

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PLANTRONICS, INC., POLYCOM, INC.,
Petitioner,

v.

KOSS CORPORATION,
Patent Owner.

IPR2022-01504
Patent 10,848,852 B2

Before PATRICK R. SCANLON, DAVID C. McKONE, and
GREGG I. ANDERSON, *Administrative Patent Judges*.

ANDERSON, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4

I. INTRODUCTION

Plantronics, Inc., Polycom, Inc., (collectively “Petitioner”) filed a Petition requesting *inter partes* review of claims 1–20 of U.S. Patent No. 10,848,852 B2 (Ex. 1001, “the ’852 patent”). Paper 2 (“Pet.”). Koss Corporation (“Patent Owner”) waived the filing of a preliminary response. Paper 7 (“Waiver of Preliminary Response”).¹

We have jurisdiction under 35 U.S.C. § 314. Upon considering the record developed thus far, for reasons discussed below, we institute *inter partes* review.

II. BACKGROUND

A. *Real Parties in Interest*

Petitioner states Plantronics, Inc., Polycom, Inc., and HP Inc. are the real parties in interest. Pet. 2. Patent Owner asserts it is the real party in interest. Paper 4, 1.

B. *Related Matters*

Petitioner alleges that “many of the ’852 patent’s dependent claims recite limitations that are either the same or materially identical to limitations” where the Board entered a “Final Written Decision” (“FWD”) or a “Decision on Institution” (“DI”) based on references asserted here. Pet. 11; *see also* Ex. 1011² (*Bose Corp. v. Koss Corp.*, IPR2021-00297, Paper 41 (PTAB May 31, 2022)); Ex. 1012 (*Apple, Inc. v. Koss Corp.*, IPR2021-00381, Paper 43 (PTAB June 27, 2022)); Ex. 1013 (*Apple Inc. v. Koss*

¹ Accordingly, Patent Owner has no stated position on issues discussed below.

² Exhibits 1011–1013 are FWDs. *See also* Pet. 11–12 (listing FWDs). Exhibit 1014 is a DI in the same proceeding as the FWD in Exhibit 1013.

Corp., IPR2021-00305, Paper 47 (PTAB May 31, 2022)); Ex. 1014 (*Apple Inc. v. Koss Corp.*, IPR2021-00305, Paper 14 (PTAB June 3, 2021)).

Patent Owner advises us of a pending district court lawsuit that “may affect, or be affected by, a decision in this proceeding captioned *Koss Corp. v. Plantronics, Inc. et al.*, Case No. 4:21-cv-03854 (N.D. Cal.).” Paper 4, 1. In addition, Patent Owner advises us that the FWDs relative to the patents found unpatentable in Exhibits 1011, 1012, and 1013 are on appeal to the United States Court of Appeals for the Federal Circuit in appeals captioned *Koss Corp. v. Vidal*, Case No. 2022-2091 (Fed. Cir.) (appeal from FWD in Exs. 1012 and 1013) and *Koss Corp. v. Bose Corp.*, Case 2022-2090 (Fed. Cir.) (appeal from FWD in Ex. 1011). *Id.*

C. The ’852 Patent

The application for the ’852 patent claims priority to a provisional application filed on April 7, 2008. Ex. 1001 at code 60; *see also* Pet. 4 n.1 (agreeing that the priority date is the earliest effective filing date “[f]or purposes of this Petition only”). The ’852 patent is a continuation of the ’155 patent we found unpatentable in Exhibit 1011. Ex. 1001, 1:5–13.

1. Background Technology

The ’852 patent describes a cordless, i.e., wireless, earphones which are less “cumbersome and annoying to users.” Ex. 1001, 1:65–2:1. The ’852 patent recognizes proposals exist for “cordless headphones that connect wirelessly via IEEE 802.11 to a WLAN ready laptop or personal computer (PC) . . . but such headphones are also quite large and not in-ear type phones.” *Id.* at 2:9–13.

2. The ’852 Patent’s Wireless Earphones

The ’852 patent describes and claims a wireless earphone with “a transceiver circuit for receiving streaming audio from a data source . . . over

an ad hoc wireless network. When the data source and the earphone are out of range via the ad hoc wireless network, they may transition automatically to a common infrastructure wireless network.” Ex. 1001, 2:17–3:25. The patent defines “ad hoc wireless network” as “a network where two . . . wireless-capable devices, such as the earphone and a data source, communicate directly and wirelessly, without using an access point.” *Id.* Ex. 1001, 3:22–25.

Figure 2A of the ’852 patent is reproduced below.

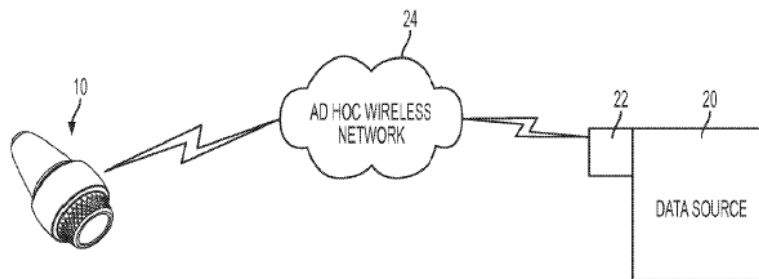


FIG. 2A

Figure 2A illustrates one of the communication modes for the wireless earphone.

Ex. 1001, 2:47–49. Figure 2A illustrates a data source 20 in communication with earphone 10 over ad hoc wireless network 24. *Id.* at 4:26–28. The data source may be a “digital audio player (DAP).” *Id.* at 4:50–51. The DAP transmits audio wirelessly to earphone(s) via an ad hoc network if the DAP and earphone(s) are “in range” of that network. *Id.* at 4:56–57. “When the earphone 10 and the data source 20 are out of range for the ad hoc wireless network 24, that is, when the received signals degrade below the threshold minimum signal strength level, both the earphone 10 and the data source 20 may transition automatically to communicate over an infrastructure wireless

network (such as a wireless LAN (WLAN)) 30 that is in the range of both the earphone 10 and the data source 20.” *Id.* at 5:27–34; *see also* Fig. 2B (ad hoc network replaced by “NETWORK 33”).

D. Illustrative Claim

Claims 1–20 of the ’852 patent are challenged. Pet. 4. Claims 2–20 depend directly or indirectly from claim 1, the only independent claim. All claims are directed generally to a “system” of “wireless headphones.”

Claim 1 is reproduced below as illustrative.

[1.a]³ A system comprising:

[1.b] wireless headphones comprising first and second earphones; and

[1.c] a mobile computer device that is in wireless communication with, and untethered to, the wireless headphones, wherein the mobile computer device is for wirelessly pairing with the wireless headphones such that the wireless headphones play audio content transmitted wirelessly to the wireless headphones from the mobile computer device,

[1.d] wherein the mobile computer device is for wirelessly pairing with the wireless headphones via an ad hoc wireless communication link between the mobile computer device and the wireless headphones, and wherein the ad hoc wireless communication link comprises a Bluetooth wireless communication link; and

[1.e] wherein the mobile computer device comprises a screen that is configured to display a graphical user interface through which a user of the wireless headphones selects an audio control setting for the wireless headphones to be applied to the wireless headphones when the wireless headphones play the

³ Petitioner identifies claim limitations by lower case letters. *See, e.g.*, Pet. 19–20 (limitations 1.a and 1.b).

audio content, and wherein the wireless headphones receive the audio control setting via a wireless data communication link.

Ex. 1001, 18:20–42; Pet. 5.

E. Evidence of Record

This proceeding relies on the following prior art references and expert testimony:

Dua (Ex. 1003), US 2006/0258289 A1, published Nov. 16, 2006;

Rosener (Ex. 1004), US 2008/0076489 A1, published Mar. 27, 2008;

McIntosh (Ex. 1005), US 6,278,786 B1, issued Aug. 21, 2001;

Haupt (Ex. 1007), WO 2006/042749 A2, published Apr. 27, 2006

(English translation and German original);

Price (Ex. 1008), US 2006/0026304 A1, published Feb. 2, 2006;

Paulson (Ex. 1009), US 7,551,940 B2, issued June 23, 2009;

Nakagawa (Ex. 1010), US 2003/0223604 A1, published Dec. 4, 2003;

Huddart (Ex. 1006), US 7,627,289 B2, issued Dec. 1, 2009; and

Petitioner also relies on the Declaration of Chris Kyriakakis, Ph.D., (“Kyriakakis Declaration,” Ex. 1002).

F. Prior Art and Asserted Grounds

Petitioner challenges claims 1–20 of the ’852 patent on the following grounds (Pet. 4, 14–70):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 6–10, 14, 15, 17, 18, 20	103	Dua, Rosener
2–5	103	Dua, Rosener, McIntosh
11	103	Dua, Rosener, Haupt
12	103	Dua, Rosener, Price
13	103	Dua, Rosener, Paulson
16	103	Dua, Rosener, Nakagawa
19	103	Dua, Rosener, Huddart

III. PATENTABILITY ANALYSIS

Petitioner anticipates issues relating to our discretion not to institute trial. *See* 35 U.S.C. § 314(a) (authorizing institution of a trial under particular circumstances, but not requiring institution under any circumstances); 37 C.F.R. § 42.208(a) (stating “the Board will authorize the review to proceed”) (emphasis added); *cf. Cuozzo Speed Techs., LLC v. Lee*, 579 U.S. 261, 273 (2016) (“[T]he agency’s decision to deny a petition is a matter committed to the Patent Office’s discretion.”); *Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (explaining that under § 314(a), “the PTO is permitted, but never compelled, to institute an [*inter partes* review] proceeding”).

Petitioner anticipates potential discretionary denial issues under 35 U.S.C. §§ 314(a) and 325(d). Pet. 70–73. On this record, we do not exercise our discretion to deny institution.

A. Legal Standard for Obviousness

A patent claim is invalid as obvious if the differences between the claimed subject matter and the prior art are “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a).

The ultimate determination of obviousness is a question of law, but that determination is based on underlying factual findings. . . . The underlying factual findings include (1) “the scope and content of the prior art,” (2) “differences between the prior art and the claims at issue,” (3) “the level of ordinary skill in the pertinent art,” and (4) the presence of secondary considerations of nonobviousness such “as commercial success,

long felt but unsolved needs, failure of others,” and unexpected results.

In re Nuvasive, Inc., 842 F.3d 1376, 1381 (Fed. Cir. 2016) (citing *inter alia* *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966)).

“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Furthermore, in assessing the prior art, the Board must consider whether a person of ordinary skill would have been motivated to combine the prior art to achieve the claimed invention. *Nuvasive*, 842 F.3d at 1381.

As the Federal Circuit found, in quoting from the Supreme Court’s decision in *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–419 (2007),

“because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known,” “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.”

Personal Web Techs., LLC v. Apple, Inc., 848 F.3d 987, 991–92 (Fed. Cir. 2017).

B. Level of Ordinary Skill in the Art

Relying on the Kyriakakis Declaration Petitioner alleges a person having ordinary skill in the art “would have had at least a bachelor’s degree in in an academic area emphasizing electrical engineering, computer science, or a similar discipline, and at least two years of experience in wireless

communications across short-distance or local-area networks.” Pet. 10–11 (citing Ex. 1002 ¶ 23).

On this record, we adopt Petitioner’s proposal because we are satisfied that it comports with the level of skill necessary to understand and implement the teachings of the ’852 patent.

C. Claim Construction

For petitions filed on or after November 13, 2018, a claim 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), including 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. 37 C.F.R. § 42.100 (2019). The Petition was accorded a filing date of September 30, 2022. Paper 3. Thus, we apply the claim construction standard as set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

Petitioner, asserts construction is unnecessary and does not propose any term for construction. Pet. 11 (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”)).

On this record, no disputed term is identified. We preliminarily determine that no term requires construction to resolve this dispute. *See Vivid Techs.*, 200 F.3d at 803. Accordingly, we proceed on the plain and ordinary meaning of the claim terms to a person of ordinary skill in the art.

D. Obviousness of 1, 6–10, 14, 15, 17, 18, and 20 over Dua and Rosener

Petitioner alleges claims 1, 6–10, 14, 15, 17, 18, and 20 would have been obvious over Dua and Rosener. Pet. 4, 14–42. Petitioner also relies on the Kyriakakis Declaration. Ex. 1002 ¶¶ 73–135.

1. Dua (Ex. 1003)

Dua describes a “wireless media system” that “includes a handheld media player (source device) capable of transmitting and receiving information over a wireless connection with other electronic devices (target devices).” Ex. 1003 ¶ 14. Dua also describes “a method of transmitting media to a target device for viewing or listening, and using controls on the media player, or software operating therein, to alter the viewing/listening experience on the target device.” *Id.* ¶ 19. In one embodiment, “media player 100 includes a display screen and related circuitry 102 for displaying a graphical user interface that allows the user to interact with the device.” *Id.* ¶ 61.

Various components support the media player’s “wireless connectivity with external devices,” including over “Bluetooth.” Ex. 1003 ¶ 62. Dua’s “media player is particularly well suited to interface with wireless sound output devices such as wireless headphone unit 152.” *Id.* ¶ 74. The media player “may be a Bluetooth-enabled device” with various components. *Id.* ¶ 116. Wireless headphones connect to the “media player” and “can stream all audio output via wireless signal 353 to the headphone unit 152.” *Id.* ¶ 123, Fig. 5 (wireless signal 353, media player 100, headphone unit 152).

2. Rosener (Ex. 1004)

Rosener relates to wireless communication between an external data or audio device, like a cell phone or PDA, MP3, or CD player, radio

personal computer or game console, and first and second earphones.

Ex. 1004 ¶¶ 1, 30. Rosener explains that conventional wireless earphones came in different designs, each with “its own unique benefits and drawbacks.” *Id.* ¶¶ 5–10, Figs. 2–4. Rosener focuses on wireless “earbuds.” *Id.* at Abs., ¶¶ 11, 30, Fig. 5. Each earbud includes a “transceiver” “configured to receive data signals over one or more single-access wireless links or over a multi-access wireless link.” *Id.* ¶ 11.

Each earbud also contains a speaker, an RF receiver or transceiver, and a battery. Ex. 1004 ¶ 30. Each of the first and second earphones “is operable to communicate with one or more external data or audio data devices . . . over one or more wireless links.” *Id.* The first and second earphones may be in the form of an earbud “designed to fit into the concha of the pinna of the user’s ear” and may “include a clip, earloop, or other suitable securing mechanism.” *Id.* The first and second earphones may be coupled to “a second data or audio data source such as, for example, a sensor or a microphone for capturing sound waves” generated by the user’s voice. *Id.* The earbuds and data source may use Bluetooth to communicate wirelessly with data sources. *Id.* ¶ 35.

3. Claim 1

Claim 1 is an independent system claim illustrative of the claimed subject matter. *See* Section II.D above.

The rationale for the combination is straightforward. For the following reasons, we are persuaded that Petitioner has shown sufficiently that a person of ordinary skill in the art would have had reason to combine Rosener’s earbuds with Dua’s headset.

Petitioner cites the fact that both Dua and Rosener are Bluetooth enabled earphones. *See* Pet. 17 (citing Ex. 1003 ¶ 116, Fig. 5; Ex. 1004

¶ 30). Petitioner further cites several reasons why a person of ordinary skill in the art would have been motivated to make the combination, including that earbuds avoid the need for a physical connection to a headband. *Id.* at 17–18 (citing Ex. 1004 ¶ 6; Ex. 1002 ¶ 75). Petitioner cites additional motivation based on using a microphone to establish two-way communication for “convenient, hands-free control of Dua’s media player using voice commands, or alternatively for transmitting audio picked up by the microphone over a phone call or to other users.” *Id.* at 18 (citing Ex. 1002 ¶ 76). Petitioner’s asserts the combination would have a reasonable expectation of success because Dua’s system-on-chip electronics would “provide the same functionalities” in each of Rosener’s wireless earbuds. *Id.* at 18–19 (citing Ex. 1003 ¶¶ 116–17; Ex. 1002 ¶¶ 77, 78).

We next turn to Petitioner’s showing regarding claim 1. The ’852 patent’s preamble, 1.a, recites “[a] system comprising.” To the extent the preamble may be a limitation, Petitioner alleges Dua’s teaching of a “wireless media system” comprising, among other components, “a handheld media player.” Pet. 19 (citing Ex. 1003 ¶ 14; Ex. 1002 ¶ 81).

Limitation 1.b recites “wireless headphones comprising first and second earphones.” Petitioner cites to Figure 5 of Dua, element 152 illustrating two earphones. Petitioner’s annotation of Figure 5 is reproduced below.

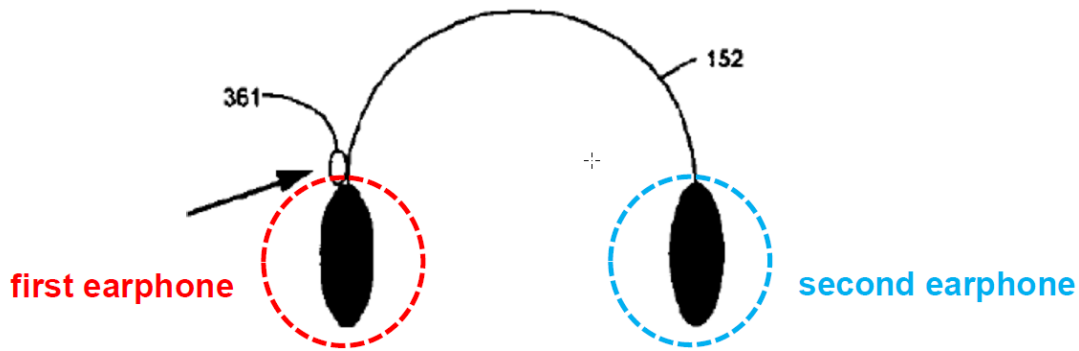


Figure 5 of Dua is an annotation of a headphone part of a wireless headphone unit.

Ex. 1003 ¶ 34 (Fig. 5 described); Pet. 20 (annotation). Alternatively, Petitioner cites Rosener disclosing wireless earphones that have “no physical or electrical connection therebetween” and “comprise audio data sinks, e.g., left-ear and right-ear earphones.” Pet. 21 (quoting Ex. 1004 ¶ 11).

Limitation 1.c recites

a mobile computer device that is in wireless communication with, and untethered to, the wireless headphones, wherein the mobile computer device is for wirelessly pairing with the wireless headphones such that the wireless headphones play audio content transmitted wirelessly to the wireless headphones from the mobile computer device.

Petitioner argues that the “handheld media player” of Dua that is “generally portable” and “hand sized” would be understood by a person of ordinary skill in the art to be “mobile.” Pet. 22 (citing Ex. 1003 ¶¶ 14, 57, 58; Ex. 1002 ¶ 86). Further, Petitioner asserts the “media player” is a “computer device” in that it includes a central processing unit (CPU) and a media manager to “execute[] instructions under the control of an operating system or other software (e.g., media manager).” *Id.* (citing Ex. 1003 ¶¶ 59–60).

Dua’s “media” player is “capable of transmitting and receiving information over a wireless connection with other electronic devices.” Ex.

1003 ¶ 14. The “media player is particularly well suited to interface with wireless sound output devices such as wireless headphone unit 152.” *Id.*

¶ 74. Dua also describes “the automatic setup and establishment of a secure wireless connection between the devices in order to allow audio signals to be transmitted over-the-air from media player 100 to headphone unit 152.” *Id.* ¶ 115.

Petitioner argues all the above disclosures in support of its position and concludes the wireless connection allows a user to “listen to music . . . without the need for a wired connection to some other electronic device.” Pet. 22–23 (citing Ex. 1003 ¶¶ 6, 57). According to Petitioner, and relying on the preceding disclosures, Dua teaches limitation 1.c to a person of ordinary skill in the art. *Id.* at 23 (citing Ex. 1002 ¶ 89).

Limitation 1.d recites

wherein the mobile computer device is for wirelessly pairing with the wireless headphones via an ad hoc wireless communication link between the mobile computer device and the wireless headphones, and wherein the ad hoc wireless communication link comprises a Bluetooth wireless communication link.

Petitioner notes that the ’852 patent defines “an ‘ad hoc wireless network’ [a]s a network where two (or more) wireless-capable devices, such as the earphone and a data source, communicate directly and wirelessly, without using an access point.” Pet. 23 (quoting Ex. 1001, 3:22–25). Petitioner refers to its showings above regarding the wireless connection between Dua’s “media player” and the “wireless headphone unit” for part of the support for showing limitation 1.d. *Id.* at 23–24 (citing Ex. 1003 ¶¶ 74, 123, Fig. 5; Ex. 1002 ¶ 91).

Dua's media player's supported communications protocols include "Bluetooth," which allows it to interface directly with wireless headphone unit 152 that is "a Bluetooth-enabled device." Ex. 1003 ¶¶ 62, 116. Citing the preceding, Petitioner argues "wireless headphone unit 152 comprises a 'System-on-Chip 361 assembly [that] includes a Bluetooth sequencer 364, a low power 2.4 GHz Bluetooth radio 363, Bluetooth antenna 363.'" Pet. 24 (citing Ex. 1003 ¶ 117).

Limitation 1.e recites

wherein the mobile computer device comprises a screen that is configured to display a graphical user interface through which a user of the wireless headphones selects an audio control setting for the wireless headphones to be applied to the wireless headphones when the wireless headphones play the audio content, and wherein the wireless headphones receive the audio control setting via a wireless data communication link.

Dua's media player 100 includes a "display screen 102 . . . for displaying a graphical user interface that allows the user to interact with the device." Ex. 1003 ¶ 61. "The display screen 102 supports 'touch-screen' data input using a stylus or other object." *Id.* Petitioner cites the preceding relative to limitation 1.e. Pet. 23–24. Petitioner also points to Dua as disclosing "using controls on the media player, or software operating therein, to alter the viewing/listening experience on the target device." *Id.* at 25 (citing Ex. 1003 ¶ 19). Petitioner cites other audio controls, like "stop," "skip back," "rewind," "fast forward," and "skip forward," disclosed in Dua. *Id.* at 26 (citing Ex. 1003 ¶ 79).

Relying on the Kyriakakis Declaration, Petitioner concludes

Thus, a POSA would understand that Dua's media player comprises a screen that is configured to display a graphical user interface through which a user of the wireless headphones

selects an audio control setting for the wireless headphones to be applied to the wireless headphones when the wireless headphones play the audio content, and wherein the wireless headphones receive the audio control setting via a wireless data communication link.

Id. (citing Ex. 1002 ¶ 96).

On this record, Petitioner has sufficiently shown that the combination of Dua and Rosener teaches all the limitations of claim 1.

4. Claims 6–10, 14, 15, 17, 18, 20

As is the case with all remaining claims and the challenges to them, having determined that there is a reasonable likelihood that Petitioner will succeed on a single claim, review of all claims is justified. *See* Section III.D.3 above (reasonable likelihood that claim 1 is unpatentable); *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1356 (2018); 37 C.F.R. § 42.108(a).

Claims 6–10, 14, 15, 17, 18, and 20 all depend directly or indirectly from claim 1. We have reviewed Petitioner’s showing with respect to claims 6–10, 14, 15, 17, 18, and 20. Pet. 27–42. We have also reviewed the evidence from the Kyriakakis Declaration. *See* Ex. 1002 ¶¶ 98–135.

On this record, Petitioner has sufficiently shown that the combination of Dua and Rosener teaches the limitations of claims 6–10, 14, 15, 17, 18, and 20.

5. Conclusion

Petitioner has shown a reasonable likelihood that claims 1, 6–10, 14, 15, 17, 18, and 20 would have been obvious over the combination of Dua and Rosener.

E. Obviousness of Claims 2–5 over Dua, Rosener, and McIntosh

Petitioner alleges claims 2–5 would have been obvious over Dua, Rosener, and McIntosh. Pet. 4, 42–45. Petitioner also relies on the Kyriakakis Declaration. Ex. 1002 ¶¶ 136–142.

1. Dua (Ex. 1003)

Dua was described in Section III.D.1 above.

2. Rosener (Ex. 1004)

Rosener was described in Section III.D.2 above.

3. McIntosh (Ex. 1005)

McIntosh discloses “[a]n active noise cancellation aircraft headset system.” Ex. 1005, Abs. McIntosh discusses the use of a “[d]igital signal processor (DSP).” *Id.* at 1:61. McIntosh explains that an “advantage of employing a DSP in the headset system of the invention is the ease with which other signal processing features may be utilized.” *Id.* at 5:50–53. “In a preferred embodiment, the DSP stores, in software, a series of menu items which the pilot can activate by pressing the ‘menu’ button 41.” *Id.* at 5:57–59. Menu items include an automatic power off that turns the unit off after a set period of time without significant noise; selecting bass or treble boost; and “selecting between a preset frequency response curve optimized for voice intelligibility and a preset frequency response curve optimized for music listening.” *Id.* at 5:62–6:6.

4. Claims 2–5

Claims 2–5 depend from claim 1. Claim 2 recites that “the audio control setting” comprises “a treble setting.” Claim 3 adds “a bass setting.” Claim 4 adds “a frequency setting.” Claim 5 adds “a noise cancellation setting.” Petitioner’s showing is based on McIntosh. Pet. 44–45 (citing

Ex. 1005, 5:62–6:6; Ex. 1002 ¶ 141). Petitioner alleges motivation for the combination is expressed in McIntosh’s discussion that an “advantage of employing a DSP in [a] headset system . . . is the ease with which other signal processing features may be utilized.” Pet. 43 (citing Ex. 1005, 5:50–52).

We find Petitioner has sufficiently shown that the combination of Dua, Rosener, and McIntosh teaches the limitations of claims 2–5. Petitioner has shown a reasonable likelihood that claims 2–5 would have been obvious over the combination of Dua, Rosener, and McIntosh.

F. Obviousness of Claim 11 over Dua, Rosener, and Haupt

Petitioner alleges claim 11 would have been obvious over Dua, Rosener, and Haupt. Pet. 4, 45–49. Petitioner also relies on the Kyriakakis Declaration. Ex. 1002 ¶¶ 143–150.

1. Dua (Ex. 1003)

Dua was described in Section III.D.1 above.

2. Rosener (Ex. 1004)

Rosener was described in Section III.D.2 above.

3. Haupt (Ex. 1007)

Haupt discloses “WLAN headphones” that wirelessly receive data from a “server and/or server service,” which involves “establishing a connection between the headphones or receiver and a server and/or server service that supports the client functionalities.” Ex. 1007, 2. When the headphones are within transmission range of an access point, a connection is made to the server through the access point, allowing the headphones to receive data from the server wirelessly. *Id.* Wireless connectivity between the headphones and server enables access to audio data without the necessity of “a data medium to physically possess” the data. *Id.* at 3. Haupt discloses

that “[a] connection to a server on which the data that are to be transferred are located is initiated by actuating control buttons on the wireless headphones” *Id.* at 11. These control buttons enable a user to “access a network server in the WLAN network . . . and retrieve data.” *Id.* at 21.

4. Claim 11

Claim 11 depends from claim 9 and recites
wherein the processor circuit of the first earphone is configured to:

upon activation of a user-control of the wireless headphones,
initiate transmission of a request to a remote network server that
is in wireless communication with the mobile computer device;
and receive a response to the request.

Petitioner cites to Dua for its “processor circuit” where the user can select content. Pet. 46 (citing Pet. 32 (citing Ex. 1003 ¶¶ 117–118, 175, 177; Ex. 1002 ¶¶ 111)). Haupt is relied on to show a “connection to a server on which data that are to be transferred are located is initiated by actuating control buttons on the wireless headphones.” *Id.* at 47 (citing Ex. 1007, 11; Ex. 1002 ¶ 148). Motivation for the combination is that using Haupt’s method would “allow a user to make requests to a remote network server (e.g., skipping to the next song in a streaming playlist) more directly and conveniently.” *Id.* at 48 (citing Ex. 1002 ¶ 49).

We find Petitioner has sufficiently shown that the combination of Dua, Rosener, and Haupt teaches the limitations of claim 11. Petitioner has shown a reasonable likelihood that claim 11 would have been obvious over the combination of Dua, Rosener, and Haupt.

G. Obviousness of Claim 12 over Dua, Rosener, and Price

Petitioner alleges claim 12 would have been obvious over Dua, Rosener, and Price. Pet. 4, 49–54. Petitioner also relies on the Kyriakakis Declaration. Ex. 1002 ¶¶ 151–158.

1. Dua (Ex. 1003)

Dua was described in Section III.D.1 above.

2. Rosener (Ex. 1004)

Rosener was described in Section III.D.2 above.

3. Price (Ex. 1008)

Price discloses “a system and method to enable a user-controlled proxy system or coordinating computer to automatically or semi-automatically communicate with multiple devices . . . and automatically or semi-automatically upgrade each device with updated software without requiring user intervention.” Ex. 1008 ¶ 7. Price’s system updates “firmware typically stored in an [electrically erasable programmable read-only memory]” (“EEPROM”). *Id.* ¶¶ 29, 5. The connection for updating firmware in Price’s system “may be wired or wireless,” including via “Bluetooth or 802.11 wireless.” *Id.* ¶ 29. Price discloses that digital audio devices, such as “MP3 and video media players,” are among the devices that can benefit from firmware updates. *Id.*

In one embodiment, “software code for updating the software in the electronic devices is delivered from the data store 22, to the network 18, and then to the coordinating computer 12 . . . via direct wireless communication 34 from the network 18.” *Id.* ¶ 38. The received code is then “processed by the computer 12 for delivery to the electronic devices.” *Id.* ¶ 39.

4. Claim 12

Claim 12 depends from claim 9 and recites wherein:

the first earphone comprises a first memory for storing firmware to be executed by the processor circuit of the first earphone;

the second earphone comprises a second memory for storing firmware to be executed by the processor circuit of the second earphone; and

the first and second memories are configured to store firmware upgrades transmitted wirelessly to the wireless headphones.

Petitioner alleges a person of ordinary skill in the art “would understand that the first and second earphones of Dua-Rosener comprise a first and second memory, respectively, for storing firmware to be executed by the processor circuit of each earphone—e.g., EEPROM/Serial Flash Memory 379, which stores applications executed by the application processor.” Pet. 51 (citing Ex. 1002 ¶ 152). Relying on the Kyriakakis Declaration, Petitioner alleges storing firmware upgrades would have been obvious in view of Price. *Id.* at 52 (citing Ex. 1002 ¶¶ 154; Ex. 1008 ¶ 29). On this record, we find the basis for this opinion is sufficient for institution. *See Xerox Corp. et al. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (PTAB Aug. 24, 2022) (precedential).

We find Petitioner has sufficiently shown that the combination of Dua, Rosener, and Price teaches the limitations of claim 12. Petitioner has shown a reasonable likelihood that claim 12 would have been obvious over the combination of Dua, Rosener, and Price.

H. Obviousness of Claim 13 over Dua, Rosener, and Paulson

Petitioner alleges claim 13 would have been obvious over Dua, Rosener, and Paulson. Pet. 4, 54–60. Petitioner also relies on the Kyriakakis Declaration. Ex. 1002 ¶¶ 159–167.

1. Dua (Ex. 1003)

Dua was described in Section III.D.1 above.

2. Rosener (Ex. 1004)

Rosener was described in Section III.D.2 above.

3. Paulson (Ex. 1009)

Paulson describes embodiments with “a microphone for transducing speech of the user into a second electrical signal, a switch for canceling the second electrical signal,” and/or “a switch supporting a push-to-talk mode of operation.” Ex. 1009, 2:59–66. Paulson discloses an “earphone assembly” including a housing with attached ear tip 150 for “insertion within the ear canal of the user,” a microphone 130, and button 115 to “mute the audio signal from microphone 130.” *Id.* at 5:4–12, Fig. 1B.

4. Claim 13

Claim 13 depends from claim 9 and recites
wherein the processor circuit of the first earphone is for:

processing audible utterances by the user picked up by the microphone of the first earphone in response to activation of the microphone of the first earphone by the user; and

transmitting a wireless communication from the wireless headphones based on the audible utterances.

Petitioner relies on Dua and Rosener to teach a “first wireless earphone is for processing audible utterances by the user picked up by the microphone of the first earphone (i.e., data source 1312 in Rosener) in response to activation of the microphone of the first earphone by the user.” Pet. 57–58 (citing Ex. 1004 ¶¶ 11, 30, 50, 56, Fig. 13; Ex. 1002 ¶¶ 160–162). Paulson is relied on to teach a button to mute the microphone and to

toggle between muted sound and allowing signals to be carried from the microphone. *Id.* at 59 (citing Ex. 1009, 5:1–12, 6:17–49). Motivation for adding Paulson to the combination is based on reducing noise. *Id.* at 59 (citing Ex. 1002 ¶¶ 165–166).

We find Petitioner has sufficiently shown that the combination of Dua, Rosener, and Paulson teaches the limitations of claim 13. Petitioner has shown a reasonable likelihood that claim 13 would have been obvious over the combination of Dua, Rosener, and Paulson.

I. Obviousness of Claim 16 over Dua, Rosener, and Nakagawa

Petitioner alleges claim 16 would have been obvious over Dua, Rosener, and Nakagawa. Pet. 4, 60–67. Petitioner also relies on the Kyriakakis Declaration. Ex 1002 ¶¶ 168–177.

1. Dua (Ex. 1003)

Dua was described in Section III.D.1 above.

2. Rosener (Ex. 1004)

Rosener was described in Section III.D.2 above.

3. Nakagawa (Ex. 1010)

Nakagawa includes a wireless audio output apparatus 11, illustrated in Figure 1, which is reproduced below.

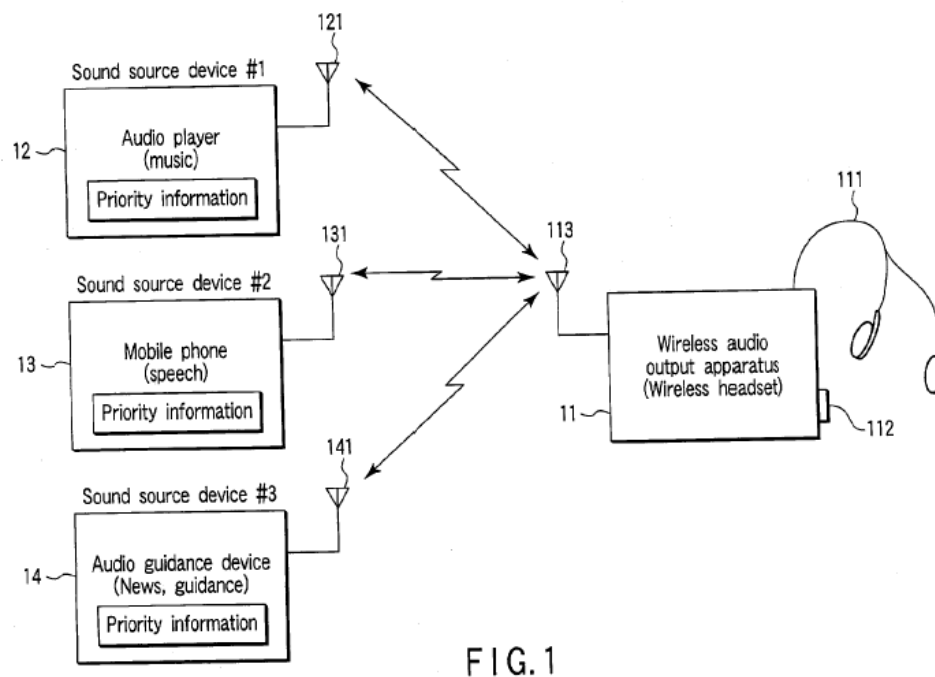


FIG. 1

Figure 1 is a diagram showing sound source devices connected by radio to an audio output apparatus, for example a wireless headset.

Ex. 1010 ¶¶ 15, 25. As shown in Figure 1, the audio output apparatus 11 receives audio data via a radio signal and generates sound that is output via a speaker or headphone 11. *Id.* ¶¶ 24–25. Sound source devices “are wireless audio transmitters that can transmit audio data representing speech, music and the like, in the form of radio signals,” which signals can be in accord with the Bluetooth™ standard. *Id.* ¶¶ 26–27. Still referring to Figure 1, Nakagawa identifies three sound source devices: a portable audio player like a CD (Compact Disc) 12; a mobile phone 13; and an audio guidance device 14. *Id.* ¶¶ 27–31, Fig. 1.

Regarding the audio player 12 and the mobile phone 13, the user can assign a priority levels to each sound source device. Ex. 1010 ¶ 38. For example, if a higher priority level is given to the phone and the user is listening to the audio player, upon receiving a call, the user is “automatically

switched” by the audio output apparatus to the phone. *Id.* ¶ 39. Ending the call, and thus disconnecting the phone from the audio output device, the audio player or second sound source device is “automatically selected” again. *Id.* ¶ 42.

Similarly, if the third sound source device, the audio guidance device 14, is connected to the audio output apparatus 11, it may be given the “highest priority” among the three devices. Ex. 1010 ¶ 45. In this situation, the wireless output device is “automatically switched from the sound source device 12 or 13 to the sound source device 14” when “the headphone 111 is generating sound from the audio data transmitted from the sound source device 12 or 13.” *Id.*

Figure 3 of Nakagawa is reproduced below.

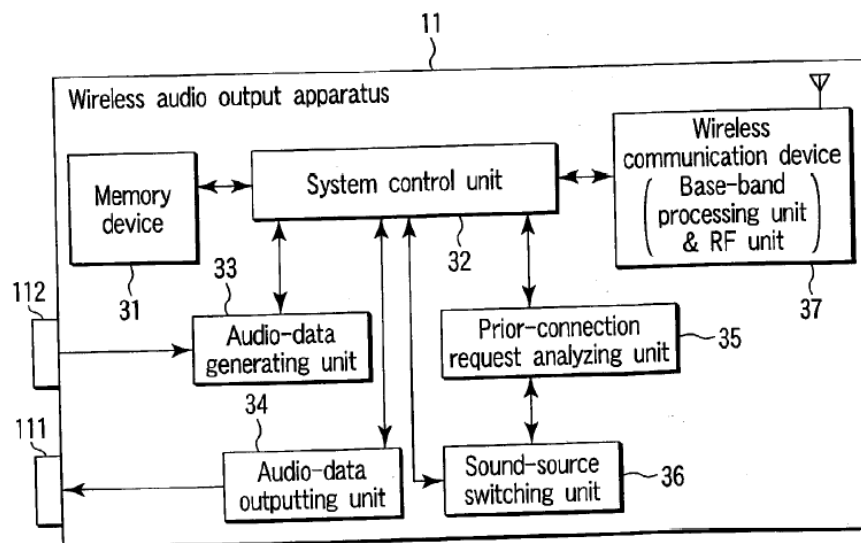


FIG. 3

Figure 3 is a block diagram of the audio output apparatus of Figure 1. Ex. 1010 ¶¶ 17, 52. A microphone 112 is part of the mobile phone of the second sound source device and transmits speech input to a mobile phone

network. *Id.* ¶ 30. The audio output apparatus 11 includes a control unit 32, which is a processor that controls other components. *Id.* ¶ 54, Fig. 3. As shown in Figure 3, the control unit 32 “executes the programs stored in the memory device 31 to control the audio-data generating unit 33, audio data-outputting unit 34, prior-connection request analyzing unit 35, sound-source switching unit 36, and wireless communication device 37.” *Id.*

The sound-source switching unit 36 determines from which sound-source device the headset “should acquire audio data.” Ex. 1010 ¶ 58. When a sound-source device is triggered to send audio data to the headset, the device “transmits a wireless-connection request to the” headset and “starts a procedure to establish” a wireless connection with the headset. *Id.* ¶ 61. For example, the mobile phone, the second sound-source device 14, “is triggered when it receives a call from . . . the mobile phone network.” *Id.* ¶ 62. The sound-source device “generates a priority-level notifying command” indicating the device’s “priority level.” *Id.* ¶ 63. As discussed above, the “sound source is automatically switched in accordance with the priority levels.” *Id.* ¶ 72.

4. Claim 16

Claim 16 depends from claim 9 and recites

wherein the processor circuits of both the first and second earphones are configure[d] to, in response to detecting an incoming wireless communication to the wireless headphones:

mute the audio content streamed wirelessly to the wireless headphones being played by the earphone; and

output audio of the incoming wireless communication via the acoustic transducer of the earphone.

Petitioner relies on Nakagawa’s teaching that upon receipt of a call a mobile phone is “triggered” and “transmits a wireless-connection request to the audio output apparatus 11,” i.e., the wireless headphones, and “performs the procedure of establishing wireless connection . . . between it and the audio output apparatus 11.” Pet. 65 (citing Ex. 1010 ¶ 37). Petitioner alleges Nakagawa’s muting occurs because the audio source is ““disconnected from the wireless audio output apparatus 11 [i.e., wireless headphones] immediately after the sound source is switched from the sound source device 12 [i.e., audio player] to the sound source device 13 [i.e., mobile phone],’ such that any audio data from the portable audio player ‘will not output.’” Pet. 65–66 (citing Ex. 1010 ¶ 40; Ex. 1002 ¶ 175). The rationale for the combination is that a person of ordinary skill in the art would understand that detection and response to a mobile phone call would be followed by a request for a wireless connection to the earphones. *Id.* at 65 (citing Ex. 1010 ¶ 37; Ex. 1002 ¶ 174).

We find Petitioner has sufficiently shown that the combination of Dua, Rosener, and Nakagawa teaches the limitations of claim 16. Petitioner has shown a reasonable likelihood that claim 16 would have been obvious over the combination of Dua, Rosener, and Nakagawa.

J. Obviousness of Claim 19 over Dua, Rosener, and Huddart

Petitioner alleges claim 19 would have been obvious over Dua, Rosener, and Huddart. Pet. 4, 67–69. Petitioner also relies on the Kyriakakis Declaration. Ex 1002 ¶¶ 178–181.

1. Dua (Ex. 1003)

Dua was described in Section III.D.1 above.

2. Rosener (Ex. 1004)

Rosener was described in Section III.D.2 above.

3. *Huddart (Ex. 1006)*

Huddart’s wireless stereo headset system “may be utilized in conjunction with a variety of electronic devices, including cell phones, PDAs, and MP3 or other digital format players.” Ex. 1006, 2:18–20. Huddart’s headset and wireless earbud have “wireless communication functionality to form a wireless communication link 18.” *Id.* at 3:8–10, Fig. 1 (headset 4, earbud 6). Both the headset and wireless earbud may be Bluetooth-enabled devices. *Id.* 2:30–32, 3:58–60.

Huddart explains that “[t]he headset system may further include a charger/carrier, such as a pocket charger, including a small plastic storage case for storing the headset 4 and wireless earbud 6 for protection and charging.” Ex. 1006, 8:25–28. “The primary charger may be a cable or docking facility connecting the pocket charger/carrier to a wall outlet or primary battery such as a car battery, allowing the headset battery, wireless earbud battery, and the storage case battery to be charged using the wall outlet or primary battery.” *Id.* at 8:52–57.

4. *Claim 19*

Claim 19 depends from claim 1 and recites “further comprises a docking station for charging a rechargeable battery of the first earphone.” Petitioner argues “Huddart expressly teaches both ‘a small plastic storage case . . . for protection and charging’ and a ‘docking facility . . . allowing the headset battery, wireless earbud battery, and the storage case battery to be charged using the wall outlet or primary battery.’” Pet. 68 (citing Ex. 1006, 8:25–28, 8:52–57; Ex. 1002 ¶ 180).

We find Petitioner has sufficiently shown that the combination of Dua, Rosener, and Huddart teaches the limitations of claim 19. Petitioner

has shown a reasonable likelihood that claim 19 would have been obvious over the combination of Dua, Rosener, and Huddart.

K. Collateral Estoppel

Petitioner also alleges “Patent Owner is collaterally estopped from disputing that the[] references disclose the teachings that the Board found them to teach in prior proceedings.” Pet. 11–12 (citing Exs. 1011, 1012, 1013). Because we find the showing without application of collateral estoppel is sufficient, we do not reach the collateral estoppel arguments. However, we do note that, unlike *MaxLinear, Inc. v. CF CRESPE LLC*, 880 F.3d 1373, 1376 (Fed. Cir. 2018), which Petitioner relies on, this case involves different patents. Also, different parties and different prior art combinations are asserted. *See* Pet. 11–13. We question, but do not decide, how collateral estoppel applies here and leave the issue, if it becomes relevant, to trial.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that *inter partes* review is *instituted* with respect to all claims and all grounds of unpatentability raised in the Petition;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the ’852 patent is hereby instituted commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; and

FURTHER ORDERED that within ten (10) days of any significant developments in the parallel district court proceedings (Section II.B above), including but not limited to claim interpretation developments the parties shall file a joint report detailing any such development.

IPR2022-01504
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