

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MED-EL ELEKTROMEDIZINISCHE GERÄTE GES.M.B.H.,
Petitioner,

v.

ADVANCED BIONICS AG,
Patent Owner.

IPR2020-00190
Patent 8,155,747 B2

Before PATRICK R. SCANLON, ERIC C. JESCHKE and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

SCANLON, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)
Denying Petitioner's Motion to Exclude
37 C.F.R. § 42.64

I. BACKGROUND

MED-EL Elektromedizinische Geräte Ges.m.b.H. (“Petitioner”) challenges claims 1–8 of U.S. Patent No. 8,155,747 B2 (Ex. 1001, “the ’747 patent”), which is assigned to Advanced Bionics AG (“Patent Owner”). We have jurisdiction under 35 U.S.C. § 6, and this Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 2, and 4–7 of the ’747 patent are unpatentable but has not shown by a preponderance of the evidence that claims 3 and 8 are unpatentable.

A. Procedural History

Petitioner filed a Petition requesting an *inter partes* review of the challenged claims. Paper 1 (“Pet.”). Patent Owner filed a Preliminary Response. Paper 8. With our authorization (*see* Paper 10), Petitioner filed a Preliminary Reply (Paper 11), and Patent Owner filed a Preliminary Sur-reply (Paper 14). We instituted a trial as to all challenged claims. Paper 15 (“Decision on Institution” or “Dec. Inst.”).

After institution, Patent Owner filed a Patent Owner Response (Paper 25, “PO Resp.”), Petitioner filed a Reply (Paper 30, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 35, “PO Sur-reply”). In addition, Petitioner filed a Motion to Exclude Evidence (Paper 39), Patent Owner filed an Opposition to Petitioner’s Motion to Exclude Evidence (Paper 40), and Petitioner filed a Reply to Patent Owner’s Opposition (Paper 41).

Petitioner relies on the Declaration of Douglas Paul Sladen, Ph.D. (Ex. 1002), the Second Declaration of Douglas Paul Sladen, Ph.D. (Ex. 1014), and the Third Declaration of Douglas Paul Sladen, Ph.D. (Ex. 1042), in support of its contentions. Patent Owner relies on the

Declaration of Fan-Gang Zeng, Ph.D., (Ex. 2014), in support of its contentions.

An oral hearing was held on March 8, 2021. A transcript of the hearing is included in the record. Paper 44 (“Tr.”).

B. Real Parties in Interest

Petitioner identifies itself, MED-EL Elektromedizinische Geräte Ges.m.b.H., and its subsidiary, MED-EL Corporation, USA, as the real parties in interest. Pet. 3. Patent Owner identifies itself, Advanced Bionics AG, Advanced Bionics, L.L.C., and Sonova AG as the real parties in interest. Paper 6, 2.

C. Related Matters

The parties identify the following related proceeding involving the ’747 patent: *MED-EL Elektromedizinische Geräte Ges.m.b.H. v. Advanced Bionics, L.L.C.*, Case No. 1:18-cv-01530 (D. Del.). Pet. 2–3; Paper 6, 2.

D. The ’747 Patent

The ’747 patent, titled “Electric and Acoustic Stimulation Fitting Systems and Methods,” issued April 10, 2012, with claims 1–9. Ex. 1001, codes (54), (45), 15:31–16:54. The ’747 patent relates to “modifying the parameters of at least one hearing device for a patient with residual hearing” and providing “orchestration of acoustic and electric stimulation of patients wearing such devices.” *Id.* at code (57).

The ’747 patent indicates that cochlear prostheses, or cochlear implants, produce sound sensations in deaf or partially deaf patients by direct electrical stimulation of the auditory nerve, and can be used in conjunction with hearing aids for partially deaf patients. *Id.* at 1:29–33. “The patterns of electrical stimulation are derived from acoustic signals picked up by a microphone and transformed by a so-called speech processor

that is programmed to meet the particular requirements of each patient.” *Id.* at 1:37–41. Furthermore, hearing aids, or acoustic transducers, can be used in conjunction with cochlear implants either in the same ear as the implant (i.e., ipsilateral) or in the opposite ear as the implant (i.e., contralateral). *Id.* at 3:28–32. According to the ’747 patent, at the time of the invention, there were no established systems and methods for simultaneously or sequentially modifying the parameters of both cochlear implants and hearing aids in a patient using both devices. *Id.* at 3:41–45.

Thus, the ’747 patent “is directed to fitting systems and techniques that may be used to fit a variety of cochlear implants and a variety of hearing aids . . . during the same fitting session.”¹ *Id.* at 3:53–56. One such fitting system is shown in Figure 4A, which is reproduced below.

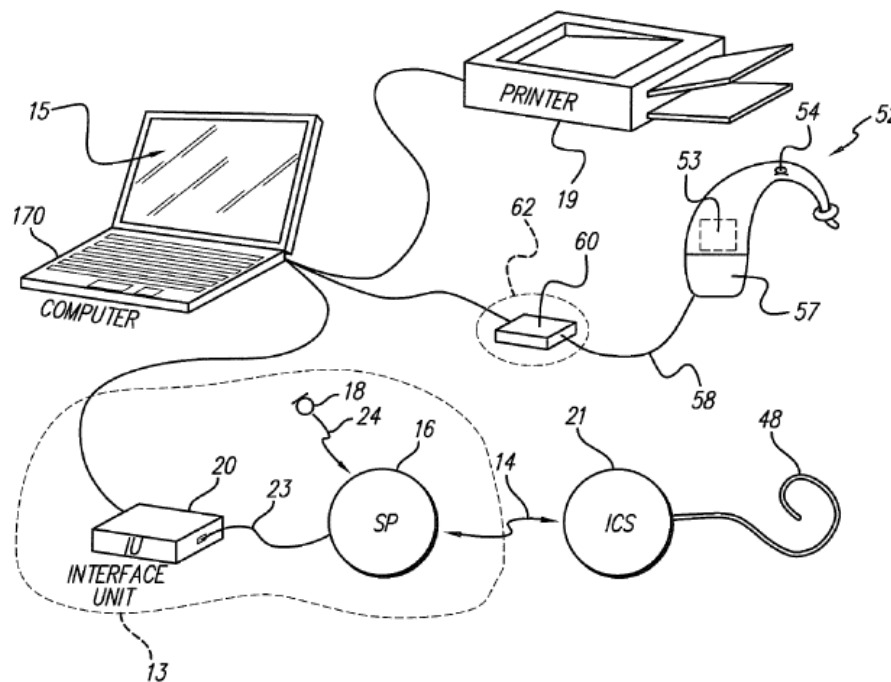


FIG. 4A

¹ As used in the ’747 patent, the terms “fit” and “fitting,” among others, relate to making electronic or software programming changes to a device, as opposed to making physical or hardware changes. Ex. 1001, 2:43–48.

Figure 4A shows the “basic components used to fit a patient with a cochlear implant system and a hearing aid.” *Id.* at 11:53–54. The cochlear implant system (which is also depicted in Figure 2A) includes speech processor (SP) 16 linked to implantable cochlear stimulator (ICS) 21, which is connected to electrode array 48. *Id.* at 11:54–57. Microphone 18 is also linked to speech processor 16 via communication link 24. *Id.* at 11:57–58. Hearing aid system 52 (which is also depicted in Figure 3B) includes internal electronics 53, microphone 54, audio boot 57, and communications wire 58. *Id.* at 12:14–17.

Laptop computer 170 is coupled to speech processor 16 through interface unit 20 and to audio boot 57 through audio interface unit 60. *Id.* at 11:58–60, 12:17–19. Computer 170 provides input and/or command signals to speech processor 16 and electronics 53. *Id.* at 12:3–7, 12:29–33. To test a patient’s threshold levels, the signals provided by computer 170 to speech processor 16 replace the signals normally sensed by microphone 18, and the signals provided by computer 170 to electronics 53 replace the signals normally sensed by microphone 54. *Id.* at 12:7–10, 12:33–36. To test a patient’s ability to comprehend speech, the signals provided by computer 170 to speech processor 16 are command signals that supplement the signals sensed by microphone 18, and the signals provided by computer 170 to electronics 53 are command signals that supplement the signals sensed by microphone 54. *Id.* at 12:3–13, 12:36–39.

Laptop computer 170 includes “display screen 15 on which selection screens, stimulation templates and other information may be displayed and defined.” *Id.* at 12:40–43. Thus, computer 170 enables the fitting process by providing “a mechanism for the audiologist or other medical personnel,

or even the patient, to easily select and/or specify a particular pattern of stimulation parameters that can be used thereafter.” *Id.* at 12:43–47.

Figure 4B shows another fitting system in which ICS 21 and hearing aid 52 are linked to a speech processor configured or emulated within a palm personal computer that includes its own display screen. *Id.* at 12:62–13:1. In each of the systems of Figure 4A and 4B, ICS 21 and hearing aid 52 “are suitable for being situated in the same ear (ipsilateral) or contralateral ears of a patient (e.g., with residual hearing).” *Id.* at 13:13–15.

Figure 4C, which shows yet another fitting system, is reproduced below.

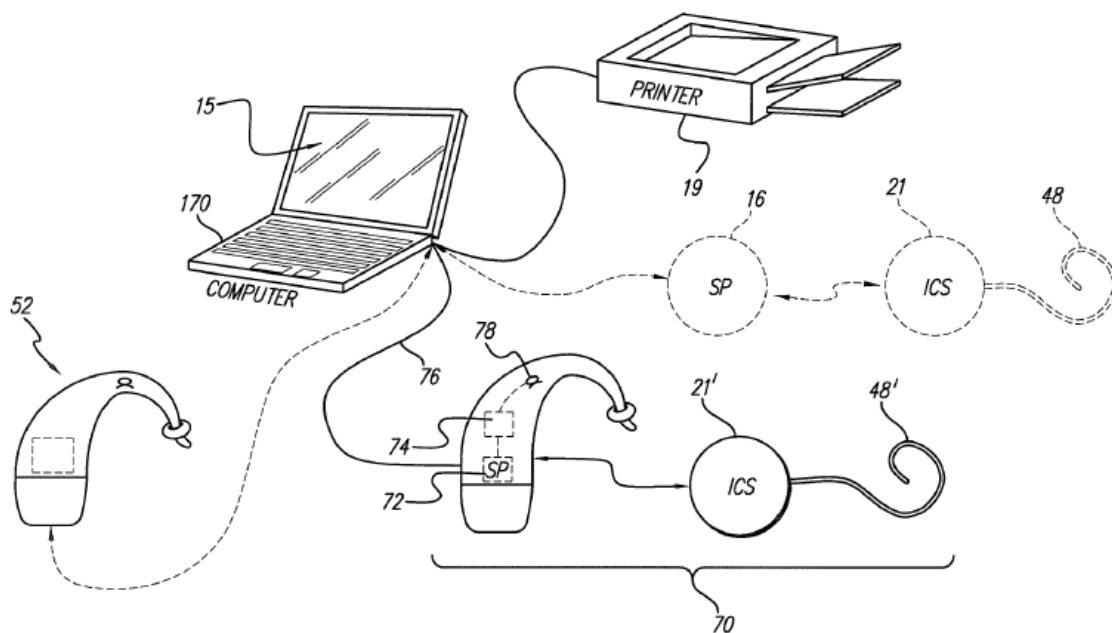


FIG. 4C

Figure 4C shows a “fitting system that can also be used with an electric-acoustic processor system 70 situated in one ear (ipsilateral) of a patient (e.g., with both residual hearing and the need for electrical stimulation for the same ear).” *Id.* at 13:16–20. Electric-acoustic processor system 70 includes speech processor 72 and internal acoustic electronics 74 that are linked with computer 170 through communications link 76. *Id.* at

13:20–24. Although not described in the specification, electric-acoustic processor system 70 is shown to include ICS 21’ and electrode array 48’. *Id.* at Fig. 4C. Also, electric-acoustic processor system 70 “is configured to deliver both acoustic stimulation to the auditory sensory organs of the ear and electric stimulation to the auditory nerve of the same ear.” *Id.* at 13:35–39. Computer 170 includes “software to control reading, displaying, delivering, receiving, assessing, evaluating, and/or modifying both acoustic and electric stimulation data sent to the system 70.” *Id.* at 13:32–35.

E. Challenged Claims

Petitioner challenges claims 1–8 of the ’747 patent, of which only claim 1 is independent. Claim 1 is illustrative of the claimed subject matter and is reproduced below:

1. A system for modifying the parameters of acoustic and electric stimulation hearing devices, comprising:

a computer provided with access to software that is configured to communicate with and modify parameters of at least one of (a) a hearing aid and a cochlear implant speech processor and (b) the acoustic and electric elements of an electric-acoustic processor;

wherein the hearing aid and the acoustic elements of an electric-acoustic processor are devices that are configured to generate or apply acoustic stimulation signals to the acoustic sensing organs of the ear, the acoustic stimulation signals being sound waves directed into the ear canal;

wherein the cochlear implant speech processor and the electric elements of an electric-acoustic processor are devices that are configured to generate or apply electric stimulation signals to the auditory nerve of the ear, the electric stimulation signals being stimulation current applied to electrodes implanted within the cochlea of the ear;

wherein the hearing aid and the cochlear implant speech processor, or the acoustic and electric elements of the electric-

acoustic processor, are situated in the same ear and are configured to generate or apply both acoustic stimulation signals to the acoustic sensing organs of the ear and electric stimulation signals to the auditory nerve of the same ear.

Ex. 1001, 15:31–57.

F. Instituted Grounds of Unpatentability

We instituted *inter partes* review of the challenged claims based on the following grounds of unpatentability asserted by Petitioner:

Claim(s) Challenged	35 U.S.C. § ²	Reference(s)/Basis
1, 3–7	102(b)	Anderson ³
1, 2, 4, 5	102(b)	Leysieffer ⁴
1, 2, 4–7	102(b)	Dooley ⁵
1, 2, 4–7	103(a)	Dooley, von Ilberg 1999 ⁶
1, 2, 4, 5	103(a)	Leysieffer, Harrison ⁷
8	103(a)	Leysieffer, Harrison, von Ilberg '604 ⁸

Pet. 4–5.

II. ANALYSIS

A. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, 35 U.S.C. § 103 requires us to resolve the level of

² The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. §§ 102, 103 that became effective on March 16, 2013. Pub. L. No. 112-29, §§ 3(b), 3(c), 3(n)(1), 125 Stat. 284, 287, 293 (2011). Because the application from which the ’747 patent issued was filed before March 16, 2013, we apply the pre-AIA versions of §§ 102, 103.

³ US 5,721,783, issued February 24, 1998 (Ex. 1003).

⁴ US 2001/0031996 A1, published October 18, 2001 (Ex. 1004).

⁵ WO 92/08330 A1, published May 14, 1992 (Ex. 1005).

⁶ von Ilberg et al., Electric-Acoustic Stimulation of the Auditory System, *ORL: Journal for Oto-Rhino-Laryngology and Its Related Specialties*, 61:334–40 (1999) (Ex. 1006).

⁷ WO 00/69512 A1, published November 23, 2000 (Ex. 1007).

⁸ US 6,231,604, issued May 15, 2001 (Ex. 1008).

ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). 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). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. *Id.* In a given case, one or more factors may predominate. *Id.*

Petitioner submits that a person of ordinary skill in the relevant art “would have had the equivalent of a Master of Science degree in audiology or a related discipline and two or three years’ experience designing, developing, programming, evaluating, or fitting acoustic, electric or electric-acoustic stimulation systems for diagnostic and rehabilitative use in patients’ auditory systems.” Pet. 19.

In the Decision on Institution, we adopted Petitioner’s proposed level of ordinary skill in the art, stating it was “consistent with the evidence at this stage of the proceeding, including the asserted prior art.” Dec. Inst. 21. In its Response, Patent Owner notes that “Dr. Zeng explains that he would particularly emphasize experience relating to designing or developing cochlear implants and hearing aids, or systems for fitting such prostheses to patients,” but indicates that it does not dispute Petitioner’s proposed level of ordinary skill in the art for the purposes of this proceeding. PO Resp. 13 (citing Ex. 2014 ¶ 66).

Based on our review of the complete record, we continue to apply the level of ordinary skill in the art adopted in the Decision on Institution. We

note, however, that our analysis in this proceeding would not differ if we were to emphasize experience as suggested by Dr. Zeng.

B. 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) (2019). 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). Although extrinsic evidence, when available, may also be useful when construing claim terms under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. See *Phillips*, 415 F.3d at 1317–19.

Petitioner asserts that the Specification of the ’747 patent defines the term “electric-acoustic processor.” Pet. 20 (citing Ex. 1001, 10:65–67, 11:1–7). In the Decision on Institution, we determined that it was not necessary to construe “electric-acoustic processor” at that stage of the proceeding. Dec. Inst. 22 (citing *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017)). Patent Owner agrees the term “electric-acoustic processor” does not require construction for purposes of this proceeding. PO Resp. 14. Accordingly, we do not expressly construe “electric-acoustic processor” for this Decision.

In its Preliminary Reply, Petitioner advanced arguments suggesting that the term “configured to generate or apply” recited in claim 1 should be construed to mean “capable of generating or applying.” Paper 11, 1–4. We addressed this argument in the Decision on Institution and determined that

Petitioner had not made a sufficient showing, at that stage of the proceeding, that “configured to generate or apply . . . acoustic stimulation signals to the acoustic sensing organs of the ear” means more than simply being *capable of* applying acoustic stimulation signals. Dec. Inst. 28. In its Response, Patent Owner argues that the term should be given its plain meaning and does not require explicit construction. PO Resp. 15–16. Patent Owner adds that:

To the extent there is a dispute, Patent Owner agrees with the Board’s reasoning that the “configured to” language does not merely reflect an intended use and requires more than a device that is simply “capable of” generating or applying the recited acoustic or electric stimulation in different or separate configurations.

Id. at 16 (citing Dec. Inst. 28). Petitioner does not respond to Patent Owner’s assertion that “configured to generate or apply” should be given its plain meaning but does indicate that it disagrees with our “construction” of the term “configured to.” Pet. Reply 14–15 (citing Dec. Inst. 27–28). Petitioner, however, does not present any reasoning supporting its assertion the Board was wrong or offer any argument regarding how “configured to” should be construed. *See generally* Pet. Reply.

We did not expressly construe “configured to” or “configured to generate or apply” in the Decision on Institution, but, as noted above, we did determine that that “configured to generate or apply . . . acoustic stimulation signals to the acoustic sensing organs of the ear” means more than simply being *capable of* applying acoustic stimulation signals. Dec. Inst. 28. Based on the complete record, we still are not persuaded by Petitioner’s argument that “configured to” should be construed as merely “capable of,” and for the reasons in the Decision on Institution, which we adopt here, we determine

that “configured to generate or apply . . . acoustic stimulation signals to the acoustic sensing organs of the ear” means more than simply being capable of applying acoustic stimulation signals.

C. Asserted Anticipation by Anderson

Petitioner contends claims 1 and 3–7 are anticipated by Anderson. Pet. 21–34. Patent Owner provides arguments addressing this asserted ground of unpatentability. PO Resp. 16–21. We first summarize Anderson and then address the parties’ contentions.

1. Anderson

Anderson relates to hearing aids, particularly “a hearing aid having an earpiece housing worn in or at the ear and a remote processor unit (RPU) worn by or located near the user that wirelessly receives signals from and transmits signals to the earpiece.” Ex. 1003, 1:6–10. Figure 1 of Anderson is reproduced below.

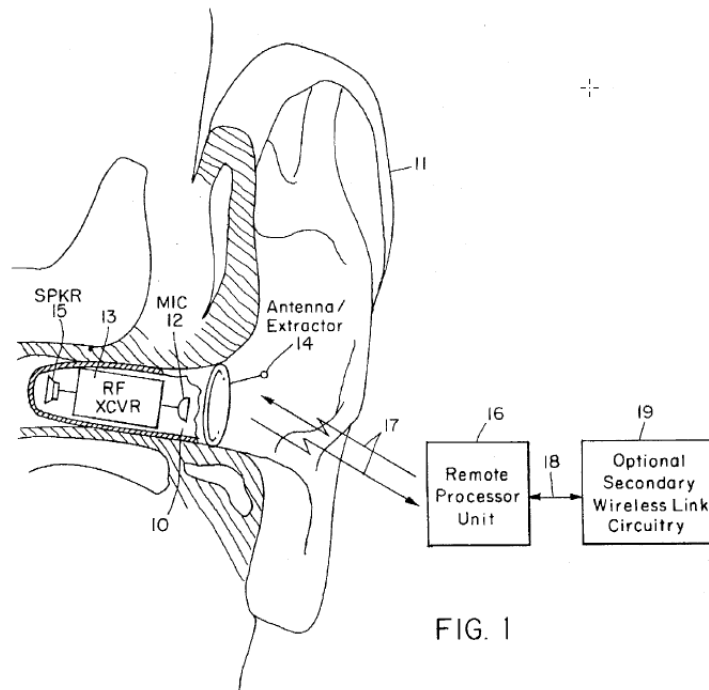


Figure 1 shows earpiece 10 worn in ear 11. *Id.* at 3:53–55. Earpiece 10 comprises microphone 12, RF transceiver 13 (which includes

antenna/extractor 14), and speaker 15. *Id.* at 3:58–60. The earpiece communicates with RPU 16 via two-way RF link 17. *Id.* at 4:1–3.

Anderson discloses another embodiment in which features of the hearing aid with a remote processor are implemented in a cochlear implant system. *Id.* at 27:25–29. This embodiment is depicted in Figure 10, which is reproduced below.

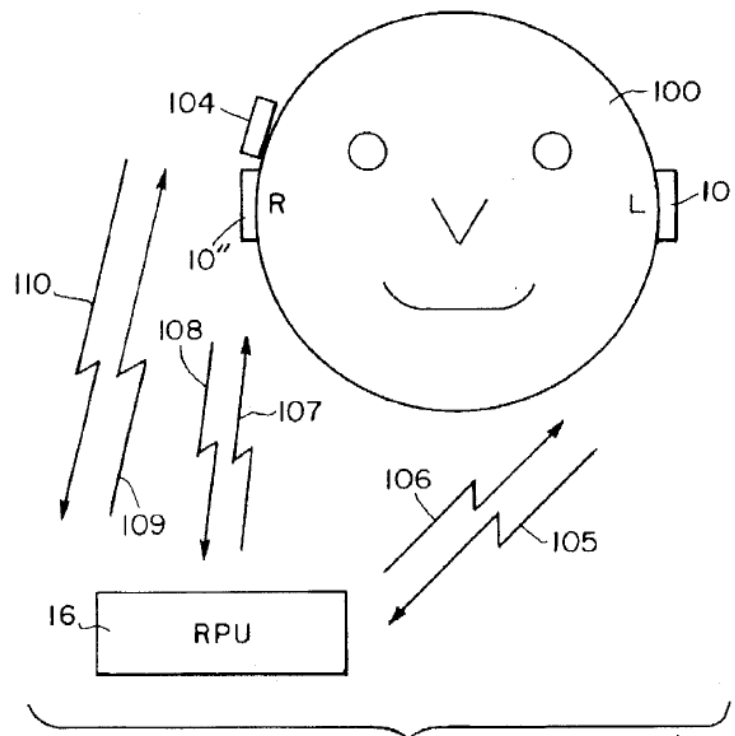


FIG. 10

Figure 10 shows details of a wireless cochlear implant system. *Id.* at 3:44–45. User 100 is equipped with left hearing aid earpiece 10' and right hearing aid earpiece 10'', RPU 16, and implant electrode driver unit 104. *Id.* at 27:41–44. Driver unit 104 includes circuitry for driving cochlear implant electrodes. *Id.* at 27:50–52. Audio signals from the earpiece microphones are converted by RPU 16 to a single audio output signal that is processed further. *Id.* at 28:42–54. The resulting signal is then processed to create

appropriate signals to drive the electrodes of the cochlear implant. *Id.* at 28:54–58.

2. *Independent Claim 1*

Petitioner provides analysis purporting to show where each limitation recited in independent claim 1 is disclosed by Anderson. Pet. 21–30. In particular, Petitioner asserts that Anderson discloses using both an acoustic stimulation hearing device and an electric stimulation hearing device, such as a cochlear implant. *Id.* at 21 (citing Ex. 1003, 27:4–29; Figs. 1, 2, 10, 11). Petitioner also asserts that Anderson discloses the claim 1 limitation that

the hearing aid and the cochlear implant speech processor, or the acoustic and electric elements of the electric-acoustic processor, are situated in the same ear and are configured to generate or apply both acoustic stimulation signals to the acoustic sensing organs of the ear and electric stimulation signals to the auditory nerve of the same ear.

Id. at 28–29 (citing Ex. 1003, Fig. 10). Specifically, Petitioner argues that Anderson discloses in Figure 10 wireless hearing aid earpieces 10' and 10" and implant electrode driver unit 104, which is disposed in the same ear as earpiece 10". *Id.* at 28–30 (quoting Ex. 1003, 27:41–67; citing Ex. 1003, Figs. 10, 11).

In its Response, Patent Owner argues that claim 1 (in particular the preamble and the last limitation) requires “modifying the parameters of a hearing device that is configured to generate or apply ***both acoustic and electric stimulation*** to the ***same ear*** of a patient in an ipsilateral fashion,” and “Anderson does not disclose any such bimodal, ipsilateral hearing device, let alone an orchestrated system for modifying the parameters of such a device.” PO Resp. 16–17 (citing Ex. 1001, cl. 1; Ex. 2014 ¶¶ 74–75). According to Patent Owner, “[a]t most, Anderson discloses a hearing aid

embodiment that provides acoustic stimulation and a *separate* cochlear implant embodiment that provides electric stimulation, but no embodiment that provides *both*, let alone to the same ear.” *Id.* at 17 (citing Ex. 2014 ¶ 75).

Patent Owner further argues that the earpieces in Anderson’s cochlear implant embodiment do not provide acoustic stimulation; instead, the earpiece microphones pick up audio signals, which are processed and delivered as a modified signal to a cochlear implant electrode driver to provide electric stimulation. *Id.* at 17–18 (citing Ex. 1003, 27:25–35, 27:52–55, 28:54–67; Ex. 2014 ¶ 77). Patent Owner contends that “although the earpieces in Anderson’s cochlear implant embodiment contain speakers 15, Anderson explains that ‘[s]peakers 15 in the left and right earpieces *serve no purpose in the cochlear implant application, as the user is profoundly deaf, and may be disconnected* to conserve power.’” *Id.* at 18–19 (alteration in original) (quoting Ex. 1003, 27:52–55; citing Ex. 2014 ¶ 77).

In the Reply, Petitioner argues that there is no dispute that Anderson discloses a hearing aid and cochlear implant in the same ear. Pet. Reply 14 (citing Ex. 1003, Fig. 10; Pet. 38–40; Ex. 1041, 183). Petitioner then argues that “paragraph 4 of claim 1 recites that the acoustic and electric elements of the electric-acoustic processor are configured to ‘generate or apply’ (emphasis added) acoustic stimulation signals to the acoustic sensing organs of the ear and electric stimulation signals to the auditory nerve of the same ear,” and “claim 1 recites only that the earpiece be configured to generate or apply ‘acoustic stimulation signals to the acoustic sensing organs of the ear,’ not that the sensing organs be stimulated.” *Id.* at 15–16.

These arguments by Petitioner are not persuasive because they fail to address the deficiency of Anderson alleged by Patent Owner—namely, that

Anderson's speakers 15 serve no purpose in the cochlear implant embodiment of Figure 10 and may be disconnected and, thus, are not "configured to generate or apply both acoustic stimulation signals to the acoustic sensing organs of the ear and electric stimulation signals to the auditory nerve of the same ear." We agree that Anderson is deficient in this respect for the following reasons.

Anderson discloses an embodiment ("the acoustic embodiment") in which earpiece 10 includes speaker 15 that generates acoustic waves (i.e., acoustic signals) to stimulate the user's ear. Ex. 1003, 3:58–60, 4:33–35, 5:18–21, 6:63–67, Figs. 1, 2. Anderson also discloses in Figure 10 a different embodiment ("the cochlear implant embodiment") that combines earpieces 10' and 10'' with a cochlear implant system. *Id.* at 27:25–45, Fig. 10. In this embodiment, "[s]peakers 15 in the left and right earpieces serve no purpose in the cochlear implant application, as the user is profoundly deaf, and may be disconnected to conserve power." *Id.* at 27:52–55. Because Anderson discloses that the speakers *serve no purpose* in the cochlear implant embodiment and could be disconnected from power, we determine that the speakers are not used in this embodiment.

In addition, Petitioner does not direct us to—nor are we aware of—any disclosure in Anderson indicating that speaker 15 of the cochlear implant embodiment receives a signal that causes the speaker to generate acoustic output. In contrast, Anderson discloses that earpiece headset 21 of Figure 2, which is functionally equivalent to speaker 15 of the acoustic embodiment, receives a modified speech signal and converts this signal to acoustic waves. Ex. 1003, 4:33–35, 5:18–21; *see also id.* at 6:63–67 (disclosing that speaker 15 produces a processed acoustic signal that corresponds to the ambient acoustic signal detected by microphone 12).

Without an appropriate input signal, speaker 15 of the cochlear implant embodiment cannot generate or apply acoustic stimulation signals.

For these reasons, we determine that speakers 15 in the cochlear implant embodiment are not configured to generate or apply acoustic stimulation signals.

Furthermore, despite the alternative phrasing “generate *or* apply” in the last limitation, we disagree that claim 1, as a whole, does not require applying acoustic stimulation signals to the acoustic sensing organs. For example, paragraph 2 recites that acoustic devices “are configured to generate or apply acoustic stimulation signals to the acoustic sensing organs of the ear, the acoustic stimulation signals being sound waves *directed into the ear canal.*” Ex. 1001, 15:38–43 (emphasis added). Petitioner fails to show by a preponderance of the evidence that sound waves directed into the ear canal would not be applied to the acoustic sensing organs.

Petitioner also argues that one of ordinary skill in the art would have understood that speaker 15 in the cochlear implant embodiment is configured to generate or apply acoustic stimulation signals because Anderson “teaches that in the cochlear implant embodiment, both earpiece 10” and driver unit 104 receive audio and auxiliary data bits transmitted from RPU 16.” Pet. Reply 16 (citing Ex. 1003, 5:13–21, 28:24–33; Ex. 1041, 187:16–17, 188:1–2, 188–190). This argument is not persuasive because Anderson does not disclose that the audio and auxiliary data bits are used to generate or apply acoustic stimulation signals. Instead, the audio and auxiliary data bits are contained in an interrogation signal transmitted from RPU 16 to both right earpiece 10” and driver unit 104. Ex. 1003, 28:24–33. Anderson discloses that “right earpiece 10” uses the received data bits to compute a parity bit for the subsequent reply [to RPU 16], while

the driver unit 104 uses the audio data bits to drive the cochlear implant electrodes and the auxiliary bit for synchronization.” *Id.* at 28:33–40.

Regarding Dr. Zeng’s deposition testimony cited by Petitioner, we agree with Patent Owner that this testimony does not indicate that the cochlear implant embodiment is configured to generate or apply acoustic stimulation signals. *See* PO Sur-reply 12 n.3. Dr. Zeng testified that the cochlear implant embodiment of Anderson has the *capability* of generating acoustic signals through the speaker. Ex. 1041, 187:16–17, 188:1–2. However, as discussed above in § II.B., we have determined that “configured to generate or apply . . . acoustic stimulation signals to the acoustic sensing organs of the ear” means more than simply being capable of applying acoustic stimulation signals. Also, as noted by Patent Owner, Dr. Zeng also testified that under no circumstance does Anderson suggest using acoustic and electric stimulation simultaneously. *Id.* at 187:18–21.

Finally, we are not persuaded by Petitioner’s argument that one of ordinary skill in the art would interpret Anderson’s disclosure that speakers 15 in the cochlear implant embodiment “may be” disconnected to conserve power to mean that the speakers could be connected when using the cochlear implant. *See* Pet. Reply 16 (citing Ex. 1041, 186:9–15). Because the cochlear implant embodiment is used for profoundly deaf patients only, it is clear that Anderson does not contemplate using the earpiece speakers to stimulate the user’s ears with acoustic signals in the cochlear implant embodiment. *See* Ex. 1003, 27:30–33, 27:52–55. Furthermore, as noted above, we are not directed to any disclosure in Anderson indicating that speaker 15 of the cochlear implant embodiment receives any signal that would cause the speaker to generate acoustic output. As such, we agree with Patent Owner that, even if the speakers are connected to a power source,

Petitioner does not identify any disclosure in Anderson indicating that the RPU in the cochlear implant embodiment is configured to send signals that drive acoustic stimulation via the speakers. *See* PO Sur-reply 13.

In view of the above, we are not persuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that independent claim 1 is anticipated by Anderson.

3. Dependent Claims 3–7

Claims 3–7 depend from claim 1, and each of these dependent claims thus contains all the limitations of claim 1. Petitioner’s challenges to dependent claims 3–7 do not overcome the deficiencies of Anderson with respect to claim 1. Pet. 30–34. Accordingly, for the same reasons discussed above in connection with claim 1, we also determine Petitioner has not demonstrated, by a preponderance of the evidence that claims 3–7 are anticipated by Anderson.

D. Asserted Anticipation by Leysieffer

Petitioner contends claims 1, 2, 4, and 5 are anticipated by Leysieffer. Pet. 35–44. Patent Owner provides arguments addressing this asserted ground of unpatentability. PO Resp. 22–26.

1. Overview of Leysieffer

Leysieffer “relates to an at least partially implantable system for rehabilitation of a hearing disorder.” Ex. 1004 ¶ 2. Figure 1 of Leysieffer is reproduced below.

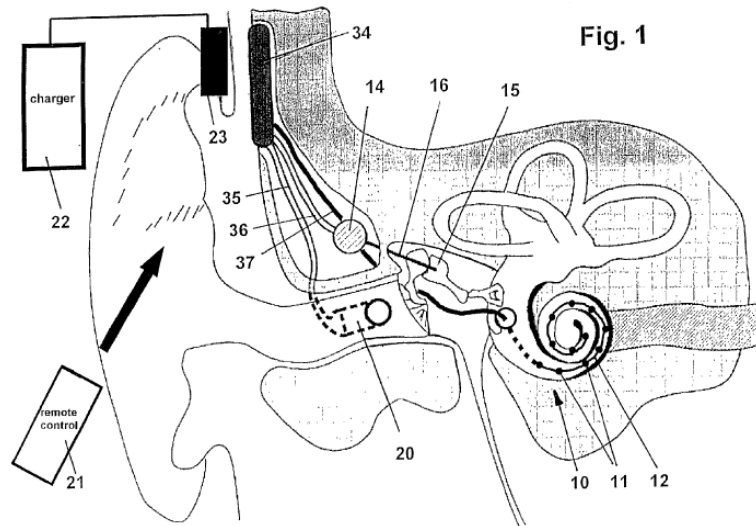


Figure 1 shows the structure of a totally implantable hearing system. *Id.* ¶ 71. The system includes intracochlear array 10, having electrodes 11, and electromechanical transducer 14 coupled to incus 15 via coupling rod 16. *Id.* ¶¶ 71, 73. The system further includes microphone 20 and electronic module 34. *Id.* ¶¶ 79, 82. Electronic module 34 is connected to microphone 20 via microphone line 35, to electromechanical transducer 14 via transducer feed line 36, and to intracochlear array 10 via array feed line 37. *Id.* ¶ 83.

As shown in Figure 2 (not reproduced here), electronic module 34 includes digital signal processor 42, which processes signals produced by microphones 20 and outputs signals that are supplied to electrodes 11 and transducer 14. *Id.* ¶¶ 85–86. Electronic module 34 also includes microcontroller 44 to implement “software-based algorithms for a dual stimulation of the damaged hearing . . . that is as optimum as possible.” *Id.* ¶ 88. Digital signal processor 42 and/or microcontroller 44 can store audiological adaptation parameters that can be altered externally. *Id.* Microcontroller 44 can communicate wirelessly with programming system 48 via data bus 45 and telemetry system 46. *Id.* ¶ 89.

2. Independent Claim 1

Petitioner provides analysis purporting to show where each limitation recited in independent claim 1 is disclosed by Leysieffer. Pet. 35–42. This analysis includes asserting that “Leysieffer includes an ‘electromechanical transducer’ coupled to a bone in the middle ear (acoustic element) and an ‘electrical intracochlear array 10 having several stimulation electrodes 11’ (electric element).” *Id.* at 35 (citing Ex. 1004 ¶¶ 5, 71). More specifically, regarding the claim 1 recitation of a hearing aid or acoustic element configured to generate or apply acoustic stimulation signals, Petitioner argues “the acoustic element of Leysieffer illustrated in Figure 1 includes an electromechanical transducer 14.” *Id.* at 38 (citing Ex. 1004, Fig. 1). Petitioner then argues that “Leysieffer also discloses the use of an acoustic element with an acoustic output of sound waves directed into the ear canal.” *Id.* at 39–40 (citing Ex. 1004 ¶ 14). Thus, in Petitioner’s view,

Leysieffer discloses *both an electromechanical transducer for mechanical stimulation of the middle ear or inner ear and a conventional hearing aid that generates sounds waves directed into the ear canal.* Given this disclosure, a [person having ordinary skill in the art] would understand that an acoustic element that generates or applies sound waves directed into the ear canal, such as a conventional hearing aid, also would be used in the apparatus of Leysieffer.

Id. at 40 (emphasis added) (citing Ex. 1002 ¶ 81).

In the Decision on Institution, we determined that this argument was, at that stage in the proceeding, unpersuasive, stating:

Petitioner’s assertion that Leysieffer teaches using both an electromechanical transducer and a conventional hearing aid is incorrect. Although Leysieffer does disclose using an electromechanical transducer, the description of a conventional hearing aid in paragraph 14 cited by Petitioner discusses *replacing* an amplified acoustic signal in front of the eardrum

with an amplified mechanical stimulus of the middle or inner ear and, thus, does not suggest using both acoustic and mechanical stimuli. Ex. 1004 ¶ 14. Leysieffer also describes that stimulating the middle or inner ear with mechanical or hydromechanical stimulation, instead of the amplified acoustic signal of a conventional hearing aid, offers better rehabilitation than conventional hearing aids. *Id.* ¶ 6.

Dec. Inst. 31–32. In the Reply, Petitioner argues that we misunderstood its argument in the Petition, which was that “Leysieffer taught the use of *either* a conventional acoustic hearing aid *or* an electromechanical transducer, but not both.” Pet. Reply 18 (citing Pet. 40; Ex. 1002 ¶ 81; Ex. 1014 ¶ 4).

Petitioner also argues that the Petition “explained that Leysieffer discloses a system that could use ‘an electromechanical transducer *or* a conventional hearing aid device’ with a cochlear implant” and that, “consistent with the ‘replacing’ language of Leysieffer, Petitioner’s point was (and is) that the two were considered to be interchangeable.” *Id.* (quoting Pet. 35).

Our statement in the Decision on Institution mentioned above (i.e., that Petitioner was incorrect that Leysieffer teaches using *both* an electromechanical transducer and a conventional hearing aid), however, was not intended to convey that Petitioner was asserting that Leysieffer discloses using both devices *together*. Rather, we disagreed—and still do—with Petitioner’s assertion that Leysieffer discloses using either an electromechanical transducer or a hearing aid. Put more succinctly, we disagree that Leysieffer discloses using a hearing aid *at all* in its hearing system for the following reasons.

Leysieffer discloses using electromechanical transducer 14 in its hearing system. Ex. 1004 ¶ 71. Leysieffer also discloses electromechanical transducer 14 and how it is coupled to a patient’s middle or inner ear in detail. *Id.* ¶¶ 73–78. We are not directed to any disclosure in Leysieffer

affirmatively describing a hearing aid as an element of Leysieffer's hearing system. Instead, as noted above, Petitioner points to paragraph 14 of Leysieffer in arguing that "Leysieffer also discloses the use of an acoustic element with an acoustic output of sound waves directed into the ear canal." Pet. 39–40 (citing Ex. 1004 ¶ 14); *see also* Pet. Reply 18–19 (relying on paragraph 14 to support argument that Leysieffer discloses using an acoustic element).

Paragraph 14 of Leysieffer discloses that "hearing systems . . . based on an output-side electromechanical transducer differ from conventional hearing aids essentially only in that the output-side acoustic stimulus (i.e. an amplified acoustic signal in front of the eardrum) is replaced by an amplified mechanical stimulus of the middle ear or inner ear." Ex. 1004 ¶ 14. This passage simply describes how the electromechanical transducer used in Leysieffer's system differs from conventional hearing aids. It does not suggest that Leysieffer considers the electromechanical transducer and conventional hearing aids to be interchangeable. Leysieffer also describes that stimulating the middle or inner ear with mechanical or hydromechanical stimulation, instead of the amplified acoustic signal of a conventional hearing aid, offers better rehabilitation than conventional hearing aids. *Id.* ¶ 6. Thus, we agree with Patent Owner that "Leysieffer explicitly contrasts and distinguishes the *mechanical* stimulation provided by an electromechanical transducer from the *acoustic* stimulation that a conventional hearing aid provides by directing sound waves into the ear canal." PO Resp. 23–24 (citing Ex. 1004 ¶ 6).

Dr. Sladen's testimony does not support Petitioner's argument. For instance, Dr. Sladen testifies that one of ordinary skill in the art "would understand that an acoustic element that generates or applies sound waves

directed into the ear canal, such as a conventional hearing aid, also would be used in the apparatus of Leysieffer” in view of Leysieffer “disclos[ing]” both an electromechanical transducer and a conventional hearing aid. Ex. 1002 ¶ 81. But because Leysieffer discusses conventional hearing aids only to contrast and distinguish them from the electromechanical transducer that is an element of the disclosed hearing system, we disagree that one of ordinary skill in the art would have understood this discussion to mean that a conventional hearing aid *would be used* in Leysieffer’s hearing system. Thus, we do not credit this testimony by Dr. Sladen. Furthermore, this testimony merely repeats the Petition’s assertions and is a conclusory statement not supported sufficiently by objective evidence or analysis. *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.”); *see also Nobel Biocare Servs. AG v. Intradent USA, Inc.*, 903 F.3d 1365, 1382 (Fed. Cir. 2018) (explaining that the Board can reject arguments based on expert testimony that lacks specificity or detail).

In his second declaration, Dr. Sladen testifies that Leysieffer teaches that both hearing aids and mechanical transducers were well known in the art and that “the requirements for effective audio signal processing are fundamentally similar or the same” for these two devices. Ex. 1014 ¶ 5 (citing Ex. 1004 ¶¶ 6–11, 14). Based on these disclosures, Dr. Sladen testifies that one of ordinary skill in the art “would have understood Leysieffer to teach that both electromechanical and acoustic transducers were known and that electromechanical and acoustic transducers were interchangeable in the context of the ’747 patent.” *Id.* Dr. Sladen also testifies that several published articles and patents show that one of ordinary skill in the art would have understood that an electromechanical transducer

is substantially interchangeable with an acoustic transducer. *Id.* ¶¶ 6–14 (citing Exs. 1015–1023).

We do not credit this testimony because the mere fact that Leysieffer recognizes that electromechanical transducers and conventional hearing aids are well known and have some similarities does not establish that Leysieffer teaches the two devices to be interchangeable in his hearing system. It is a common practice in drafting patent applications to describe prior art elements or devices as a way to distinguish the invention being described in the application. *See, e.g.*, MPEP § 608.01(c) (indicating that the Background of the Invention section of a patent application may include a description of the related art, including, “[w]here applicable, the problems involved in the prior art or other information disclosed which are solved by the applicant’s invention should be indicated”). Doing so does not necessarily mean that the prior art elements are considered to be included in the invention claimed. Furthermore, Dr. Sladen recognizes that “Leysieffer chose mechanical stimulation for his device,” thus clearly acknowledging that Leysieffer did not chose conventional hearing aids for his hearing system. *See* Ex. 1014 ¶ 5. Regarding the published articles and patents that Dr. Sladen cites, we do not find these references persuasive with respect to what one of ordinary skill in the art would have understood Leysieffer, as an allegedly anticipating reference, to have disclosed.

For the above reasons, based on the record before us, we find that Leysieffer clearly discloses using an electromechanical transducer for its system and does not contemplate using a hearing aid with the system, not even as an alternative to an electromechanical transducer. Accordingly, we are not persuaded that Petitioner has met its burden of showing, by a

preponderance of the evidence, that independent claim 1 is anticipated by Leysieffer.

3. Dependent Claims 2, 4, and 5

Claims 2, 4, and 5 depend from claim 1 and, thus, contain all the limitations of claim 1. Petitioner's challenges to dependent claims 2, 4, and 5 do not overcome the deficiencies of Leysieffer with respect to claim 1. Pet. 42–44. Accordingly, for the same reasons discussed above in connection with claim 1, we also determine Petitioner has not demonstrated, by a preponderance of the evidence that claims 2, 4, and 5 are anticipated by Leysieffer.

E. Asserted Anticipation by Dooley

Petitioner contends claims 1, 2, and 4–7 are anticipated by Dooley. Pet. 45–55. Patent Owner provides arguments addressing this asserted ground of unpatentability. PO Resp. 40–43.

1. Overview of Dooley

Dooley discloses a bimodal aid that provides information through a cochlear implant aid in one ear and a speech processing acoustic hearing aid in the other ear of a patient. Ex. 1005, 7:26–28. This arrangement is depicted in Figure 1 of Dooley, which is reproduced below.

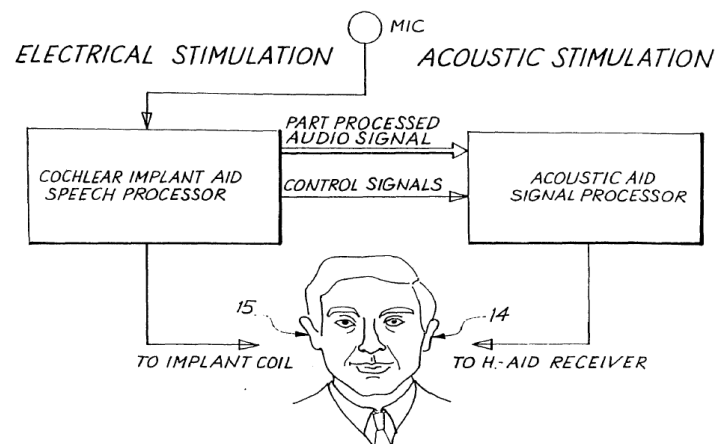


FIG. 1

Figure 1 is a schematic representation of one embodiment of a bimodal aid.
Id. at 6:2–4. Figure 2 is reproduced below.

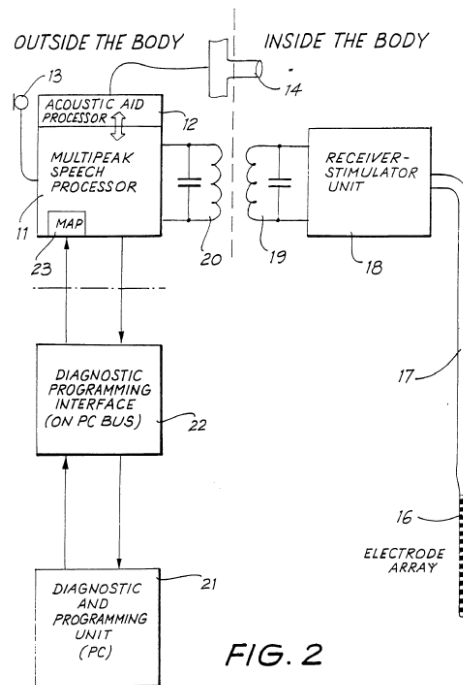


Figure 2 shows the main functional components of the bimodal aid. *Id.* at 6:5–7. The components include speech processor 11 connected to acoustic aid processor 12, microphone 13, acoustic hearing aid 14, and implant aid 15 (not referenced in Figure 2). *Id.* at 10:25–11:1. The implant aid includes electrode array 16 connected by harness 17 to receiver stimulator 18, which is in radio communication with speech processor 11 via coils 19 and 20. *Id.* at 11:1–4.

The system includes diagnostic and programming unit 21 that is implemented as a program running on a personal computer. *Id.* at 11:5–9. “The diagnostic and programming unit 21 is utilised in a clinical situation to test for and control device parameters of operation for the speech processor 11 and/or acoustic aid processor 12 which optimise hearing performance for a patient according to defined criteria.” *Id.* at 11:11–16.

2. *Independent Claim 1*

Petitioner provides analysis purporting to show where each limitation recited in independent claim 1 is disclosed by Dooley. Pet. 45–50. The final limitation of claim 1 recites:

wherein the hearing aid and the cochlear implant speech processor, or the acoustic and electric elements of the electric-acoustic processor, are situated in the same ear and are configured to generate or apply both acoustic stimulation signals to the acoustic sensing organs of the ear and electric stimulation signals to the auditory nerve of the same ear.

Ex. 1001, 15:51–57. Petitioner concedes that Dooley does not disclose an ipsilateral arrangement, but asserts instead that the final limitation of claim 1 is entitled to no patentable weight and does not distinguish the claim from Dooley. Pet. 48–50.

To support this assertion, Petitioner argues “[t]here is no indication in the ’747 patent that the structure or operation of the cochlear implant system or the hearing aid is different in any way when placed in the same ear or in different ears,” and one of ordinary skill in the art “would have understood the structure and/or operation of the cochlear implant system and/or the hearing aid to remain the same, regardless of whether the apparatus was used in an ipsilateral arrangement or in a contralateral arrangement.” *Id.* at 49 (citing Ex. 1002 ¶ 107).

Petitioner also argues that whether the devices of the ’747 patent are in an ipsilateral or contralateral arrangement relates to the manner in which the apparatus is intended to be used and not to its structure. *Id.* Petitioner then asserts that, “[a]ccording to well-settled precedent, a recitation which states how an apparatus is intended to be employed does not differentiate a claimed apparatus from a prior art apparatus, if the prior art apparatus

teaches all of the structural limitations of the claim.” *Id.* at 49–50 (citing *In re Schreiber*, 128 F.3d 1473 (Fed. Cir. 1997); *Ex parte Ling*, 2010 WL 4219754 (BPAI Oct. 22, 2010)).

In the Decision on Institution, we did not find Petitioner’s arguments persuasive. Dec. Inst. 35–37. In particular, we determined that “[t]he mere fact that the ’747 patent discloses the possibility of both ipsilateral and contralateral arrangements does not mean a claim limitation reciting an ipsilateral arrangement is not entitled to patentable weight.” *Id.* at 36. We also determined that “[c]laim 1 recites a *system* in which two of its *elements* (either the hearing aid and the cochlear implant speech processor or the acoustic and electric elements of the electric-acoustic processor) are located in a particular manner, which does not constitute a mere ‘intended use’ of the elements.” *Id.* at 36–37.

In its Response, Patent Owner argues that “the line of cases Petitioner cites for [its intended use argument], including *Schreiber*, merely stands for the proposition that ‘recitation of a new intended use for an old product does not make a claim to that old product patentable.’” PO Resp. 42 (citing *Schreiber*, 128 F.3d at 1477). Patent Owner also argues that “the claim limitations requiring an ipsilateral arrangement do not simply specify an ‘intended use’ but rather quintessential structural elements, including *which* components are used and *where* they are located.” *Id.*

In the Reply, Petitioner did not address this ground or Patent Owner’s arguments regarding Dooley’s failure to anticipate the claimed invention. Nor did Petitioner substantively address this ground during the hearing. *See* Tr. 8:21–9:6.

Accordingly, based on our review of the complete record and for the reasons in the Decision on Institution, which we adopt here, we are not

persuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that independent claim 1 is anticipated by Dooley.

3. Dependent Claims 2 and 4–7

Claims 2 and 4–7 depend from claim 1 and, thus, contain all the limitations of claim 1. Petitioner’s challenges to dependent claims 2 and 4–7 do not overcome the deficiencies of Dooley with respect to claim 1. Pet. 50–55. Accordingly, for the same reasons discussed above in connection with claim 1, we also determine Petitioner has not demonstrated, by a preponderance of the evidence, that claims 2 and 4–7 are anticipated by Dooley.

F. Asserted Obviousness Based on Dooley and von Ilberg 1999

Petitioner contends claims 1, 2, and 4–7 are obvious over Dooley and von Ilberg 1999. Pet. 55–57. Patent Owner provides arguments addressing this asserted ground of unpatentability. PO Resp. 44–54.

1. Von Ilberg 1999

Von Ilberg 1999 is a paper describing a study of a patient having a history of hearing loss and fitted with bilateral hearing aids and a cochlear implant in the right ear. Ex. 1006, 336. Testing was performed with the hearing aid alone, the cochlear implant alone, and a combination of both devices. *Id.* at 337. The results of the testing demonstrate that combined electric-acoustic stimulation (“EAS”) “clearly increases the quality and score of speech perception above values which could be achieved with acoustic or electric stimulation alone.” *Id.* at 340.

2. Discussion

a) Petitioner’s Assertions

Petitioner again argues that Dooley discloses all of the limitations of claim 1, as well as claims 2 and 4–7. Pet. 55, 57; *see also id.* at 45–55

(providing analysis purporting to show where each limitation recited in claims 1, 2, and 4–7 is disclosed by Dooley). Petitioner also argues, however, that if it is determined that the ipsilateral arrangement recited in claim 1 is not an intended use, “von Ilberg 1999 discloses that speech tests were performed with ‘the HA alone, CI alone and the combination of both (HA + CI) in the implanted ear (without contralateral HA).’”⁹ *Id.* at 55 (citing Ex. 1006, 337). Petitioner argues further that von Ilberg 1999 discloses “that ‘a substantial improvement of [the patients’] hearing can be expected’ using an ipsilateral configuration,” and “fitting of parameters for both the hearing aid and cochlear implant.” *Id.* (alteration in original) (citing Ex. 1006, 337, 340). Petitioner also argues that von Ilberg 1999 discloses fitting of parameters for both the hearing aid and the cochlear implant. *Id.* (citing Ex. 1006, 337).

Next, Petitioner argues that one of ordinary skill in the art would have combined von Ilberg 1999 with Dooley in the relevant time period. *Id.* at 56 (citing Ex. 1002 ¶ 125). Petitioner also argues that because von Ilberg 1999 teaches that an ipsilateral configuration of hearing devices may improve performance, one of ordinary skill in the art “would have been motivated to use an ipsilateral configuration and would have combined von Ilberg 1999 with Dooley, particularly with regard to fitting systems and methodology.” *Id.* at 56–57 (citing Ex. 1002 ¶ 127).

b) Patent Owner’s Arguments

Patent Owner does not challenge in its Response Petitioner’s assertions with respect to the claim limitations being disclosed by the

⁹ “CI” refers to a cochlear implant, and “HA” refers to a conventional or digital hearing aid. Ex. 1006, 334.

combination of Dooley and von Ilberg 1999. Instead, Patent Owner argues that Dooley teaches away from the proposed combination and Petitioner’s proposed motivation to combine lacks merit. PO Resp. 40. Patent Owner argues that numerous objective indicia of the non-obviousness (also called secondary considerations) demonstrate that the challenged claims are not obvious. *Id.* at 54–60. We address each of these arguments in turn.

(1) Teaching Away

In the Decision on Institution, we noted that “Patent Owner does not persuade us—nor even appear to assert—that Dooley teaches away from ipsilateral arrangements,” and determined that “Dooley expresses a preference for contralateral arrangements but does not criticize or disparage ipsilateral arrangements” and, therefore, does not teach away from the proposed combination of von Ilberg 1999 and Dooley. Dec. Inst. 41 (citing *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009)). In its Response, however, Patent Owner now argues that “when considered in context, Dooley’s use of a contralateral arrangement was not merely a ‘preference’ but rather a necessity, and that Dooley does, in fact, teach away from an ipsilateral arrangement.” PO Resp. 44 (citing Ex. 2014 ¶¶ 118–125).

Patent Owner points to several passages of Dooley to support its contention that Dooley teaches away from an ipsilateral arrangement. Specifically, Patent Owner notes that Dooley discloses “[t]here is a trend towards fitting cochlear implants to patients with some residual hearing in the contralateral ear’ and that a contralateral arrangement is advantageous in that ‘[m]any patients recognise speech better using conventional acoustic hearing aids together with the cochlear implant than they do using either device alone.’” PO Resp. 45 (quoting Ex. 1005, 1:17–22; citing Ex. 2014

¶ 119). Patent Owner adds that Dooley discloses that certain patients experience problems when using separate cochlear implants and hearing aids. *Id.* (quoting Ex. 1005, 8:13–19; citing Ex. 2014 ¶ 119). Thus, according to Patent Owner, Dooley addresses the needs of patients who (1) have hearing deficiencies in both ears; (2) have already received a cochlear implant in one ear; (3) have a small amount of residual hearing; and (4) have previously worn hearing aids in the non-implanted (i.e., contralateral) ear. *Id.* at 45–46 (quoting Ex. 1005, 8:11–16; citing Ex. 2014 ¶ 119). Patent Owner then contends that “Dooley’s solution for these patients was to use a single, bimodal hearing device that provided electrical stimulation via a cochlear implant in one ear and acoustic stimulation via a contralateral hearing aid in the opposite ear.” *Id.* at 46 (citing Ex. 1005, 2:22–3:2; Ex. 2014 ¶ 119).

In the Reply, Petitioner argues that none of the passages of Dooley quoted by Patent Owner “disparages an ipsilateral system, let alone teaches away from a combination with the ipsilateral configuration of von Ilberg 1999.” Pet. Reply 7. Petitioner also argues that the quoted passages compare the disclosed contralateral arrangement to using either a convention acoustic hearing aid or a cochlear implant and do not compare the disclosed contralateral arrangement to an ipsilateral arrangement. *Id.* (citing PO Resp. 45–47). In particular, Petitioner argues that

Dooley does not compare his device to an ipsilateral arrangement, but rather to a prior art contralateral arrangement of a cochlear implant in one ear and an acoustic hearing aid in the other ear. Thus, whatever benefits are gained from the Dooley invention presumably do not result from the contralateral configuration, but must result from other features, such as the use of a single processor for both the cochlear implant and the hearing aid.

Id. at 8 (citing Ex. 1041, 117:15–19, 119:16–19).

We agree with Petitioner that the quoted passages of Dooley do not disparage ipsilateral systems to the extent of discouraging one of ordinary skill in the art from investigating ipsilateral systems. *See DePuy Spine*, 567 F.3d at 1327 (holding a reference does not teach away “if it merely expresses a general preference for an alternative invention but does not ‘criticize, discredit, or otherwise discourage’ investigation into the invention claimed”). For instance, Dooley’s statements that “[t]here is a trend towards fitting cochlear implants to patients with some residual hearing in the contralateral ear,” and “[m]any patients recognise speech better using conventional acoustic hearing aids together with the cochlear implant than they do using either device alone” (Ex. 1005, 1:17–21) merely provide background showing why the invention disclosed in Dooley would be beneficial. Likewise, Dooley’s statements that certain patients experience problems when using separate cochlear implants and hearing aids and are thus candidates for the disclosed bimodal aid (*id.* at 2:22–3:2, 8:11–19) simply identify the type of patients that would benefit from Dooley’s invention.

None of these statements even mention ipsilateral systems, let alone disparage them. We also agree with Petitioner that these statements compare the disclosed contralateral arrangement to using either a convention acoustic hearing aid or a cochlear implant separately, not to an ipsilateral arrangement. In fact, Patent Owner makes this point, arguing that “Dooley itself explains that a contralateral arrangement provides significant benefits, including the ability to perceive and discriminate speech *better than when using a cochlear implant or hearing aid separately.*” PO Resp. 46 (citing Ex. 1005, 1:17–22, 8:19–23; Ex. 2014 ¶ 120) (emphasis added).

Because Dooley does not even compare its contralateral arrangement to an ipsilateral arrangement, let alone state that contralateral arrangements are significantly better than ipsilateral arrangements, we are not persuaded that Dooley disparages ipsilateral systems.

In addition, Patent Owner argues that Dooley's contralateral arrangement was not merely a preference; rather, Dooley was motivated by the known binaural benefits of a contralateral arrangement, which benefits would have led one of ordinary skill in the art away from ipsilateral arrangements. PO Resp. 46 (citing Ex. 2014 ¶ 120). Patent Owner contends that the binaural benefits identified by Dooley include improving the quality of binaural information received by the patient and improving speech perception. *Id.* at 46–47 (citing Ex. 1005, 1:17–22, 2:1–4, 3:1–2, 3:12–13, 8:19–23, cls. 1, 16; Ex. 2014 ¶ 120). Patent Owner also contends that the binaural benefits of a contralateral arrangement were known to persons having ordinary skill in the art. *Id.* at 47 (citing Ex. 2021, 19–20; Ex. 2022, 616–17; Ex. 2014 ¶¶ 121–124).

Petitioner argues that one of ordinary skill in the art “would have understood that for some patients, using a hearing aid on the contralateral side is simply not an option because there is no residual hearing for that ear.” Pet. Reply 9 (citing Ex. 1042 ¶ 4; Ex. 1041, 164). Petitioner also argues that the well-known phenomenon of binaural interference associated with contralateral configurations could diminish performance for some patients, such that one of ordinary skill in the art “would have understood that many people with cochlear implants are unable to achieve binaural benefit and that placing a hearing aid on a contralateral side may even cause a decrement in speech understanding.” *Id.* at 9–10 (citing Ex. 1024; Ex. 1027; Ex. 1029; Ex. 1037; Ex. 1038; Ex. 1040; Ex. 1041, 140:15–17; Ex. 1042 ¶¶ 4–7).

Petitioner also argues that the article cited by Patent Owner does not show that the binaural advantage is significant. *Id.* at 11. Relying on the testimony of Dr. Sladen, Petitioner asserts that “[t]he article by Dr. Ching (Ex. 2021) showed that only 7 of the 21 (33%) of adults experienced a significant bimodal benefit. Ex. 1042, ¶ 10. Dettman (Ex. 2022) failed to show any binaural advantage for word recognition. Ex. 1042, ¶ 11.” *Id.*

As an initial point, we disagree that the disclosure of Dooley shows that binaural benefits were a significant motivation for the invention. For instance, Dooley states that “[i]t is an object of the present invention to provide a bimodal aid device which can drive both an acoustic hearing aid and a cochlear implant aid which thereby improves the quality of binaural information received by a patient.” Ex. 1005, 2:1–4. This passage describes providing a bimodal aid, as opposed to either an acoustic hearing aid or a cochlear implant alone, as the object of the invention and notes that such a bimodal aid also improves the quality of binaural information. It does not indicate that improving binaural information, in and of itself, was a primary goal.

Furthermore, we disagree that a loss of binaural benefits would prevent one of ordinary skill in the art from considering or investigating ipsilateral systems. Our reviewing court has held that “a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.” *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (citing *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000)) (“The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should

be weighed against one another.”)). In this case, we are not persuaded that any disadvantage resulting from a loss of binaural benefits would outweigh the advantages of the improved hearing performance provided by an ipsilateral configuration, as taught by von Ilberg 1999.

For the above reasons, we are not persuaded, based on the preponderance of the evidence that Dooley teaches away from combining the teachings of Dooley and von Ilberg 1999 in the manner proposed by Petitioner.

(2) Motivation to Combine

Patent Owner argues that the only rationale for combining the references offered by Petitioner is that von Ilberg 1999 reports using a conventional hearing aid in the ipsilateral ear of a single cochlear implant patient resulted in improved speech perception for that patient. PO Resp. 48 (citing Pet. 56–57). Patent Owner also argues that Dr. Sladen’s testimony on this point “merely parrots Petitioner’s conclusory assertion.” *Id.* (citing Pet. 56–57; Ex. 1002 ¶ 127).

Furthermore, Patent Owner argues that “Petitioner and Dr. Sladen ignore that this purported improvement [taught by von Ilberg 1999] was in comparison to ‘acoustic or electric stimulation *alone*,’ *not* in comparison to Dooley’s contralateral arrangement which combined electric and acoustic stimulation in opposite ears,” and reiterates its contention that “Dooley’s contralateral arrangement was understood to provide binaural benefits that significantly improved patients’ speech perception.” *Id.* at 49 (citing Ex.

1006, 340; Ex. 2014 ¶¶ 120–123, 127–128; Ex. 2021, 19–20; Ex. 2022, 616–17; Ex. 2023, 338–39).¹⁰

These arguments are not persuasive. We agree that the “substantial improvement” in hearing disclosed by von Ilberg 1999 is not described as an improvement with respect to a contralateral system. *See* Ex. 1006, 340. We do not agree, however, that this failure to compare the ipsilateral system to a contralateral system detracts from von Ilberg 1999’s teaching that certain patients can expect improved hearing with an ipsilateral system. Thus, von Ilberg 1999 discloses a reason why one of ordinary skill in the art would have considered using an ipsilateral system, even if the reference does not establish that ipsilateral systems are better than contralateral systems.

In particular, von Ilberg 1999 discloses testing a combination of a hearing aid and a cochlear implant in the same ear of a patient, and that substantial improvement in hearing can be expected with simultaneous monaural electric-acoustic stimulation. Ex. 1006, 335, 337, 340. Also, von Ilberg 1999 discloses the testing “results demonstrate that combined EAS clearly increases the quality and score of speech perception above values which could be achieved with acoustic or electric stimulation alone.” *Id.* at 340.

Based on these disclosures, Petitioner asserts that it would have been obvious to one of ordinary skill in the art to combine Dooley and von Ilberg 1999 in the manner proposed. Pet. 56–57. We agree that one of ordinary skill in the art would have been led to combine Dooley and von Ilberg 1999 as proposed in order to achieve the improved hearing performance for

¹⁰ Although Patent Owner cites to pages 338–39 of Exhibit 2023, this document comprises only 30 pages.

certain patients that von Ilberg 1999 teaches. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (“[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”).

In addition, Patent Owner argues that one of ordinary skill in the art would not have had any reasonable expectation of success because ordinarily skilled artisans “understood and expected that the implantation of a cochlear prosthesis and its accompanying electrode array and long-term stimulation using the implant would damage the patient’s acoustic sensing organs, resulting in loss of residual hearing.” PO Resp. 50 (citing Pet. 56; Ex. 1006, 334).

We disagree. Von Ilberg 1999 discloses that “[t]he application of [cochlear implants] is limited by the fact that a usable residual hearing capacity in the majority of the patients is destroyed by intracochlear application of the electrode array.” Ex. 1006, 334. But von Ilberg 1999 also discloses “[e]lectric stimulation of the auditory system by means of cochlear implants (CIs) is a well-accepted technique for deaf patients *but also for adults and children with some residual hearing.*” *Id.* (emphasis added). Furthermore, as noted above, von Ilberg 1999 discloses that combined electric-acoustic stimulation can produce substantial improvement in hearing. *Id.* at 340. Therefore, although it may have been known in the art that cochlear implants had some limitations, we are persuaded that one of ordinary skill in the art would have had a reasonable expectation of success with an ipsilateral arrangement.

Next, Patent Owner argues that “Petitioner fails to explain why a [person having ordinary skill in the art] would have been motivated to use

Dooley’s fitting system with an ipsilateral arrangement,” and “simply pointing to Dooley as disclosing a fitting system is not a reason why a [person having ordinary skill in the art] would have used that system in an ipsilateral arrangement.” PO Resp. 51; *see also* PO Sur-reply 6–8 (making a substantially similar argument).

This argument is not persuasive because it mischaracterizes the Petitioner’s proposed combination. Petitioner does not propose to modify von Ilberg 1999 to include Dooley’s fitting system. Instead, Petitioner proposes to modify Dooley’s bimodal aid into an ipsilateral arrangement because von Ilberg 1999 teaches that an ipsilateral arrangement can provide improved hearing performance for certain patients. Pet. 55–57. For the reasons discussed above, we determine that the Petitioner has shown sufficiently that one of ordinary skill in the art would have a reason to make this modification.

Last, Patent Owner argues that

to the extent von Ilberg 1999 discloses the use of an ipsilateral arrangement, its disclosure is limited to using a conventional, standalone hearing aid that is *controlled and fitted independently of the cochlear implant*, i.e., without any *orchestrated fitting system to control and adjust the parameters* of both acoustic and electric stimulation.

PO Resp. 52 (emphases added) (citing Ex. 1006, 337; Ex. 2014 ¶ 132).

Patent Owner adds that Exhibit 2023 (which is an article from 2011 authored by Mr. von Ilberg and others) acknowledges

that “[i]n the early EAS studies,” including that set forth in von Ilberg 1999, “the [hearing aid] speech processor and the [cochlear implant] *had to be fitted separately*” and that it was not until the introduction of combined speech processors that [persons having ordinary skill in the art] even appreciated the need for an *orchestrated fitting system*.

Id. at 53 (emphases added) (citing Ex. 2023, 16; Ex. 2014 ¶ 134). Patent Owner also contends that Mr. von Ilberg recognized that “early attempts at using an ipsilateral arrangement without an orchestrated solution had ‘major disadvantages’ and proved ‘unsatisfactory,’” and “[i]t was not until an orchestrated solution was developed and adopted that patient acceptance ‘increased...from 33 to **100%**.’” *Id.* at 53–54 (citing Ex. 2023, 14; Ex. 2014 ¶ 135); *see also* PO Sur-reply 8–9 (arguing Petitioner fails to address historical evidence showing persons of ordinary skill in the art did not recognize a need for an orchestrated fitting system).

We note that these arguments rely on the so-called “orchestrated fitting system” of the ’747 patent as being distinct from fitting the acoustic and electric devices independently or separately. To the extent that an “orchestrated fitting system” requires some sort of coordination between the fitting of the acoustic element and the fitting of the electric element, however, this aspect of the invention is not claimed. Indeed, at the hearing, Patent Owner indicated that an “orchestrated fitting” refers to “a computer that is configured to communicate with and modify parameters of at least one of the hearing aid and cochlear implant, or a combined acoustic and electric elements of an electric acoustic processor,” and clarified that, referencing the first limitation of claim 1, orchestration refers to a computer modifying parameters of both the acoustic and electric devices at some point (i.e., either simultaneously or sequentially). Tr. 34:14–36:3.

Petitioner contends that Dooley’s diagnostic and programming unit 21 satisfies the first limitation of claim 1. Pet. 46. Specifically, Petitioner argues that “diagnostic and programming unit 21 ‘is implemented as a program running on a personal computer’” and “is ‘utilised in a clinical situation to test for and control device parameters of operation for the speech

processor 11 and/or acoustic aid processor 12 which optimise hearing performance for a patient according to defined criteria.” *Id.* (quoting Ex. 1005, 11:9–9, 11:11–16). As such, Petitioner asserts that “programming unit 21 communicates with and modifies parameters of at least the acoustic and electric elements of an electric-acoustic processor.” *Id.* Patent Owner does not dispute this assertion. We have reviewed the disclosures of Dooley cited by Petitioner and find that Dooley discloses a single computer that communicates with and modifies parameters of the acoustic and electric elements of an electric-acoustic processor.

Accordingly, we find Patent Owner’s argument that von Ilberg 1999 fails to disclose an “orchestrated fitting system” unavailing.

For the above reasons, we determine that Petitioner has shown, by a preponderance of the evidence that one of ordinary skill in the art would have been motivated to combine the teachings of Dooley and von Ilberg 1999 in the manner proposed.

(3) Objective Indicia of Nonobviousness

We must consider any evidence of objective indicia of nonobviousness in the record before reaching our conclusion on obviousness. *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1328 (Fed. Cir. 2016). Factual inquiries for an obviousness determination include secondary considerations based on evaluation and crediting of objective evidence of nonobviousness. *Graham*, 383 U.S. at 17 (1966).

“For objective evidence of secondary considerations to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention.” *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). “[A] patentee is entitled to a rebuttable presumption of nexus between the asserted evidence of secondary

considerations and a patent claim if the patentee shows that the asserted evidence is tied to a specific product and that the product ‘*is* the invention disclosed and claimed.’” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (quoting *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988)). “That is, presuming nexus is appropriate when the patentee shows that the asserted objective evidence is tied to a specific product and that product embodies the claimed features, and is coextensive with them.” *Id.* (citing *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)) (internal quotations omitted). Ultimately, “[t]he patentee bears the burden of showing that a nexus exists.” *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999).

Patent Owner argues that “[s]ubstantial evidence of secondary considerations, including failure by others, unexpected results, industry praise, and commercial success, firmly and objectively demonstrates that the Challenged Claims are nonobvious.” PO Resp. 54. We first address whether Patent Owner sufficiently demonstrates a nexus between the evidence and the merits of the claimed invention and then the significance of the evidence asserted by Patent Owner.

(a) *Nexus*

Patent Owner states “[w]hile there must be a nexus between the merits of the claimed invention and any secondary considerations of nonobviousness, there is no requirement that the claimed invention be ‘solely responsible’ for such secondary considerations.” See PO Resp. 56 (citing *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1273 (Fed. Cir. 1991); *Apple Inc. v. ITC*, 725 F.3d 1356, 1365 (Fed. Cir. 2013); *Ex parte Whirlpool Corp.*, No. 2013-008232, 2013 WL 5866602

(PTAB Oct. 30, 2013) (informative)). Patent Owner, however, does not discuss explicitly in its Response how there is a nexus between the merits of the claimed invention and the asserted evidence, but does assert that Dr. Zeng explains that the MED-EL EAS System¹¹ embodies at least claim 1 of the '747 patent. *See id.* at 58 (citing Ex. 2014 ¶ 142). Petitioner and Dr. Zeng describe several elements of the MED-EL EAS System. *Id.* at 58–59 (citing Ex. 2003, 1–4, 6; Ex. 2025; Ex. 2014 ¶ 142); 2014 ¶ 142 (citing Ex. 2003, 1–4, 6; Ex. 2025; Ex. 2026).

Petitioner argues that Patent Owner has not established any nexus between the challenged claims and the MED-EL EAS System. Pet. Reply 26. In particular, Petitioner contends that Dr. Zeng's testimony on this point was speculation because he did not conduct an infringement analysis or an analysis to determine the reasons for the success of the MED-EL EAS System. *Id.* at 27–28 (citing Ex. 1041, 202–205, 207–208).

Petitioner also argues that the MED-EL EAS System included additional features that contributed to the success of the product but are not claimed in the '747 patent. *Id.* at 28. According to Petitioner, these features include (1) “a self-aligning, diametric implant magnet . . . , which is MRI-compatible and which allows patients to have a 3.0 tesla MRI scan without removing the magnet of the internal device [and] is the subject of . . . U.S. Patent Nos. RE46,057 (Ex. 1033) and 8,634,909 (Ex. 1034);” and (2) a “soft, atraumatic tip used for gentle electrode insertion with respect to the cochlear implant, which is the subject of U.S. Patent No. 8,112,161 (Ex. 1035), [and]

¹¹ The “MED-EL EAS System” refers to a product marketed and sold by Petitioner, and for which Petitioner received approval from the U.S. Food and Drug Administration (“FDA”) in September 2016. PO Resp. 58 (citing Ex. 2003, 1).

helps preserve residual hearing and contributed to the success of Petitioner's EAS system.” *Id.* (citing Ex. 1042 ¶¶ 18–19). Petitioner also asserts that features of its MAESTRO fitting software and not found in the challenged claims. *Id.* (citing Ex. 1042 ¶ 20). Petitioner argues that Patent Owner has failed to demonstrate a nexus between the commercial success of the MED-EL EAS System and the challenged claims because critical features of the MED-EL EAS System are not coextensive with the challenged claims. *Id.* at 28–29 (citing *Fox Factory*, 994 F.3d at 1375).

In the Sur-reply, Patent Owner reiterates that Dr. Zeng testified that he did analyze the MED-EL EAS System and in his opinion the system embodies at least claim 1.¹² PO Sur-reply 23 (citing Ex. 1041, 205:6, 205:15–19; Ex. 2014 ¶ 142). Regarding Petitioner's assertions that features of the MED-EL EAS System not covered by the challenged claims contributed to the product's success, Patent Owner argues that “there is no requirement that the claimed invention be ‘solely responsible’ for secondary considerations to be relevant.” *Id.* (citing *Continental Can*, 948 F.2d at 1273; *Apple Inc.*, 725 F.3d at 1365). Patent Owner contends that

there is clear evidence showing that the praise and commercial success associated with the EAS System is at least in part due to the [’747 patent’s] invention. For example, in marketing the EAS System, Petitioner specifically touts that it “provides acoustic stimulation that supports your natural residual hearing by amplifying the low frequencies” and includes a cochlear implant that “supplies the appropriate electric stimulation within the cochlea to bring back the perception of the high-frequency

¹² During his deposition, Dr. Feng expressed some uncertainty regarding the meaning of the terms “infringement analysis” and “limitation” (*see* Ex. 1041, 202:5–11, 203:10–15), but nevertheless confirmed his opinion that “MED-EL’s EAS system embodies at least claim one of the [’747] patent” (*id.* at 205:17–19).

sounds that have been missing.” Ex. 2024, 1. Petitioner further touts its fitting software as “allow[ing] easy adjustment of...electric and acoustic fitting parameters.” Ex. 2025.

Id. at 24 (second alteration in original).

We are not persuaded that Patent Owner’s broad public statements regarding the MED-EL EAS System providing acoustic and electric stimulation and having fitting software for easy adjustment of fitting parameters are sufficient to show that the MED-EL EAS System is coextensive with the challenged claims. Furthermore, Patent Owner does not argue that the MED-EL EAS System is coextensive with the challenged claims such that there is a presumption of nexus. *See Fox Factory*, 994 F.3d at 1373. Nor does Patent Owner dispute that the MED-EL EAS System contains the non-claimed features identified by Petitioner, which are the subject of other patents. On this point, we credit Dr. Sladen’s uncontroverted testimony that the non-claimed features contributed to the success of the MED-EL EAS System. *See* Ex. 1042 ¶¶ 18–21. Thus, on balance, we find that Patent Owner has not established a nexus or a presumption of nexus. Nevertheless, we address Patent Owner’s asserted evidence below.

(b) Failure by Others and Unexpected Results

Patent Owner argues that von Ilberg 1999 “reflects an attempt to combine electric and acoustic stimulation in an ipsilateral fashion, but [Mr.] von Ilberg and [persons having ordinary skill in the art] failed to appreciate the need for an orchestrated solution as the [’747] patent describes and claims.” PO Resp. 56–57 (citing Ex. 2014 ¶¶ 133–134). Patent Owner also argues that “it was not until the introduction of an orchestrated solution—well more than a year after [the ’747 patent’s] April 2004 effective filing

date—that [persons having ordinary skill in the art] were able to ‘increase[] [patient] acceptance of the EAS protocol from 33 **to 100%.**’” *Id.* at 57 (citing Ex. 2023, 14; Ex. 2014 ¶ 140).

We do not find this evidence particularly persuasive. Rather, for the reasons discussed above in § II.F.2.b.(2), we agree with Petitioner that Dooley disclosed an orchestrated fitting solution—i.e., a single computer for modifying the parameters of both acoustic and electric stimulation—prior to the effective filing date of the ’747 patent. *See* Pet. Reply 27. And although there is no evidence in the record regarding whether the invention of Dooley was successfully marketed, the fact that Dooley described an “orchestrated solution” for a bimodal aid in 1992, albeit in the context of a contralateral arrangement, demonstrates that there was not a failure of others and unexpected results as Patent Owner asserts.

(c) Industry Praise

Patent Owner argues that Petitioner markets and sells the MED-EL EAS System and Dr. Zeng testifies that this system embodies at least claim 1. PO Resp. 58 (citing Ex. 2014 ¶ 142). Patent Owner then argues that “Petitioner praised and touted this system as the ‘**latest innovation** in hearing implants,’ a ‘**major advancement**,’ a ‘**unique solution**,’ a ‘**pioneering technology**’” and also “praised and touted its MAESTRO fitting software.” *Id.* at 59 (citing Ex. 2001, 2; Ex. 2024; Ex. 2025). A manufacturer praising its own product, however, is not remarkable and does little to establish industry praise. Typically, “industry praise” comprises praise from others in the related industry that would not be likely to praise obvious advances. *See, e.g., Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1053 (Fed. Cir. 2016) (“Evidence that the industry praised a claimed invention or a product that embodies the patent claims weighs against an

assertion that the same claimed invention would have been obvious.

Industry participants, especially competitors, are not likely to praise an obvious advance over the known art.” (emphasis added)).

Patent Owner also argues that Mr. von Ilberg “praised an earlier version of MED-EL’s system that used the DUET processor for its ability to provide an orchestrated solution that significantly improved patient acceptance and performance.” PO Resp. 59 (citing Ex. 2024, 14–16; Ex. 2014 ¶ 141).¹³ However, praise of “an earlier version,” which Patent Owner does not assert or offer evidence showing that it embodies a challenged claim, is accorded little weight.

Accordingly, we find that Patent Owner has not provided credible evidence of industry praise.

(d) Commercial Success

Patent Owner provides no objective evidence showing commercial success of the MED-EL EAS System. PO Resp. 59–60. Instead, Patent Owner merely reasons that Petitioner continues to market the system “presumably because Petitioner believes it to be sufficiently commercially successful to justify manufacturing and selling it.” *Id.* at 59. This reasoning is not a substitute for objective evidence, and, therefore, we find that Patent Owner has not provided credible evidence of commercial success.

c) Conclusion

Based on the full record before us, we find that the combination of Dooley and von Ilberg 1999 discloses all the limitations of claims 1, 2, and 4–7. We also find that, contrary to Patent Owner’s arguments, the Petition

¹³ Although Patent Owner cites Exhibit 2024, this appears to be a typographical error and should be Exhibit 2023.

demonstrates that one of ordinary skill in the art would have been motivated to combine the references in the manner proposed by Petitioner. Lastly, we find that Patent Owner's evidence and arguments regarding objective indicia on nonobviousness are unpersuasive.

Accordingly, we determine that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1, 2, and 4–7 are unpatentable as obvious over the combination of Dooley and von Ilberg 1999.

G. Asserted Obviousness Based on Leysieffer and Harrison

Petitioner contends claims 1, 2, 4, and 5 are obvious over Leysieffer and Harrison. Pet. 57–61. Patent Owner provides arguments addressing this asserted ground of unpatentability. PO Resp. 26–36.

1. Overview of Harrison

Harrison relates to “a hybrid hearing aid system that combines a cochlear stimulator and a hearing aid.” Ex. 1007, 1:5–7. Figure 2 of Harrison is reproduced below.

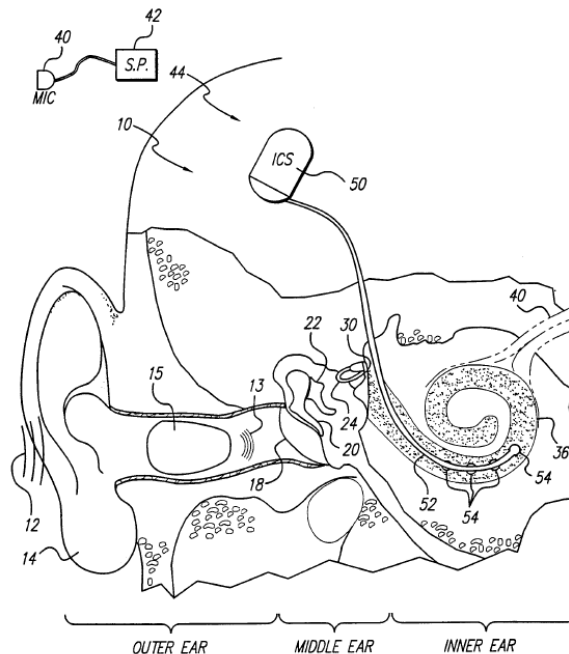


FIG. 2

Figure 2 shows the manner in which a conventional in-the-ear hearing aid is used to supplement an implantable cochlear stimulator. *Id.* at 5:12–14. The system of Figure 2 includes implantable cochlear stimulator 50 having electrode array 52 with a plurality of electrodes 54. *Id.* at 7:6–8. Implantable cochlear stimulator 50 is coupled to external microphone 40, whose signals are amplified and processed by speech processor 42. *Id.* at 7:10–14.

The system also includes hearing aid 15. *Id.* at 8:16–18. Hearing aid 15, which may be a conventional device, receives acoustic waves 12, amplifies the waves, and presents amplified acoustic waves 13 to tympanic membrane 18. *Id.* at 8:18–20.

2. Independent Claim 1

Petitioner again argues that Leysieffer discloses all of the limitations of claim 1. Pet. 57; *see also id.* at 35–42 (providing analysis purporting to show where each limitation recited in independent claim 1 is disclosed by Leysieffer). Petitioner also argues, however, that if it is determined that Leysieffer does not explicitly disclose

that the hearing aid and the acoustic elements of the electric-acoustic processor are devices that are configured to generate or apply acoustic stimulation signals to the acoustic sensing organs of the ear, the acoustic stimulation being sound waves directed into the ear canal, acoustic hearing aids were well known in the art, . . . it would have been obvious to have substituted such a hearing aid for the hearing aid shown in Leysieffer.

Id. at 57 (citing Ex. 1002 ¶ 129). Petitioner also argues that Harrison discloses a hybrid system that provides electric stimulation of the cochlea and includes hearing aid 15 for presenting acoustic waves to the tympanic membrane. *Id.* at 58 (citing Ex. 1007, 5:30–6:3, 8:16–20, Fig. 2).

Petitioner then argues that one of ordinary skill in the art would have understood that Leysieffer’s electromechanical transducer and Harrison’s hearing aid are interchangeable and would have combined Leysieffer with Harrison because both teach an ipsilateral arrangement. *Id.* at 59–60 (citing Ex. 1002 ¶¶ 134–135). According to Petitioner, “[t]he substitution of the acoustic hearing aid of Harrison into the ipsilateral system of Leysieffer would have been simply the substitution of one known and conventional element for another known and conventional element.” *Id.* at 60.

Patent Owner argues that “Petitioner fails to explain how a [person having ordinary skill in the art] would have even attempted to substitute Leysieffer’s implanted electromechanical transducer with Harrison’s conventional hearing aid.” PO Resp. 32. Specifically, Patent Owner argues that Leysieffer uses implanted electronic module 34 to drive both electromechanical transducer 14 and intracochlear array 10 via transducer feed line 36 and array feed line 37, respectively. *Id.* at 32–33 (citing Ex. 1004 ¶ 83, Fig. 1; Ex. 2014 ¶ 103). Patent Owner then contends that “[g]iven this architecture, it is unclear how or why a [person having ordinary skill in the art] would have sought to use Harrison’s conventional hearing aid—an external, off-the-shelf component that functions independently, *see* Ex. 1007, 8:18–20—to replace the electromechanical transducer in Leysieffer’s device.” *Id.* at 33 (citing Ex. 2014 ¶ 103).

In the Reply, Petitioner argues that one of ordinary skill in the art would have been motivated to incorporate Harrison’s hearing aid into Leysieffer’s system because “[i]t would only have required routine skill for a [person having ordinary skill in the art] to incorporate the acoustic hearing aid of Harrison into the Leysieffer device and very little modification would

have been required.” Pet. Reply 25 (citing Ex. 1042 ¶ 16). Dr. Sladen, however, testifies that:

Given the similarity in the signal processing, it would have been a relatively routine and straightforward task for the [person having ordinary skill in the art] to incorporate the acoustic hearing aid of Harrison into the Leysieffer device in place of the electromechanical transducer, and very little modification of the Leysieffer device would have been required.

Ex. 1042 ¶ 16. Although this testimony indicates that modifying the signal processing in order to accommodate the proposed combination would have been “a relatively routine and straightforward task,” it does not address Patent Owner’s contention that it is unclear how or why one of ordinary skill in the art would have replaced Leysieffer’s *implanted* electromechanical transducer with Harrison’s *external* hearing aid. This point is important because electromechanical transducer 14 and electronic module 34 are both implanted in the patient and communicate through transducer feed line 36, which is also implanted. Ex. 1004 ¶ 83, Fig. 1. In other words, neither the Petition nor Dr. Sladen explains how the prior art would teach one of ordinary skill in the art to modify Leysieffer’s system such that an external hearing aid would be able to communicate with implanted electronic module 34, or why such a modification would be within the level of ordinary skill in the art.¹⁴ We agree with Patent Owner that “Petitioner simply does not

¹⁴ Figure 1 of Leysieffer appears to show microphone 20 being located in the ear canal and connected to electronic module 34 via microphone line 35 extending into the ear canal. Petitioner, however, does not assert that this apparent disclosure would have taught one of ordinary skill in the art to similarly connect an external hearing aid to electronic module 34 in a similar manner. Furthermore, despite what is shown in Figure 1, Leysieffer discloses that microphone 20 is implanted in the mastoid cavity. Ex. 1004 ¶ 81. We also note that microphone 20 and the portion of microphone line

explain how or why a [person having ordinary skill in the art] would have sought to modify Leysieffer's implantable architecture to incorporate a conventional hearing aid, which is an *external* standalone device that functions independently of any implanted structures." PO Sur-reply 19 (citing Ex. 2014 ¶ 103).

Patent Owner also argues that Leysieffer teaches away from the proposed combination "by disparaging and discouraging the use of a conventional hearing aid." PO Resp. 33–34. Relying on testimony from Dr. Zeng, Patent Owner argues that "to the extent that Leysieffer even discusses conventional hearing aids, it does so only as a point of comparison to teach a [person having ordinary skill in the art] to use an electromechanical transducer *instead of* a conventional hearing [aid]." *Id.* at 34 (citing Ex. 1004 ¶ 6; Ex. 2014 ¶¶ 85, 93). In particular, Patent Owner points to Leysieffer's disclosures that electromechanical transducers "offer better rehabilitation than with conventional hearing aids," and provide improved sound quality "compared to conventional hearing aids." *Id.* (quoting Ex. 1004 ¶ 6; citing Ex. 2014 ¶ 93). Patent Owner also argues that Leysieffer discloses that visible hearing aid devices "stigmatize the wearer and therefore are not willingly worn," but "the hearing prosthesis [(i.e., an electromechanical transducer)] is not visible." *Id.* (quoting Ex. 1004 ¶¶ 6, 8; citing Ex. 2014 ¶ 93). In Patent Owner's view, "[t]hese teachings would have led a [person having ordinary skill in the art] to use an electromechanical transducer, as Leysieffer proposes, *instead of* a

35 in the ear canal are shown in phantom lines. Thus, we conclude that Figure 1 is simply a schematic representation and not an accurate depiction of Leysieffer's disclosure with respect to microphone 20.

conventional hearing aid, as Petitioner now proposes with the benefit of hindsight.” *Id.* (citing Ex. 2014 ¶ 93).

In the Reply, Petitioner argues that “[a]t best, these statements simply show a preference for an electromechanical transducer,” and “Leysieffer does not criticize or disparage conventional acoustic hearing aids, and, therefore, does not teach away from the proposed combination.” Pet. Reply 22 (citing *DePuy Spine*, 567 F.3d at 1327). We disagree that Leysieffer merely expresses a preference for electromechanical transducers because Leysieffer explicitly points out drawbacks of hearing aids that electromechanical transducers overcome. That is, Leysieffer discloses that electromechanical transducers offer better rehabilitation and sound quality than conventional hearing aids and do not produce the stigma associated with visible hearing aids. Ex. 1004 ¶¶ 6, 8. As opposed to Dooley, which does not even compare contralateral and ipsilateral systems, Leysieffer clearly indicates that hearing aids are inferior in many respects to electromechanical transducers and undesirable for the purposes of the disclosed invention. This teaching would discourage one of ordinary skill in the art from replacing Leysieffer’s electromechanical transducer with a conventional hearing aid taught by Harrison, and thus teaches away from the proposed modification. *See DePuy Spine*, 567 F.3d at 1327; *see also KSR*, 550 U.S. at 416 (“[W]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.”).

Furthermore, Petitioner argues that implanted electromechanical transducers require invasive surgery, while conventional hearing aids do not. Pet. Reply 23–24 (citing PO Resp. 31; Ex. 1041, 39–42, 48, 59; Ex. 1042 ¶ 16). We do not find this argument persuasive because, even if it shows an

advantage of conventional hearing aids over electromechanical transducers, Leysieffer clearly discloses an implantable hearing system despite any concerns with the surgery. We also are not persuaded by Petitioner's argument that "that middle ear implants are only for persons who cannot use conventional hearing aids" and "electromechanical transducers are undesirable or unsuitable for most patients." *See id.* (citing Ex. 1041, 40). Although there may be many patients for which electromechanical transducers are not a good option, Leysieffer discloses that such devices are useful for rehabilitation of hearing disorders such as "as inner ear damage, combined inner ear and middle ear damage, and a temporary or permanent noise impression (tinnitus)." Ex. 1004 ¶¶ 2, 4.

For the above reasons, we are not persuaded on the complete record before us that Petitioner has not demonstrated, by a preponderance of the evidence, that claim 1 would have been obvious over Leysieffer and Harrison.

3. Dependent Claims 2, 4, and 5

Claims 2, 4, and 5 depend from claim 1 and, thus, contain all the limitations of claim 1. Petitioner's challenges to dependent claims 2, 4, and 5 do not overcome the deficiencies of the combination Leysieffer and Harrison with respect to claim 1. Pet. 61. Accordingly, for the same reasons discussed above in connection with claim 1, we also determine Petitioner has not demonstrated, by a preponderance of the evidence, that claims 2, 4, and 5 would have been obvious over Leysieffer and Harrison.

H. Asserted Obviousness Based on Leysieffer, Harrison, and von Ilberg '604

Petitioner contends claim 8 is obvious over Leysieffer and von Ilberg '604 or Leysieffer, Harrison, and von Ilberg '604. Pet. 61–64. Patent

Owner provides arguments addressing this asserted ground of unpatentability. PO Resp. 36–39. Claim 8 depends from claim 1 and, thus, contains all the limitations of claim 1. Therefore, for each of these grounds, Petitioner relies in large part on the same assertions presented in the challenge of independent claim 1 based on either Leysieffer alone or the combination of Leysieffer and Harrison in support of its contentions that claim 8 is obvious. Pet. 61–64.

Petitioner relies on von Ilberg ’604 for disclosing a device having a cochlear implant and an acoustic hearing device in the same ear and having multiple stimulation channels. *Id.* at 63 (citing Ex. 1008, 2:61–62, 5:4–5, 5:19–25, Figs. 3(a)–(c)). Thus, von Ilberg ’604 does not overcome the deficiencies of Leysieffer and Harrison with respect to claim 1.

Accordingly, each of these additional grounds suffers from the same deficiencies noted above (*see supra* §§ II.D.2, II.G.2) with respect to Leysieffer alone and the proposed combination of Leysieffer and Harrison. Therefore, for the same reasons discussed above, we are not persuaded on the complete record before us that Petitioner has demonstrated, by a preponderance of the evidence, that that claim 8 is unpatentable.

I. Motion to Exclude Evidence

1. Exhibit 2022

Petitioner moves to exclude Exhibit 2022 “as not being relevant because it postdates the earliest claimed filing date for the ’747 patent application and is not prior art.” Paper 39, 1. Specifically, Petitioner argues that Exhibit 2022 is an article that was published in May 2004 and the earliest possible effective filing date for the ’747 patent is April 2, 2004. *Id.*

In its opposition, Patent Owner argues that “there is no rule that post-filing evidence cannot be used to establish the perspective of a [person

having ordinary skill in the art] at the time of the invention” because “[p]ost-filing evidence may be used to show the state of the art existing at the time of filing of the patent-at-issue.” Paper 40, 2 (quoting *Afton Chem. Corp. v. Infineum Int’l, Ltd.*, IPR2017-01321, Paper 47 at 44 (PTAB Oct. 18, 2018); citing *Reckitt Benckiser Pharm. Inc. v. Watson Labs., Inc.*, No. CV 13-1674-RGA, 2015 WL 6456551, at *2 (D. Del. Oct. 26, 2015)). Patent Owner adds that “there is a ‘low threshold for relevancy’ under the Federal Rules,” and Exhibit 2023 meets that threshold. *Id.* at 3 (quoting *OddzOn Prods., Inc. v. Just Toys, Inc.*, 122 F.3d 1396, 1407 (Fed. Cir. 1997)).

Exhibit 2022 is an article titled “Cochlear Implants for Children with Significant Residual Hearing.” Ex. 2022, 1. Patent Owner relies on this exhibit to support its argument, made in contesting the ground based on Dooley and von Ilberg 1999, that the binaural benefits of a contralateral arrangement were known to persons having ordinary skill in the art. *See* PO Resp. 46–49. Federal Rule of Evidence 401 provides that “[e]vidence is relevant if: (a) it has any tendency to make a fact more or less probable than it would be without the evidence; and (b) the fact is of consequence in determining the action.” The binaural benefits of a contralateral arrangement is “of consequence in determining” the factual dispute of whether Dooley teaches away from an ipsilateral arrangement. We find that Exhibit 2022 has some tendency to make Patent Owner’s factual assertion regarding Dooley more or less probable than it would have been without the evidence. We are not persuaded that Exhibit 2022 being published less than two months after the earliest possible effective filing date for the ’747 patent affects its relevance with respect to Patent Owner’s factual assertion. *See Yeda Rsch. v. Mylan Pharms. Inc.*, 906 F.3d 1031, 1041 (Fed. Cir. 2018) (holding that the Board may consider non-prior art evidence in considering

the knowledge, motivations, and expectations of a person having ordinary skill in the art regarding the prior art).

Accordingly, we determine that Exhibit 2022 is relevant under Federal Rule of Evidence 401. Petitioner's motion is denied with respect to Exhibit 2022.

2. Exhibit 2023

First, Petitioner moves to exclude Exhibit 2023 as inadmissible hearsay under Federal Rules of Evidence 801 and 802. Paper 39, 2. Petitioner contends that Exhibit 2023 is a review article purporting to summarize the prior decade of developments in relation to electric-acoustic stimulation of the auditory system and constitutes an out-of-court statement offered to prove the truth of the matters asserted. *Id.* Petitioner also contends that Exhibit 2023 summarizes the writings of numerous other authors and, thus, constitutes hearsay within hearsay under Federal Rule of Evidence 805. *Id.* at 3.

Patent Owner argues that Exhibit 2023 should be admitted under the learned treatise exception. Paper 40, 8 (citing Fed. R. Evid. 803 (18)). Patent Owner argues that Exhibit 2023 satisfies the first prong of the exception because Dr. Zeng relies on Exhibit 2023 and satisfies the second prong because Petitioner's own expert testified that Exhibit 2023 is a "reliable authority." *Id.* (citing Ex. 2014 ¶ 134; Ex. 2028 ¶ 7). Petitioner does not rebut these contentions. *See generally* Paper 41. Accordingly, we determine that Petitioner has not met its burden of showing that Exhibit 2023 is not admissible under the learned treatise exception.

Second, Petitioner moves to exclude Exhibit 2023 as not relevant because it postdates the earliest claimed filing date for the '747 patent application of April 2, 2004 and is not prior art. Paper 39, 4. According to

Petitioner, “Exhibit 2023 includes a discussion of activity that the author claims occurred prior to April 2, 2004, as well as activity that occurred well after April 2, 2004. At times, it is hard to determine which activity occurred before or after April 2, 2004.” *Id.* Based on this assertion, Petitioner argues that Exhibit 2023 is not contemporaneous with or prior to April 2, 2004 and, thus, is not relevant for establishing the knowledge of one of ordinary skill in the art at the time of the claimed invention. *Id.* (citing *Stewart-Warner Corp. v. City of Pontiac*, 767 F.2d 1563, 1570 (Fed. Cir. 1985)). Petitioner also argues that Exhibit 2023 is not relevant because the views it expresses about the state of the art prior at the time of the claimed invention may be skewed by the author’s benefit of hindsight not available at the time of the claimed invention and because it only selectively addresses some prior art and not the prior art cited by Petitioner in this proceeding. *Id.* at 5.

In its opposition, Patent Owner argues again that post-filing evidence may be used to show the state of the art existing at the time of filing of the patent-at-issue. Paper 40, 4 (quoting *Afton Chem.*, IPR2017-01321, Paper 47 at 44; citing *Planet Genetic Sys. v. DeKalb Genetics Corp.*, 315 F.3d 1335, 1344 (Fed. Cir. 2003); *Nuevolution A/S v. Chemgene Holdings APS*, IPR2017-01603, Paper 45 at 63 (PTAB Jan. 7, 2019)). Patent Owner also argues that Exhibit 2023 is relevant because it “explains that those skilled in the art did not seek an orchestrated fitting solution until after combined speech processors were introduced in November 2005—*after* the priority of the Challenged Claims.” *Id.* at 5 (citing Ex. 2023, 16).

We agree that, because Patent Owner relies on Exhibit 2023 to show that persons having ordinary skill in the art did not seek an orchestrated fitting solution until after combined speech processors were introduced in November 2005, the exhibit has some tendency to make a fact of

consequence more or less probable than it would have been without the evidence. The fact that Exhibit 2023 was published several years after April 2, 2004 does not diminish this tendency because Patent Owner's argument goes to the state of the art at any time prior to November 2005, which, of course, includes April 2, 2004. *See Planet Genetic Sys.*, 315 F.3d at 1344 (holding that it is proper to use later reports as evidence of the state of the art existing at an earlier time). As for Petitioner's arguments that Exhibit 2023 may be skewed by hindsight and only selectively addresses some prior art, we agree with Patent Owner that these arguments go to the weight of the evidence, not its relevance. *See* Paper 40, 6. In addition, Petitioner's argument that it is not reasonable to infer that its product was not being developed until after April 2004, or that an orchestrated fitting solution was not being sought until after November 2005 (*see* Paper 41, 2–3) also goes to the weight of the evidence, not its relevance. Accordingly, we determine that Exhibit 2023 is relevant under Federal Rule of Evidence 401.

Third, Petitioner moves to exclude Exhibit 2023 as because any probative value it may have would be outweighed by unfair prejudice and a propensity to confuse salient issues. Paper 39, 6 (citing Fed. R. Evid. 403). In support of this assertion, Petitioner contends that is attempting to undercut the pertinence of cited prior art¹⁵ with Mr. von Ilberg's "supposed own, later-held views regarding the state of the art at the time of the claimed invention." *Id.* Petitioner again argues that statements made in Exhibit 2023 "are based upon a selective review of the occasionally unidentifiable works of other authors, and at times, the author's own hindsight influenced

¹⁵ In particular, von Ilberg 1999 and von Ilberg '604, on which Mr. von Ilberg is listed as an author and an inventor, respectively.

recollections many years after Patent Owner’s earliest claimed date of priority.” *Id.* at 7.

In its opposition, Patent Owner argues that “[r]elevant evidence may be excluded . . . when the ‘probative value is *substantially outweighed* by a danger of one or more of the following: unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence.’” Paper 40, 11 (quoting Fed. R. Evid. 403). Patent Owner also argues Petitioner’s assertions that Exhibit 2023 would unfairly prejudice Petitioner by attempting to undercut the pertinence of the cited prior art is simply not true, and the evidence is not unfairly prejudicial just because it may undercut Petitioner’s arguments. *Id.* at 11–12.

We disagree that Exhibit 2023’s statements regarding the state of the art at the time of the claimed invention are confusing or unfairly prejudicial. Accordingly, we are not persuaded that the probative value of Exhibit 2023 is substantially outweighed by a danger of confusing the issues or unfair prejudice in this proceeding. *See* Fed. R. Evid. 403.

For the above reasons, Petitioner’s motion is denied with respect to Exhibit 2023.

3. *Exhibits 2024–2026*

Petitioner moves to exclude Exhibits 2024–2026, which Patent Owner submits as evidence of objective indicia of nonobviousness, as not being relevant because Patent Owner has failed to establish a nexus between these and the claimed invention. Paper 39, 8. Petitioner also makes arguments concerning the sufficiency of Exhibits 2024–2026 with respect to demonstrating nonobviousness. *Id.* at 9–10.

Patent Owner argues that “arguments about a lack of nexus [are] ‘outside the scope of a proper motion to exclude’ and should be in the merits

briefs.” Paper 40, 12 (quoting *Edwards Lifesciences Corp. v. Bos. Sci. Scimed, Inc.*, No. IPR2017-00060, Paper 64 at 12 (PTAB Mar. 23, 2018)). Next, Patent Owner presents several arguments asserting that it has shown a nexus between Exhibits 2024–2026 and the claimed invention. *Id.* at 12–15. Finally, Patent Owner contends that Petitioner’s arguments go beyond whether Exhibits 2024–2026 are relevant and go to the weight of the evidence. *Id.* at 15.

Petitioner replies by first arguing that Patent Owner misrepresents *Edwards Lifesciences* and this case is not applicable here. Paper 41, 3–4. Petitioner then replies to Patent Owner’s contentions regarding a nexus between Exhibits 2024–2026 and the claimed invention. *Id.* at 5–6.

The parties’ primary dispute regarding Exhibits 2024–2026 appears to be whether there is a nexus between the exhibits and the claimed invention. Although not addressing whether Patent Owner misrepresents *Edwards Lifesciences*, we are persuaded that, in this case, whether there is a nexus does not impact the relevance of Exhibits 2024–2026.

Patent Owner relies on Exhibits 2024–2026 in support its arguments that substantial evidence of industry praise and commercial success demonstrates that the challenged claims are nonobvious. *See* PO Resp. 58–60. We find that Exhibits 2024–2026 have some tendency to make Patent Owner’s factual assertions regarding industry praise and commercial success more or less probable than it would have been without the evidence.

Accordingly, we determine that Exhibits 2024–2026 are relevant under Federal Rule of Evidence 401. Petitioner’s motion is denied with respect to Exhibits 2024–2026.

III. CONCLUSION¹⁶

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 3–7	102(b)	Anderson		1, 3–7
1, 2, 4, 5	102(b)	Leysieffer		1, 2, 4, 5
1, 2, 4–7	102(b)	Dooley		1, 2, 4–7
1, 2, 4–7	103(a)	Dooley, von Ilberg 1999	1, 2, 4–7	
1, 2, 4, 5	103(a)	Leysieffer, Harrison		1, 2, 4, 5
8	103(a)	Leysieffer, Harrison, von Ilberg '604		8
Overall Outcome			1, 2, 4–7	3, 8

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 2, and 4–7 of U.S. Patent No. 8,155,747 B2 are determined to be unpatentable;

FURTHER ORDERED that claims 3 and 8 of U.S. Patent No. 8,155,747 B2 are not determined to be unpatentable;

¹⁶ 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 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).

FURTHER ORDERED that Petitioner's Motion to Exclude is *denied*;
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.

IPR2020-00190
Patent 8,155,747 B2

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