims 6 and 7 are obvious over Barreras and Swanson, without Meadows. Tr. 18:11–21:22, 40:3–41:2. Patent Owner disputes whether Petitioner adequately raised the issue in the Petition. *Id.* at 27:9–12, 35:24–36:5.

"[I]nherency may supply a missing claim limitation in an obviousness analysis." *Par Pharm., Inc. v. TWi Pharms., Inc.*, 773 F.3d 1186, 1194–95 (Fed. Cir. 2014). To support such an approach, a challenger must show "that

the natural result flowing from the operation as taught would result in the performance of the questioned function." *Id.* at 1195 (quoting *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981)). The Petition asserts facts supporting that the claimed comparison is part of performing the method with the combination of Barreras and Swanson.

Petitioner asserts that a physician using claim 1's method "*must* complete some comparison of a prior orientation to a new orientation, otherwise the currently measured information is useless." Pet. 51 (arguing also that "the physician would not be able to ascertain relative motion between two leads" without comparing the displayed orientation to a previous orientation (citing Ex. 1003 ¶¶ 122–123)). Petitioner asserts that the claimed comparison need not "be performed by any device or circuitry." Pet. 52. Thus, reasons Petitioner, using Swanson's "real time display" satisfies the requirement for a comparison. *Id.* at 52; Tr. 19:3–25.

Patent Owner argues that, by stating that "Swanson and Barreras do not expressly disclose a comparison" (Pet. 51), Petitioner has conceded that it must rely on Meadows. PO Sur-Reply 19; Tr. 35:24–36:5. We do not agree, because Petitioner's assertions of inherent disclosure are consistent with a lack of express disclosure. The Petition asserts that claim 6's and 7's comparing steps were either (1) inherent in the combination of Barreras and Swanson or (2) expressly disclosed when additionally considering Meadows. Our determination that Petitioner cannot rely on Meadows to show the comparing step does not foreclose Petitioner from showing the steps were inherently disclosed by Barreras and Swanson.

We conclude that Petitioner has made the requisite showing. Swanson's real-time display results in a comparison between prior

measurements and the current measurement. Ex. 1002 ¶¶ 58, 123, 126–127; Ex. 1006, 15:42–46. Thus, Petitioner has shown that the subject matter of claim 6 would have been obvious over Barreras and Swanson.

As to the "previously entered" orientation in claim 7 versus the "previously measured" orientation in claim 6, we reach a different conclusion. At the hearing, Petitioner took the view that there is no meaningful difference in claim scope. *See* Tr. 21:4–22. That position, however, is not consistent with the Petition, which states that "[t]he Board should preserve the difference between an 'entered' orientation and a 'measured' orientation." Pet. 55; *see also id.* at 57 (arguing that "to the extent 'entered' is interpreted more broadly to also encompass a previously measured orientation" then we should reach the same conclusion for claim 7 as for claim 6). We decline to take a view of claim scope for which Petitioner has not argued. Additionally, Petitioner does not assert that a comparison to a "previously entered" orientation would have been inherent to the combination of Barreras and Swanson. *See* Pet. 55–57. Thus, we conclude that Petitioner has not shown that the prior art rendered obvious all limitations of claim 7.

III. CONCLUSION[7]

For the reasons discussed above, we conclude:

[7] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 3, 5, 9	103	Barreras, Swanson	1, 3, 5, 9	
6, 7	103	Barreras, Swanson, Meadows[8]	6	7
Overall Outcome			1, 3, 5, 6, 9	7

IV. ORDER

Accordingly, it is

ORDERED that claims 1, 3, 5, 6, and 9 of the '447 patent are unpatentable;

FURTHER ORDERED that Petitioner has not shown claim 7 of the '447 patent to be unpatentable; and

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

remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

[8] Although the ground as listed includes Meadows, our unpatentability conclusion for claim 6 does not depend on Meadows in any way.

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