

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD, and
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

STATON TECHIYA, LLC,
Patent Owner.

IPR2022-01106
Patent 11,039,259 B2

Before NATHAN A. ENGELS, SCOTT B. HOWARD, and
RUSSELL E. CASS, *Administrative Patent Judges*.

CASS, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background

In this *inter partes* review, Samsung Electronics Co., Ltd, and Samsung Electronics America, Inc. (“Petitioner”) challenge the patentability of claims 1–6, 11, 12, 15, and 16 (the “challenged claims”) of U.S. Patent No. 11,039,259 B2 (Ex. 1001, “the ’259 patent”), which is assigned to Staton Techiya, LLC (“Patent Owner”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision, issued pursuant to 35 U.S.C. § 318(a), addresses issues and arguments raised during the trial in this *inter partes* review. For the reasons discussed below, Petitioner has proven by a preponderance of the evidence that claims 1–6, 11, 12, 15, and 16 are unpatentable.

B. Procedural History

In this proceeding, Petitioner relies upon the following references:

Couper, US 9,135,797 B2, issued September 15, 2015
(Ex. 1008, “Couper”);

Lemelson, US 6,028,514, issued February 22, 2000
(Ex. 1009, “Lemelson”);

Jones, US 8,018,337 B2, issued September 13, 2011
(Ex. 1010, “Jones”);

Lagassey, US 2006/0092043 A1, published May 4, 2006
(Ex. 1011, “Lagassey”);

White, US 6,408,272 B1, issued June 18, 2002
(Ex. 1012, “White”);

Soufflet, US 2005/0102142 A1, published May 12, 2005
(Ex. 1013, “Soufflet”);

Comerford, US 2007/0043563 A1, published February 22, 2007 (Ex. 1014, “Comerford”).

Petition (Paper 3, “Pet.”) v. 2. Petitioner submits the Declaration of Dr. Les Atlas. (Ex. 1002). Patent Owner submits declarations from David Kleinschmidt (Exs. 2001, 2018).

Petitioner challenges the patentability of claims 1–6, 11, 12, 15, and 16 of the ’259 patent based on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–4, 6, 11, 12	103(a)	Couper, Lemelson
5	103(a)	Couper, Lemelson, Jones
5	103(a)	Couper, Lemelson, Jones, Lagassey
1, 5, 12, 15, 16	103(a)	White, Soufflet, Comerford

Pet. 2. Prior to institution, Patent Owner filed a Preliminary Response (Paper 7) and, with our permission, Petitioner filed a Preliminary Reply (Paper 8, “Prelim. Reply”) and Patent Owner filed a Preliminary Sur-reply (Paper 9). During the trial, Patent Owner filed a Response (Paper 17, “PO Resp.”), Petitioner filed a Reply (Paper 21, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 23, “PO Sur-reply”).

An oral hearing was held on March 23, 2023, a transcript of which appears in the record. Paper 31 (“Tr.”).

C. Real Parties in Interest

Petitioner states that the real parties in interest are Samsung Electronics Co., Ltd, and Samsung Electronics America, Inc. Pet. 1, 76. Patent Owner states that Staton Techiya, LLC and Synergy IP Corporation are the real parties in interest. Paper 5, 1 (Patent Owner’s Mandatory Notices).

D. Related Proceedings

The parties state that the '259 patent was asserted in *Staton Techiya, LLC v. Samsung Electronics Co., Ltd.*, No. 2:21-cv-00053 (E.D. Tex.), which was filed on February 14, 2022 (the "00053 District Court Case"). Pet. 76; Paper 5, 1. Patent Owner also states that the 00053 District Court case was consolidated with *Staton Techiya, LLC et al. v. Samsung Elecs. Co., Ltd. et al.*, Case No. 2:21-cv-413 (E.D. Tex.) (the "413 District Court Case").

E. The '259 Patent (Ex. 1001)

The '259 patent is directed to a method and system for sound monitoring over a network. Ex. 1001, code (54). An overview of a mobile communication environment used in the invention is shown in Figure 1, reproduced below.

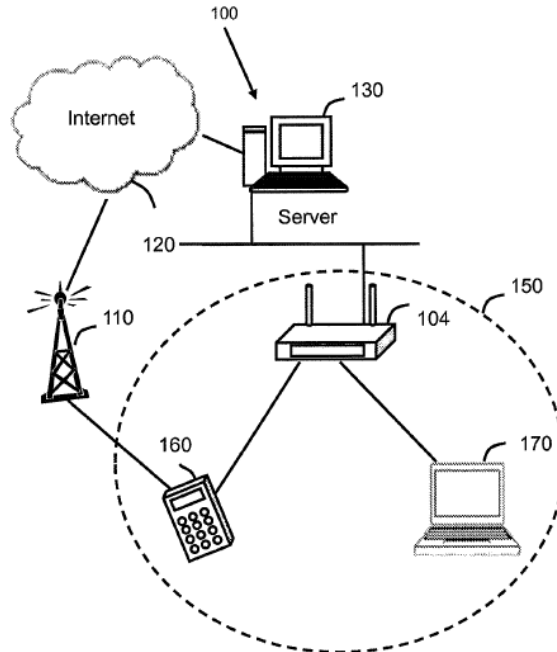


FIG. 1

Figure 1 of the '259 patent shows a mobile communication environment used with the invention. Ex. 1001, Fig. 1, 2:10.

As shown in Figure 1, mobile communication environment 100 includes mobile device 160 that can communicate with base receiver 110 using a standard communication protocol. *Id.* at 3:40–48. Mobile device 160 can be “a cell phone, a personal digital assistant, a portable music player, a laptop computer, or any other suitable communication device.” *Id.* at 4:16–18. Base receiver 1001 can connect mobile device 160 over a packet switched link to the Internet 120, which can support application services and service layers for providing media or content to mobile device 160. *Id.* at 3:51–55. Mobile device 160 can also establish connections with a server 130 on the network and with another mobile device 170 for exchanging data and information. *Id.* at 3:57–60.

In one embodiment, mobile device 160 can open a communication channel to server 130 and stream captured audio to the server. Ex. 1001, 6:23–25. The audio stream may be analyzed at server 130 to determine if any recognized sounds are present in the audio stream. *Id.* at 6:25–27. Server 130 may send a message back to mobile device 160 identifying the sounds recognized in the audio stream. *Id.* at 6:28–30.

Figure 8 of the '259 patent, reproduced below, depicts a method for sound monitoring, measuring, and reporting over a network using mobile devices in accordance with one embodiment of the '259 patent.

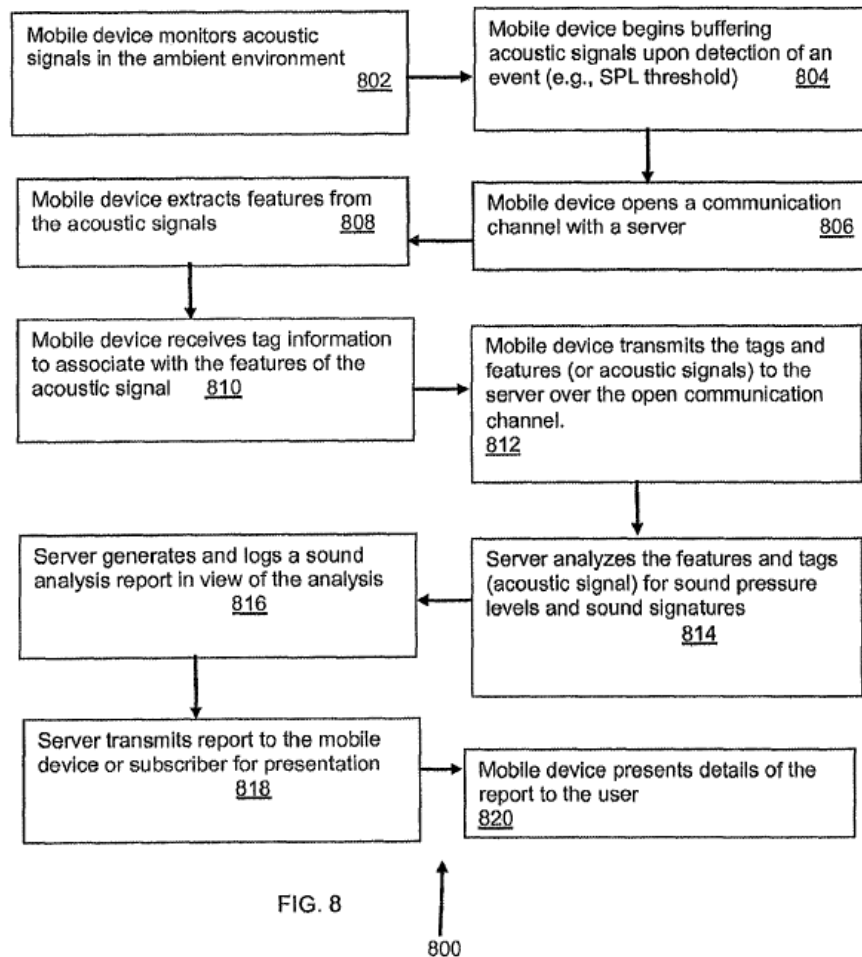


Figure 8 of the '259 patent depicts a method for sound monitoring, measuring, and reporting over a network using mobile devices. Ex. 1001, Fig. 8, 2:31–33; 12:6–8.

As shown in Figure 8, at step 802, the mobile device monitors acoustic signals in the ambient environment. Ex. 1001, 12:14–15. The mobile device's microphone "can actively analyze acoustic signals in the environment and begin processing of the acoustic signals upon detection of a trigger event." *Id.* at 12:15–17. In step 804, "mobile device 160 begins buffering the acoustic signals" when "a trigger event occurs." *Id.* at 12:18–20. A "trigger event" is "is an event that initiates the collection of audio content or the measurement of sound pressure level, that is sent to server 130 (or an associated database for storage)." *Id.* at 6:60–63. "Examples of

trigger events for mobile device 160 to collect audio content are the detection of a sound similar to a sound signature, a time window, geographic location, sound pressure level, and sensor data (biological, acceleration/velocity, odor, chemical detection, visual, etc.).” *Id.* at 6:63–67.

In step 806 of Figure 8, “[t]he trigger event initiates the mobile device 160 to proceed to open a communication channel with the server 130.”

Ex. 1001, 12:33–35. In step 808, “mobile device 160 extracts features from the acoustic signals.” *Id.* at 12:46–47. “Metadata or tag information is generated and automatically attached with the features or acoustic signals.” *Id.* at 13:1–2. In step 812, the mobile device “transmits the tags and features (or acoustic signals) to the server 130 over the open communication channel,” which “can be packaged together or sent separately over the network.” *Id.* at 13:17–20. In step 814, “the server 130 analyzes the features and tags (acoustic signal) for sound pressure levels (SPLs) and sound signatures,” which are “specific sound event[s] such as a car horn, a siren, [or] a whistle.” *Id.* at 13:25–27, 13:41–44. “Upon detection of a sound signature and SPL levels,” server 130 at step 816 “can generate and log a sound analysis report in view of the analysis,” which “can identify the sound signatures detected, their corresponding SPL levels, and other information such as whether the sound is a threat or the type of sound detected.” *Id.* at 13:61–66. At step 818, server 130 “transmits the report to the mobile device or subscriber by way of the open communication channel, or other means.” *Id.* at 14:9–11. At step 820, “the mobile device presents the details of the report to the user,” for example “in a visual or audible format, or a combination thereof.” *Id.* at 14:9–14.

F. Illustrative Claims

Of challenged claims 1–6, 11, 12, 15, and 16, claims 1 and 12 are independent. For purposes of the issues raised in this proceeding, claim 1 is illustrative and is reproduced below.

1. [pre] A wearable device, comprising:
 - [a] a microphone;
 - [b] a memory that stores instructions; and
 - [c] a processor that executes the instructions to perform operations, the operations comprising:
 - [d] receiving an acoustic signal from the microphone configured to measure an ambient environment;
 - [e] analyzing the acoustic signal to detect a trigger event;
 - [f] opening a communication channel with a remote server if a trigger event is detected;
 - [g] generating metadata;
 - [h] transmitting the metadata, and the acoustic signal to the server via the communication channel; and
 - [i] receiving, from the server an analysis of the acoustic signal including whether a sound signature has been detected.

Ex. 1001, 18:2–18 (indents and bracketed paragraph identifiers added).

II. DISCUSSION

A. Claim Construction

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).” 37 C.F.R. § 42.100(b) (2021).

In the Petition, Petitioner asserts that no express claim construction is necessary and “the claims should be given their plain and ordinary meaning.” Pet. 13–14.

In its Patent Owner Response, Patent Owner proposes constructions for various terms that, according to Patent Owner, “track those rendered by the district court in the parallel district court litigation.” PO Resp. 24. Specifically, Patent Owner proposes constructions for the following terms: (1) “a processor” in claim 1; (2) “an acoustic signal” in claims 1–5, 12, 15, and 16; (3) “a remote server . . . the server) in claims 1–3, 11, and 12), (4) “a wearable device” in the preamble of claim 1; (5) “trigger event” in claims 1, 5, 12, and 13, (6) “sound signature” in claims 1, 11, 12, 15, and 16, and (7) “opening a communication channel with a remote server if [a]/[the] trigger event is detected” in claims 1 and 12. *Id.* at 23–24 (alterations in original).

When addressing Ground 1, the parties appear to dispute the proper meaning of the language “analyzing the acoustic signal to detect a trigger event” in limitation 1[e] and the language “transmitting the metadata, and the acoustic signal to the server via the communication channel” in limitation 1[h]. *See* PO Resp. 25–28, 32–34; Pet. Reply 4–6, 8–11; PO Sur-reply 7–8, 11–15. We consider these issues further in Sections II.D.3(e) and II.D.3(h) below, where we discuss whether Petitioner has sufficiently shown that the Couper-Lemelson combination teaches limitations 1[e] and 1[h], respectively.

Additionally, when addressing Ground 3, the parties dispute the meaning of the phrase “opening a communication channel with a remote server if [a]/[the] trigger event is detected” in claims 1 and 12. *See* PO Resp. 40–45; Pet. Reply 21–25; PO Sur-reply 1–5. We consider this issue further in Section II.G.4(f) below, where we discuss whether Petitioner has

sufficiently shown that the White-Soufflet-Comerford combination teaches limitation 1[f].

We find that it is not necessary to provide an express interpretation of any of the other terms raised by Patent Owner to resolve the issues presented in this case. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1374 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

B. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented 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.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, objective evidence of non-obviousness.¹ *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966). When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Whether a

¹ Patent Owner has not presented objective evidence of non-obviousness.

combination of prior art elements would have produced a predictable result weighs in the ultimate determination of obviousness. *Id.* at 416–417.

In an *inter partes* review, the petitioner must show with particularity why each challenged claim is unpatentable. *Harmonic*, 815 F.3d at 1363; 37 C.F.R. § 42.104(b) (2020). The burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

C. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art at the time of the alleged invention would have had “a bachelor’s degree in electrical engineering, computer science, or a similar field and two years of experience in the design of digital audio systems and associated signal processing such as voice or speech processing and/or acoustic pattern recognition.” Pet. 13. Petitioner further states that the person of ordinary skill “could have also obtained similar knowledge and experience through other means.” *Id.* Patent Owner “applies the level of ordinary skill in the art that is proposed in the Petition.” PO Resp. 23.

Because it is consistent with the ’259 patent and the prior art, we adopt Petitioner’s assessment of the level of ordinary skill in the art.

D. Ground 1:² Asserted Obviousness of Claims 1–4, 6, 11, and 12 Based on Couper in view of Lemelson

Petitioner contends that claims 1–4, 6, 11, and 12 would have been obvious over Couper in view of Lemelson. Pet. 14–33; Pet. Reply 3–17. Patent Owner disagrees, arguing that Petitioner has failed to establish that these claims would have been obvious based on Couper and Lemelson. PO Resp. 25–34; PO Sur-reply 11–18.

1. Overview of Couper (Ex. 1008)

Couper is directed to “a method of identifying incidents using mobile devices.” Ex. 1008, 1:34–35. Couper explains that “[f]ixed location audio sensors” for crime prevention were known, but that those systems are “costly to deploy.” *Id.* at 1:6–9, 1:25–26.

Figure 1 of Couper, reproduced below, discloses an embodiment of Couper’s incident identification system.

² Here, and elsewhere in the Decision, the identification of the grounds using designations such as “Ground 1” and “Ground 2” refers to the designation of the grounds as presented in the Petition.

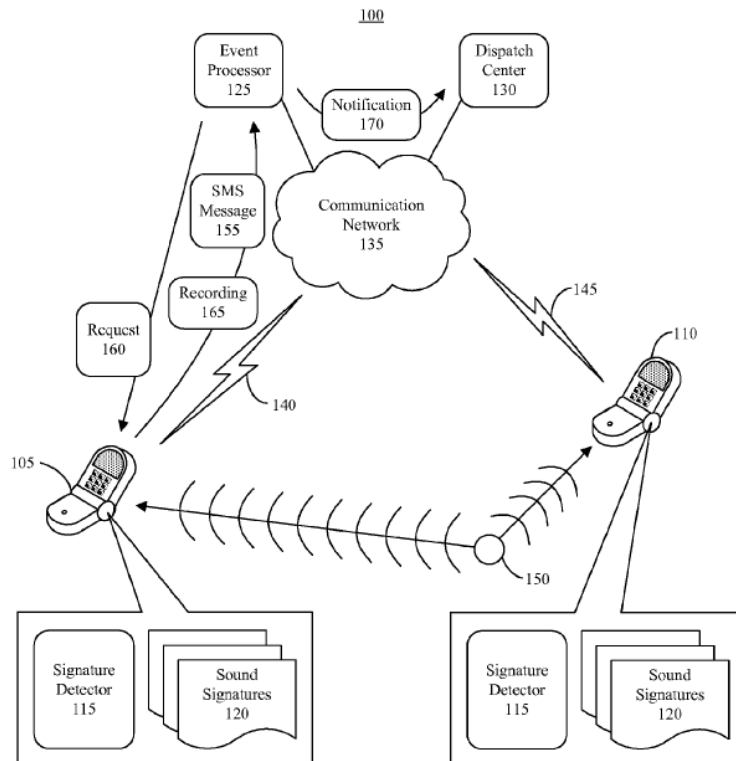


FIG. 1

Figure 1 shows an embodiment of Couper's incident identification system using mobile devices. Ex. 1008, Fig. 1, 4:8–9.

Ex. 1008, Fig. 1, 4:8–9. As shown in Figure 1, system 100 can include a plurality of mobile devices 105 and 110, which “can be implemented as mobile phones, personal digital assistants, or any other device capable of sending and receiving data over wireless communication links 140 and 145 via the communication network 135.” *Id.* at 4:8–14, 4:30–34. Mobile devices 105 and 110 can include signature detector 115, which can compare audio received by the internal microphone of a mobile device with sound signatures 120, which “are audio profiles of sounds that have been determined to be indicative of an incident,” such as “gunshots, explosions, sirens, alarms, breaking glass, auto accidents, yelling or screaming, [or] calls for help.” *Id.* at 4:43–44, 4:62–5:1.

“Upon determining that the sound 150 matches a sound signature 120, the mobile device 105 can send a communication to the event processor 125,” which “can include any information determined by the signature detector 115” and may, “in one embodiment, initially exclude any audio that ha[s] been recorded or collected by the mobile device 105.” *Id.* at 6:20–22, 6:31–36. Event processor 125 “can analyze the received information from the various mobile devices and compare that information with an incident validation policy to determine when a valid incident has taken place or is taking place.” *Id.* at 6:54–57. Event processor 125 “optionally can request audio from one or more of the mobile devices” and “perform its own analysis and comparison of the detected sound, from the recording(s) furnished by the mobile device(s), with one or more sound signatures,” which can be useful because event processor 125 “can include more robust and/or sophisticated audio analysis software than can reasonably included or executed in a mobile device.” *Id.* at 9:1–2, 9:42–49.

2. *Overview of Lemelson (Ex. 1009)*

Lemelson is directed to “emergency warning systems and methods, and, in particular, to systems and methods that have the capability to automatically warn individuals of a variety of types of emergencies in their immediate vicinity.” Ex. 1009, 1:5–8. Lemelson’s system includes a “portable warning unit that is carried by a person” and is similar in size to a “telecommunications pager, cellular telephone, or a traditional walkie-talkie.” *Id.* at 3:4–5, 17:25–27. An embodiment of the portable warning unit is shown in Figure 2, reproduced below.

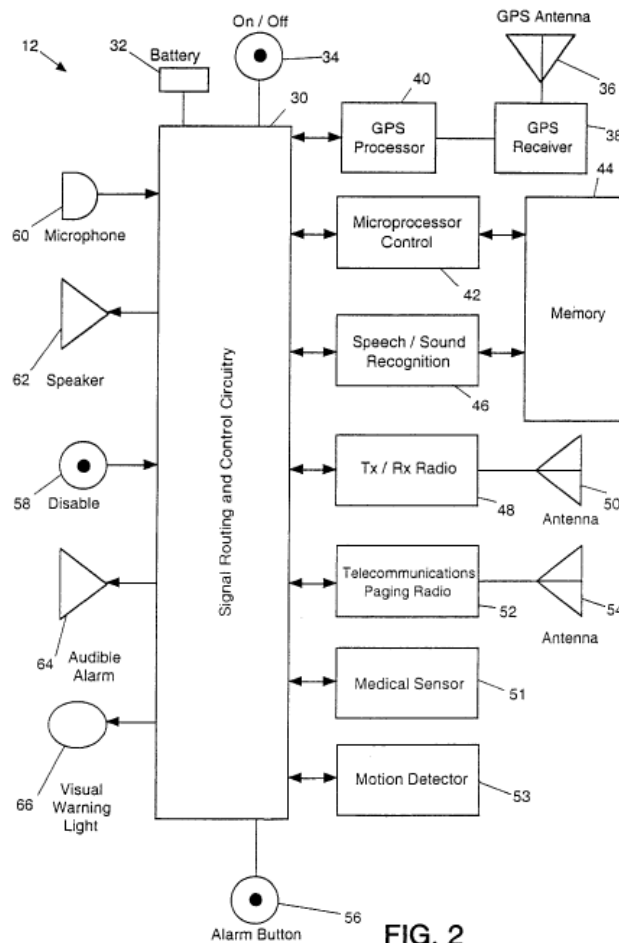


FIG. 2

Figure 2 of Lemelson shows an embodiment of comprehensive integrated personal emergency warning and safety system unit 12. Ex. 1009, Fig. 2, 11:1–2.

Warning unit 12 includes microphone 60, along with microprocessor control 42 and memory 44 which are “used to control the overall operation of the warning unit 12.” Ex. 1009, 11:12–14, 11:28–30.

Lemelson’s warning unit includes “speech detection circuitry” which “is used to determine whether or not human speech is present.” Ex. 1009, 14:29–31. If speech is recognized, “[t]he spoken words are compared with a speech library stored in memory” which indicate “whether an alarm or distressful situation is occurring that requires attention or immediate response,” for example, “robbery,” “rape,” “help,” “heart attack,” or “similar

selected phrases indicating an emergency situation.” *Id.* at 14:31–40. If an emergency is detected, an alarm is activated, which can be an audible alarm, a vibration, a visible alarm, or any combination thereof. *Id.* at 13:25–28, 14:41–44.

Individual emergency warning units may request assistance from a monitor/response center and may receive signals from a monitor/response center. Ex. 1009, 10:43–48. The monitor/response center may transmit messages back to the warning unit that “will serve to inform the user of warning unit 12 that help is on the way and also to issue warning to an attacker or to provide instructions for emergency medical assistance (i.e. instructions for a diabetic in need of medication etc.) or emergency help.” *Id.* at 15:61–16:4.

3. *Analysis of Independent Claim 1*

a) 1[pre]: “[a] wearable device, comprising:”

Petitioner argues that, to the extent the preamble is limiting, the Couper-Lemelson combination discloses or suggests it. Pet. 14 (citing Ex. 1002 ¶¶ 74–81). “For example,” Petitioner asserts, “Couper discloses implementing the mobile devices 105 and 110 as ‘any . . . device capable of sending and receiving data’ over a network,” and “Lemelson further discloses a ‘warning unit 12’ that is a size ‘similar to that of a modem [sic] day telecommunications pager, cellular telephone, or a traditional walkie talkie’ and ‘is worn by the user[.]’” *Id.* at 14–15 (citing Ex. 1008, 4:30–34; Ex. 1009, 4:4–32, 12:24–27, 13:20–25, 17:23–27, 20:7–18) (alterations in original).

According to Petitioner, one of ordinary skill “would have been motivated to implement Couper’s method of identifying incidents using

devices sized and configured to be worn by the user as taught by Lemelson,” at least because “such a device would be convenient to carry and better equipped to measure ambient sound than devices that required being held in the hand or carried in a pocket, as the microphone would be able to receive ambient sound in a less attenuated or muffled manner.” Pet. 15 (citing Ex. 1002 ¶¶ 78–79). Petitioner further argues that one of ordinary skill “would have had a reasonable expectation of success inasmuch as Couper discloses that mobile devices it discusses may be ‘any other device’ capable of communicating over a network.” *Id.* (citing Ex. 1008, 4:30–34; Ex. 1002 ¶ 80).

Patent Owner does not present arguments regarding the preamble.
See PO Resp. 25–37.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding the preamble.³

b) 1[a]: “a microphone;”

Petitioner argues that Couper in combination with Lemelson discloses this limitation. Pet. 15 (citing Ex. 1002 ¶¶ 82–83). “For example,” Petitioner asserts, “Couper discloses a mobile device with an ‘internal microphone’ that receives audio.” *Id.* (citing Ex. 1008, 4:34–35, 4:60–62).

Patent Owner does not present arguments directed to this limitation.
See PO Resp. 25–37.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation.

³ Because we are persuaded that Petitioner has shown that Couper teaches the subject matter recited in the preamble, we need not decide whether the preamble is limiting.

c) 1[b]: “a memory that stores instructions; and”

1[c]: “a processor that executes the instructions to perform operations, the operations comprising:

Petitioner argues that Couper in combination with Lemelson discloses or suggests these limitations. Pet. 16 (citing Ex. 1002 ¶¶ 84–85). Petitioner asserts that Couper discloses that “each of the mobile devices includes a processor” and discloses providing “computer program instructions to a processor” that are “stored in a computer-readable memory.” *Id.* (citing Ex. 1008, 3:22–44, 4:34–35). According to Petitioner, Couper “further discloses implementing the operation of its flow charts by providing the instructions to a processor for execution.” *Id.* (citing Ex. 1008, 3:22–44). “Accordingly,” Petitioner contends, the Couper-Lemelson system “discloses or suggests a wearable device with computer-readable memory (‘a memory’) that stores and provides computer program instructions to a processor (‘that stores instructions’),” and “a processor (‘a processor’) that executes instructions of a computer program (‘that executes the instructions’) to perform the functions/acts specified in the flowcharts and/or block diagrams (‘to perform operations’).” *Id.* (citing Ex. 1002 ¶ 85). Additionally, Petitioner argues that the combination teaches having the wearable device’s processor perform the remaining limitations. *Id.*

Patent Owner does not present arguments directed to these limitations. *See* PO Resp. 25–37.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding these limitations.

d) 1[d]: “receiving an acoustic signal from the microphone configured to measure an ambient environment;”

Petitioner argues that Couper in combination with Lemelson discloses or suggests this limitation. Pet. 16 (citing Ex. 1002 ¶¶ 86–91). Petitioner asserts that Couper “discloses a signature detector that compares the received audio to sound signatures for ‘gunshots, explosions, sirens, alarms, breaking glass, auto accidents, yelling or screaming, calls for help, etc.’” *Id.* at 17 (citing Ex. 1008, 4:43–5:4). According to Petitioner, one of ordinary skill would have understood, therefore, that Couper’s microphone “picks up sounds in the ambient environment.” *Id.* (citing Ex. 1002 ¶ 88).

“Moreover,” Petitioner contends, one of ordinary skill “would have understood Couper to disclose that the signature detector is executed by the processor, and that the processor receives the audio detected by the microphone from the microphone.” *Id.* “Accordingly,” Petitioner argues, “the combination of Couper and Lemelson discloses or suggests a wearable device having a processor that receives audio (‘receiving an acoustic signal’) from the wearable device’s microphone that detects audio from the ambient environment (‘from the microphone configured to measure an ambient environment’).” *Id.* (citing Ex. 1002 ¶ 89).

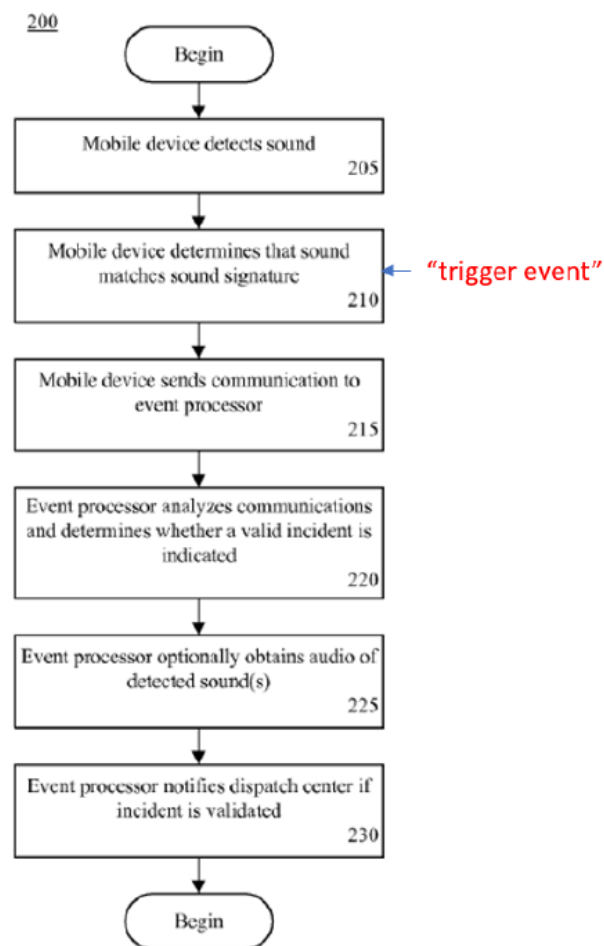
Patent Owner does not present arguments directed to this limitation. *See* PO Resp. 25–37.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation.

e) 1[e]: “analyzing the acoustic signal to detect a trigger event;”

Petitioner argues that Couper in combination with Lemelson discloses or suggests this limitation. Pet. 18 (citing Ex. 1002 ¶¶ 92–96). Petitioner argues that one of ordinary skill would have understood Couper to disclose

or suggest a signature detector, executed by the mobile unit's processor, that compares received audio to sound signatures. *Id.* (citing Ex. 1008, Fig. 2 (step 210); Ex. 1002 ¶ 92). Petitioner asserts that Couper "further discloses sending a communication to the event processor" if "the signature detector determines a sound signature match," which "is consistent with how the '259 patent describes detecting trigger events." *Id.* (citing Ex. 1008, 5:60–64; 6:20–22; 6:63–7:3; Ex. 1002 ¶¶ 93–94; Ex. 1001, 6:63–7:3, 10:65–11:1). Petitioner also submits an annotated diagram to show how one of ordinary skill would have understood Couper's disclosure to map to the claimed "trigger event," which is reproduced below.



Petitioner's annotated version of Couper's Figure 2, identifying the "trigger event" as step 210. Pet. 19 (citing Ex. 1008, Fig. 2; Ex. 1002 ¶ 95).

Accordingly, Petitioner contends, “the combination of Couper and Lemelson discloses or suggests a wearable device having a processor that compares the audio received from the microphone (‘analyzing the acoustic signal’) to detect a sound signature (‘to detect a trigger event’).” Pet. 20 (citing Ex. 1002 ¶ 96).

Patent Owner criticizes the Petition for relying on a determination that a sound matches a sound signal for both limitation 1[e] and limitation 1[i], and contends that Petitioner’s argument is flawed because “[t]he separately recited ‘trigger event’ and ‘sound signature’ refer to different things.” PO Resp. 25–26; PO Sur-reply 7–8. More specifically, Patent Owner contends, Petitioner points to “Couper’s disclosure of a mobile device determining that a sound matches a sound signature” for limitation 1[e], and for limitation 1[i], Petitioner “point[s] to Couper’s disclosure of an event processor performing its own analysis of the same sound that was already determined by the mobile device to match a sound signature.” PO Resp. 28 (citing Pet. 22). Patent Owner argues that “[i]f [a] ‘trigger event’ and ‘sound signature’ were equivalent, upon detection of a trigger event, it would already be known that a sound signature resides within the acoustic signal.” *Id.* at 26 (citing Ex. 2018 ¶ 45). “Thus,” according to Patent Owner, “there would be no purpose to performing the steps of opening a communication channel, sending the acoustic signal to a server, and receiving an analysis from the server.” *Id.*

Patent Owner argues that Petitioner “get[s] distracted with the issue of whether a sound signature can serve as the trigger event.” PO Resp. 27 (citing Prelim. Reply 1). “The detection of a sound signature,” Patent Owner asserts, “may serve as a trigger event to determine whether a

different sound signature is present.” *Id.* “For example,” Patent Owner contends, “the detection of a first sound signature (e.g., a car horn), may be used as a trigger event to opening a communication channel and delivering audio to determine whether a second sound signature (e.g., a siren) is also present.” *Id.* “However,” according to Patent Owner, “nothing in the specification or prosecution history suggests that the ‘trigger event’ and ‘sound signature’ of the claims refers to the same thing.” *Id.*

Petitioner responds that “the ’259 patent states that ‘[e]xamples of events that are used to trigger the collection of a sound pressure level are . . . sound signature detection,” and that Patent Owner “now concedes that ‘[t]he detection of a sound signature may serve as a trigger event.’” Pet. Reply 4–5 (citing Ex. 1001, 10:11–20; PO Resp. 27) (alterations in original).

Petitioner also argues that U.S. Patent No. 8,488,799 (the “’799 patent”), which shares a specification with the ’259 patent, claims “detecting a trigger event from the captured acoustic information, *the trigger event including a predetermined sound signature.*” *Id.* at 5 (citing Ex. 1036, claim 1).

“Because the claims of the ’799 patent expressly require detecting a trigger event that at least ‘include[s] a predetermined sound signature,’” Petitioner contends, “the ’259 patent’s claimed ‘trigger event’ should also include detecting a sound signature.” *Id.* (alteration in original).

Additionally, Petitioner argues, Patent Owner’s contention that if the “trigger event” is the detection of a sound signature, then the remote server must “determine whether a *different* sound signature is present,” finds no support in the intrinsic evidence or the testimony of Mr. Kleinschmidt. Pet. Reply 5 (citing PO Resp. 27; Ex. 1034, 38:22–39:4, 40:16–41:14).

According to Petitioner, neither party “contend[s] that the scope of the terms

‘trigger event’ and ‘sound signature’ are the same,” and “[b]oth parties acknowledge that sound signature detection is just one example of a trigger event.” *Id.* at 6 (citing Pet. 18; PO Resp. 27; Ex. 1001, 10:11–20). Finally, in response to Patent Owner’s argument that there would be no purpose in detecting a sound signature locally and again at a remote server, Petitioner contends that “Couper discloses a reason for doing so—e.g., validation.” *Id.* (citing Ex. 1008, 3:65–4:7, 6:54–57, 9:46–49).

Based on the full trial record, we find that Petitioner has sufficiently proven that Couper discloses this limitation. First, the ’259 patent discloses that a “trigger event” can include detecting whether a received sound matches a “sound signature.” For example, the ’259 patent states in Column 6 that:

A trigger event is an event that initiates the collection of audio content or the measurement of sound pressure level that is sent to server 130 (or an associated database for storage.

Examples of trigger events for mobile device 160 to collect audio content ***are the detection of a sound similar to a sound signature***, a time window, geographic location, sound pressure level, and sensor data (biological, acceleration/velocity, odor, chemical detection, visual etc.) to name but a few.

Ex. 1001, 6:60–7:1 (emphases added); *see* Ex. 1002 ¶ 93. The ’259 patent also includes a similar disclosure in Column 10:

In at least one exemplary embodiment, mobile device 600 automatically collects sound pressure levels and sends the measured sound levels to database 614 with minimal or no human intervention. A trigger event is an event that initiates the measurement of a sound pressure level. . . . ***Examples of events that are used to trigger*** the collection of a sound pressure level are sound pressure level, time, geographic location, ***sound signature detection***, biological data, acceleration/velocity data, temperature, visual/chroma data,

odor (smell), atmospheric data (barometric pressure, wind speed, humidity, etc.), chemical detection, to name but a few.

Ex. 1001, 10:8–20 (emphases added).

Our conclusion that a “trigger event” can include determining whether a sound matches a sound signature is also supported by claim 1 of the ’799 patent, which is a grandparent of the ’259 patent. Claim 1 of the ’799 patent recites “detecting a trigger event from the captured acoustic information, the trigger event including a predetermined sound signature,” indicating that determining whether a sound matches a “predetermined sound signature” falls within the scope of a “trigger event.” Ex. 1036, 17:52–54. Because these claims are related and share the same specification, the term “trigger event” should be interpreted consistently between the claims of the ’259 and ’799 patents. *See In re Katz Interactive Call Processing Pat. Litig.*, 639 F.3d 1303, 1325 (Fed. Cir. 2011) (claims should be interpreted consistently across patents sharing the same specification).

We also find that Petitioner has sufficiently proven that Couper discloses “analyzing the acoustic signal to detect a trigger event,” as recited in claim 1. Figure 2 of Couper discloses that the mobile device first detects a sound and then, in step 210, “determines that [the] sound matches [a] sound signature,” before “send[ing] [the] communication to [the] event processor” (step 215). Ex. 1008, Fig. 2. Couper further explains that:

In step 210, each mobile device can analyze the detected sound and compare the detected sound against one or more sound signatures stored within the mobile device. The mobile device(s) can determine that the sound matches one of the sound signatures stored within the mobile device. In step 215, the mobile device, upon determining that the detected sound matches one of the stored sound signatures, can send a communication to the event processor.

Id. at 8:49–56 (emphasis added); *see also id.* at 5:60–64 (“If the signature detector 115 within either or both of mobile devices 105 and 110 can determine that the sound 150 matches a sound signature 120, a communication can be sent to the event processor 125 from the mobile device.”), 6:20–22 (“Upon determining that the sound 150 matches a sound signature 120, the mobile device 105 can send a communication to the event processor 125.”); Ex. 1002 ¶¶ 93–96. Based on these disclosures, we agree with Dr. Atlas that “[a] person having ordinary skill in the art would have understood Couper’s disclosure to be consistent with the ’259 patent’s description of a ‘trigger event.’” Ex. 1002 ¶ 94.

We do not agree with Patent Owner’s argument that Petitioner improperly relies on a comparison to a sound signature for both limitation 1[e] and limitation 1[i]. *See* PO Resp. 26–28. As noted above, the ’259 patent expressly discloses that a trigger event may include a comparison of an incoming sound to a sound signature, and nothing in claim 1 or the cited intrinsic evidence suggests that comparison of a sound to a sound signature should be excluded from the scope of the recited “trigger event.” Moreover, Patent Owner acknowledges that “[t]he detection of a sound signature may serve as a trigger event.” *Id.* at 27.

We also disagree with Patent Owner’s argument that detection of a sound signature may only serve as a trigger event “to determine whether a **different** sound signature is present.” *See* PO Resp. 27. We see nothing in the language of claim 1 or the intrinsic evidence that limits the type of sound signatures that can be used by the mobile device as the “trigger event” in limitation 1[e] or the type of sound signatures that can be used by the server in limitation 1[i]. Nor do we see anything in claim 1 or the intrinsic

evidence that would preclude the same type of sound signature (such as an alarm) from being used by both the mobile device in step 1[e] and the server in step 1[i].

Additionally, we disagree with Patent Owner and Mr. Kleinschmidt that “[i]f ‘trigger event’ and ‘sound signature’ were equivalent, upon detection of a trigger event, it would already be known that a sound signature resides within the acoustic signal,” and “[t]hus, there would be no purpose to performing the steps of opening a communication channel, sending the acoustic signal to a server, and receiving an analysis from the server.” PO Resp. 26–27; *see* Ex. 2018 ¶ 45. First, Petitioner does not argue that “trigger event” and “sound signature” have the same meaning, but merely that “sound signature detection is just one example of a trigger event.” Pet. Reply 6; *see also* Pet. 18. Moreover, as Petitioner and Dr. Atlas point out, Couper provides a purpose for using the same type of sound signature by the mobile device and by the server—to have the server provide a more robust analysis than can be performed by the mobile device. As Couper explains:

In any case, the recording can be received from the mobile device(s). As noted, the event processor can perform its own analysis and comparison of the detected sound, from the recording(s) furnished by the mobile device(s), with one or more sound signatures. ***The event processor, for example, can include more robust and/or sophisticated audio analysis software than can reasonably be included or executed in a mobile device.***

Ex. 1008, 9:42–49 (emphasis added); *see also* Pet. Reply 6 (“Couper discloses a reason for” detecting a sound signature locally and again at a remote server, “e.g., validation.”); Ex. 1002 ¶ 112.

For the foregoing reasons, and based on the full trial record, we find that Petitioner has sufficiently proven that Couper discloses limitation 1[e].

f) 1[f]: “opening a communication channel with a remote server if a trigger event is detected;”

Petitioner argues that Couper in combination with Lemelson discloses or suggests this feature. Pet. 20 (citing Ex. 1002 ¶¶ 97–103). Petitioner asserts that Couper “discloses implementing the event processor as a ‘server’ (Couper, 5:31-33, 4:15-42), and that the mobile devices are ‘communicatively linked’ to it via a network (*id.*, 4:12-29).” *Id.* “Thus,” according to Petitioner, one of ordinary skill “would have understood Couper discloses that event processor 125 is ‘a remote server.’” *Id.* (citing Ex. 1002 ¶¶ 98–100).

Petitioner argues that “Couper further discloses sending a communication to the event processor” if “the signature detector determines a sound signature match,” and that one of ordinary skill “would have understood this requires that the mobile devices open a communication channel with the event processor.” Pet. 20 (citing Ex. 1008, 5:60–64, 6:20–24, Fig. 2; Ex. 1002 ¶ 102). According to Petitioner, one of ordinary skill “would have also considered it obvious to not open a communication channel prior to detecting the match and sending the communication so as to conserve the computing resources associated with opening and maintaining such a communication channel until such a connection was needed.” *Id.* (citing Ex. 1002 ¶ 102).

“Accordingly,” Petitioner argues, “the combination of Couper and Lemelson discloses or suggests a wearable device having a processor that sends a communication to an event processor (‘opening a communication channel with a remote server’) if the signature detector matches a received

audio with a sound signature (“if a trigger event is detected”).” Pet. 20–21 (citing Ex. 1002 ¶ 103).

In response, Patent Owner argues that “it is unclear what components Petitioners contend satisfy the ‘server’ limitations.” PO Resp. 29 (citing Ex. 1002 ¶ 120). In support, Patent Owner asserts that, during his deposition, Petitioner’s expert Dr. Atlas “struggled to articulate the basic components of the Couper-Lemelson system” and was “unsure whether it includes Couper’s event processor 125 and/or Lemelson’s command center 10.” *Id.* (citing Ex. 2016, 22:15–23:17, 23:21–24:9). “If the ‘Couper-Lemelson system’ includes both a variation of Couper’s event processor 125 and a variation of Lemelson’s command center 10,” according to Patent Owner, “it seems improbably that the system would include anything that would constitute a ‘server,’ which must perform each of the recited functions in the claim.” *Id.* at 31. Patent Owner also criticizes Dr. Atlas for, in response to questioning, “read[ing] verbatim extensive portions of his declaration,” waiting for “prolonged pauses” of several minutes, and giving inconsistent answers. *Id.* at 29–31 (citing Ex. 2016, 24:17–26:2, 26:10–27:4, 27:13–28:15, 30:10–15, 31:7–32:5, 33:12–34:24, 35:24–36:16, 37:18–38:6, 45:22–46:10).

Petitioner responds that “[t]he Petition (and Dr. Atlas) consistently refers to Couper’s ‘event processor’ as the claimed ‘remote server,’” including, for this limitation, stating that “the Couper-Lemelson system discloses or suggests a wearable device having a processor that sends a communication to an ‘event processor.’” Pet. Reply 7 (citing Pet. 20–21; Ex. 1002 ¶¶ 97–103). Petitioner argues that the Petition also states that, for limitation 1[h], “the combination discloses or suggests transmitting the

information related to the detected sound to the ‘event processor,’” and for limitation 1[i], states that “the combination discloses or suggests a wearable device having a processor that receives a communication including an analysis of the recordings provided by the mobile device from an ‘event processor.’” *Id.* (citing Pet. 21–26; Ex. 1002 ¶¶ 108–130). Petitioner also contends that any of Patent Owner’s “alleged confusion arising from Dr. Atlas’[s] deposition stems from repeatedly asking the same poorly formed questions that were not moored to any specific opinion in Dr. Atlas’[s] declaration.” *Id.* at 7–8 (citing PO Resp. 29).

Patent Owner responds that Petitioner “never attempted to show that the Couper-Lemelson combination includes any one thing that corresponds to” the “server” limitation in claim 1. PO Sur-reply 9. According to Patent Owner, “Petitioners discuss both event processor 125 of Couper and command center 10 of Lemelson but fail to identify which, if either, is the alleged ‘server’ recited in the claims.” *Id.* (citing Pet. 22–26, 32). Patent Owner also argues that the questions presented to Dr. Atlas were clear, and that “Dr. Atlas’s inability to identify the ‘server’ was not for a lack of adequate time” during his deposition. *Id.* at 9–10 (citing Ex. 2016, 23:21–23, 24:11–13, 24:17–18, 26:4–6, 27:22–24, 30:10–12).

Based on the full trial record, we find that Petitioner has sufficiently shown that the proposed combination includes a “remote server” as recited in claim 1, and has identified with sufficient clarity and specificity that Couper’s event processor 125 is the “remote server.” More specifically, the Petition states that: (1) “Couper discloses that event processor 125 is ‘a remote server’”; (2) “Couper further discloses sending a communication to the event processor . . . if the signature detector determines a sound signature

match”; (3) one of ordinary skill “would have understood this requires that the mobile devices open a communication channel with the event processor”; and (4) “the combination of Couper and Lemelson discloses or suggests a wearable device having a processor that sends a communication to an event processor (‘opening a communication channel with a remote server’).” Pet. 20–21. Dr. Atlas also testifies in his declaration that:

(1) “Couper discloses connecting the event processor 125 and the mobile devices 105 and 110 via a communication network 135”; (2) “Couper further discloses implementing event processor 125 as a ‘server’”; (3) one of ordinary skill “would have understood that Couper’s event processor 125 implemented as a server would be communicatively connected to mobile devices 105 and 110 via a communication network 135 (‘a remote server’)”; and (4) “the combination of Couper and Lemelson discloses or suggests a wearable device having a processor that sends a communication to an event processor (‘opening a communication channel with a remote server’).”

Ex. 1002 ¶¶ 98, 99, 100, 103.

We have considered the deposition testimony given by Dr. Atlas that Patent Owner relies on, but that testimony does not alter our conclusion. *See* PO Resp. 29–31. First, we note that Dr. Atlas provided testimony consistent with his declaration. For example, when asked whether “your proposed Couper-Lemelson system include[s] event processor 125 of Couper and command center 10 of Lemelson,” Dr. Atlas responded that “I’m going to say yes to the first part, which is the event processor one, [a]nd command center, I don’t think so. . . . I don’t think it needs [the] command center, the second part of your question.” Ex. 2016, 23:21–24:9. Although Dr. Atlas had some difficulty with broad and open-ended questions asking what

components are present in the overall Couper-Lemelson system, we do not find that his answers were inconsistent with the statements in his declaration identifying Couper's event processor as the "remote server." *Id.* at 24:17–26:2, 26:10–27:4.

Additionally, when asked whether Lemelson's command center 10 is included in the proposed Couper-Lemelson combination, Dr. Atlas pointed to paragraphs 44, 45, and 47 of his declaration describing Lemelson's Central Alarm and Warning Monitor/Response Center 10, and paragraphs 116 and 128 explaining that the combination relies on Lemelson for transmitting information from the remote server back to the user's device to provide the user with emergency instructions and warnings to attackers. Ex. 2016, 27:13–29:10, 31:7–25. Dr. Atlas further explained that the proposed combination does not need to include Lemelson's command center 10 because much of its functionality is provided in Couper's event processor, and the combination relies on "Lemelson's known technique of providing information back to the user device to improve Couper's known system for identifying incidents," rather than relying on the structure of Lemelson's command center 10 itself. *Id.* at 30:10–31:25. Thus, the overall thrust of Dr. Atlas's deposition testimony is that he is relying on Couper's event processor as the "remote server," and adding to the event processor Lemelson's functionality of providing information back to the user device to provide the user with emergency instructions and warnings to attackers, which is consistent with the Petition and Dr. Atlas's declaration.

For the foregoing reasons, and based on the full trial record, we find that Petitioner has sufficiently proven that Couper discloses limitation 1 [f].

g) 1[g]: “generating metadata;”

Petitioner argues that Couper in combination with Lemelson discloses or suggests this limitation. Pet. 21 (citing Ex. 1002 ¶¶ 104–107). Petitioner asserts that “Couper discloses including ‘items of information relating to the detected sound’ and ‘[o]ther data generated by the signature detector’ in the communication to event processor 125, such as location, date, time,” which “is consistent with how the ’259 patent describes ‘metadata.’” *Id.* (citing Ex. 1008, 6:20–50; Ex. 1001, 13:1–16) (alteration in original). According to Petitioner, one of ordinary skill “would have understood that to provide such metadata, it is first generated, and that Couper discloses that it is the processor of the mobile device that generates it, or that, at a minimum, it would have been obvious to have the processor of the mobile device generate it.” *Id.* (citing Ex. 1002 ¶ 106).

“Accordingly,” Petitioner argues, “the combination of Couper and Lemelson discloses or suggests a wearable device having a processor that generates information related to the detected sound matching the sound signature such as the location and time of the detection (‘generating metadata’).” Pet. 21 (citing Ex. 1002 ¶ 107).

Patent Owner does not present arguments directed to this limitation. *See* PO Resp. 25–37.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation.

h) 1[h]: “transmitting the metadata, and the acoustic signal to the server via the communication channel; and”

Petitioner argues that Couper in combination with Lemelson discloses or suggests this limitation. Pet. 21 (citing Ex. 1002 ¶¶ 108–110). Petitioner asserts that “Couper discloses that the mobile device provides recorded

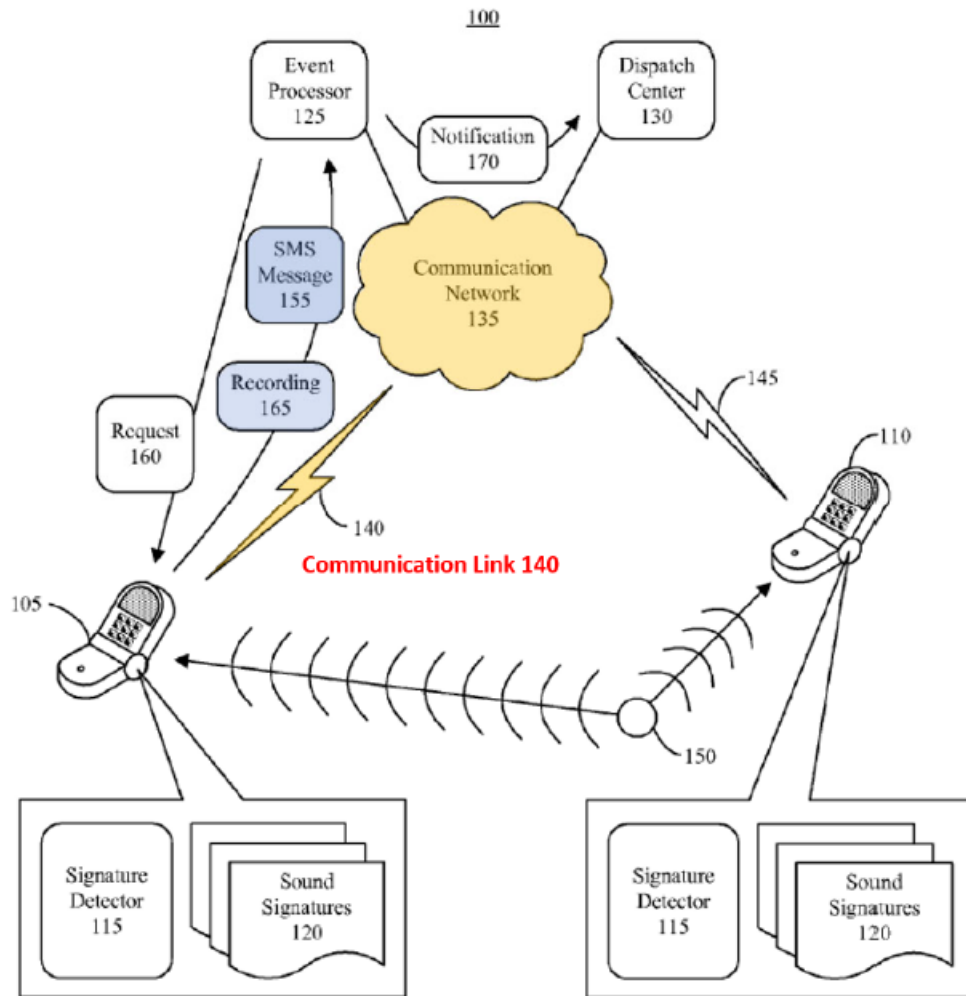
audio to the event processor” and that “the processor of the mobile device includ[es] metadata in the communication to the event processor.” *Id.* at 21–22 (citing Ex. 1008, 5:25–30, 8:4–5, 8:8–14). “Accordingly,” Petitioner contends, “the combination of Couper and Lemelson discloses or suggests transmitting the information related to the detected sound matching the sound signature (‘transmitting the metadata’)” and “a recording of the audio detected by the internal microphone (‘the acoustic signal’) to the event processor (‘to the server’) over the communication network (‘via the communication channel’).” *Id.* at 22 (citing Ex. 1002 ¶ 110).

Patent Owner responds that “Petitioner[’s] cursory treatment of this limitation fails to account for the requirement that metadata and the acoustic signal must be transmitted ‘via the communication channel’ that was opened if a trigger event is detected as opposed to, for example, two separate channels opened at different times.” PO Resp. 32. According to Patent Owner, Petitioner acknowledges that Couper only opens communication channels between a mobile device 105 and the event processor 125 when required, and Petitioner does not address why the original communication after a sound matches a sound signature and the later communication including recorded audio “are via the same communication channel as opposed to separate communication channels.” *Id.* at 32–33. Additionally, Patent Owner contends, “Couper does not disclose that the two communications are via the same channel,” and thus “Petitioner[] must rely on inherency” by “show[ing] that the communications are necessarily via the same communication channel,” which Petitioner does not do. *Id.* at 33. Finally, Patent Owner argues that Dr. Atlas was not able to identify at his deposition where Couper discloses that the two communications are via the

same communication channel. *Id.* at 33–34 (citing Ex. 2016, 50:18–51:15; Ex. 2018 ¶ 53).

Petitioner responds that Patent Owner fails to “provid[e] any analysis or express construction of the term ‘communication channel.’” Pet. Reply 8–9. Petitioner argues that a “communication channel” does not require a specific route over the Internet, as evidenced by the ’259 patent’s disclosure that the metadata and acoustic signal can be transmitted over the same packet-switched communication channel despite being “sent over different hops.” *Id.* at 9 (citing Ex. 1001, 13:17–24). Petitioner also asserts that Mr. Kleinschmidt agreed with this understanding, as shown by his deposition testimony explaining that a “communication channel” “is a ‘very broad term’ that merely requires ‘something that connects two devices together to communicate back and forth,’” and that the Internet is a “communication channel.” *Id.* at 9, 13 (citing Ex. 1034, 42:4–16, 42:20–22, 91:19–92:5).

Petitioner further contends that Couper discloses transmitting the metadata and recording “to the server via the communication channel” because “Couper discloses implementing the communication network as, for example, the ‘Internet’ or a cellular network, singularly or in combination,” and Couper illustrates the communication network in Figure 1 by “show[ing] a single communication network through which a mobile device is linked to an event processor 125,” as illustrated in Petitioner’s annotated version of Couper’s Figure 1, reproduced below. Pet. Reply 11 (citing Ex. 1008, 4:15–29, Fig. 1; Pet. 20).



Petitioner's annotated version of Couper's Figure 1 showing mobile devices 105 and 110, communication network 135, and communication link 140.
Pet. Reply 11–12.

Petitioner contends that “Couper’s description of the communication network also tracks how the ’259 patent describes a ‘communication channel’—as a link through which the mobile device exchanges data or information with a remote server.” Pet. Reply 12 (citing Ex. 1001, 12:33–37, 13:17–24). “Finally,” Petitioner asserts, “Couper is not limited to transmitting metadata and the recording at separate times, and as explained in the Petition for dependent claim 2, Couper discloses transmitting a single

communication including both metadata and a recording.” *Id.* at 14 (citing Pet. 26–28).

Patent Owner responds that Petitioner’s argument that Couper’s Figure 1 “shows a single communication network through which a mobile device is linked to an event processor” is flawed because “a network and a communication channel are not the same thing.” PO Sur-reply 12 (citing Pet. Reply 11, 13). Patent Owner also argues that the Internet itself is not a “communication channel” because claim 1 “is not properly interpreted to require that a processor ‘open’ (or create) the internet if a trigger event is detected,” and Mr. Kleinschmidt merely “opined that a communication channel could reside over the internet,” not that the internet itself is a “communication channel.” *Id.* (citing Ex. 1034, 42:4–22).

Patent Owner further asserts that Dr. Atlas testified that “if the goal is to conserve computing resources,” the communication channel “would be closed” between “the original communication” and “the later communication including the audio,” and that a reopened communication “may not be an identical path if it’s routed differently over the internet.” PO Sur-reply 13 (citing PO Resp. 32–33; Ex. 2016, 49:2–8). According to Patent Owner, interpreting this testimony as equating “routed differently over the internet” with “a different communication channel” is “the only reasonable characterization.” *Id.* Finally, Patent Owner argues that “Petitioner[’s] discussion of ‘hops’ is inapposite” because “Petitioner[] did not address ‘hops’ explicitly or implicitly in the Petition” and “did not show that the two communications of Couper (the original communication after a sound matches a sound signature and the later communication including

recorded audio, if requested) occur over different hops of the same communication channel.” *Id.* at 13–14.

Based on the full trial record, we find that Couper discloses “transmitting the metadata, and the acoustic signal to the server via the communication channel.” First, we turn to the meaning of the term “communication channel” in the ’259 patent claims. The ’259 patent defines a “communication channel” broadly by explaining that it “can be a voice channel, a data channel, a packet data channel, a Wi-Fi channel, or any other communication link.” Ex. 1001, 12:33–37. Figure 1 shows that the communication channel can include Internet 120 and use TCP/IP and HTTP protocols, and the parties agree that the communication channel can reside over the Internet. Ex. 1001, Fig. 1, 3:45–53; PO Resp. 2; Pet. Reply 13; PO Sur-reply 12; Ex. 1034, 42:20–22; Tr. 46:5–7. The ’259 patent also discloses that when the “communication channel” uses “a packet network configuration, the packets *can be sent over different hops* and received at different times f[ro]m the server,” and Mr. Kleinschmidt agreed that, in view of that paragraph, “a person having ordinary skill in the art [would] understand that if a mobile device transmits tags and features or acoustic signals to the server over a communication channel, the tags and features may be sent over different hops.” Ex. 1001, 13:17–22; Ex. 1034, 91:19–92:5. Thus, a “communication channel” as recited in the ’259 patent claims can include communication over the Internet, and encompasses sending tags and features over different hops that are received at different times from the server.

We find that Couper discloses transmitting the metadata and recording “to the server via the communication channel” because Couper discloses

implementing a communication channel between mobile devices 105 and 145 and event processor 125 using a variety of networks, including the Internet. Ex. 1008, Fig. 1, 4:15–29 (“The communication network 135 can be implemented as, or include, without limitation, a WAN, a LAN, the Public Switched Telephone Network (PTSN), the Web, *the Internet*, and one or more intranets.” (emphasis added)).). This disclosure falls within the broad understanding of “communication channel” set forth in the ’259 patent claims which, as discussed above, includes “a voice channel, a data channel, *a packet data channel*, a Wi-Fi channel, or any other communication link,” including Internet 120 in Figure 1 and TCP/IP and HTTP protocols. See Ex. 1001, 3:45–53, 12:33–37 (emphasis added), Fig. 1. As discussed with respect to claim 2 below, we find that Couper teaches transmitting the metadata and the acoustic signal at the same time, which would occur over the same communication channel. See § II.D.4, *infra*. Moreover, the embodiments of Couper that teach transmitting the metadata and acoustic signal over the Internet at different times fall within the meaning of a “communication channel” because, as discussed above, when the communication channel is implemented using “a packet network configuration,” such as the Internet, “the packets can be sent over different hops and received at different times f[ro]m the server.” See Ex. 1001, 13:20–24.

We do not agree with Patent Owner’s arguments to the contrary. First, we note that Patent Owner does not address Petitioner’s argument that this limitation is met by Couper’s embodiment in which the mobile device sends the acoustic signal and metadata to the event processor at the same time, other than to disagree that Couper discloses such an embodiment. See

PO Resp. 32–37; PO Sur-reply 11–18. As discussed with respect to claim 2 below, we find that Couper does disclose such an embodiment. *See* § II.D.4, *infra*. We also disagree with Patent Owner’s argument that the Internet cannot be a communication channel because claim 1 “is not properly interpreted to require that a processor ‘open’ (or create) the internet if a trigger event is detected.” *See* PO Sur-reply 12. We do not understand Petitioner to argue that the Internet as a whole is the claimed “communication channel,” but rather to argue that the communication channel resides over the Internet. Therefore, we understand Petitioner to be arguing that Couper’s mobile device opens (or creates) a communication session with the event processor over the Internet in response to a trigger event, not that Couper’s mobile device creates the Internet itself.

Additionally, we disagree with Patent Owner’s argument that transmission of the acoustic signal and the metadata from the mobile device to the event processor at different times would be over two separate channels. To the contrary, the ’259 patent expressly discloses that when “the mobile device transmits the tags and features (or acoustic signals) to the server 130 ***over the open communication channel***” in a “packet network configuration” such as the Internet, “the packets can be sent over different hops and received at different times from the server.” Ex. 1001, 13:17–22. Moreover, Mr. Kleinschmidt agreed that, in view of the above paragraph, “a person having ordinary skill in the art [would] understand that if a mobile device transmits tags and features or acoustic signals to the server over a communication channel, the tags and features may be sent over different hops.” Ex. 1034, 91:19–92:5. We also find that Petitioner’s discussion of this argument in its Reply was not improper, because Petitioner’s argument

in the Reply simply expanded upon the argument in the Petition that Couper discloses opening a communication channel over a network with the event processor, and also responds to Patent Owner's argument that Petitioner fails to explain how sending the audio and tags at separate times would occur over the same "communication channel." Pet. 20–21; PO Resp. 32–33; Pet. Reply 8–14.

For the foregoing reasons, and based on the full trial record, we find that Petitioner has sufficiently proven that Couper discloses limitation 1[h].

- i) 1[i]: *"receiving, from the server, an analysis of the acoustic signal including whether a sound signature has been detected."*

Petitioner argues that Couper in combination with Lemelson discloses or suggests this limitation. Pet. 22 (citing Ex. 1002 ¶¶ 111–130). Petitioner asserts that "Couper discloses that the event processor performs its own sound signature detection and validation analysis." *Id.* (citing Ex. 1008, 7:47–61, 9:42–49). "If validated," Petitioner contends, "the event processor sends a notification to a dispatch center (*id.*, 9:50–51), which includes 'any information . . . determined by the event processor 125' (*id.*, 8:14–17, 8:24–27)." *Id.* (alteration in original).

Petitioner argues that "Lemelson discloses a system very similar to Couper," which includes "a device that detects sounds indicative of emergency or dangerous events and notifies a central command center." Pet. 22 (citing Ex. 1002 ¶ 115). According to Petitioner, Lemelson's "command center, like Couper's event processor, performs further processing, including by calculating 'degrees of danger,' and contacting emergency dispatch services if necessary." *Id.* at 22–23 (citing Ex. 1009, 4:50–5:7, 6:19–24, 6:57–7:8, 16:10–35). Petitioner contends that "Lemelson

further teaches that it is advantageous for the command center to transmit to the user's device—and for the user's device to receive and output—a message” including “confirmation that emergency personnel is en route, instructions to the user for how to respond to the emergency and to find help, and/or to issue a warning to an attacker.” *Id.* at 23 (citing Ex. 1009, 1:23–30, 2:1–3, 2:36–46, 15:43–16:9, 16:10–49, 17:47–53; Ex. 1002 ¶¶ 115–119). According to Petitioner, “Lemelson further discloses outputting an alarm to a user if the user's device detects speech or sound indicative of an emergency.” *Id.* (citing Ex. 1009, 13:40–43, 13:58–64, 14:28–55).

Petitioner argues that one of ordinary skill “would have understood the Couper-Lemelson system to disclose or suggest that after Couper's event processor conducts its validation analysis and notifies the emergency dispatch center,” the event processor “would send back to the wearable device—and the processor of the wearable device would receive and output—a message notifying the user that emergency personnel is en route, providing instructions for how to respond to the emergency situation, and/or issuing a warning to an attacker.” Pet. 23 (citing Ex. 1002 ¶ 120). “In addition,” Petitioner contends, one of ordinary skill “would have understood the Couper-Lemelson system to disclose or suggest including within the message from the event processor an indication of the degree of danger and/or an identification of the sound signature validated by the event processor” because “that information would further assist the user, and in a practical sense, would have been necessary for the user to understand how to respond to the emergency situation.” *Id.* at 23–24 (citing Ex. 1002 ¶ 121). According to Petitioner, “[i]t was also well-known that such a feature (i.e., receiving and outputting a message indicating a degree of danger and/or an

identification of the sound signature) would be particularly advantageous for users that are hearing impaired, who may not have heard the initial sound.”

Id. at 24 (citing Ex. 1002 ¶¶ 121–123).

Petitioner further argues that “[t]he event processor’s validation analysis is consistent with how the ’259 patent describes the remote server’s analysis of the acoustic signal,” and that “providing the user with a message indicating a degree of danger and/or an identification of the validated sound signature is consistent with how the ’259 patent describes the ‘sound analysis report’ provided by the server.” Pet. 24 (citing Ex. 1001, 6:25–27, 13:61–66).

Additionally, Petitioner argues that one of ordinary skill “would have been motivated to modify Couper’s system and method to implement Lemelson’s technique of transmitting a message from the command center back to the user in the manner described above.” Pet. 24 (citing Ex. 1002 ¶¶ 125–129). Petitioner asserts that “Couper is concerned with ‘sounds that are indicative of incidents including, but not limited to, crime, safety hazards, terrorist threats, or any other event for which a response team may be dispatched or needed.’” *Id.* (citing Ex. 1008, 3:54–57). “Thus,” according to Petitioner, a person of ordinary skill “implementing Couper would have been motivated to look for similar systems that advanced Couper’s goals of efficiently dispatching response teams and reducing crime.” *Id.* at 24–25 (citing Ex. 1002 ¶ 126). “In so looking,” Petitioner contends, one of ordinary skill “would have readily found Lemelson, which is cited on the face of Couper.” *Id.* at 25 (citing Ex. 1002 ¶ 126).

Petitioner also argues that, “[s]imilar to Couper, Lemelson is concerned with providing assistance in emergency situations.” Pet. 25

(citing Ex. 1009, 2:66–3:3). According to Petitioner, “Lemelson’s disclosure of a warning or alarm to the user of the device is consistent with Couper’s disclosure that “[o]nce the notification is received by the dispatch center 130, personnel within that center can cause response personnel to be sent or dispatched to a location related to the detected sounds.”” *Id.* (citing Ex. 1008, 8:39–42; Ex. 1002 ¶ 127). “Thus,” Petitioner asserts, one of ordinary skill “would have been motivated to modify Couper’s system for identifying incidents to include Lemelson’s technique of transmitting information back to the user’s device and outputting it in order to, for example, provide its users with emergency instructions, identify the sounds detected, and provide warnings to attackers.” *Id.* (citing Ex. 1002 ¶ 128). “Doing so,” according to Petitioner, “would have been the application of Lemelson’s known technique of providing information back to a user device to improve Couper’s known system for identifying incidents to yield a predictable result of providing assistance to users of Couper’s system and to reduce crime.” *Id.* (citing Ex. 1002 ¶ 128).

Petitioner also argues that one of ordinary skill “would have had a reasonable expectation of success in making these modifications to the Couper-Lemelson system.” Pet. 25 (citing Ex. 1002 ¶ 129). According to Petitioner, these modifications “would have required generating/transmitting information that was already being transmitted by the event processor to dispatch back to the user, or otherwise programming it to generate/transmit additional information well within the ken of a” person of ordinary skill. *Id.* at 25–26 (citing Ex. 1002 ¶ 129). “Moreover,” Petitioner contends, “Couper’s mobile device was already capable of receiving and outputting such information to the user.” *Id.* at 26 (citing Ex. 1002 ¶ 129).

“Accordingly,” Petitioner asserts, “the combination of Couper and Lemelson discloses or suggests a wearable device having a processor that receives from an event processor (‘receiving, from the server’) a communication including an analysis of the recordings provided by the mobile device (‘an analysis of the acoustic signal’),” the analysis “indicating that help is on the way, a degree of danger, identification of the sound signature detected, and instructions for emergency help based on whether the event processor determined a valid incident occurred (‘including whether a sound signature has been detected.’).” Pet. 26 (citing Ex. 1002 ¶ 130).

Patent Owner does not dispute that the proposed combination teaches “receiving, from the server, an analysis of the acoustic signal including whether a sound signature has been detected.” PO Resp. 25–34; PO Sur-reply 7–15. As discussed above for limitation 1[e], Patent Owner criticizes the Petition for relying on the determination that a sound matches a sound signal for both limitation 1[e] and limitation 1[i], and contends that Petitioner’s argument is flawed because “[t]he separately recited ‘trigger event’ and ‘sound signature’ refer to different things.” PO Resp. 25–28; PO Sur-reply 7–8. As discussed with respect to limitation 1[e] above, we do not agree with Patent Owner’s argument. *See* § II.D.3(e), *supra*.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation.

j) Summary for Claim 1

For the foregoing reasons, and based on the full trial record, Petitioner has proven by a preponderance of the evidence that claim 1 is unpatentable over the Couper-Lemelson combination.

4. *Claim 2*

Claim 2 depends from claim 1 and recites that the operations performed by the processor “further comprise transmitting the metadata and the acoustic signal as a package to the server over the communication channel.” Ex. 1001, 18:19–21. Petitioner argues that Couper in combination with Lemelson discloses or suggests this feature. Pet. 26 (citing Ex. 1002 ¶¶ 131–135).

Petitioner argues that “Couper discloses sending a communication to the event processor upon determining a sound signature match, and that the communication includes metadata but may ‘initially exclude any audio that ha[s] been recorded or collected.’” Pet. 26 (citations omitted) (citing Ex. 1008, 6:20–22, 6:32–36). Petitioner asserts that one of ordinary skill “would have understood this disclosure to encompass embodiments in which the metadata and audio recording are transmitted together (i.e., *not* initially excluded).” *Id.* at 26–27 (citing Ex. 1002 ¶ 133). “Indeed,” according to Petitioner, “Couper’s claim 2 discloses that the communication (which specifies information about a first detected sound, *see* claim 1) includes ‘a recording of the sound’” *Id.* at 27 (citing Ex. 1008, 10:62–64) (alteration in original). Petitioner contends that one of ordinary skill “would have understood that Couper’s disclosure of transmitting both the information determined by the signature detector 115 (the metadata) and the sound recording (the acoustic signal) in a single communication responsive to a single event (i.e., detecting a sound signature) would constitute sending them as a ‘package.’” *Id.* (citing Ex. 1002 ¶ 134).

Petitioner argues that “Couper’s disclosure is consistent with the ’259 patent’s specification, which a [person of ordinary skill in the art] would have understood to indicate that whether an acoustic signal and metadata are

‘packaged together’ is, as suggested by dependent claim 3, determined by whether the acoustic signal and metadata are sent ‘via separate communications’ or not.” Pet. 27 (citing Ex. 1002 ¶ 134).

“Accordingly,” Petitioner argues, “the combination of Couper and Lemelson discloses or suggests a wearable device having a processor configured (‘wherein the operations further comprise’) to detect a sound signature” and, in response, “send a communication including metadata (‘transmitting the metadata’) and a recording of the audio detected by the internal microphone (‘and the acoustic signal as a package’)” to “the event processor via the communication network (‘to the server over the communication channel’).” Pet. 27–28 (citing Ex. 1002 ¶ 135).

Patent Owner argues that Petitioner’s argument fails because “Petitioner[] and Dr. Atlas find disclosure in Couper’s silence.” PO Resp. 34. Specifically, Patent Owner argues, Couper’s disclosure that the mobile device may, “***in one embodiment, initially exclude any audio that ha[s] been recorded or collected by the mobile device 105***” does not “encompass embodiments in which the metadata and audio recording are transmitted together (i.e., ***not*** initially excluded).” *Id.* at 34–35 (citing Pet. 26–27; Ex. 1008, 6:20–36). According to Patent Owner, Petitioner is mistaken that “disclosure quantified in this manner *sub silentio* includes opposite disclosure,” because “it is improper to find disclosure in the absence of disclosure,” and one of ordinary skill would not interpret this passage “as disclosing the opposite of what it does.” *Id.* at 35 (citing Ex. 1018 ¶ 56; *Novartis Pharms. Corp. v. Accord Healthcare, Inc.*, 38 F.4th 1013, 1017 (Fed. Cir. 2022)).

Patent Owner also argues that “Petitioner[] misread[s] claim 2 of Couper.” PO Resp. 35. Patent Owner asserts that Petitioner’s reading of claim 2 as “sending a recording of the sound with the same communication in which information about the first detected sound is sent,” is “at odds with Couper’s disclosure” and claim 3 of Couper. *Id.* at 35–36 (citing Pet. 27). According to Patent Owner, “[c]laim 3, which depends from claim 2, recites ‘**first selecting** a mobile device from which the recording of the first detected sound is requested from the plurality of mobile devices,’” which “cannot be performed until the communications from the mobile devices (with information about the sound) are received.” *Id.* at 36 (citing Ex. 1008, claim 3). “Otherwise,” Patent Owner contends, “it would not be possible to first select the mobile device from which the recording is requested.” *Id.* (citing Ex. 2018 ¶ 58). “Thus,” Patent Owner argues, one of ordinary skill “would understand that in claim 2 a recording is received after—not contemporaneous with—information about the sound is received.” *Id.* “Furthermore,” Patent Owner argues, “interpreting claim 2 as Petitioner[] do[es] renders superfluous the last two limitations of claim 1 of Couper,” because “[i]f a recording of the sound is received with information about the sound (under the first step of claim 1), there would be no occasion to request a recording, as recited in the last two steps.” *Id.* (citing Ex. 2018 ¶ 59; *Merck & Co., Inc. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005)).

Finally, Patent Owner argues that “any duplication between the last two steps of claim 1 and claim 2” appears to result from the fact that, “in the final claim amendments made during prosecution . . . application claim 5 (which became claim 2 of the Couper patent) should have been cancelled”

because “the additions to application claim 1 rendered application claim 5 not further limiting.” PO Resp. 36–37. “That the applicant did not cancel application claim 5,” Patent Owner argues, “is not a sufficient reason to interpret claim 2 in a manner inconsistent with the remainder of Couper.” *Id.* at 37.

Petitioner responds that Patent Owner “offers no reason for Couper to specifically call out that the recording is initially excluded ‘in one embodiment’ unless Couper means to convey that there is ***another embodiment*** where it is included.” Pet. Reply 15. Petitioner also argues that Patent Owner improperly interprets claim 2 of Couper to “require[] that the metadata and acoustic signal are ***received*** at the same time,” but “claim 2 requires ‘***transmitting*** the metadata and the acoustic signal as a package,’ so when the server ***receives*** the information is irrelevant to whether the claim is met.” *Id.* at 16. “Indeed, Patent Owner asserts, Couper “explains that when acoustic signals and tags are packaged together, they may be received out of order and reordered.” *Id.* (citing Ex. 1008, 13:17–24).

Additionally, according to Petitioner, Patent Owner’s reliance on claim 3 is misplaced because “claim 3 depends from claim 2 and presumed to narrow claim 2,” so even if claim 3 requires that the “information about the sound” is received before the recording, that would not affect one of ordinary skill’s understanding of what claim 2 discloses. Pet. Reply 16. Finally, Petitioner argues that its “understanding of Couper’s claim 2 to disclose a communication that includes both information about a sound and the recording” would not “render superfluous the last two limitations of claim 1,” because, “for example, a communication received from mobile device B could satisfy claim 2 whereas the ‘requesting’ and ‘receiving’ steps

in the last two limitations of claim 1 could be satisfied with respect to communications with mobile device A.” *Id.* at 16–17.

Patent Owner responds that Petitioner does not cite any authority to challenge the Federal Circuit’s statement in *Novartis* that “[s]ilence is generally not disclosure,” and “[a]ccepting Petitioner[’s] position would mean that Couper—and any other reference that uses ‘in one embodiment’—discloses everything: that which is explicitly disclosed and that which is not.” PO Sur-reply 16 (first alteration in original). With respect to claims 2 and 3 of Couper, Patent Owner argues that the method step of claim 3 “cannot be performed until the communications from the mobile devices (with information about the sound) are received,” otherwise “it would not be possible to first select the mobile device from which the recording is requested.” *Id.* at 16–17 (citing Ex. 2018 ¶ 58). “Thus,” according to Patent Owner, one of ordinary skill “would understand that claim 2 must cover a situation in which a recording is received after—not contemporaneous with—information about the sound.” *Id.* Patent Owner also argues that Petitioner’s explanation of how claims 2 and 3 could be satisfied by a hypothetical “mobile device B” that “transmits both a communication specifying information about a first detected sound and a recording of that sound” does “not cover claim 3 of Couper” and thus also does not cover claim 2 because “[c]laim 3 of Couper depends from claim 2.” *Id.* at 17–18 (citing Pet. Reply 17).

Based on the full trial record, we find that Petitioner has sufficiently proven that Couper discloses this limitation. Couper discloses that:

Upon determining that the sound 150 matches a sound signature 120, the mobile device 105 can send a communication to the event processor 125. In one

embodiment, the communication can be a Short Message Service (SMS) message 155. The communication can provide one or more items of information related to the detected sound 150. For example, one or more parameters of the detected sound 150 that may be determined or extracted for comparison with the sound signatures 120 can be sent. Other data generated by the signature detector 115 also can be sent such as, for instance, a measure of how closely the sound 150 matches the sound signature 120. ***The information sent with the communication, i.e., SMS message 155, can include any information determined by the signature detector 115 and, in one embodiment, initially exclude any audio that have been recorded or collected by the mobile device 105.***

Ex. 1008, 6:20–35 (emphases added). We agree with Petitioner that Couper’s statement that audio may be excluded “in one embodiment” implies or suggests that the audio may be included in other embodiment(s). See Pet. 26–27; Pet. Reply 14–15. We also find credible Dr. Atlas’s testimony that one of ordinary skill in the art would have understood this language from Couper “to mean that Couper encompasses an embodiment in which the metadata and audio recording can be transmitted together,” because otherwise there would be no reason to use that language “in one embodiment” to describe the situation where the communication excludes recorded audio. Ex. 1002 ¶ 133. We also agree with and find credible Dr. Atlas’s testimony that one of ordinary skill “would have understood that Couper’s disclosure of transmitting both the information determined by the signature detector 115 (the metadata) and the sound recording (the acoustic signal) in a single communication and responsive to a single event (i.e., the detection of a sound signature) would constitute sending them as a ‘package.’” *Id.* ¶ 134.

Our conclusion that Couper teaches or suggests having a mobile unit send audio and information about the audio together as a package is not

undermined by Mr. Kleinschmidt’s testimony that one of ordinary skill “would not have understood the disclosure of one embodiment” in the above portion of Couper “to ‘encompass’ contrary embodiments,” and thus “Couper’s disclosure of sending audio and information regarding the audio in separate communications does not ‘encompass’ sending the audio and information regarding the audio as a package.” Ex. 2018 ¶ 56. Couper does not merely describe sending the audio and information about the audio in separate communications, but specifically states that “in one embodiment” audio can be excluded, immediately after and as an exception to the statement that “any information” determined by the signal detector can be included. Ex. 1008, 6:31–35; *see* Ex. 1002 ¶ 134. At a minimum, we find that this would have suggested to one of ordinary skill that, in other embodiments, audio need not be excluded in the communication with the information about the audio. Otherwise, there would have been no need to include the phrase “in one embodiment” before the reference to initially excluding recorded audio.

We also disagree with Patent Owner’s argument that the Federal Circuit’s statement that “[s]ilence is generally not disclosure” in *Novartis* compels a contrary conclusion. *See* PO Resp. 35; PO Sur-reply 16. In *Novartis*, which concerned the issue of whether the written description requirement of 35 U.S.C. § 112 was met, the claims at issue required administering fingolimod “at a daily dosage of 0.5 mg, absent an immediately preceding loading dose regimen,” but the patent’s specification “d[id] not mention loading doses, much less the absence of a loading dose.” *Novartis*, 38 F.4th 1015. Here, by contrast, Couper’s specification describes sending both recorded audio and information about the audio (or “any

information”) from a mobile station to the event processor, and states as an explicit exception that “in one embodiment” the communication may “initially exclude” the audio. Ex. 1008, 6:31–35. We find that this is not silence, but rather acts as an implicit disclosure (or, at a minimum, a suggestion) that in other embodiments, the audio need not be initially excluded. Moreover, *Novartis* concerned the issue of whether claims were supported under 35 U.S.C. § 112, while the issue here is whether claim 1 would have been obvious over Couper’s disclosure, which is a different inquiry. *See Identix Pharms. LLC v. Gilead Sciences Inc.*, 941 F.3d 1149, 1164 (“‘[A] description that merely renders the invention obvious does not satisfy’ the written description requirement.”) (alteration in original); *quoting Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010) (en banc).

Although we find that the above portion of Couper’s specification is sufficient to teach or suggest sending audio along with information about the audio, our conclusion is also supported by claim 2 of Couper, which recites that “receiving a communication further comprises receiving a recording of the sound from at least one of the plurality of mobile devices.” Ex. 1008, 10:62–64. The “receiving a communication” language in claim 2 references the limitation in claim 1 that recites “receiving a communication from each of a plurality of mobile devices, ***wherein each communication specifies information about a first detected sound.***” *Id.* at 10:44–46 (emphasis added). Because claim 1 states that ***each*** communication specifies information about a first detected sound, and claim 2 adds that the receiving a communication “further comprises receiving a recording of the sound,” a plain reading of claim 2 in conjunction with claim 1 would require a

communication that “specifies information about a first detected sound” and also “further comprises receiving a recording of the sound.” *See* Ex. 1002 ¶ 133.

We disagree with Patent Owner’s argument that this reading of Couper’s claim 2 is inconsistent with claim 3 of Couper. *See* PO Resp. 35–36; PO Sur-reply 17–18. Claim 3 recites that the method of claims 1 and 2 further comprises “first selecting a mobile device from which the recording of the first detected sound is requested from the plurality of mobile devices.” Ex. 1008, 10:65–67. Claim 3, however, does not restrict when the requesting of the recording occurs or which of the plurality of mobile devices the recorded sound is requested from. For example, claim 3 could cover the situation where a first mobile device sends a communication with information about the detected sound as well as a recording of the sound, and a second mobile device sends a communication with information about the detected sound but not the sound itself, and the system later requests a recording of the sound from that mobile device. Claim 3 could also cover the situation where the system first selects a mobile device and then requests both information about a recorded sound and the recorded sound itself.

Similarly, we disagree with Patent Owner’s argument that claim 2 is inconsistent with the last two limitations of claim 1. *See* PO Resp. 36–37; PO Sur-reply 17–18. The last two limitations of claim 1 recite “requesting a recording of the first detected sound from at least one of the plurality of mobile devices; and receiving the recording of the first detected sound.” Ex. 1008, 10:58–61. These limitations, however, do not require that the system must request a recording of the first detected sound from *every* mobile device. Therefore, we agree with Petitioner that claim 2 (which

includes claim 1) covers a situation where one mobile device B sends both the detected sound and information about the detected sound (thereby satisfying claim 2), and another mobile device A first sends information about the detected sound and then later sends the detected sound itself in response to a request from the event processor (thereby satisfying the last two limitations of claim 1). *See* Pet. Reply 16–17. Thus, interpreting claim 2 to cover having a mobile send both the detected sound and information about that sound would not render superfluous the last two limitations of claim 1.

Consequently, Petitioner has proven by a preponderance of the evidence that claim 2 would have been obvious over the combination of Couper and Lemelson.

5. Claims 3, 4, 6, 11, and 12

Petitioner contends that claims 3, 4, 6, 11, and 12 are unpatentable over Couper in view of Lemelson. Pet. 28–33. Patent Owner does not provide separate argument for these claims. *See* PO Resp. 28–37.

Claim 3 depends from claim 1, and further recites “transmitting the metadata, and the acoustic signal separately to the server via separate communications over the communication channel.” Ex. 1001, 18:22–25. Petitioner argues that “Couper discloses transmitting metadata and captured audio (i.e., the ‘acoustic signal’) to the event processor” and further “discloses that the metadata and audio may be sent in separate communications.” Pet. 28 (citing Ex. 1008, 6:32–36, 8:4–5, 5:25–30, 8:7–14). “Accordingly,” Petitioner contends, “the combination of Couper and Lemelson discloses or suggests a wearable device having a processor configured (‘wherein the operations further comprise’) to transmit metadata

(‘transmitting the metadata’) and the audio recording in separate communications (‘and the acoustic signal separately’), and sending the communications to the event processor via the communication network (‘to the server over the communication channel’).” *Id.* (citing Ex. 1002 ¶ 138).

Claim 4 depends from claim 1 and further recites “monitoring the acoustic signal and a plurality of other acoustic signals occurring in the environment.” Ex. 1001, 18:26–28. Petitioner argues that “Couper discloses ‘caus[ing] the mobile device to keep its microphone active so that additional sounds are continually monitored and compared with the sound signature,’” and also discloses that “the signature detector 115 ‘can extract information from the detected sound and compare that information to the sound signatures 120,’ and that such parameters can be ‘measured over time.’” Pet. 28–29 (citing Ex. 1008, 5:5–18, 8:4–14, 11:1–5). According to Petitioner, “[t]his is consistent with the ’259 patent,” which discloses “‘actively analyz[ing] acoustic signals’ in the environment.” *Id.* at 29 (citing Ex. 1001, 12:14–18 (emphasis added); Ex. 1002 ¶ 141) (second alteration in original). “Accordingly,” Petitioner contends, “the combination of Couper and Lemelson discloses or suggests a wearable device that keeps its microphone active so that the processor continually monitors sounds received from the microphone and compares them with the sound signatures (‘wherein the operations further comprise monitoring the acoustic signal[] and a plurality of other acoustic signals occurring in the environment’).” *Id.* (citing Ex. 1002 ¶ 142).

Claim 6 depends from claim 1, and further recites “presenting details of the analysis to a user in a visual format, an audible format, or a combination thereof.” Ex. 1001, 18:32–34. Petitioner argues that, as

discussed previously, “the Couper-Lemelson system discloses or suggests a wearable device having a processor that receives an analysis of the recordings provided by the mobile device.” Pet. 29. Petitioner asserts that “Lemelson discloses that the message from the command center includes an ‘audio announcement’ to be output through a speaker 62 and that a flashing ‘visual warning light’ is also used.” *Id.* (citing Ex. 1009, 15:64–16:5, 17:47–53). “Accordingly,” Petitioner contends, “the Couper-Lemelson system discloses or suggests that a message received the event processor that is audibly and visually output through a speaker and a flashing light.” *Id.* Thus, according to Petitioner, “[i]t would have been obvious to modify the Couper-Lemelson device to audibly and visually output the information received from the event processor—and a [person of ordinary skill in the art] would have had a reasonable expectation of success in making the combination” for the reasons previously discussed. *Id.* at 29–30 (citing Ex. 1002 ¶ 144). As a result, Petitioner contends, “the combination of Couper and Lemelson discloses or suggests a wearable device having a processor that receives from an event processor a communication output by audio announcement and flashing light (‘wherein the operations further comprise presenting details of the analysis to a user in a visual format, an audible format, or a combination thereof.’).” *Id.* at 30 (citing Ex. 1002 ¶ 146).

Claim 11 depends from claim 1 and further recites “receiving an identification of the sound signature from the server.” Ex. 1001, 18:48–50. Petitioner relies on its arguments for claim 1[i] for this limitation. Pet. 30; *see id.* at 22–26.

Claim 12 is independent and is similar in many respects to claim 1. Ex. 1001, 18:51–64. Petitioner largely relies on its arguments for claim 1 for claim 12. Pet. 30–33.

As noted above, Patent Owner does not provide separate argument for these claims. *See* PO Resp. 28–37. Based on the full trial record, we find that Petitioner has proven by a preponderance of the evidence that claims 3, 4, 6, 11, and 12 are unpatentable over Couper in view of Lemelson.

E. Ground 2A: Obviousness of Claim 5 Based on Couper, Lemelson, and Jones

Petitioner contends that dependent claim 5 would have been obvious over Couper in view of Lemelson and Jones. Pet. 33–40. Patent Owner disagrees. PO Resp. 37–40; PO Sur-reply 18–22.

1. Overview of Jones (Ex. 1010)

Jones relates to “remote emergency or warning notification devices,” and discloses a system for remote monitoring of audio alarms. Ex. 1010, 1:12–14, 2:28–35. A diagram of an emergency detector is provided in Figure 1, reproduced below.

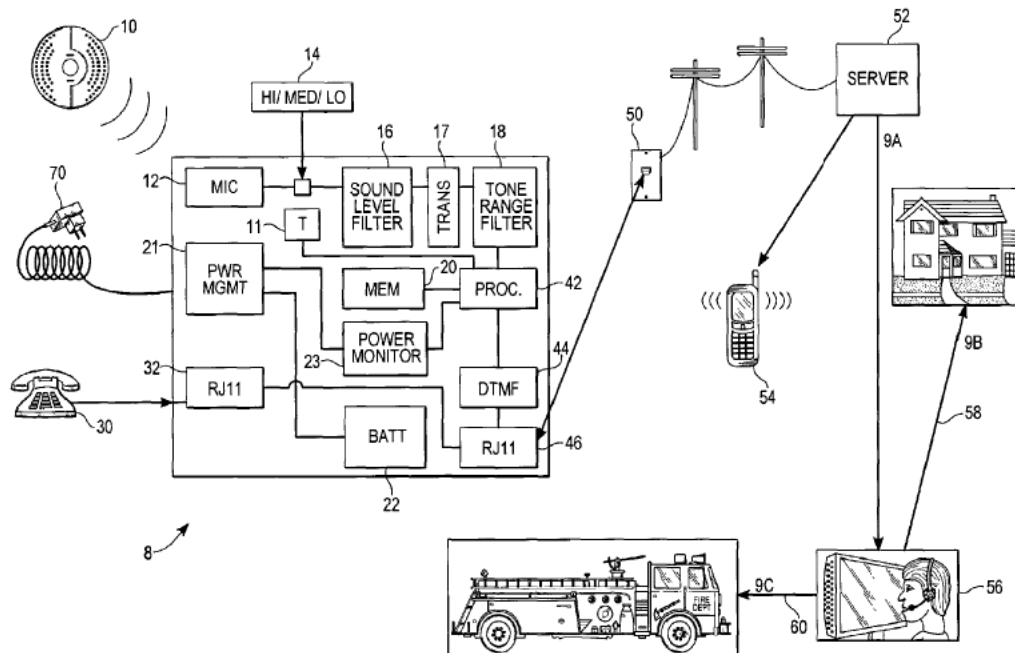


Figure 1 of Jones shows an overall diagram of an emergency detector according to an embodiment of the invention. Ex. 1010, Fig. 1, 3:21–23.

As shown in Figure 1, emergency detector 10 (such as a smoke detector) produces an audible indication of an emergency condition, which is detected by unit 8 using microphone 12. Ex. 1010, 3:34–43. Unit 8 includes “[a]n optional sound level switch (physical or embedded in electronic logic or software) 14” which “may set a threshold detection level” above which the volume level of the sound “triggers activation of the rest of the system.” *Id.* at 3:46–49. Processor 42 analyzes the sound and its duration, and identifies an alarm condition when the duration exceeds a threshold. *Id.* at 3:57–61. Unit 8 then contacts server 52 and sends information, such as the type of alarm being transmitted. *Id.* at 3:64–4:8. Server 52 may then contact phone 54 associated with unit 8, or contact monitoring center 56 which can contact emergency services such as a police or fire department. *Id.* at 4:30–46.

2. *Claim 5*

Claim 5 depends from claim 1 and recites that the operations performed by the processor “further comprise buffering the acoustic signal upon detection of the trigger event.” Ex. 1001, 18:29–31. For element 1[e], Petitioner argues that one of ordinary skill “would have been motivated to modify Couper-Lemelson’s method of continuous loop recording and sound signature detection based on Jones’s teachings relating to the volume level switch.” Pet. 35 (citing Ex. 1002 ¶ 164). “More particularly,” Petitioner asserts, one of ordinary skill “would have recognized that activating Couper’s continuous loop recording only upon detecting that the volume of the incoming signal was over a given threshold, such as the volume level typical of a fire alarm, would have provided the advantage of saving power in Couper’s device.” *Id.* (citing Ex. 1002 ¶ 165). “Thus,” according to Petitioner, one of ordinary skill “would have considered the combination to be the application of Jones’s volume level threshold technique to improve Couper in the same way it improves Jones’[s] system, i.e., by conserving power during periods of low sound levels.” *Id.* (citing Ex. 1002 ¶ 166).

Petitioner argues that one of ordinary skill “would have had a reasonable expectation of success in making the combination” because “implementing Jones’[s] volume level switch would merely require modifying Couper-Lemelson’s sound signature detector program such that it would check the volume level of the incoming signal prior to activating continuous recording and signature detection,” which “would have been well within” the level of ordinary skill in the art. Pet. 35–36 (citing Ex. 1002 ¶ 167). According to Petitioner, “Couper already discloses that the signature detector is capable of extracting volume information from the signal.” *Id.* at 36 (citing Ex. 1008, 5:5–14). Petitioner further contends, that, even if a

volume level switch would undermine the system's "ability to detect, record, and/or transmit some highly transient sounds," one of ordinary skill "would have appreciated that implementing the switch would provide significant battery life improvements, and that Couper's objective includes detecting continuous, non-transient sounds such as alarms and sirens." *Id.* (citing Ex. 1008, 4:66; Ex. 1002 ¶ 168).

With respect to limitation 1[f], Petitioner argues that the claimed "trigger event" would map to the system's detection of a sound above the volume level threshold. Pet. 37–38 (citing Ex. 1008, Fig. 2; Ex. 1002 ¶ 172). Petitioner asserts that, even if "the volume level threshold switch does not immediately precede or directly cause transmission of a communication to the event processor," the claim language "does not require direct causation between the 'trigger event' and 'opening a communication channel with a remote server.'" *Id.* at 38–39 (citing Ex. 1002 ¶ 173).

With respect to dependent claim 5, Petitioner argues that "Couper discloses recording audio data in a 'continuous loop' and recording over it unless a sound signature is detected," and that "[t]his 'continuous loop' recording and over-writing is consistent with how the '259 patent describes buffering the acoustic signal." Pet. 39 (citing Ex. 1008, 8:7–14; Ex. 1001, 6:54–59, 9:53–57; Ex. 1002 ¶ 176). According to Petitioner, in the combination, "the processor would perform volume level threshold detection prior to activating the continuous loop recording feature." *Id.* (citing Ex. 1002 ¶ 177). "Accordingly," Petitioner contends, one of ordinary skill "would have understood the combined system's processor would commence the continuous loop recording function ('buffering the acoustic signal') after the processor detected that the volume level threshold switch was met or

exceeded (“upon detection of the trigger event[’]”).” *Id.* at 40 (citing Ex. 1002 ¶ 178).

Patent Owner argues that “inserting Jones’s sound level switch 14” into Couper’s system would “significantly decrease its effectiveness while providing no appreciable benefit.” PO Resp. 37 (citing Pet. 34–35; Ex. 2018 ¶ 60). Patent Owner asserts that the proposed combination “would have improved battery performance, if at all, only at the expense of not identifying certain incidents and not correctly determining the nature and location of the incidents that were identified.” *Id.* at 37–38. For example, according to Patent Owner, “[t]he insertion of Jones’s sound level switch 14 would impede Couper’s ability to detect sudden sounds such as breaking glass, auto accidents, etc.” because “the received sound signal would not be recorded and compared with a sound signature until after a determination is made that the sound exceeds the sound level threshold.” *Id.* (citing Ex. 2018 ¶ 61).

Patent Owner also argues that, “under the Petition’s proposed modification, sounds that do not exceed the sound level threshold would not be detected,” and thus “incidents that occur too distant from any mobile device so as to be sufficiently loud when they are received by the mobile devices would not be detected at all by the modified Couper system” and “incidents that occur near only one or a few devices” may not be properly identified. PO Resp. 38. According to Patent Owner, “[t]he system of Couper is premised on receiving data from multiple mobile devices” so that, even if the received sound is “moderate or quiet” as measured by mobile devices located remote from the location of the incident, “the data they provide enable the event processor 125 [to] better identify the nature of the

incident and its location.” *Id.* at 38–39 (citing Ex. 2018 ¶ 62). Patent Owner asserts that, “[w]ith fewer data sources, as Petitioner[’s] proposed modification would yield, the Couper system would be less likely to identify the nature and location of incidents.” *Id.* at 39.

Patent Owner further argues that the Petition does not offer any technical analysis to back up its assertion that its modification would “provide significant battery life improvements,” and that “introducing Jones[’s] sound level switch and adding a step to Couper’s algorithm could **decrease** battery life” due “to the increased computations required.” PO Resp. 39 (citing Ex. 1002 ¶ 168; Ex. 2016, 80:25–81:13; Ex. 2018 ¶ 64).

Petitioner responds that it “did not concede that the Couper-Lemelson-Jones system could not detect highly transient sounds,” and that Patent Owner “offers no evidence to support that assertion.” Pet. Reply 18–19. “Even Mr. Kleinschmidt,” Petitioner argues, “merely states that the switch could ‘impede’ Couper’s ability to detect transient sounds, not destroy it completely.” *Id.* at 19 (citing Ex. 2018 ¶ 61). And, Petitioner asserts, Patent Owner does not “dispute that Couper’s objective includes detecting continuous, non-transient sounds such as alarms and sirens (Petition, 36), and there is no suggestion in Couper that the purpose of its invention would be defeated even if limited to detecting non-transient sounds.” *Id.*

Petitioner also disagrees with Patent Owner’s argument that Jones’s volume threshold “would interfere with a purported requirement that Couper’s system receive data from multiple devices,” because the portion of Couper cited by Patent Owner merely describes receiving data from multiple devices “as an embodiment, and does not indicate that Couper’s system is

limited to or premised on only that embodiment.” Pet. Reply 19 (citing Dec. 44–45). “Indeed,” Petitioner asserts, “Couper expressly contemplates ‘[t]he event processor can evaluate communications received from *one or more* mobile devices.’” *Id.* (citing Ex. 1008, 3:65–4:7) (alteration in original). “Moreover,” according to Petitioner, Dr. Atlas explained at his deposition that one of ordinary skill “would be able to set the switch at a level that would capture the events that are pertinent,” and that the level of the volume threshold is simply “going to depend on what kind of detection you want to do.” *Id.* (citing Ex. 2016, 74:4–10, 76:4–77:4).

Petitioner responds to Patent Owner’s assertion that adding a volume threshold switch “could” decrease battery life due to “increased computations” by arguing that Dr. Atlas explained that “continuous loop recording and sound signature detection would require significant power, and that it would have been advantageous for power-saving to activate continuous loop recording and sound signature detection only upon detecting that the volume of the incoming signal was over a given threshold.” Pet. Reply 20 (citing Ex. 1002 ¶ 165). According to Petitioner, “Dr. Atlas also explained that he has ‘decades of experience’ with the trade-off at issue, having spent a ‘considerable number of years designing systems that are very similar where . . . power limitations are severe,’ and ‘with those severe power limitations you don’t want to turn the whole thing on unless you need to.’” *Id.* (citing Ex. 2016, 80:25–81:13) (alteration in original). “To be sure,” Petitioner acknowledges, “if the volume level threshold was set so low that virtually all sounds activated the continuous recording and signature detection, the power could be lost due to the additional computational step.” *Id.* “But,” according to Petitioner, Patent Owner fails to provide any

argument or evidence that “there is no level at which significant power savings could be obtained without breaking Couper’s system completely,” or dispute that “significant power savings would be achieved if the volume level threshold was set at the level typical of a fire alarm, as expressly noted in the Petition.” *Id.* at 20–21 (citing Pet. 35).

Patent Owner responds that Petitioner “did not engage in a proper obviousness analysis” by weighing “the benefits, ***both lost and gained***” by the proposed modification against one another. PO Sur-reply 18–19. In response to Petitioner’s argument that Couper is not limited to detection from multiple mobile devices, Patent Owner argues that Couper “discusses the use of multiple mobile devices throughout its disclosure,” refers to “distributed” mobile computing in its title, and describes the use of a “plurality of mobile devices” in its abstract. *Id.* at 19 (citing Ex. 1008, codes (54), (57), 1:35–36, 1:48–50, 6:16–19, 8:18–20, claim 1). Patent Owner also disagrees with Dr. Atlas’s testimony that one “would be able to set the switch at a level that would capture the events that are pertinent” because the pertinence of a sound is not based only on its volume, and, as Couper notes, “one mobile device may detect a sound while another may not ‘due to distance, motion, or the possibility that one mobile device is located in a noisy environment, while the other is not.’” *Id.* at 20 (citing Ex. 1008, 5:64–6:5). “Further,” Patent Owner asserts, “Dr. Atlas declined to describe what threshold would be employed in the proposed Couper-Lemelson-Jones system with any specificity.” *Id.* at 20–21 (citing Ex. 2016, 76:22–77:4, 77:11, 78:4–9). Finally, Patent Owner criticizes Petitioner’s suggestion “that the volume could be ‘at the level typical of a fire alarm,’ because the level typical of a fire alarm ‘depends on how close one is to the fire alarm’

and, if Petitioner means that the switch “is set to be triggered only when the sound exceeds the sound at the fire alarm itself,” it would only be triggered “when a mobile device happens to be adjacent to a fire alarm,” which would be a “rare instance indeed.” *Id.* at 21 (citing Pet. Reply 21).

Based on the full trial record, we find that Petitioner has made a sufficient showing as to claim 5. To begin with, we find that Couper discloses having the mobile device record a continuous loop and, if a detected sound matches a sound signature, preventing the audio from being recorded over until the mobile device provides the audio to the event processor or determines that the audio is not needed by the event processor. Ex. 1008, 8:4–14; *see* Ex. 1002 ¶ 40. We also find that Jones discloses: (1) unit 8 with microphone 12 which “continuously monitors ambient sound” and detects loud alarm sounds, such as those from smoke detectors; (2) software-implemented sound level switch 14 which has a volume level threshold that “triggers activation of the rest of the system,” and (3) a processor that analyzes the sound data and, if it is consistent with an alarm, transmits the sound to a server and contacts emergency response services. Ex. 1010, 1:56–2:46, 3:34–49, 5:26–6:9, Fig. 3; *see* Pet. 33–34; Ex. 1002 ¶ 162. We agree with and find credible Dr. Atlas’s testimony that one of ordinary skill in the art would have been motivated to implement the Couper-Lemelson combination with Jones’s volume level switch, in order to reduce the power used by activating continuous loop recording and sound signature detection only when the volume of the incoming signal is above a threshold, such as the level typical of a fire alarm. Ex. 1002 ¶ 165. Additionally, we agree with and find credible Dr. Atlas’s testimony that one of ordinary skill in the art would have been motivated to use Jones’s volume

level switch to improve Couper in the same way it improves Jones, i.e., by conserving power during periods of low sound levels, and that one of ordinary skill would have had a reasonable expectation of success in making the combination. *Id.* ¶¶ 166–167. Indeed, without some sort of volume level switch, the recording and signature detection could potentially be triggered by a large variety of low-volume sounds in the environment, some of which may be too quiet to accurately identify, which could significantly increase unnecessary use of the system’s processing and battery power.

We do not agree with Patent Owner’s arguments to the contrary. Patent Owner introduces testimony from Mr. Kleinschmidt that modifying the Couper-Lemelson combination to include Jones’s sound level switch would not have been desirable because it “would impede Couper’s ability to detect sudden sounds such as breaking glass, auto accidents, etc.” Ex. 2018 ¶¶ 60–61. The degree to which the sound level switch would impede detection of such events, however, would depend on the speed at which the switch was activated, and Mr. Kleinschmidt does not explain why a fast-acting switch could not allow a sufficient amount of a transient sound to be detected in order to be useful. *Id.* Additionally, we find credible Dr. Atlas’s testimony that, even if a volume level switch would impede the system’s ability to detect and record some highly transient sounds, one of ordinary skill “would have appreciated that implementing the switch would provide significant battery life improvements, and that Couper’s objective includes detecting continuous non-transient sounds such as alarms and sirens.” Ex. 1002 ¶ 168. This is consistent with Couper’s disclosure that the system can be triggered by a variety of sounds that are not highly transient, including “sirens,” “alarms,” “explosions,” “yelling or screaming,” and

“calls for help,” and Jones’s disclosure that its system can be used for a wide variety of alarms and other emergency detection devices. Ex. 1008, 4:64–5:4; Ex. 1010, 3:34–38.

We also disagree with the assertion by Patent Owner and Mr. Kleinschmidt that Couper’s system is premised on receiving data from multiple devices, and that Jones’s sound level switch would prevent the system from receiving low-level sounds from mobile devices located remote from the incident that could be used by the event processor to identify the incident and its location. PO Resp. 38–39 (citing Ex. 1008, 6:11–19); Ex. 2018 ¶ 62 (citing Ex. 1008, 6:11–19). First, we do not agree that Couper is “premised on” receiving data from multiple mobile devices, because the cited portion of Couper merely describes receiving data from “many mobile devices” as an embodiment, and does not indicate that Couper’s system is limited to or premised on only that embodiment. Ex. 1008, 6:11–19. As Couper explains:

Further, though only two mobile devices are shown, *it should be appreciated that* many more mobile devices *can* detect the sound 150 and perform the various processing functions disclosed herein. Such mobile devices also *can* communicate with the event processor 125. The present invention *lends itself to* having many mobile devices, dispersed throughout an area and potentially in motion, continually detecting sounds.

Id. (emphases added). Couper’s use of the language stating that it “should be appreciated” that more mobile devices “can” be used, that multiple mobile devices “can” communicate with the event processor, and that the invention “lends itself to” having many mobile devices, indicate that the use of multiple devices is not mandatory in Couper’s system. *See Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1379 (Fed. Cir. 2003) (stating that the term “can” is “permissive” and suggests that what follows the term “can” “is

not required”); *i4i Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 844 (Fed. Cir. 2010) (characterizing the phrase “can be created” in a specification as “permissive language”). This understanding is also consistent with Couper’s statement that “[t]he event processor can evaluate communications received from ***one or more*** mobile devices to determine or validate whether an incident associated with the detected sounds has occurred or is occurring.” Ex. 1008, 3:65–4:1. And, the other portions of Couper that Patent Owner refers to do not limit Couper to using sounds detected by multiple mobile devices to identify an incident. *See* PO Resp. 19; Ex. 1008, codes (54), (57), 1:35–36, 1:48–50, 6:16–19, 8:18–20, claim 1.

Moreover, even in Couper’s embodiment using multiple mobile devices to identify an incident, the use of a volume level switch would merely result in certain low-volume sounds not being detected for use by the system. The system could still use sounds from multiple mobile devices that are above the volume threshold to identify and locate an incident. And, by setting the volume level switch to an appropriate level, the system could be optimized to achieve the proper balance between picking up lower-volume sounds and preserving battery life. *See* Ex. 1002 ¶ 168; PO Resp. 19. As Dr. Atlas explained at his deposition, one of ordinary skill “would be able to set the switch at a level that would capture events that are pertinent,” and that the level of the volume threshold is “going to depend on what kind of detection you want to do” and “the circumstance of how the device was going to be used.” Ex. 2016, 74:4–10; 76:4–77:4. Thus, if picking up low-volume sounds from multiple devices is a priority for a particular application, the designer could set the volume threshold to a lower level.

We also do not agree with Patent Owner’s argument that adding a volume threshold switch could decrease battery life due to increased computations, and that Dr. Atlas offered only “a conclusory opinion” and did not perform calculations or offer technical analysis. *See* PO Resp. 39 (citing Ex. 1002 ¶ 168; Ex. 2016, 80:25–81:13). Dr. Atlas explained in his declaration that “continuous loop recording and sound signature detection would require significant power, and that it would have been advantageous for power-saving to activate continuous loop recording and sound signature detection only upon detecting that the volume of the incoming signal was over a given threshold.” Ex. 1002 ¶ 165; *see also* Pet. 35; Pet. Reply 20. Dr. Atlas also explained that he has “decades of experience” with the trade-off at issue, having spent a “considerable number of years designing systems that are very similar where . . . power limitations are severe,” and “with those severe power limitations you don’t want to turn the whole thing on unless you need to.” Ex. 2016, 80:25–81:13. We find that Dr. Atlas’s testimony is not conclusory, and that his testimony and experience in the field provides sufficient evidence that a volume threshold switch could increase battery life in Couper’s system without the need for calculations or additional technical analysis.

Moreover, even if Patent Owner is correct that a volume level switch could potentially decrease battery life if set too low (so that the system was constantly recording sounds and performing signature detection), we agree with Dr. Atlas that one of ordinary skill would have been able to set the volume level switch to an appropriate level to prevent that from occurring. *See* Ex. 1002 ¶¶ 165, 168; Ex. 2016, 74:4–10; 76:4–77:4; 80:25–81:13. And, finally, we find that Mr. Kleinschmidt’s testimony that improvements

to battery life from adding a volume level switch would be “marginal” and “trivial” are not explained in any detail and are outweighed by Dr. Atlas’s testimony to the contrary, which we find to be more credible and persuasive. Ex. 2018 ¶ 65.

For the foregoing reasons, Petitioner has proven by a preponderance of the evidence that claim 5 would have been obvious over the combination of Couper, Lemelson, and Jones.

F. Ground 2B: Obviousness of Claim 5 Based on Couper, Lemelson, Jones, and Lagassey

Petitioner contends that dependent claim 5 would have been obvious over Couper in view of Lemelson, Jones, and Lagassey. Pet. 40–42. Patent Owner disagrees. PO Resp. 37–40.

Ground 2B is similar to Ground 2A except that Petitioner argues that, “[t]o the extent [Patent Owner] argues that Couper alone does not disclose or suggest buffering,” buffering would have been obvious based on Lagassey. Pet. 40 (citing Ex. 1002 ¶¶ 179–185). Petitioner asserts that Lagassey “discloses a control unit 25 that includes a circular buffer,” and that “control unit 25 continuously stores all incoming audio data in a loop or circular buffer” while it “compares the audio signals against stored sound signatures indicative of an accident” and, “upon detecting an accident, preserves the audio data in the circular buffer by transferring it to a persistent storage device.” *Id.* at 40–41 (citing Ex. 1011 ¶¶ 53–55, 67, 151, 175; Ex. 1002 ¶ 180).

Petitioner argues that one of ordinary skill “would have appreciated that Lagassey describes essentially the same functionality as the Couper-Lemelson-Jones system, but provides additional details regarding how to implement this functionality by explaining that the ‘continuous loop’

recording may be implemented in a ‘circular buffer.’” Pet. 41 (citing Ex. 1002 ¶ 181). According to Petitioner, it would have been obvious to combine Lagassey with the Couper-Lemelson-Jones system “because the combination would have amounted to no more than the use of a known technique (Lagassey’s circular buffer and persistent storage mechanism) to improve similar devices (the Couper-Lemelson-Jones’s wearable incident detection system) in the same way (to provide a buffer for continuously recording and overwriting incoming sound).” *Id.* at 41–42 (citing Ex. 1002 ¶ 184).

Patent Owner does not separately argue against the addition of Lagassey to the Couper-Lemelson-Jones system, but rather relies on its arguments concerning the Couper-Lemelson-Jones system. PO Resp. 37–40.

Based on the full trial record, we determine that Petitioner has proven by a preponderance of the evidence that claim 5 is unpatentable over Couper in view of Lemelson, Jones, and Lagassey.

*G. Ground 3: Asserted Obviousness of Claims 1, 5, 12, 15, and 16
Based on White in view of Soufflet and Comerford*

Petitioner contends that claims 1, 5, 12, 15, and 16 would have been obvious over White in view of Soufflet and Comerford. Pet. 42–73. Patent Owner disagrees, arguing that Petitioner has failed to establish that these claims would have been obvious based on White, Soufflet, and Comerford. PO Resp. 40–51; PO Sur-reply 1–5, 22–24.

1. Overview of *White* (Ex. 1012)

White is directed to a “distributed voice user interface” (VUI).

Ex. 1012, 1:20. An overview of White’s system is shown in Figure 1, reproduced below.

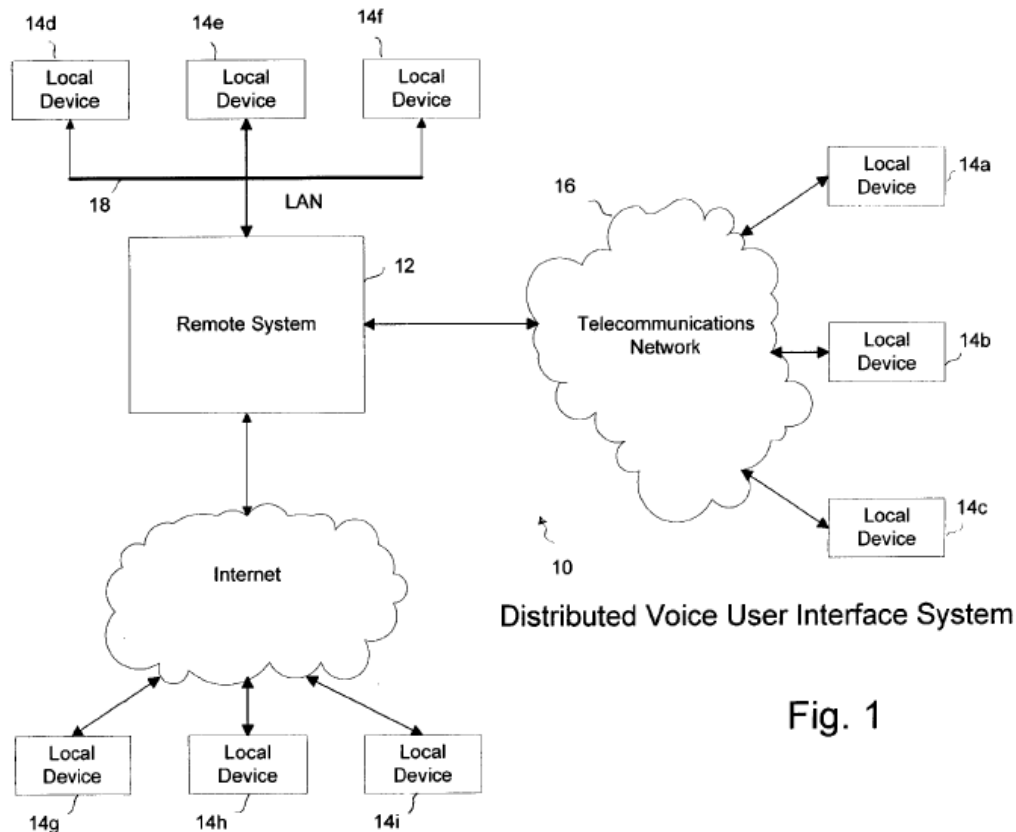


Fig. 1

Figure 1 of White shows a distributed voice user interface system. Ex. 1012, Fig. 1, 3:46–47.

Figure 1 shows distributed voice user interface (VUI) system 10, which “allows one or more users to interact—via speech or verbal communication—with one or more electronic devices or systems into which distributed VUI system 10 is incorporated, or alternatively, to which distributed VUI system 10 is connected.” Ex. 1012, 4:54–61. VUI system 10 includes remote system 12 which communicates with local devices 14 to implement one or more distributed VUIs, such that remote system 12 cooperates with each local device 14 to deliver a separate VUI capable of

responding to a user and controlling that local device. *Id.* at 4:66–5:10.

Local devices may each include a resident VUI including a microphone and speaker, as well as hardware and/or software for implementing speech recognition and speech output. *Id.* at 6:9–22. Where the speech recognition and/or speech output capability of a resident VUI of a local device is not sufficient, the resident VUI can be supplemented with more extensive capability provided by remote system 12. *Id.* at 6:46–50.

An exemplary method of operation of local device 14 is shown in the flow diagram of Figure 4, reproduced below.

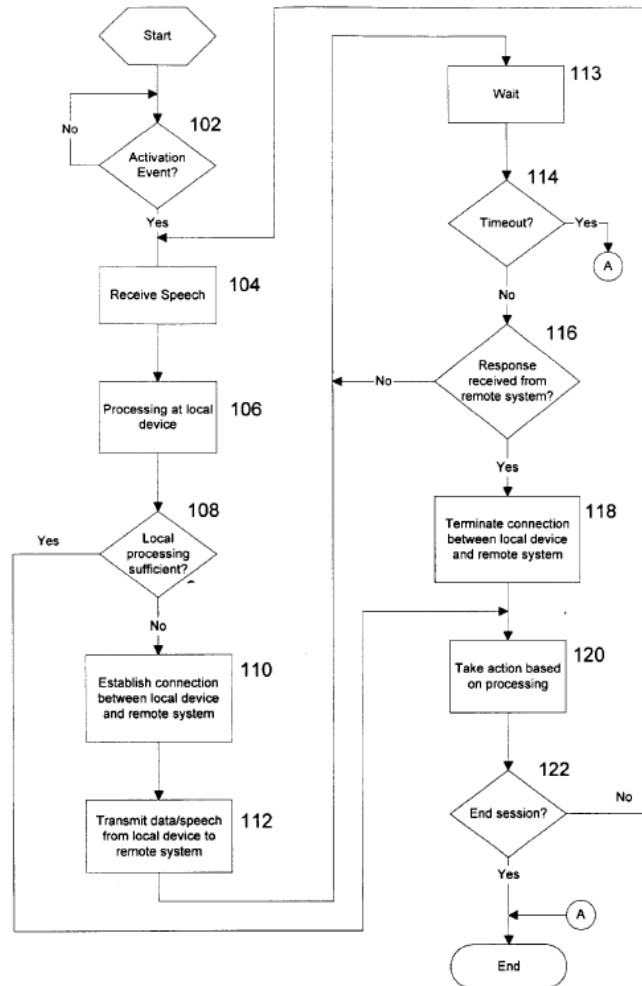


Fig. 4

Figure 4 of White is a flow diagram of an exemplary method of operation for a local device. Ex. 1012, Fig. 4, 3:53–55.

As shown in Figure 4, the local device waits for an “activation event,” such as the user uttering a particular keyword or phrase such as “Start” or “Turn on” (step 102). Ex. 1012, 17:21–27. Next, the local device receives “speech input” from the user by a microphone, such as “audible expressions of commands, instructions, directions, or requests spoken by the user” (step 104). *Id.* at 17:40–41. If the local device is unable to process the user’s speech input, it establishes a connection with remote system 12 and “transmits data and/or speech input to remote system 12 for processing therein” (steps 106–112). *Id.* at 18:3–8.

The remote system receives the user speech input and processes it, including by comparing it against grammars or acoustic models. Ex. 1012, 18:60–61, 19:1–14. If the remote system cannot identify a match, it requests more input from the user and, if necessary, provides the user with a list of recognizable commands or requests. *Id.* at 19:22–31, 19:54–67. If the remote server identifies a match, the system responds to the local device with, for example, a control signal for controlling the local device 14. *Id.* at 20:20–26.

2. *Overview of Soufflet (Ex. 1013)*

Soufflet relates to the “optimization of language models and/or of phonetic units in terminals using voice recognition.” Ex. 1013 ¶ 2. According to Soufflet, “the requirements in terms of voice recognition are ever more considerable, both as regards the extent of recognition (very large vocabulary) and the speed of recognition (real time).” *Id.* ¶ 3. Soufflet explains that, in designing voice user interfaces, “it is not possible to exhaustively define a language,” or to “take account of all the possible expressions and turns of phrase (from formal language to slang), and/or of

errors of grammar, etc.” *Id.* ¶ 19. Thus, Soufflet seeks to provide a “voice recognition process and system making it possible to modify and improve a language model remotely, on the basis of the recordings of expressions unrecognized by the system.” *Id.* ¶ 20.

An embodiment of Soufflet’s system is provided in Figure 1, reproduced below.

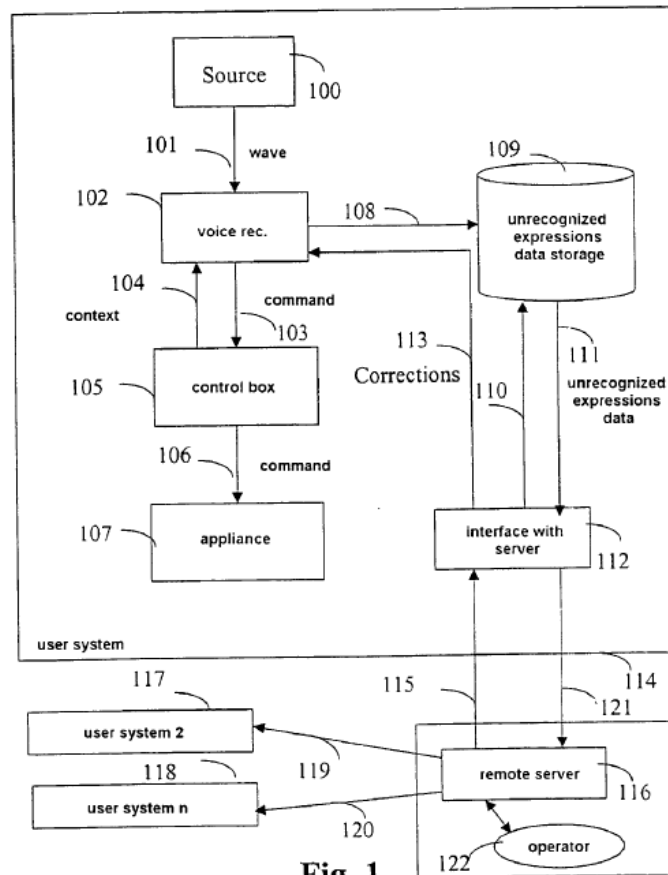


Fig. 1

Figure 1 of Soufflet shows a general schematic of a voice-controlled system.
Ex. 1013, Fig. 1, ¶ 62.

As shown in Figure 1, Soufflet’s system includes remote server 116 and multiple user systems 114, 117, and 118, each of which may be implemented as a “mobile telephone or a portable communication terminal.” Ex. 1013 ¶¶ 94–96, 114. Each user system includes voice recognition box 102, which includes a dictionary and recognition engine that uses language

models to identify the words used in expressions. *Id.* ¶¶ 116–118, 120, 121 Fig. 2. In operation, the user terminal receives a user “expression” or “utterance” and, if that expression is not recognized, it is sent to remote server 116 for further processing. *Id.* ¶¶ 177–186, Figs. 5, 6. Contextual information related to the unrecognized expression, such as time and date, is also transmitted to the remote server. *Id.* ¶¶ 40–42, 44, 91.

At the remote server, the recording is processed and the server determines whether the expression is comprehensible. *Id.* ¶¶ 199–200. If it is, server 116 “constructs a correction of the language model” including “correcting data” including “an indicator specifying the nature of the correction (in particular substitution, modification, supplement, or deletion); and the correcting data themselves as a function of the indicator.” *Id.* ¶¶ 202–204. Server 116 then broadcasts the correcting data to the user terminal, which receives the correcting data and uses it “to update the language model and/or its set of phonetic units used by the voice recognition module.” *Id.* ¶¶ 190–194, 206, 212. The correcting data may require “substitut[ing] for existing data in the language model and/or its set of phonetic units,” “modify[ing] existing data,” “supplement[ing] existing data,” or “deleting of existing data.” *Id.*

3. *Overview of Comerford (Ex. 1014)*

Comerford is directed to techniques for overcoming errors in speech recognition systems. Ex. 1014, code (57). Comerford explains that “any errors that may occur in a speech recognition system that could cause loss of speech intended to be recognized” are referred to as “truncation errors.” *Id.* ¶ 7. This may occur in the context of a speech recognition system that uses a “microphone-button” to activate speech recognition, for example if the

user pushes the microphone on button after speech has already begun, resulting in the loss of the speech before the button has been pressed. *Id.*

¶ 4.

To address the “truncation error” problem, Comerford discloses continuously recording into a first circular buffer, and then when a “MICON” (microphone on) signal is received (representing the time at which the system detects that the user is addressing the system to provide a speech command), buffering all further speech into a separate linear buffer, and prepending a copy of the circular buffer to the linear buffer. Ex. 1014 ¶¶ 29, 31–37. The composite buffer is fed into the speech recognition process. *Id.* ¶¶ 43–44.

4. *Analysis of Independent Claim 1*

a) 1[pre]: “[a] wearable device, comprising:”

Petitioner argues that, to the extent the preamble is limiting, White discloses it. Pet. 42 (citing Ex. 1002 ¶¶ 186–188). Specifically, Petitioner asserts that White “discloses implementing local device 14 as ‘smart jewelry (e.g., an electronic watch).’” *Id.* at 42–43 (citing Ex. 1012, 5:46–47).

Patent Owner does not present arguments regarding the preamble. *See* PO Resp. 40–51.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding the preamble.

b) 1[a]: “a microphone;”

Petitioner argues that White discloses or suggests this limitation. Pet. 43 (citing Ex. 1002 ¶¶ 189–191). Specifically, Petitioner asserts, “White discloses that each local device has a ‘microphone 20.’” *Id.* (citing Ex. 1012, 10:40, Fig. 2).

Patent Owner does not present arguments directed to this limitation.
See PO Resp. 40–51.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation.

c) 1[b]: “a memory that stores instructions; and”

1[c]: “a processor that executes the instructions to perform operations, the operations comprising:

Petitioner argues that White discloses or suggests these limitations. Pet. 44 (citing Ex. 1002 ¶¶ 192–197). “For example,” Petitioner asserts, “White discloses that each local device 14 includes a ‘processing component 28,’ and further discloses implementing the processing component as a ‘microprocessor connected to (or incorporating) supporting memory to provide the functionality described herein.’” *Id.* (citing Ex. 1012, 10:37–42, 11:25–34, Fig. 2). According to Petitioner, one of ordinary skill “would have understood this to mean that the processor is connected to a memory that includes stored software instructions for performing the functionality described in the specification.” *Id.* (citing Ex. 1002 ¶ 193). Petitioner further contends that White “expressly discloses implementing the functional units/components described throughout its specification as ‘programs stored in non-volatile memory, such as read-only memory (ROM),’ and discloses implementing various functionality of each local device in software.” *Id.* (citing Ex. 1012, 2:65–3:3, 4:51–52, 5:20–22, 6:18–22, 11:53–58, 12:23–31, 13:9–12, 13:17–25).

“Accordingly,” Petitioner argues, “White discloses or suggests a wearable device with a memory that stores software instructions for performing the functions of the wearable device (‘a memory that stores instructions’), and a microprocessor (‘a processor’) that executes the

software instructions stored in the supporting memory (‘that executes the instructions to perform operations’).” Pet. 44 (citing Ex. 1002 ¶ 197).

Patent Owner does not present arguments directed to this limitation. See PO Resp. 40–51.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation.

d) 1[d]: “receiving an acoustic signal from the microphone configured to measure an ambient environment;”

Petitioner argues that White discloses or suggests this limitation. Pet. 45 (citing Ex. 1002 ¶¶ 198–208). “For example,” Petitioner asserts, “White discloses that ‘[m]icrophone 20 detects the audible expressions issued by a user and relays the same to processing component 28,’” which one of ordinary skill would have understood “to mean that the microphone transduces the air pressure waves generated by the user’s audible expressions into analog signals carrying the acoustic content of the user’s expressions and transmits them to the processing component.” *Id.* (citing Ex. 1012, 10:63–67; Ex. 1002 ¶ 200). According to Petitioner, “White further discloses receiving from the user (1) a wake up phrase or keyword such as ‘Start’ and (2) ‘speech input’ which comprises ‘audible expressions of commands, instructions, directions, or requests spoken by the user.’” *Id.* (citing Ex. 1012, 10:16–22, 13:50–59, 17:21–37, 17:37–42). Petitioner contends that “White further discloses that the microphone picks up ‘ambient noise’ in addition to human speech.” *Id.* (citing Ex. 1012, 11:67–12:1; Ex. 1002 ¶ 203).

“Accordingly,” Petitioner argues, “White discloses or suggests a wearable device with a processing component that performs operations including receiving the user’s speech including a ‘wake up’ keyword/phrase

and a ‘speech input’ (e.g., an audible expression of a command) captured by and relayed from a microphone (‘receiving an acoustic signal from the microphone’) wherein the signal includes sounds in the ambient environment (‘configured to measure an ambient environment’).” Pet. 45–46 (citing Ex. 1002 ¶ 204).

Patent Owner does not present arguments directed to this limitation. See PO Resp. 40–51.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation.

e) 1[e]: “analyzing the acoustic signal to detect a trigger event;”

Petitioner argues that White discloses or suggests this limitation. Pet. 46 (citing Ex. 1002 ¶¶ 208–215). Petitioner argues that “White discloses the processing component 28 receiving the user’s speech from microphone 20” and that “the processing component 28 implements a resident VUI, configured to activate the local device when it detects ‘triggering events.’” *Id.* at 46–47 (citing Ex. 1012, 6:9–15, 11:59–64, 13:50–59). “More particularly,” Petitioner asserts, “White discloses implementing the resident VUI to be ‘constantly operating—listening to speech issued from a user, extracting feature parameters (e.g., cepstral, Fourier, or LPC) from the speech, and/or scanning for keyword “wake up” phrases.’” *Id.* at 47 (citing Ex. 1012, 13:55–59). According to Petitioner, one of ordinary skill “would have understood this to mean that White’s resident VUI is constantly performing parameter extraction and comparing resulting parameters to previously stored acoustic models of particular keyword ‘wake up’ phrases to determine if the incoming speech includes any such keywords/phrases,” which “is consistent with how the ’259 patent

describes ‘analyzing’ an acoustic signal.” *Id.* (citing Ex. 1002 ¶¶ 213–214; Ex. 1001, 6:23–27).

“Accordingly,” Petitioner contends, “White discloses or suggests a wearable device with a processor that analyzes the user’s speech from microphone 20 (‘analyzing the acoustic signal’) to detect a triggering event such as a keyword wake-up phrase (‘to detect a trigger event’).” Pet. 47 (citing Ex. 1002 ¶ 215).

Patent Owner does not present arguments directed to this limitation. *See* PO Resp. 40–51.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation.

f) 1[f]: “opening a communication channel with a remote server if a trigger event is detected;”

Petitioner argues that White discloses or suggests this feature. Pet. 47 (citing Ex. 1002 ¶¶ 216–222). Petitioner asserts that White “discloses that when a user ‘triggers local device 14 with a “wake up” command, local device 14 initiates communication with remote system 12.’” *Id.* (citing Ex. 1012, 14:4–10). According to Petitioner, White “also discloses ‘establish[ing] a connection’ with the remote system 12,” which may be a server, “after the local device determines that local processing is insufficient to process the user’s ‘speech input.’” *Id.* at 47–48 (citing Ex. 1012, 9:58–63, 18:3–6) (alteration in original). Additionally, Petitioner asserts that White’s local device “includes a ‘transceiver 32’ which is ‘connected to processing component 28 and functions to provide bi-directional communication with remote system 12 over telecommunications network 16.’” *Id.* at 48 (citing Ex. 1012, 13:13–49). Petitioner further contends that one of ordinary skill “would have understood that for a local device to ‘initiate communication[.]’

with the remote system or establish a connection, the local device opens a communication channel with the remote system,” and that “the processor communicates with the transceiver to perform the step of opening the communication channel.” *Id.* (citing Ex. 1002 ¶ 221) (alteration in original).

“Accordingly,” Petitioner argues, “White discloses or suggests that the processing component of the wearable device initiates communication with the remote system 12 or establishes a connection with the remote system 12 (‘opening a communication channel with a remote server’) if the resident VUI detects a wake-up phrase (‘if a trigger event is detected’).” Pet. 48 (citing Ex. 1002 ¶ 222).

Patent Owner argues that Petitioner improperly attempts to rewrite limitation 1[f] as “opening a communication channel with a remote server sometimes if a trigger event is detected.” PO Resp. 43 (citing Ex. 2018 ¶ 67). Patent Owner argues that “[t]he plain meaning of ‘if’ is ‘in the event that,’” and therefore the claim language requires that “when a trigger event is detected, a communication channel must be opened.” *Id.* at 43 (citing Ex. 2010, 3; Ex. 2018 ¶ 67). To support this construction, Patent Owner argues that “the ’259 patent consistently discloses a system in which the intensive signal processing required to detect sound signatures always occurs off of the mobile device and at a server.” *Id.* at 43–44 (citing Ex. 1001, 13:17–27, Fig. 8).

Patent Owner also argues that Petitioner agreed with Patent Owner in the parallel district court litigation that “opening a communication channel with a remote server if a trigger event is detected” means that a communication channel ***must*** be opened when a trigger event is detected, and that the district court construed this phrase to mean “when a trigger

event is detected, a communication channel must be opened.” PO Resp. 41 (citing Ex. 2013, 51). Additionally, according to Patent Owner, Petitioner’s expert in the district court proceedings, Dr. David Anderson, agreed with Patent Owner’s construction here by asserting that “[it] makes technical sense that the device [of the ’259 patent] would *always* open a communication channel when a trigger event is detected” and that the ’259 patent’s purpose “*necessitates* that type of always-on or *always-connecting* design.” *Id.* at 44 (citing Ex. 2017, 13) (alterations in original).

Patent Owner argues that White does not meet this claim limitation because its mobile device 14 “only sometimes opens a communication channel with a remote server in the event an activation event is detected and indeed attempts to avoid opening a communication channel when possible.” PO Resp. 45; *see id.* at 45–47 (citing Ex. 1012, Fig. 4, 17:21–32, 17:35–37, 17:39, 17:54–61, 17:63–18:2, 18:7–8). According to Patent Owner, White’s local device first “processes speech to determine whether the analysis of the speech results in commands and instructions sufficient for the local device to take action,” and only if this analysis is insufficient is the data or speech “transmitted to a remote system for analysis.” *Id.* Thus, Patent Owner argues, White makes clear that in all cases “local device 14 first attempts to respond and only if unable to do so does it establish a connection with a remote device.” *Id.* at 49 (citing Ex. 1012, 13:63–65, 17:54–18:6; Fig. 4).

Patent Owner further disagrees with Petitioner’s assertion that White “discloses a distinct embodiment in which the wake-up command or keyword ‘initiates communication’ with a remote server.” PO Resp. 48 (citing Prelim. Reply 2). To the contrary, Patent Owner argues, “White makes clear that, in all embodiments, a connection from a local device to a

remote server is established only if the local device is not able to satisfy the user's request," and points to several portions of White to support this assertion. *Id.*

First, Patent Owner points to White's statement that a "technical advantage of the present invention" includes providing "communication between a local device and the remote system . . . ***only if the local device requires the assistance of the remote system***" and that the remote system is capable of supporting a larger number of local devices "if ***each such device is only connected on a transient basis.***" PO Resp. 48 (quoting Ex. 1012, 3:15–24 (emphases added)). Second, Patent Owner point's to the statements in White's abstract that "[t]he local device performs preliminary processing of the speech input and determines whether it is able to respond to the command or request by itself [and] [i]f not, the local device initiates communication with a remote system for further processing of the speech input." *Id.* (quoting Ex. 1012, code (57)) (alterations in original). Third, Patent Owner points to the sentence before the portion Petitioner relies on, which states that "[i]f local device 14 is able, it generates these control signals and/or speech ***by itself*** after processing the user's commands, instructions, directions, or requests." *Id.* at 49 (quoting Ex. 1012, 13:65–14:1) (alteration in original).

Thus, Patent Owner argues, "[a]s revealed throughout the entirety of White, a 'wake up' or 'keyword' command is used only to activate local device 14 and prime local device 14 to receive a subsequent verbal command, instruction, direction, or request from the user." PO Resp. 49 (citing Ex. 1012, 13:50–65). According to Patent Owner, "White makes clear that in all such instances, local device 14 first attempts to respond and

that only if unable to do so does it establish a connection with a remote device.” *Id.* (citing Ex. 1012, 13:63–65, 17:54–18:6, Fig. 4). Finally, Patent Owner argues that the Petition acknowledged that “after the local device is activated by a wake-up command, it will transmit data and/or speech to remote system 12 only if required,” and that Petitioner’s contention that White discloses a “distinct embodiment in which the wake-up command or keyword ‘initiates communication’ with a remote server” is “new.” *Id.* at 49–50 (citing Pet. 10, 47–48, 54, 69–70; Prelim. Reply 2).

Petitioner responds that it agreed to Patent Owner’s construction in the district court “solely on the basis of [Patent Owner’s] disclaimer in the” Preliminary Response, and that “the district court adopted [Patent Owner’s] proffered construction only because the court perceived agreement between the parties as to the correct construction.” Pet. Reply 24–25 (citing Ex. 2012, 27–28; Ex. 2013, 43–45). Petitioner argues that “Federal Circuit precedent is clear that while subsequent proceedings can rely on [Patent Owner’s] statements as disavowal of claim scope, the Board need not, and indeed should not, rely on [Patent Owner’s] statements in the proceeding where they are made.” *Id.* at 25 (citing Ex. 1035, 21–22; *CUPP Computing AS v. Trend Micro Inc.*, 53 F.4th 1376, 1383) (Fed. Cir. 2022)). Petitioner further argues that the statements by Dr. Anderson upon which Patent Owner relies are from an “unsworn declaration,” are “hearsay,” and are “irrelevant” because he was only “applying the district court’s claim construction.” *Id.* at 24 (citing Ex. 2017 ¶ 105).

Petitioner also argues that White discloses the “opening” limitation even under Patent Owner’s construction. Petitioner asserts that, as explained in the Petition, “White discloses that when a user ‘triggers local device 14

with a ‘wake up’ command, local device 14 initiates communication with remote system 12,” and thus “White discloses or suggests that the processing component of the wearable device initiates communication (or establishes a connection) with the remote system 12 (‘opening a communication channel with a remote server’) if the resident VUI detects a wake-up command (‘if a trigger event is detected’).” Pet. Reply 25–26 (quoting Pet. 47–48; citing Ex. 1002 ¶¶ 216–222). Petitioner acknowledges that “White also discloses ‘establish[ing] a connection’ with the remote server 12 after the local device determines that local processing is insufficient to process the user’s ‘speech input,’” but states that “Petitioner[] do[es] not rely on that disclosure to show that White discloses this claim” under Patent Owner’s construction. *Id.* at 26 n.3.

“In essence,” according to Petitioner, Patent Owner “asks the Board to improperly ignore pertinent portions of White’s disclosure.” Pet. Reply 26. Petitioner argues that, contrary to Patent Owner’s argument, White discloses that “[i]f local device 14 is not able to respond by itself (e.g., it cannot recognize a user’s spoken command) ***or, alternatively, if a user triggers local device 14 with a ‘wake up’ command***, local device 14 initiates communication with remote system 12.” *Id.* at 27 (citing Ex. 1012, 14:1–6) (alteration in original). “In other words,” Petitioner asserts, “White discloses initiating communication with a remote server (1) after local processing (‘local processing first’); or (2) upon detection of the wake up command (‘initiate first’).” *Id.* “As explained in the Petition,” according to Petitioner, “White’s ‘initiate first’ disclosure meets the ‘opening’ limitation under [Patent Owner’s] proposed construction.” *Id.* With respect to the sentence at Column 13, line 65 through Column 14, line 1 of White, Petitioner

contends that this sentence “says nothing about the conditions under which White will ‘initiate communication with remote system 12’ or otherwise contradict White’s ‘initiate first’ disclosure at 14:1–6.” Petitioner further argues that Patent Owner “ignores two other disclosures in White’s Summary section that disclose initiating communication with a remote system when a keyword is detected,” and that White “uses the term ‘keyword’ interchangeably with ‘wake up’ command.” *Id.* at 27–28, 28 n.4 (citing Ex. 1012, 2:18–25, 2:45–50; PO Resp. 46–47, 49).

Finally, Petitioner disagrees that its reliance on the “initiate first” disclosure is new, and argues that it “unambiguously relied on the ‘initiate first’ disclosure in the Petition.” Pet. Reply 28. According to Petitioner, the Petition “never stated that White only discloses initiating communication with the remote system after determining the local processing is insufficient,” and Petitioner argues that its “proposed combination does not otherwise rely on such an interpretation.” *Id.*

Patent Owner responds by arguing that Petitioner misrepresents the district court’s Claim Construction Order and incorrectly characterizes Dr. Anderson’s sworn testimony in the district court as unsworn. PO Sur-reply 1–5. Patent Owner also argues that Petitioner does not harmonize its interpretation of Column 14, lines 1–6 of White with the immediately surrounding disclosure, which states that “[i]f local device 14 is able, it generates these control signals and/or speech *by itself*.” *Id.* at 23 (citing Ex. 1012, 13:65–67) (alteration in original). Patent Owner further contends that Petitioner’s argument that the sentence at Column 13, line 65 to Column 14, line 1 “says nothing about the conditions under which White will ‘initiate communication with remote system 12’” makes Patent Owner’s

point that “if the local device can generate the necessary control signals and/or speech, it does so *by itself* and *does not* initiate communication with remote system 12.” *Id.* Additionally, Patent Owner argues that Petitioner’s Reply “cite[s] portions of White that are not included in the Petition,” and that the passages in the “Summary” section cited by Petitioner are not “inconsistent with the remainder of White, which uniformly discloses avoiding server communication if possible.” *Id.* at 24. “Specifically,” according to Patent Owner, “there is no discussion or figure that suggests Petitioner[’s] newfound embodiments do not do what every other embodiment of White does—first ‘determine[] whether it is able to respond to the command or request by itself’ and then initiate communication with a server only if necessary.” *Id.* (citing Ex. 1012, code (57), 3:15–24) (second alteration in original).

Based on the full trial record, we find that Petitioner has sufficiently proven that White discloses this limitation. In reaching this conclusion, we need not determine which party’s construction of the term “opening a communication channel with a remote server if a trigger event is detected” is correct because Petitioner has shown that this limitation is satisfied under both parties’ proposed constructions, including under Patent Owner’s proposed construction requiring that a communication channel must be opened when a trigger event is detected. *See* PO Resp. 41. In this regard, we agree with Petitioner that White discloses having a local device open a communication channel with a remote system whenever a “wake up” command (a trigger event) is detected. As White explains:

Local device 14 may be activated upon the occurrence of any one or more activation or triggering events. . . . [R]esident VUI 36 of local device 14 may be constantly operating—

listening to speech issued from a user, extracting feature parameters (e.g., cepstral, Fourier, or LPC) from the speech, ***and/or scanning for keyword “wake up” phrases. . . .***

If local device 14 is not able to respond by itself (e.g., it cannot recognize a user’s spoken command) or, ***alternatively, if a user triggers local device 14 with a “wake up” command, local device 14 initiates communication with remote system 12.***

Remote system 12 may then process the spoken commands, instructions, directions or requests at its own VUI and return control signals or speech to local device 14 for forwarding to primary functionality component 19 or a user, respectively.

Ex. 1012, 13:50–14:10 (emphases added). We agree with Petitioner that this portion of White discloses that one way of implementing the system is that whenever a user triggers local device 14 with a wake up command, local device 14 opens a communication channel with remote system 12. *See* Pet. 47; Pet. Reply 25–26. White also discloses that, after activation by a wake up command, the processing component may receive speech input from the user comprising audible expressions of commands, which may be processed locally or sent to a remote server for processing. Ex. 1012, 13:60–14:10 (After activation, the local device may receive audible commands and, if able, generate “control signals and/or speech by itself” or, if “not able to respond by itself (e.g., it cannot recognize a user’s spoken command)” may send it to remote system 12 which “may process the spoken commands, instructions, directions, or requests at its own VUI and return control signals or speech to local device 14 for forwarding to primary functionality component 19 or a user, respectively.”).

Our understanding of White’s disclosure is confirmed by portions of White’s “Summary” section which disclose that the mobile device may be activated and initiate communication with a remote system when a keyword

(i.e., a wake up phrase) is detected. *See* Ex. 1012, 13:59 (referring to “keyword ‘wake up’ phrases”). For example, White states that:

According to another embodiment of the present invention, a distributed voice interface system includes a local device which continuously monitors for speech input issued by a user, scans the speech input for one or more keywords, and ***initiates communication with a remote system when a keyword is detected***. The remote system receives the speech input from the local device and can then recognize words therein.

Ex. 1012, 2:18–25 (emphasis added).

Similarly, White further discloses that:

According to still yet another embodiment of the present invention, a method includes the following steps: continuously monitoring at a local device for speech input issued by a user; scanning the speech input at the local device for one or more keywords; ***initiating a connection between the local device and a remote system when a keyword is detected***; and passing the speech input, or appropriate feature parameters extracted from the speech input, from the local device to the remote system for interpretation.

Ex. 1012, 2:45–53 (emphasis added). This understanding is also consistent with claim 1 of White, which recites “a local device operable to scan speech input issued by a user for a keyword, and to initiate communication with a remote system when the keyword is detected.” *Id.* at 20:58–60; *see id.* at 21:11–13 (claim 4) (“a local device operable to scan speech input issued by a user for a keyword, and to initiate communication with a remote system when the keyword is detected”), 22:9–12 (claim 6) (“scanning speech input issued by a user at a local device for a keyword; [and] initiating a connection between the local device and a remote system when the keyword is detected.”).

We disagree with Patent Owner’s argument that White does not disclose an embodiment “in which the wake-up command or keyword ‘initiates communication’ with a remote server,” and instead requires that connection from a local device to a remote server may only be established “if the local device is not able to satisfy the user’s request.” *See* PO Resp. 48. First, we disagree with Patent Owner’s argument that our understanding is contradicted by Column 3, lines 15–24 of White, which states that a “technical advantage of the present invention” includes providing “communication between a local device and the remote system . . . **only if the local device requires the assistance of the remote system**” and that the remote system is capable of supporting a larger number of local devices “if **each such device is only connected on a transient basis.**” *Id.* (quoting Ex. 1012, 3:15–24 (emphases added)). First, this portion of White lists numerous “technical advantage[s] of the present invention,” but we are not convinced that White requires that all of these various advantage must be possessed by every embodiment of the disclosed invention. Ex. 1012, 2:54–3:35. For example, White lists one of the “technical advantage[s]” as “providing the capability for data to be downloaded from the remote system to each of the local devices,” but independent claims 1, 4, and 6 do not include such a requirement. *Id.* at 3:25–35, 20:56–67, 21:10–22:2, 22:7–15.

Additionally, this portion of White’s Summary cited by Patent Owner is consistent with White’s disclosure (referenced above) that the local device is first activated using a wake up phrase, then initiates a connection with the remote system, and then listens for speech input and only passes that speech input to the remote system when it cannot be processed by the mobile device. In such a case, the mobile device would only need to send

communications to the remote system on a transient basis when the speech input cannot be recognized, which would save communication costs and allow more local devices to be supported. Finally, even if we were to agree with Patent Owner that this portion of White's Summary does not apply to an embodiment where a connection is initiated whenever a keyword is recognized, we find that this passage does not negate the disclosure of such an embodiment elsewhere in White's Specification.

We reach a similar conclusion with respect to the other disclosures of White upon which Patent Owner relies. As discussed above, Patent Owner relies on the statement in White's Abstract that "[t]he local device performs preliminary processing of the speech input and determines whether it is able to respond to the command or request by itself [and] [i]f not, the local device initiates communication with a remote system for further processing of the speech input." PO Resp. 48 (quoting Ex. 1012, code (57)) (alterations in original). Patent Owner also points to the statement in Columns 13–14 that "[i]f local device 14 is able, it generates these control signals and/or speech **by itself** after processing the user's commands, instructions, directions, or requests." *Id.* at 49 (quoting Ex. 1012, 13:65–14:1 (emphasis added)) (alteration in original); PO Sur-reply 23. Like the disclosure in Column 3, we find that these portions of White are consistent with White's embodiment in which the local device is first activated using a wake up phrase, then initiates a connection with the remote system, and then only passes further speech input to the remote system when it cannot be processed by the mobile device.

Finally, we do not agree with Patent Owner's assertion that Petitioner improperly "cite[s] portions of White that are not included in the Petition,"

specifically the portions of White’s Summary in Column 2. *See* PO Sur-reply 23–24. The Petition and Dr. Atlas relied on Column 14, lines 4 through 10 of White stating that when a user “triggers local device 14 with a ‘wake up’ command, local device 14 initiates communication with remote system 12.” Pet. 47; Ex. 1002 ¶ 217. Petitioner’s reliance on the discussions in White’s Column 2 at lines 18–25 and 45–53 simply expand upon this disclosure. Additionally, Petitioner first raised these portions of White’s Column 2 in its Preliminary Reply prior to institution, and therefore Patent Owner had an adequate opportunity to respond during the trial in its Patent Owner Response, Mr. Kleinschmidt’s declaration, and its Patent Owner Sur-reply. Prelim. Reply 1–2 (citing Ex. 1012, 2:18–25, 2:45–50, 14:2–6).

For the foregoing reasons, and based on the full trial record, we find that Petitioner has sufficiently proven that Petitioner’s proposed combination discloses limitation 1[f].

g) 1[g]: “generating metadata;”

Petitioner argues that White in combination with Soufflet discloses or suggests this limitation. Pet. 48–49 (citing Ex. 1002 ¶¶ 223–251). Petitioner asserts that Soufflet “is generally directed to a similar problem as White, i.e., the problem of being unable to recognize the user’s speech input at the local device due to limited resources.” *Id.* at 49 (citing Ex. 1002 ¶ 225). Petitioner also argues that one of ordinary skill “would have been motivated to modify White’s system and method for a distributed voice user interface using Soufflet’s teaching to generate and transmit context data with the user’s speech to the remote system.” *Id.* at 52 (citing Ex. 1002 ¶ 246). According to Petitioner, “White and Soufflet disclose similar systems

directed to a similar problem; that is, the augmenting of a local device's ability to perform speech recognition with the services provided by a remote server," and thus one of ordinary skill "would have readily appreciated how Soufflet's teachings pertaining to generating and transmitting context data would apply to and improve the ability of White's remote system 12 to recognize the user's speech input that the local terminal was unable to process," including "understanding the meaning and purpose" of that speech input. *Id.* (citing Ex. 1013 ¶ 44; Ex. 1002 ¶ 246).

Accordingly, Petitioner argues, one of ordinary skill "would have considered the combination to amount to the use of a known technique (Soufflet's generating/transmitting context information) to a known system (the White distributed VUI) ready for improvement" to "yield predictable results (a distributed VUI with a remote system that has an enhanced ability to process the user's speech input using contextual information about the user's speech input)." Pet. 53 (citing Ex. 1002 ¶ 247). According to Petitioner, one of ordinary skill "would have understood that the White system was ready for improvement" at least because "White discloses that its local device is capable of transmitting both speech data and context data to the remote terminal—i.e., White discloses that each local device includes a transceiver 32 that transfers 'speech and other data' to the remote system." *Id.* (citing Ex. 1012, 13:16–17; Ex. 1002 ¶ 248). Petitioner further contends that the combination "also amounts to the use of a known technique (Soufflet's generating/transmitting context information) to improve similar devices (White's distributed VUI and Soufflet's distributed VUI) in the same way (to enhance the ability of the remote system to recognize the user's speech)." *Id.* (citing Ex. 1002 ¶ 249).

Additionally, Petitioner argues that one of ordinary skill “would have had a reasonable expectation of success in making” the White-Soufflet combination because “it would have merely required generating and transmitting basic information such as date and time information along with the user’s speech input,” which “would have been well within” the level of ordinary skill. Pet. 53 (citing Ex. 1002 ¶ 250). “Thus,” Petitioner contends, “in the White-Soufflet system, White’s local device processing component 28 would generate context information regarding the user’s speech input, such as the time and date of the user’s speech input, and transmit that information to the remote system 12 along with the user’s speech input.” *Id.* at 54 (citing Ex. 1002 ¶ 251).

Patent Owner does not present arguments directed to this limitation. *See* PO Resp. 40–51.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation.

h) 1[h]: “transmitting the metadata, and the acoustic signal to the server via the communication channel; and”

Petitioner argues that White in combination with Soufflet and Comerford discloses or suggests this limitation. Pet. 54 (citing Ex. 1002 ¶¶ 252–278). Petitioner asserts that “White discloses that after the local device is activated by a wake-up command, the processing component receives ‘speech input’ from the user comprising ‘audible expressions of commands.’” *Id.* (citing Ex. 1012, 17:38–42). “The resident VUI,” according to Petitioner, “then attempts to recognize the user’s speech input,” but “if the speech recognition processing on the local device is not sufficient, the local device ‘transmits data and/or speech input to remote system 12.’” *Id.* (citing Ex. 1012, 17:63–18:8). Petitioner contends that (as discussed

above) the White-Soufflet combination discloses transmitting context information (“the metadata”) to the remote system, and one of ordinary skill would have understood the White-Soufflet combination to disclose or render obvious transmitting the context information over the same connection that was previously established in limitation 1[f] “to avoid having to establish a second connection.” *Id.* at 55 (citing Ex. 1002 ¶ 225).

Petitioner asserts that “White further discloses transmitting encoded speech data and/or extracted parameter data to the remote system,” but acknowledges that “White does not explicitly disclose transmitting the user’s wake up phrase to the remote system along with the user’s ‘speech input’ (e.g., the user’s audible expression of a command, although it does not preclude it, either).” Pet. 55 (citing Ex. 1012, 13:13–38; Ex. 1002 ¶ 257). However, Petitioner argues, one of ordinary skill “would have been motivated to modify the White-Soufflet system in view of Comerford to transmit both the user’s wake up phrase and the speech input to the server.” *Id.* (citing Ex. 1002 ¶ 257).

As discussed previously, Comerford proposes a two memory buffer arrangement to address the problem of truncation errors in speech recognition systems. *See* §II.H.2, *supra*. Petitioner argues that White “does not describe the details of the memory architecture pertaining to receipt of the user’s wake-up command and speech input,” so a person of ordinary skill “looking to implement the White-Soufflet system would have been motivated to consider prior art techniques for doing so,” including Comerford’s two memory buffer arrangement which “would be well-suited for temporary buffering and analysis of the user’s wake-up commands.” Pet. 57 (citing Ex. 1002 ¶¶ 265–266). Petitioner also argues that such an

approach would have been obvious because it would have allowed the White-Soufflet system to avoid the truncation error problem. *Id.* at 57–58 (citing Ex. 1002 ¶¶ 267, 269).

Thus, Petitioner argues, “in the combined White-Soufflet-Comerford system, both portions of the user’s speech that comprise ‘the acoustic signal’ (i.e., the ‘wake-up’ phrase and the ‘speech input’) would be captured in a composite linear buffer and processed by the speech recognition engine on the user’s local device,” and if necessary, “the processing component would transmit the composite linear buffer to the remote system for further processing over the same connection established” in limitation 1[f]. Pet. 58 (citing Ex. 1002 ¶ 270). Petitioner asserts that one of ordinary skill “would have understood that the combined White-Soufflet-Comerford system would be more robust to the truncation error problem because even if the user did not pause long enough before uttering his/her speech command, the entire speech input signal would be captured and fed into the ASR process.” *Id.* at 58–59 (citing Ex. 1002 ¶ 271).

Patent Owner does not present arguments directed to this limitation. *See* PO Resp. 40–51.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation.

- i) 1[i]: “receiving, from the server, an analysis of the acoustic signal including whether a sound signature has been detected.”

Petitioner argues that White in combination with Soufflet and Comerford discloses or suggests this limitation. Pet. 61 (citing Ex. 1002 ¶¶ 279–301). Petitioner asserts that White “discloses that the remote system performs parameter extraction on the user’s speech input to produce a

‘vector of cepstral coefficients every 10 milliseconds,’ and then compares the speech input against one or more grammars or acoustic models.” *Id.* (citing Ex. 1012, 15:53–67, 19:6–14). “If there is a match,” according to Petitioner, “the remote system generates a vocalized reply or a control signal for controlling the local device,” and if not, “the system seeks additional user input from the user, and directs the user to select from a list of commands if needed.” *Id.* (citing Ex. 1012, 19:22–31, 19:54–61, 20:20–26). Petitioner contends that White “further discloses that the ‘[a]coustic model component 73’ includes ‘reference voice templates which store previous enunciations (or acoustic models) of certain words or phrases by particular users.’” *Id.* (citing Ex. 1012, 16:4–10) (alteration in original).

Petitioner argues that one of ordinary skill “would have understood that White’s disclosure of producing a ‘vector of cepstral coefficients every 10 milliseconds’ to be the same as generating a ‘sound signature’ for the speech input” and that “White’s ‘acoustic models’ are consistent with the ’259 patent’s description of ‘sound signature models.’” Pet. 61–62 (citing Ex. 1002 ¶¶ 292–293; Ex. 1001, 13:43–47). Therefore, according to Petitioner, one of ordinary skill would have understood that White discloses or suggests comparing parameters of the input speech (e.g., the vector(s) of cepstral coefficients) to the acoustic models for the purpose of determining whether they matched the sound signature for particular words or phrases.” *Id.* at 62 (citing Ex. 1002 ¶ 293).

Petitioner also argues that Soufflet discloses having the local server send a user’s unrecognized expression for further processing, and having the remote server generate and transmit correcting data back to the local terminal so that the local terminal can, for example, account for new words,

slang, or accents. Pet. 62–63. Petitioner asserts that one of ordinary skill would have been motivated to modify the White-Soufflet-Comerford system to incorporate these teachings as an effective way to update or modify the keywords recognizable by the local device. *Id.* at 64 (citing Ex. 1002 ¶ 299; Ex. 1012, 12:55–13:12).

“Accordingly,” Petitioner contends, “the White-Soufflet-Comerford system discloses or suggests a processor of a wearable device receiving from the remote system (‘receiving, from the server’) a reply including a control signal (if the remote system found a match), a request for additional input or a list of recognizable commands (if the remote system did not find a match),” and/or “correcting data including information about the words or phrases identified in the user’s speech input (any of which constitutes ‘an analysis of the acoustic signal including whether a sound signature has been detected’).” Pet. 64–65 (citing Ex. 1002 ¶ 301).

Patent Owner does not present arguments directed to this limitation. *See* PO Resp. 40–51.

Based on the full trial record, we find that Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation.

j) Summary for Claim 1

For the foregoing reasons, and based on the full trial record, Petitioner has proven by a preponderance of the evidence that claim 1 is unpatentable over the White-Soufflet-Comerford combination.

5. Claims 5, 12, 15, and 16

Petitioner contends that claims 5, 12, 15, and 16 are unpatentable over the White-Soufflet-Comerford combination. Pet. 65–73. Patent Owner does

not provide separate argument for these claims in this Ground. *See* PO Resp. 40–51.

Claim 5 depends from claim 1, and further recites “buffering the acoustic signal upon detection of the trigger event.” Ex. 1001, 18:29–31. Petitioner argues that, as discussed above for limitation 1[h], “the White-Soufflet-Comerford system utilizes a two memory buffer arrangement” in which, “upon detection at the local device 14 of the user’s wake-up phrase, the user’s speech input is written into a linear buffer, and the contents of the circular buffer (including the user’s wake-up command) is pre-pended into the linear buffer.” Pet. 65 (citing Ex. 1002 ¶ 303). “Accordingly,” Petitioner contends, “the White-Soufflet-Comerford system discloses or suggests a processor that writes the user’s speech input and wake-up command to a linear buffer (‘buffering the acoustic signal’) when the processor detects the user’s wake-up command (‘upon detection of the trigger event’).” *Id.* (citing Ex. 1002 ¶ 304).

As noted above, claim 12 is independent and is similar in many respects to claim 1. Ex. 1001, 18:51–64. Petitioner largely relies on its arguments for claim 1 for claim 12. Pet. 65–67.

Claim 15 depends from claim 12 and further recites “updating a sound signature model associated with the sound signature based on the acoustic signal.” Ex. 1001, 19:5–7. Petitioner argues that “the White-Soufflet-Comerford system discloses or suggests updating acoustic models stored on the user’s local device using correcting data generated by the remote system based on the remote system’s analysis of the user’s speech input.” Pet. 67–71 (citing Ex. 1012, 5:16–22, 6:36–44, 11:44–58, 12:16–19, 12:55–13:12,

16:4–10, 17:43–50; Ex. 1013 ¶¶ 190–194; Ex. 1002 ¶¶ 314–329; Ex. 1001, 13:51–54).

Claim 16 depends from claim 12 and further recites “training a new model for the sound signature to learn a characteristic of the acoustic signal.” Ex. 1001, 19:8–10. Petitioner argues that one of ordinary skill would have understood White to disclose or suggest adding new keywords to the local device’s sound signature models based on the remote system’s analysis of the user’s speech input and the user’s word choices. Pet. 72 (citing Ex. 1002 ¶¶ 330–332). Petitioner also asserts that one of ordinary skill would have understood Soufflet to disclose generating correcting data based on the user’s speech to update, modify, substitute, or supplement sound signature models to take into account new words or accents from the user, and would have understood that, before generating this correcting data, the remote system would create, or train, a new model for the sound signature using the parameters of the user’s speech input and then include that model in the correcting data sent to the user’s terminal. *Id.* (citing Ex. 1002 ¶¶ 333–334). “Accordingly,” Petitioner contends, “the White-Soufflet-Comerford system discloses or suggests a method including the step of creating a new sound signature model(s) representing the new words recognized by the remote system in the user’s speech input (‘training a new model for the sound signature’), wherein the new sound signature model(s) is created with the parameters of the user’s speech input (‘to learn a characteristic of the acoustic signal.’).” *Id.* at 72–73 (citing Ex. 1002 ¶ 335).

As noted above, Patent Owner does not provide separate argument for these claims. *See* PO Resp. 40–51. Based on the full trial record, we find that Petitioner has proven by a preponderance of the evidence that claims 5,

12, 15, and 16 are unpatentable over the White-Soufflet-Comerford combination.

III. CONCLUSION

For the reasons discussed above, Petitioner has proven, by a preponderance of the evidence, that the challenged claims are unpatentable, as summarized in the following table:⁴

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–4, 6, 11, 12	103	Couper, Lemelson	1–4, 6, 11, 12	
5	103	Couper, Lemelson, Jones	5	
5	103	Couper, Lemelson, Jones, Lagassey	5	
1, 5, 12, 15, 16	103	White, Soufflet, Comerford	1, 2, 9, 11–14	
Overall Outcome			1–6, 11, 12, 15, 16	

⁴ 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).

IV. ORDER

Accordingly, it is

ORDERED that claims 1–6, 11, 12, 15, and 16 of the '259 patent have been proven by a preponderance of the evidence to be unpatentable; and

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

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