**IN THE UNITED STATES DISTRICT COURT**
**FOR THE EASTERN DISTRICT OF TEXAS**
**MARSHALL DIVISION**

| | | |
|---|---|---|
| STATON TECHIYA, LLC, and SYNERGY IP CORPORATION, | § | |
| | § | |
| *Plaintiffs*, | § | Case No. 2:21-CV-00413-JRG-RSP (Lead Case) |
| | § | |
| v. | § | |
| | § | |
| SAMSUNG ELECTRONICS CO., LTD., and SAMSUNG ELECTRONICS AMERICA, INC., | § | Case No. 2:22-CV-00053-JRG-RSP (Member Case) |
| | § | |
| *Defendants*. | § | |

**CLAIM CONSTRUCTION ORDER**

In these consolidated patent cases, Staton Techiya, LLC, and Synergy IP Corporation (collectively, "Techiya") allege infringement by Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc., (together, "Samsung") of certain claims from 14 United States patents generally directed to electronic acoustic devices and methods. Having considered the parties' briefing and arguments of counsel during a January 10, 2023 hearing, the Court resolves the disputes as follows.

## I. BACKGROUND

Techiya asserts 14 United States patents against Samsung:

| U.S. Patent | Title |
|---|---|
| 8,111,839 | Always on headwear recording system |





Samsung v. Techiya
IPR2024-01003
Exhibit 1011

| | |
|---|---|
| 8,254,591 | Method and device for audio recording |
| 8,315,400 | Method and device for acoustic management control of multiple micro-phones |
| 9,124,982[1] | Always on headwear recording system |
| 9,270,244 | System and method to detect close voice sources and automatically enhance situation awareness |
| 9,491,542 | Automatic sound pass-through method and system for earphones |
| 9,609,424 | Method and device for personalized hearing |
| 10,405,082 | Automatic keyword pass-through system |
| 10,966,015[2] | Automatic keyword pass-through system |
| 10,979,836 | Acoustic sealing analysis system |
| 11,039,259 | Method and system for sound monitoring over a network |
| 11,057,701 | Method and device for in ear canal echo suppression |
| 11,217,237 | Method and device for voice operated control |
| 11,244,666 | Method and device for acute sound detection and reproduction |

Each of the asserted patents relates in some way to audio devices, such as earphones, headphones, or microphones. For example, the ’839 and ’982 Patents “relate[] to earpieces, in particular . . . recording audio for a particular time span while the earpiece is in use.” ’839 Patent at 1:14–17; *see also* ’982 Patent at 1:16–19. These patents teach “first and second monitoring assemblies

[1] This patent issued from a continuation application claiming priority to the application underlying the ’839 Patent.

[2] This patent issued from a continuation application claiming priority to the application underlying the ’082 Patent.

mounted in an earpiece that occludes and forms an acoustic seal of an ear canal." '839 Patent at [57]. The first and second monitoring assembly have an ambient sound microphone (ASM) and an ear canal microphone (ECM), respectively. *Id.* The claimed systems and methods use those microphones to record both the ambient and actual sound exposure to a user, thereby allowing the user to keep records of personal sound exposure, such as recent conversations. *Id.* at 5:65–66.

As another example of the patents' subject matter, the '082 Patent and '015 Patent "relate[] to acoustic keyword detection and passthrough . . . devices that can be acoustically controlled." '082 Patent at 1:14–16; '015 Patent at 1:15–17. These patents explain how sound-isolating (SI) earphones and headsets "acoustically detach" users from their local sound environment. '082 Patent at 1:27–30.

> If a second individual in the SI earphone user's ambient environment wishes to talk with the SI earphone wearer, the second individual must often shout loudly in close proximity to the SI earphone wearer, or otherwise attract the attention of said SI earphone wearer e.g. by being in visual range. Such a process can be time-consuming, dangerous or difficult in critical situations. A need therefore exists for a "hands-free" mode of operation to enable an SI earphone wearer to detect when a second individual in their environment wishes to communicate with them.

*Id.* at 1:30–40.

To address this need, the patents teach a method for activating ambient sound pass-through in an earphone in response to a detected keyword. A device implementing the method analyzes a signal from an ASM. When the device detects a predetermined keyword in the ASM signal, it adjusts the gain of any audio content being delivered, thereby allowing the earphone wearer to hear the spoken keyword and take appropriate action, such as pausing or reducing the audio content level. *See generally id.* at 2:26–34.

The parties present several disputes from the 14 patents. Prominent among them, they

dispute whether many of the claims' preambles are limiting. *See generally* Dkt. No. 191 at 4–6; Dkt. No. 203 at 5–11. They also dispute whether, when the claims recite "a processor" followed by a recitation of function or structure, the same processor must perform each of the recited functions or have all the recited structure to satisfy the claim. *See generally* Dkt. No. 191 at 2–4; Dkt. No. 203 at 1–4. Samsung contends four of the terms are indefinite. *See generally* Dkt. No. 203 at 12–19. The remaining disputes are straightforward disagreements about disclaimer, lexicography, and, in some cases, whether construction is even required.

## II. GENERAL LEGAL STANDARDS

### A. Generally

"[T]he claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). As such, if the parties dispute the scope of the claims, the court must determine their meaning. *See, e.g.*, *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1317 (Fed. Cir. 2007); *see also Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996), *aff'g*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc).

Claim construction, however, "is not an obligatory exercise in redundancy." *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). Rather, "[c]laim construction is a matter of [resolving] disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims . . . ." *Id.* A court need not "repeat or restate every claim term in order to comply with the ruling that claim construction is for the court." *Id.*

When construing claims, "[t]here is a heavy presumption that claim terms are to be given their ordinary and customary meaning." *Aventis Pharm. Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1373 (Fed. Cir. 2013) (citing *Phillips*, 415 F.3d at 1312–13). Courts must therefore "look to the

words of the claims themselves . . . to define the scope of the patented invention." *Id.* (citations omitted). The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Phillips*, 415 F.3d at 1313. This "person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.*

Intrinsic evidence is the primary resource for claim construction. *See Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1348 (Fed. Cir. 2010) (citing *Phillips*, 415 F.3d at 1312). For certain claim terms, "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips*, 415 F.3d at 1314; *see also Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) ("We cannot look at the ordinary meaning of the term . . . in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history."). But for claim terms with less-apparent meanings, courts consider "those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean . . . [including] the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Id.*

**B. Indefiniteness**

"[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those

skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc*., 572 U.S. 898, 901 (2014). The claims "must be precise enough to afford clear notice of what is claimed," but that consideration must be made while accounting for the inherent limitations of language. *Id.* at 908. "Indefiniteness must be proven by clear and convincing evidence." *Sonix Tech. Co. v. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017).

### C. Whether to Treat a Preamble as Limiting

"Whether to treat a preamble as a claim limitation is determined on the facts of each case in light of the claim as a whole and the invention described in the patent." *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 952 (Fed. Cir. 2006) (quoting *Storage Tech. Corp. v. Cisco Sys., Inc.*, 329 F.3d 823, 831 (Fed. Cir. 2003)). "Preamble language that merely states the purpose or intended use of an invention is generally not treated as limiting the scope of the claim." *Id.* Similarly, "[i]f the body of the claim 'sets out the complete invention,' the preamble is not ordinarily treated as limiting the scope of the claim." *Schumer v. Lab. Comput. Sys., Inc.*, 308 F.3d 1304, 1310 (Fed. Cir. 2002). But the preamble is limiting if it recites essential structure important to the invention or necessary to give meaning to the claim. *NTP, Inc. v. Research In Motion, Ltd.*, 418 F.3d 1282, 1305–06 (Fed. Cir. 2005), *cert. denied,* 546 U.S. 1157 (2006). That is, if the claim drafter "chooses to use *both* the preamble and the body to define the subject matter of the claimed invention, the invention so defined . . . is the one the patent protects." *Bell Commc'ns Research, Inc. v. Vitalink Commc'ns Corp.*, 55 F.3d 615, 620 (Fed. Cir. 1995) (emphasis in original). Moreover, when the limitations in the body "rely upon and derive antecedent basis from the preamble, then the preamble may act as a necessary component of the claimed invention." *Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003).

## III. THE LEVEL OF ORDINARY SKILL IN THE ART

The level of ordinary skill in the art is the skill level of a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In resolving the appropriate level of ordinary skill, courts consider the types of and solutions to problems encountered in the art, the speed of innovation, the sophistication of the technology, and the education of workers active in the field. *Id.* Importantly, "[a] person of ordinary skill in the art is also a person of ordinary creativity, not an automaton." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007).

Here, neither party proffers a level or ordinary skill directly in their briefing. Techiya's experts each state they have been "asked to apply" the following level of skill: "a bachelor's degree in electrical engineering, computer science, or a similar field and at least one year of designing hearing instruments and speech recognition systems [or] similar knowledge and experience [obtained] through other means." Kleinschmidt Decl., Dkt. No. 191-1 ¶ 13 (brackets in original); Struck Decl., Dkt. No. 191-2 ¶ 16 (same); Buck Decl., Dkt. No. 191-3 ¶ 18 (same). Samsung does not contest this level of skill, which the Court adopts for the purpose of construing the disputed terms.

## IV. THE DISPUTED TERMS

### A. The Effect of "A" and "An" on a Claim Limitation

#### *1. "a processor . . . the processor" ('591 Patent, Claims 1, 11, 14; '244 Patent, Claims 1, 17, 18, 28; '424 Patent, Claims 1, 12; '082 Patent, Claim 14; '015 Patent, Claim 12; '836 Patent, Claims 1, 9, 14; '237 Patent, Claim 1; '666 Patent, Claim 1; '400 Patent, Claims 1, 18; '259 Patent, Claim 1)*

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| No construction necessary | The same processor must perform each of the recited functions. |

With respect to these claims, Samsung asserts the same processor must perform each of the recited operations and, in the case of the '400 Patent, be operatively coupled as claimed. Dkt. No. 203 at 2–4. Techiya resists that notion, relying on the general principal that "a" or "an" in the claims means "one or more." Dkt. No. 191 at 2–4. Techiya relies on three Federal Circuit cases: *KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351 (Fed. Cir. 2000), *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338 (Fed. Cir. 2008), and *Convolve, Inc. v. Compaq Comput. Corp.*, 812 F.3d 1313 (Fed. Cir. 2016). Dkt. No. 191 at 2–4; Dkt. No. 209 at 2.

In *KCJ Corp.*, the court considered the construction of "a lower, continuous, inflatable chamber having an air-permeable, flexible upper wall portion." *KCJ Corp.*, 223 F.3d at 1353. As the Federal Circuit explained:

> At the heart of the dispute over this limitation is the meaning of the article "a." Specifically, does the article limit the number of chambers to only one or does it cover one or more chambers?
>
> The district court limited [the "chamber" clause] to only one non-interrupted inflatable chamber. The district court stated that "the concept of multiple chambers is at fundamental odds with the concept of continuity, and discrete multiple chambers cannot be read into the patent without sacrificing the concept of continuity. Thus, the district court "had little hesitation in concluding that [the claim] means exactly

> what it says: one continuous chamber." Based on that construction, the district court held as a matter of law that [the "chamber" clause] of claim 1 does not read on Kinetic's accused devices having multiple continuous chambers.

*KCJ Corp.*, 223 F.3d at 1353, 1355–56 (internal citations omitted).

The Federal Circuit disagreed with that holding. Although the appellate court recognized "'a' or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claims containing the transitional phrase 'comprising[,]'" *id.* at 1356, it concluded "under the proper claim construction, an accused device having one or more continuous chambers would fall within the scope of [the limitation because the] undisputed evidence shows that Kinetic's accused devices have three chambers[,]" *id.* at 1357. Thus, in *KCJ Corp.* the issue was not whether multiple chambers of the accused devices could satisfy the various aspects of the "chamber" limitation, but whether using "a" or "an" resulted in a closed-ended claim for the "chamber" limitation despite the use of "comprising" as the transition word.

*Baldwin* concerns a similar issue. The appellate court reversed the trial court's ruling that the asserted claims' recitation of "a presoaked fabric roll" meant *exactly one* fabric roll having the claimed features. *Baldwin*, 512 F.3d at 1342–43. Effectively, the trial court wrongly held the disputed claim to be closed-ended as to the number of fabric rolls despite its use of "comprising" as the transition word. *Id.*

Neither *KCJ Corp.* nor *Baldwin* are on point. Analogizing to a hypothetical claim directed to a "dining room set comprising a table configured to seat six people," in both cases, the issue was whether the claims excluded dining room sets with *more than one* table configured to seat six people. Here, however, Techiya argues the claims *include* dining room sets with only three tables, each configured to seat only two people.

*Convolve* is more helpful to Techiya. Claim 9 of the asserted patent recited:

> 9. [An apparatus] for controlling operation of a data storage device, the apparatus comprising:
>
> a memory which stores computer-executable process steps; and
>
> a processor which executes the process steps so as (i) to generate a user interface, the user interface controlling one of a seek time of the data storage device and a seek acoustic noise level of the data storage device, (ii) to alter settings in the user interface for one of the seek time and the seek acoustic noise level of the data storage device in inverse relation, and (iii) to output commands to the data storage device causing the data storage device to alter seek trajectory shape by shaping input signals to the data storage device to reduce selected unwanted frequencies from a plurality of frequencies in accordance with the altered settings in the user interface.

U.S. Patent 6,314,473 Cl at 2:7–22. The trial court held the accused devices did not meet the "to output commands" limitation. *Convolve, Inc.*, 812 F.3d at 1320. That ruling implicitly required "a singular processor associated with the user interface that issues commands, and exclude[d] the existence of a second processor capable of issuing those commands[.]" *Id.* Analyzing Claim 9, the appellate court refused to limit "a processor" to one processor:

> While it is true that the patentee recited other claim terms in the plural, e.g., "output commands," "alter settings," or "input signals," this does not compel a departure from our general rule that "a" means "one or more" when following the open-ended term "comprising."

*Id.* at 1321. In other words, the court concluded one processor could generate a user interface and a second processor could output commands while still falling within the scope of this claim.

The patent's disclosure played a supporting role in this finding. Specifically, the court referenced "the specification's plain disclosure of an embodiment where 'seeks' are controlled by a 'separate controller dedicated to the disk drive.'" *Id.* (citing '473 Patent at 10:6–14). That disclosure explained:

> As shown [in FIGS. 10A and 10B], disk drive 10 includes voice coil motor 72 having [various components]. These components are controlled via disk drive engine 16, or portions thereof, running on a controller/processor 73. This processor may comprise processor 25 set forth above or, *alternatively, a separate controller dedicated to the disk drive which receives commands from processor 25.*

*Id.* at 10:6–14 (emphasis added). Thus, the specification disclosed an embodiment where one processor was described as comprising another processor.

The court reached a different conclusion for other claims from the same patent. For example, Claim 1 recited:

> 1. User interface for operatively working with *a processor* to affect operation of a data storage device, the user interface comprising:
>
> means for providing settings for controlling one of a seek time of the data storage device and a seek acoustic noise level of the data storage device in inverse relation;
>
> means for indicating to the data storage device that one of the seek time settings of the data storage device and the seek acoustic noise level settings of the data storage device has been altered; and
>
> *means for causing the processor to output commands* to the data storage device to alter seek trajectory shape by shaping input signals to the data storage device to reduce selected unwanted frequencies from a plurality of frequencies in accordance with the altered settings in the user interface.

U.S. Patent 6,314,473 C1 at 1:23–37 (emphasis added). The court concluded:

> [T]he language and structure of claim 1 demonstrate a clear intent to tie the processor that "output[s] commands to the data storage device" to the "user interface." Specifically, claim 1 recites "a processor" in the preamble before recitation of "comprising," and the claim body uses the definite article "the" to refer to the "processor." This reference to "the processor," referring back to the "a processor" recited in preamble, supports a conclusion that the recited user interface is "operatively working with" the same processor to perform all of the recited steps.

*Convolve*, 812 F.3d at 1321.

In its response, Samsung cites *Traxcell Techs., LLC v. Nokia Sols. & Networks Oy*, 15 F.4th 1136 (Fed. Cir. 2021), and *In re Varma v. IBM Corp.*, 816 F.3d 1352 (Fed. Cir. 2016). Dkt. No. 203 at 2–3. In *Traxcell*, the relevant claim recited:

> 4. A method of managing a wireless radio-frequency (RF) network, the method comprising:
>
> coupling in communication, at least one radio-frequency transceiver and an associated at least one antenna to which the radio-frequency transceiver is coupled to at least one mobile wireless communication device;
>
> at *a first computer* coupled to the at least one radio-frequency transceiver, locating the at least one mobile wireless device according to the radio-frequency communications and generating an indication of a *location* of the at least one mobile wireless device;
>
> at the *first computer*, receiving and storing performance data of communications between the at least one mobile wireless device and the radio-frequency transceiver along with the indication of location;
>
> at the *first computer* storing updated performance data and an updated indication of *location* of the at least one mobile wireless device while the mobile wireless device is communicating with the at least one radio-frequency transceiver;
>
> referencing the performance data to expected performance data;
>
> determining at least one suggested corrective action in conformity with differences between the performance data and expected performance data in conjunction with the indication of *location*;
>
> coupling a second computer in communication with the *first computer*;
>
> at the *first computer,* responsive to a communication from the at least one mobile wireless communication device, setting a no access flag within a memory of the *first computer*;

> providing access from the *first computer* to the indication of *location* to the second computer if the no access flag is reset; and
>
> the *first computer* denying access to the indication of *location* to the second computer if the no access flag is set.

*Traxcell*, 15 F.4th at 1139–40 (emphasis in original). This Court construed "computer" and "first computer" to require that a single computer perform the recited functions. *See id.* at 1140. It then concluded the patent owner could not show the accused technology met those limitations, and granted summary judgment. *Id.* at 1140–41.

The Federal Circuit agreed with that conclusion:

> As a matter of plain language, reciting "a computer" (or a "first computer") that performs a function, and then further reciting that *"the* computer" (or "*said* first computer") performs multiple additional functions, suggests that such "computer" must be tied to all those functions. And it would make little sense—indeed, it would defy the concept of antecedent basis—for the claims to recite "the computer" or "said first computer" being "further" programmed to do a second set of tasks if a different computer were to do those tasks instead.

*Id.* at 1143–44.

In *In re Varma*, the phrase at issue was "a statistical analysis request corresponding to two or more selected investments." *In re Varma*, 816 F.3d at 1362. Based in part on the argument now before this Court, the Patent Trial and Appeal Board reasoned an allegedly anticipating reference, Sortino, "was covered by the claim even if 'two requests would be necessary in the Sortino system to accomplish an analysis of "two or more investments."'" *Id.*

The Federal Circuit rejected that argument:

> [W]hile "a" sometimes is non-restrictive as to number, permitting the presence of more than one of the objects following that indefinite article, context matters even as to whether the word has that meaning. And here the question is not whether there can be more than one request in a claim-covered system: there can. Rather, the question is whether "a" can serve to negate what is required by the language

> following "a": a "request" (a singular term) that "correspond[s]" to "two or more selected investments." It cannot. For a dog owner to have "a dog that rolls over and fetches sticks," it does not suffice that he have two dogs, each able to perform just one of the tasks. In the present case, no matter how many requests there may be, no matter the variety of the requests the system may receive, the system must be adapted to receive a request that itself corresponds to at least two investments.

*Id.* at 1362–63.

The question remains whether and how to apply *Convolve*, *Traxcell*, and *In re Varma* to the claims at issue.

a. <u>'244 Patent, Claims 1 and 28</u>

Claim 1 recites:

> 1. A method for close proximity detection and automatic audio mixing performed by *a processor suitable for use with an earphone*, the method comprising the steps of:
>
> monitoring sound from an ambient sound microphone communicatively coupled *to the processor*;
>
> automatically activating a voice timer responsive to detecting voice activity or a cessation of voice activity in the sound as part of the close proximity detection;
>
> adjusting a mixing gain of an audio content signal delivered to the earphone with the ambient sound pass-through during a voice timer pending voice activity; and
>
> wherein the audio content is one of a voice signal, music content, or audible sound delivered to the internal speaker for audible reproduction.

'244 Patent at 13:42–55. Claim 28 is similar but does not recite "the processor" in the body. *Id.* at 16:17–43.

Applying the general rule that "a" means "one or more" to these claims, the preambles only require "one or more processors" each of which is "suitable for use with an earphone." In the body of Claim 1, "processor" is only mentioned with respect to the first limitation, which requires each

of the "one or more processors" to be "communicatively coupled" to a microphone. Accordingly, nothing in the claim language trumps the general rule, and there is no requirement the same processor perform each of the recited steps of these claims.

b. '259 Patent, Claim 1

This claim recites:

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

'259 Patent at 18:2–18. Of the claims at issue, this claim most closely aligns with *Convolve*'s Claim 9 by structurally requiring only "a processor" that executes instructions toward some end—"to perform operations." The claim then further limits the operations, rather than the instructions, to include six specific steps, but does not suggest the same processor must perform each of them. In fact, according to the plain language of the claim, the recited processor need not even be structurally connected to the memory storing the instructions. Thus, this claim cannot be read to require a single processor perform each of the recited operations.

c. The Remaining Claims

In the remaining claims concerning this issue, the same processor must perform each of the recited steps or have all recited structure. For each of the claims, "the question is whether 'a' [serves] to negate what is required by the language following 'a' . . . ." *See In re Varma*, 816 F.3d at 1363. Typically it does not when the language following "a" includes significant structure, but of course context always matters. The ordinary meaning of the limitation of "a table configured to seat six people" cannot be literally met by three tables, each configured to seat two people. Techiya presents no reason why that reading is different for processors as opposed to tables or any other structure.

Nothing about the context of the remaining claims prevents such a reading here. For example, Claim 1 of the '591 Patent requires:

> a processor operatively coupled to the left earpiece, the right earpiece and the memory, the processor configured to save a recent portion of the at least one of the first ambient sound or the second ambient sound and the at least one of the first internal sound or the second internal sound responsive to an event.

'591 Patent at 13:20–25. Here, context shows the language after "processor" imposes structural limitations on the word "processor" rather than the phrase "a processor." Similar to "a table configured to seat six people," the claim does not literally cover a device with, for example, three processors each of which is connected to only one of the left earpiece, the right earpiece, and the memory.

Claim 1 and 12 of the '424 Patent impose similar structural requirements on their "processor" limitations. Claim 1 recites:

> a processor operatively coupled to evaluate a seal quality of the earpiece based on seal quality measurements made while driving or

> exciting a signal into the speaker located in the earpiece; and
>
> wherein the processor is configured to generate a visual or audio message identifying whether the at least one earpiece is properly sealed based on the seal quality measurements.

'424 Patent at 13:25–39. Similarly, Claim 12 recites:

> a processor configured to produce audio from at least in part the ambient sound and an audio content;
>
> at least one ear canal receiver (ECR) . . . operatively coupled to the processor;
>
> . . .
>
> wherein the processor is configured to monitor changes in a sealing level of the earpiece with the ear canal.

*Id.* at 14:18–34. But unlike Claim 1 of the '244 Patent, which only requires that the processor execute instructions, these claims require the processor to be *configured* to undertake specific steps.

Claim 12 of the '015 Patent also imposes several structural limitations on the recited processor. Specifically, the processor must be "configured to" both "identify an acoustic keyword signal," '015 Patent at 8:15–16, and initiate one of several adjustments to the ambient-signal and/or acoustic-signal gain, *id.* at 8:18–26. There is no contextual basis for concluding these structural limitations could apply to different processors.

Finally, Techiya points to nothing from the specifications weighing against the Court's conclusions on these remaining terms. More specifically, it does not point to statements such as those relied on in *Convolve*—that "a processor could comprise other processors." Moreover, there are no embodiments that use multiple processors to perform the various steps or across which the recited structure is shared. H'rg Tr., Dkt. No. 237 at 13:7–9.

* * *

2. *"an acoustic signal . . . the acoustic signal" ('259 patent, Claims 1, 2, 3, 5, 11, 12, 15, 16); "a remote server . . . the remote server" ('259 Patent, Claims 1, 2, 3, 6, 12)*

| Term | Techiya's Proposal | Samsung's Proposal |
|---|---|---|
| "an acoustic signal . . . the acoustic signal" | No construction necessary | The recited operations must be performed on the same acoustic signal. |
| "a remote server . . . the remote server" | No construction necessary | The same remote server must perform each of the recited functions. |

Claim 1 recites:

> 1. A wearable device, comprising:
>
> a microphone;
>
> a memory that stores instructions; and
>
> a processor that executes the instructions to perform operations, the operations comprising:
>
> receiving *an acoustic signal* from the microphone configured to measure an ambient environment;
>
> analyzing *the acoustic signal* to detect a trigger event;
>
> opening a communication channel with <u>a remote server</u> if a trigger event is detected;
>
> generating metadata;
>
> transmitting the metadata, and *the acoustic signal* to <u>the server</u> via the communication channel; and
>
> receiving, from <u>the server</u> an analysis of *the acoustic signal* including whether a sound signature has been detected.

'259 Patent at 18:2–17 (emphasis added); *see also id.* at 18:51–64 (reciting the processor's operations as the steps of method Claim 12). The parties' arguments on these terms track those made *supra* with respect to "processor."

Here, the "analyzing," "transmitting," and "receiving" steps all include the same acoustic

signal, and the "opening," transmitting," and "receiving" data refer to the same server. This is not only clear from the plain language of the claims, but from the patent's disclosure. In the context of the disclosure, there's no reason to analyze a different acoustic signal than the signal received from the microphone, or to open one communication channel but transmit the acoustic signal through a different channel. The Court therefore adopts Samsung's position.

### B. Limiting or Non-Limiting Preambles

#### *1. "An Always-On Recording System (AORS) comprising:" ('839 Patent, Claim 1; '982 Patent, Claim 1)*

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| Preamble is not limiting | The preamble is limiting. |

Claim 1 of the '839 Patent recites:

> 1. An Always-On Recording System (AORS) comprising:
>
> a first monitoring assembly mounted in an earpiece, the earpiece configured to occlude and form an acoustic seal of an ear canal, the first monitoring assembly including an Ambient Sound Microphone (ASM) to monitor an ambient acoustic field at an entrance to the ear canal occluded by the earpiece, the ASM producing an ASM signal responsive to the ambient acoustic field;
>
> a second monitoring assembly mounted in the earpiece and including an ear canal microphone (ECM) to monitor an acoustic field within the ear canal occluded by the earpiece, the ECM producing an ECM signal responsive to the acoustic field within the ear canal;
>
> a data storage device configured to act as a circular buffer for continually storing at least one of the ECM signal or the ASM signal;
>
> a further data storage device coupled to the data storage device; and

> a record-activation system including software configured to activate the further data storage device to record a content of the data storage device.

'839 Patent at 14:47–67; *see also* '982 Patent at 14:47–59 (Claim 1). Samsung argues the preambles of these two claims are limiting.

The intrinsic record supports that position. The patent summarizes the invention as "*constantly recording* a variety of audio signals to a circular audio buffer, therefore when the recording feature to a second audio storage device (e.g. a cell-phone) is activated, the user already has a recent record of their sound exposure." '839 Patent at 6:13–17 (emphasis added); *see also id.* at 5:58–61 (noting "[t]he audio input data signals to the AORS are *constantly recorded* to a data storage system such as a circular buffer of non-volatile RAM mounted locally on the earphone assembly"); *id.* at 11:45–50 ("a data storage device (e.g. non-volatile RAM) to act as a circular buffer for *constantly recording* the output signal of the optional data-rate reduction system" (emphasis added)). So while the claims require "a data storage device configured to act as a circular buffer for continually storing at least one of the ECM signal or the ASM signal," the invention is described as having the signals constantly *recorded to* that data storage. Thus, the "always on" of the preambles includes a feature not recited in the claims.

This conclusion is further supported by Techiya's IPR response, in which it argued:

> [C]laim 1 recites an "always-on" recording system comprising an ASM monitoring the ASM signal and an ECM monitoring the ECM signal. . . . The plain meaning of "always-on" demands the ASM must always monitor the ASM signal and the ECM must always monitor the ECM signal. Both the ASM and the ECM must always be on and sent to a processor.

Patent Owner's Resp., Dkt. No. 203-5 at 34. Techiya then distinguished the asserted references based on this "always on" feature:

> [I]n the proposed Le-Victorian combination, while the external microphone 420 (ASM) signal is sent to the processor (ambient sound gating module 421 is "on"), the ear canal microphone 440 (ECM) signal is not being sent to the processor (the occluded sound gating module cannot be "on"). In other words, only the ASM is monitored. Similarly, if the ECM is monitored then the ASM would not be monitored.[] This combination does not meet the features of claim 1.

*Id.* at 36.

Techiya replies that it argued "the combination does not monitor both the 'ambient sound acoustic field at an entrance of the ear canal' and 'an acoustic field within the ear canal,'" which are limitations in the body of Claim 1. Dkt. No. 209 at 3–4. Even so, that argument was based on the references' inability to simultaneously send both the ASM and ESM to a processor for data storage. *See* Patent Owner's Resp., Dkt. No. 203-5 at 34 ("The proposed Le-Victorian combination is not an AORS capable of monitoring both the 'ambient sound acoustic field at an entrance to the ear canal' ('ASM signal') via an ASM . . . and the 'an acoustic field within the ear canal' ('ECM signal') via an ECM . . . because Victorian's gating modules prohibit the ASM and the ECM from being simultaneously sent to a processor for data storage."). Based on both the patent's description of the invention as a whole and Techiya's IPR-response statements, this preamble is limiting.

2. *"A method for close proximity detection and audio mixing performed by a processor suitable for use with an earphone, the method comprising the steps of:" ('244 Patent, Claim 1); "An communication system for close proximity detection and audio mixing, comprising:" ('244 Patent, Claim 17); "A method for enhancing two-way conversation, the method implemented by a processor operatively coupled to an earphone comprising the steps of:" ('244 Patent, Claim 28)*

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| Preamble is not limiting | The preamble is limiting.<br>To the extent the preambles of Claims 1 and 28 are limiting, the same processor must perform each of the steps recited in the body of the claim.[3] |

During prosecution of Claims 1 and 17, the Office rejected the then-pending claims as obvious based on U.S. Publication No. 2006/0262938 (Gauger) and U.S. Publication No. 2014/0172422 (Hefetz). *See generally* Reply to Office Action (Oct. 9, 2015), Dkt. No. 203-8 at 10–12. In response, the applicants amended those claims to read:

> 1. (Currently Amended) A method for close proximity detection and automatic audio mixing performed by a processor suitable for use with an earphone, the method comprising the steps of:
>
> monitoring sound from an ambient sound microphone communicatively coupled to the processor;
>
> automatically activating a voice timer responsive to detecting voice activity or a cessation of voice activity in the sound <u>as part of the close proximity detection</u>; and
>
> adjusting a mixing gain of an audio content signal delivered to the earphone with the ambient sound pass-through during a voice timer pending voice activity.
>
> * * *

[3] The Court addressed this aspect of Samsung's proposal in Part IV.A.

> 17. (Currently Amended) An communication system for close proximity detection and audio mixing, comprising:
>
> a first ambient sound microphone;
>
> an internal speaker for generating audible sounds configured to be directed towards an ear canal; and
>
> a processor operatively coupled to the communication system, the first ambient sound microphone and the internal speaker, wherein the processor
>
> monitors sound from the first ambient sound microphone;
>
> automatically activates a voice timer responsive to detecting voice activity or a cessation of voice activity in the sound <u>as part of the close proximity detection</u>; and
>
> adjusts a mixing gain of an audio content signal delivered to the communciation [sic] system by way of the internal speaker with an ambient sound pass-through during the voice timer.

*Id.* at 2, 5.

In their remarks, the applicants argued:

> [T]he cited portions of Gauger above fail to disclose or suggest **a method for close proximity detection and automatic audio mixing** performed by a processor suitable for use with an earphone including the steps of **automatically activating a voice timer responsive to detecting voice activity or a cessation of voice activity in the sound as part of the close proximity detection.**
>
> There is no reference to voice detection in Gauger, and furthermore no reference of voice detection for the purpose of proximity detection in Gauger (or Hefetz[)].

*Id.* at 12 (emphasis in original).

Based on the combination of the amendments and the arguments, the Court concludes the preambles of Claims 1 and 17 are limiting. The language added by the amendment and used to distinguish the claims from the cited references—"as part of the close proximity detection"—is superfluous unless "close proximity detection" in the preamble is limiting. In other words, the

latter provides antecedent basis for the former. The applicants confirmed as much by arguing the cited reference does not include "voice detection for the purpose of proximity detection."

Claim 28 is different because "close proximity detection" does not appear in its preamble. Rather, the applicants amended Claim 28 to include "close proximity detection" as part of the "activating" and "adjusting" limitations:

> 28. A method for enhancing two-way conversation, the method implemented by a processor operatively coupled to an earphone comprising the steps of:
>
> automatically activating a voice timer and setting a voice activity threshold for the voice timer responsive to detecting spoken voice <u>as part of a close proximity detection</u>;
>
> . . . and
>
> adjusting a mixing gain of an audio content signal delivered to the earphone by way of the internal speaker with the ambient sound pass-through during activation of the voice timer <u>and the close proximity detection</u>.

*Id.* at 7. Regardless, the preamble recites the essential structure of "a processor operatively coupled to an earphone," and the limitations consistently refer to the "earphone." Based on the antecedent basis provided by the preamble in combination with the preamble's recitation of the essential structure of a "processor," the Court concludes this preamble is also limiting.

*3. "An electronic audio device for use with at least one earpiece or a pair of earpieces, or a pair of earpieces in a headphone, each earpiece having a microphone operatively coupled to the earpiece and a speaker located therein, comprising:" ('424 Patent, Claim 1)*

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| Preamble is not limiting | The preamble is limiting.<br>To same electronic audio device must include each of the elements recited in the body of the claim. |

This claim reads:

> 1. An electronic audio device for use with at least one earpiece or a pair of earpieces, or a pair of earpieces in a headphone, each earpiece having a microphone operatively coupled to the earpiece and a speaker located therein, comprising:
>
> circuitry operatively coupled to the microphone and speaker;
>
> a processor operatively coupled to evaluate a seal quality of the earpiece based on seal quality measurements made while driving or exciting a signal into the speaker located in the earpiece; and
>
> wherein the processor is configured to generate a visual or audio message identifying whether the at least one earpiece is properly sealed based on the seal quality measurements.

'424 Patent at 13:25–39.

Samsung makes two contentions: (1) "electronic audio device" in the preamble is limiting, and (2) the "electronic audio device" must include all structure recited in the claim's body. Dkt. No. 203 at 8–9. Samsung contends the preamble is necessary for the claims to be structurally complete. *Id.* at 8. It stresses Techiya argued each of the body's limitations must be part of the "earphone device." *Id.* at 9.

The preamble of this claim is written as a statement of intended use. Although such statements are generally not limiting, courts have found then limiting where, as here, they recite essential elements of the invention. *Bicon, Inc.*, 441 F.3d at 948, 952 (holding the preamble's statement of intended use was limiting because it "recites essential elements of the invention pertaining to the structure of the abutment that is used with the claimed emergence cuff" and noting "the body of the claim 'refers back to the features of the abutment described in the preamble'—i.e., the preamble provided antecedent basis for the structural terms in the body of the claim."). Here, because the claim recites that certain later-recited claim limitations be operatively coupled to certain

structure and configured to undertake certain acts, the recited device must be used in connection with an earpiece or pair of earpieces to infringe.

Samsung's second argument—that the device must include all structure recited in the body—hinges on language from the '237 Patent. *See* Dkt. No. 203 at 9 (citing Patent Owner's Prelim. Sur-Reply, Dkt. No. 203-9 at 4–5). Because the '237 Patent concerns different language and has a different intrinsic record, Techiya's statements before the PTAB concerning that patent are not helpful here.

The Court accepts Samsung's first argument but rejects the second. While the preamble is limiting, the claimed device does not include the earpieces, speaker, or microphone.

*4. "A method for [automatically] activating ambient sound pass-through in an earphone . . . comprising:" ('082 Patent, Claim 1; '015 Patent, Claim 1)*

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| Preamble is not limiting | The preamble is limiting. |

These preambles are limiting. The patents repeatedly describe the inventions as used in connection with an earphone. *See, e.g.*, '015 Patent at [57] (noting "[a]t least one embodiment is directed to a method for automatically activating ambient sound pass-through in an ear-phone"); *id.* at 1:56–58 (noting the prior art "does not describe a method to automatically pass-through ambient sound to [a sound-isolating] earphone wearer"); *id.* at 1:21–58 (describing the background of the invention in the context of earphones). Thus, without a limiting preamble, these claims would not include structure essential to the invention.

*5. "An earphone configured to perform an eartip fit test comprising:" ('836 Patent, Claims 1, 9, 14)*

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| No construction necessary; statement of intended use is not limiting. | The preamble is limiting. The same earphone must include each of the elements recited in the body of the claim. |

Each claim requires "an eartip, configured to seal the earphone between the first side and a second side of the earphone." '836 Patent at 19:65–66 (Claim 1); *id.* at 20:44–45 (Claim 9); *id.* at 21:16–17 (Claim 14). Samsung contends the preamble is limiting. Dkt. No. 203 at 10–11. Techiya argues the preamble is a non-limiting statement of intended use. Dkt. No. 191 at 5.

These preambles are limiting. Not only is an earphone required, the body requires it have two sides. In contrast, there is no recitation of an earphone housing or other element arguable rendering the body structurally complete. Without finding the preamble limiting, the claim would not include structure essential to the invention.

*6. "A wearable device, comprising:" ('259 Patent, Claim 1)*

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| Preamble is not limiting | The preamble is limiting. The same wearable device must include each of the elements recited in the body of the claim. |

This patent relates to "sound pressure measurements using *mobile* devices." '259 Patent at 1:17–19 (emphasis added); *see also id.* at [57] (describing the invention generally as a mobile device that can perform various functions); *id.* at 1:65–67 (noting "[e]mbodiments of the invention are directed to a method and system for sound monitoring, measuring, reporting, and providing over a network using *mobile devices*" (emphasis added)); *id.* at 4:16–18 (noting the "[t]he mobile

device . . . can be a cell-phone, a personal digital assistant, a portable music player, a laptop computer, or any other suitable communication device"). During prosecution, the applicants added "wearable" to the preamble. Resp. to Office Action, Dkt. No. 203-4 at 4. Until then, the claims were not expressly limited to a mobile or portable device. Thus, the addition of "wearable" aligned the claims with the remainder of the specification and should be given patentable weight reciting structure emphasized by the patent as essential.

### C. "the processor is configured to save a portion of at least one of the captured ambient sound and the captured internal sound in response to an event" ('591 Patent, Claim 11); "the processor is configured to save a portion of at least one of the captured ambient sound, the captured internal sound, and the delivered audio content in response to an event" ('591 Patent, Claim 14)

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| No construction necessary | The term requires that the processor be configured to save a portion of the captured ambient sound and the captured internal sound in response to an event |

According to Samsung, "[t]he parties dispute whether 'at least one of' modifies each sound, and thus requires saving 'at least one' captured ambient sound *and* 'at least one' captured internal sound (Samsung's position), or whether saving only a captured ambient sound *or* a captured internal sound is sufficient . . . ." Dkt. No. 203 at 29 (emphasis in original). Relying on *SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870 (Fed. Cir. 2004), Samsung argues these claims require the processor to be configured to save a portion of at least one of (1) the captured ambient sound *and* (2) the captured internal sound. Dkt. No. 203 at 29–30.

*SuperGuide* concerned categories of search or selection criteria. *See SuperGuide*, 358 F.3d at 873. The technology at issue related to "interactive program guides" that allowed users to search information about upcoming programs based on the criteria. *Id.* (explaining that, prior to the

teachings of the patent at issue, "viewers could not perform a search" of "television schedule information for upcoming programs"). In contrast, "the captured ambient sound and the captured internal sound" are not criteria or categories. *SuperGuide* does not apply to this record, and the Court will give this term its plain and ordinary meaning.

### D. "sound signal" ('400 Patent, Claims 1, 3–8, 10–20); "noise signal" ('400 Patent, Claims 14–15, 17–20)

| Term | Techiya's Proposal | Samsung's Proposal |
|---|---|---|
| "sound signal" | a function that carries information about sound | plain and ordinary meaning. |
| "noise signal" | a function that carries information about noise | see agreed construction for "background noise signal" |

Techiya urges its constructions to differentiate a sound signal from a sound level. Dkt. No. 191 at 9. It primarily relies on its expert's declaration for support. *Id.* at 9–10 (citing Kleinschmidt Decl., Dkt. No. 191 ¶¶ 52, 56).

The Court agrees the plain meaning of "sound *signal*" in the context of the relevant claims is not a sound *level*, but disagrees with Techiya's constructions. Nothing in the patent supports construing these straight-forward terms as "functions." Nor does Kleinschmidt's declaration, which mentions "functions" in ¶ 52 and then explains why "sound signals" are not "sound levels" without ever referring to "functions" again. *See* Kleinschmidt Decl., Dkt. No. 191 ¶¶ 53–58. Having recognized the difference between a "signal" and a "level," the Court will give each term its plain and ordinary meaning.

### E. "filtered to provide a natural sounding voice to the user" ('400 Patent, Claim 2)

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| No construction necessary; not indefinite | Indefinite. |

The parties' dispute focuses on "natural sounding voice," a phrase that does not appear in the patent other than in this claim. Samsung argues the term is "facially subjective" and that neither the art nor the intrinsic record provides an objective boundary to a skilled artisan. Dkt. No. 203 at 12. Techiya, relying on two published applications and an expert declaration, suggests an objective standard exists. Dkt. No. 191 at 11–12 (citing U.S. Published Appl'n 2008/0037801 (Alves), Dkt. No. 191-21; PCT Publication 2006/037156 (Mejia), Dkt. No. 191-22; and Kleinschmidt Decl., Dkt. No. 191-1 ¶ 60).

To start, the publications on which Techiya relies do nothing to clarify any standard for determining what makes a voice "natural sounding" or "unnatural sounding." Nor do they demarcate the line between the two. As Alves explains, a microphone in an ear chamber

> will pick up sound emitted by speaker 32. This sound will appear as an echo in the output of second microphone 34. In addition, the spectrum of speech received in chamber 62 is likely to *have less high frequency content* than the speech received by first microphone 28. This *may result* in an unnatural sound when a signal from second microphone 34 is reproduced as sound.

Alves, Dkt. No. 191-21 ¶ [0029] (emphasis added). This shows the "unnatural sound" referenced by Alves relates to frequency response, but Alves provides no objective boundaries by which a skilled artisan would understand what frequencies are required to reproduce a natural sound, or how "natural" a "natural sound" is.

Mejia concerns the "occlusion effect," which is "a hollow or echoing like sound of a

person's own voice" that "creates discomfort and/or an unnatural sound sensation." Mejia, Dkt. No. 191-22 at 2:21–25. Mejia, however, merely explains the occlusion effect results in an *unnatural* sound sensation.

Based on these references, a skilled artisan would not know whether a natural sounding voice simply means the absence of echo, the occlusion effect, or similar phenomena, or whether it requires the presence of all or just some of the frequencies a listener would normally hear without using the invention. Moreover, infringement turns on the users' hearing abilities, which will differ from one user to another.

Nor does Kleinschmidt's declaration help. He simply concludes the term is definite without any analysis of the language from a skilled artisan's perspective. *See* Kleinschmidt Decl., Dkt. No. 191-1 ¶ 60. Although he discusses Alves and Mejia, he fails to explain how those references establish objective boundaries for the term. *Id.*

Because "natural sounding . . . to the user" is subjective and the intrinsic record provides no objective standard by which a skilled artisan can determine what is, and what is not, a "natural sounding voice," this term is indefinite.

**F. Order of "activating" and "adjusting" steps ('244 Patent, Claims 1, 17, 28)**

Claim 1 recites:

> 1. A method for close proximity detection and automatic audio mixing performed by a processor suitable for use with an earphone, the method comprising the steps of:
>
> monitoring sound from an ambient sound microphone communicatively coupled to the processor;
>
> automatically activating a voice timer responsive to detecting voice activity or a cessation of voice activity in the sound as part of the close proximity detection;

> adjusting a mixing gain of an audio content signal delivered to the earphone with the ambient sound pass-through during a voice timer pending voice activity; and
>
> wherein the audio content is one of a voice signal, music content, or audible sound delivered to the internal speaker for audible reproduction.

'244 Patent at 13:42–55. Claims 17 and 28 include similar limitations. *Id.* at 15:1–21 (Claim 17), 16:18–43 (Claim 28).

The parties dispute whether the "activating" and "adjusting" steps must be performed in the recited order. Techiya argues "[t]he claim language itself compels the order of steps" and stresses the PTAB's statement "that Claim 1 recites certain elements in a specific order." Dkt. No. 191 at 14 (citing Decision Granting IPR, Dkt. No. 191-31 at 15). But according to Samsung, "nothing in the claims requires the adjusting to be performed during the timer." Dkt. No. 203 at 20–21.

The Court agrees with Techiya. As the patent explains, the method is

> achieved by adjusting an ambient sound pass-through of the ambient sound microphone reproduced by an internal speaker of the earphone *during activation of the voice timer* while a level of the spoken voice is above the voice activity threshold, and/or adjusting a mixing gain (see 185/187) of an audio content signal delivered to the earphone by way of the internal speaker 105 with the ambient sound pass-through *during activation of the voice timer*.
>
> The earphone 100 by way of the method 250 can detect frontal and/or side voice activity from another individual in proximity to the user, and adjust the mixing gain of the audio content and the ambient sound pass-through of the earphone based on a combined voice activity detection level with combined voice activity time expirations of the user and the second individual.

'244 Patent at 7:10–24 (emphasis added). This shows the invention's focus is what happens *after* the timer is started, not what happens before or when the timer is started.

The dependent claims reinforce this conclusion. Claim 12, for example, further limits "the step of adjusting the mixing gain of an audio content signal" to "decreasing a volume gain of the

audio content signal delivered to the earphone when voice activity is detected above a threshold; *and* increasing the volume gain of the audio content signal delivered to the earphone when voice activity is detected below a threshold." *Id.* at 14:43–50 (emphasis added). In other words, the "adjusting" doesn't refer to a singular instance of increasing or decreasing gain, but what happens during a period. And the only period recited by the claims is the period during which the timer is active. Accordingly, the Court concludes the "activating" step in each of these three claims must precede the "adjusting" step.

### G. "adjusting . . . during [a]/[the] voice timer" ('244 patent, Claims 1, 2); "adjusts . . . during the voice timer" ('244 Patent, Claims 17, 18); "adjusting . . . during activation of the voice timer" ('244 Patent, Claim 28)

| Term | Techiya's Proposal | Samsung's Proposal |
|---|---|---|
| "adjusting . . . during [a]/[the] voice timer" (Claims 1, 2) | "adjusting . . . after [a]/[the] voice timer is activated and before the voice timer ends" | Plain and ordinary meaning. |
| "adjusts . . . during the voice timer" (Claims 17, 18) | "adjusts . . . after the voice timer is activated and before the voice timer ends" | Plain and ordinary meaning. |
| "adjusting . . . during activation of the voice timer" (Claim 28) | "adjusting . . . after the voice timer is activated and before the voice timer ends" | Plain and ordinary meaning. |

This dispute tracks the dispute discussed *supra* in Part IV.F. The reasoning set forth in that part also resolves this dispute.

### H. "proximate to the earphone device" ('542 Patent, Claims 1, 7, 13)

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| No construction necessary; not indefinite. | Indefinite |

This patent relates to "[e]arphone systems, headphone systems, and methods for automatically directing ambient sound to an earphone device." '542 Patent at 1:16–19. Method Claims 1 and 7 require "capturing the ambient sound from *an ambient sound microphone (ASM) proximate to the earphone device* to form an ASM signal." *Id.* at 11:45–47 (emphasis added); *see also id.* at 12:19–21. Claim 13 is slightly different, reciting an earphone device with "an ambient sound microphone (ASM) *for capturing ambient sound proximate to the earphone device* and to form an ASM signal." *Id.* at 13:6–8 (emphasis added).

Samsung argues these limitations are indefinite because neither the patent nor the general art provides an objective standard for how close the captured ambient sound must be for "proximat[y] to the earphone device." Dkt. No. 203 at 13–14. It also asserts "the claims are ambiguous as to whether they require proximity of the ambient sound microphone or of the ambient sound itself to the earphone device." *Id.* at 14.

Techiya counters with expert testimony. First, its expert states a skilled artisan would have reasonably understood the scope of the claims in which "proximate" appears and would not have been forced to resort to purely subjective criteria. Dkt. No. 191 at 15 (citing Kleinschmidt Decl., Dkt. No. 191-1 ¶ 72). And, notes Techiya, Samsung's IPR expert understood "proximate to the earphone" when alleging the limitation was disclosed by prior art. *Id.* at 15–16.

Regarding method Claims 1 and 7, the Court construes "proximate to the earphone device" as "included in the earphone device." The only disclosed embodiment of an earphone device

"includes" the ASM as part of the device. *See* '542 Patent at 4:57–63 (explaining, with reference to FIG. 1, "housing unit 101 of earphone device 100 may include one or more components which may be *included in earphone device* 100. Housing unit 101 may include . . . ambient sound microphone (ASM) 120"). Although courts normally do not limit claim scope to only the disclosed embodiments, consistent description of the invention as a whole can be limiting. *See C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 864 (Fed. Cir. 2004) ("Statements that describe the invention as a whole, rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term."). Here, the disclosure explains prior art "SI earphones *often incorporate [i.e., include] ambient sound microphones* to pass through local ambient sound to a loudspeaker in the SI earphone," '542 Patent at 3:1–4, and that a need exists for a pass-through mode of operation, *id.* at 3:15–17. The patent, however, does *not* teach adjusting the position of the ASM relative to the prior art to address this need. Moreover, the characterization of the invention as a "pass-through" for ambient sound reinforces the notion the ASM must be included as part of the device, as an ASM located outside of the early canal would not be "passing through" sound but instead redirecting it. Finally, this construction is consistent with the earphone system of Claim 13, which recites that the earphone device *includes* the ASM. *Id.* at 13:1–6 (reciting, in Claim 13, "[a]n earphone system comprising: at least one earphone device including: . . . an ambient sound microphone (ASM)").

Unlike Claims 1 and 7, Claim 13 recites an earphone device that includes an ambient sound microphone for capturing *ambient sound* proximate to the earphone device. If a sound wave has enough energy to reach the microphone, regardless of the microphone's distance from the wave's source, the microphone will provide an output signal. In that sense, all sound waves received at a microphone are "proximate" to the microphone. Here, because the ASM is part of the earphone

device, all sound received at the ASM is also proximate to the earphone device. Thus, as used in Claim 13, "proximate to the earphone device" is not indefinite and the plain and ordinary meaning applies.

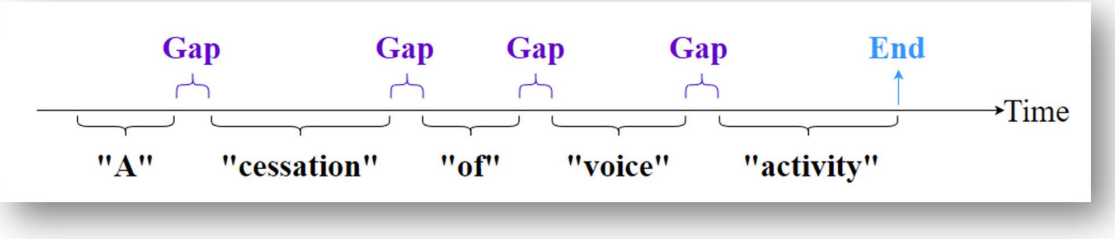
### I. "detecting a cessation of the voice activity" ('542 Patent, Claim 1); "detect a cessation of the voice activity" ('542 Patent, Claim 13)

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| "detecting an end of speech" | "detecting an end of speech, as opposed to a short silence (e.g., between words)" |

Effectively, the parties dispute whether "end of speech" includes "short silence between words." Samsung argues disclaimer based on statements made during IPR proceedings, but Techiya does not substantively respond.

To the extent this term might have a broader meaning, disclaimer applies. In its IPR response, Techiya argued:

> The term "a cessation of the voice activity" should be construed as "an end of speech." . . . The term does not encompass momentary pauses within speech. For example, when read aloud, the term "a cessation of voice activity" has 4 **gaps** (momentary pauses between individual words) and 1 **end** (cessation of voice activity):




Patent Owner's Resp., Dkt. No. 203-14 at 19 (internal citations omitted; emphasis in original). Further, Techiya represented "[t]he parties' respective experts agree that the term 'a cessation of

the voice activity' means the end of speech, and not the momentary pauses between words." *Id.* The Court therefore adopts Samsung's construction.

**J. "seal quality" ('424 Patent, Claim 1)**

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| No construction necessary | degree of seal; a binary outcome does not provide a seal quality |

Claim 1 recites:

> a processor operatively coupled to evaluate a seal quality of the earpiece based on seal quality measurements made while driving or exciting a signal into the speaker located in the earpiece; and
>
> wherein the processor is configured to generate a visual or audio message identifying whether the at least one earpiece is properly sealed based on the seal quality measurements.

'424 Patent at 13:25–39. The parties dispute whether "seal quality" is a term of degree or whether it requires a binary outcome. Dkt. No. 191 at 18–19; Dkt. No. 203 at 22–24.

The Court agrees with Samsung's construction for two reasons. First, during IPR proceedings, Techiya disclaimed any scope where "seal quality" is limited to a binary output by distinguishing Claim 1 from a reference, Ryan. Specifically, Techiya wrote Ryan's process "is binary in the outcome 'sealed' or 'open' cavity, it does not provide a quality of the seal, just whether sealed or not." Patent Owner's Resp., Dkt. No. 203-17 at 10. This statement clearly distinguishes "seal quality" from "sealed or not."

Second, both the patent and Techiya's IPR response describe the "seal quality" as something more than a binary determination. The response explains:

> Upon completion of the ear sealing test, the processor 206 can generate an audible message identifying [(1)] the sealing profile and [(2)] whether the earpiece is properly inserted, thereby allowing the user to re-insert or adjust the earpiece 100.
>
> In summation, the ’424 patent discloses that, to test seal quality, the processor 206: (1) generates the seal test signal, (2) drives or excites the test signal into a speaker in the ear canal, and (3) uses the resultant sound pressure level in the ear canal to *evaluate the seal quality* of the earpiece.

*Id.* at 7 (citations omitted; emphasis added). This excerpt relates “sealing profile” and “seal quality.”

The patent discusses “seal quality,” without using that phrase,[4] in the context of an Ear Canal Transfer Function:

> The processor 206 can then at step 310 generate an Ear Canal Transfer Function (ECTF) based on the test signal and sound pressure level. The ECTF models the input and output characteristics of the ear canal 140 for a current physical earpiece insertion. The ECTF can change depending on how the earpiece 100 is coupled or sealed to the ear (e.g., inserted). . . .
>
> At step 312, the processor 206 can determine an *ear sealing level* of the earpiece based on the ECTF. For instance, the processor 206 can compare the ECTF to historical ECTFs captured from previous listening tests, or from previous intermittent ear sealing tests. An ear sealing test can identify whether the amplitude and phase difference of the ECTF are particular to a specific ear canal. *Notably, the amplitude will be generally higher if the earpiece 100 is sealed within the ear canal 140*, since the sound is contained within a small volume area (e.g. ˜5 cc) of the ear canal.

’424 Patent at 5:43–6:4 (emphasis added).

Based on these two paragraphs and Techiya’s IPR response, “seal quality” relates to “sealing level of the earpiece based on the ECTF” from a comparison of the current ECTF against historical ECTFs. A skilled artisan would not consider a varying amplitude or phase as a binary

[4] “Seal quality” only appears in the claims and the Abstract.

proposition, nor does the patent suggest as much. Accordingly, the Court agrees with Samsung position that "seal quality" is not binary in nature. Otherwise, this term will be given its plain and ordinary meaning.

### K. "sound pressure level" ('424 Patent, Claim 12)

| **Techiya's Proposal** | Samsung's Proposal |
|---|---|
| No construction necessary | decibel (dB) value of sound pressure; not an intensity level |

The parties agree a skilled artisan would understand this term as "a measurement of sound pressure" and that it is not an intensity level. Dkt. No. 191 at 21 (citing Wiley Electrical & Elecs. Eng'g Dict., Dkt. No. 191-37 at 729); Dkt. No. 203 at 24–25. As to those two issues, there is no need to construe the term. *See, e.g.*, H'rg Tr., Dkt. No. 237 at 111:22–25 (noting, by Defendants, "the key point . . . is that the parties shouldn't be pointing to intensity levels when the claims say sound pressure level"); *see also id.* at 113:18–21 (Plaintiffs' acknowledgment "the record has made clear sound intensity has a very, very specific technical meaning."). The only dispute is whether this claim requires sound pressure level to be represented in decibels.

It does not. Although the patent references sound pressure level (SPL) in decibels, Samsung provides no reason why that should be limiting. And although Techiya references a dictionary definition that appears to require sound pressure level to be expressed in decibels, that same source shows SPL can also be expressed in other units of measure. Wiley Electrical & Elecs. Eng'g Dict., Dkt. No. 191-37 at 729 (also defining "sound pressure level" as a "measurement or indication in units other than decibels, such as micropascals"). Accordingly, the Court construes "sound pressure level" as "measurement of sound pressure."

### L. "applying the ASM gain to the ASM signal until a new keyword is detected or manually adjusted" ('015 Patent, Claim 1); "where the increase or decrease gain is applied until a new keyword is identified or manually changed" ('015 Patent, Claim 12)

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| No construction necessary; not indefinite. | Indefinite. |

This patent relates to "acoustic keyword detection and passthrough." '015 Patent at 1:15–16. Specifically, the patent purports to teach "a 'hands-free' mode of operation" that enables a sound-isolating earphone wearer to detect when someone in their environment wants to communicate. *See id.* at 1:37–40 (suggesting that need is fulfilled by the patent's teachings). Generally, the method or mode "automatically activat[es] ambient sound pass-through in an earphone in response to a detected keyword in the ambient sound field of the earphone user" by receiving an ASM signal and comparing the signal to a set of keywords. If the ASM signal matches a keyword, the system adjusts the level of any other audio content. *Id.* at [57].

The disputed phrases are found in Claims 1 and 12. Claim 1 recites:

> 1. A method for activating ambient sound pass-through in an earphone in response to a detected keyword in the ambient sound field of the earphone user, the steps of the method comprising:
>
> receiving at least one ambient sound microphone (ASM) signal;
>
> receiving at least one audio content (AC) signal;
>
> identifying if a keyword is matched to a portion of the ASM signal, wherein the keyword is matched to the portion of the ASM signal when temporal or spectral patterns of the keyword and the portion of the ASM signal match within a threshold average value; and
>
> generating an ASM gain if a keyword is matched to the portion of the ASM signal; and

> applying the ASM gain to the ASM signal until a new keyword is detected or manually adjusted.

'015 Patent at 6:43–58; *see also id.* at 8:1–26 (reciting similar language in the last clause of Claim 12)

Samsung contends the last limitation of Claim 1 and the last clause of Claim 12 are indefinite. According to Samsung, "the only reasonable grammatical reading" of the clause is the "new keyword" is "manually adjusted," which is nonsensical in the context of the patent's disclosure. Dkt. No. 203 at 15–17. But according to Techiya, "manually adjusted" refers to the gain. Dkt. No. 191 at 22.

These phrases are not indefinite. As Samsung notes, a purely grammatical interpretation of the claim language is non-sensical. That alone, however, does not render a limitation indefinite. *See Funai Elec. Co. v. Daewoo Elecs. Corp.*, 616 F.3d 1357, 1372 (Fed. Cir. 2010) ("An ungainly claim is not . . . indefinite, when its meaning can be understood by a person experienced in the field of the invention, on review of the patent documents."). Here, a skilled artisan considering the specification would associate "adjusting" with "gain"—not keywords. Moreover, that the ASM gain would be applied to the ASM signal until the user manually adjusts the gain makes sense in the context of the disclosure. Accordingly, the Court construes "applying the ASM gain to the ASM signal until a new keyword is detected or manually adjusted" in Claim 1 as "applying the ASM gain to the ASM signal until a new keyword is detected or the ASM gain is manually adjusted." Similarly, the Court construes "where the increase or decrease gain is applied until a new keyword is identified or manually changed" in Claim 12 as "where the increase or decrease gain is applied until a new keyword is identified or the gain is manually changed."

### M. "trigger event" ('259 Patent, Claims 1, 5, 12)

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| an event that initiates the collection of audio content or the measurement of sound pressure level | Plain and ordinary meaning. |

Claim 1 recites "receiving an acoustic signal from the microphone configured to measure an ambient environment; [and] analyzing the acoustic signal to detect a trigger event[.]" '259 Patent at 18:7–9. Method Claim 12 includes similar language. *See id.* at 18:55–57.

Techiya argues lexicography. Dkt. No. 191 at 25 (citing '259 Patent at 6:60–63). Samsung contends "[t]he plain meaning of 'trigger event' is clear from the claims—it is an event that triggers the opening of a communication channel," and there is no lexicography. Dkt. No. 203 at 25.

The written description explains "[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)." '259 Patent at 6:60–64. Elsewhere, however, the description explains "[t]he trigger event initiates the mobile device 160 to proceed to open a communication channel with the server." *Id.* at 12:33–34. Notably, both explanations describe what happens after a "trigger event" is detected—not what a "trigger event" is. On *that* question, the specification provides examples: "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. For example, the duration of a detected signal can be a trigger event if the signal exceeds a predetermined duration." *Id.* at 6:65–7:3.

Based on these various excerpts, the Court rejects any finding of lexicography. Different descriptions of what a "trigger event" initiates and a non-exhaustive list of "trigger event"

examples does not provide the requisite clarity to adopt Techiya's "definition." *See Renishaw PLC v. Marposs Societa' Per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998) ("The patentee's lexicography must, of course, appear 'with reasonable clarity, deliberateness, and precision' before it can affect the claim."). This term will be given its plain and ordinary meaning.

**N. "sound signature" ('259 Patent, Claims 1, 11, 12, 15, 16)**

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| a specific sound event | a specific sound event such as a car horn, a siren, a whistle |

The sole dispute about this term is whether the proper construction includes examples of specific sound events. Techiya fears the examples might "invite[] the jury to apply an unduly narrow claim scope." Dkt. No. 191 at 26.

This Court has recognized that examples can provide useful context. See *Rembrandt Wireless Techs., LP v. Samsung Elecs. Co.*, 2014 WL 3385125, at *15 (E.D. Tex. July 10, 2014) ("examples provide useful context for understanding the phrase"), *aff'd*, 853 F.3d 1370 (Fed. Cir. 2017). Here, Techiya's concerns can be addressed by incorporating clarifying language into Samsung's proposal. To that end, the Court construes "sound signature" as "a specific sound event, such as, but not limited to, a car horn, a signal, or a whistle."

**O. "opening a communication channel with a remote server if a trigger event is detected" ('259 Patent, Claim 1)**

| Techiya's Proposal | Samsung's Proposal |
|---|---|
| No construction necessary | "when a trigger event is detected, a communication channel with a remote server must always (not just sometimes) be opened" |

This apparatus claim recites "a wearable device" comprising "a processor that executes the instructions to perform operations." '259 Patent at 18:5–6. Those operations include, among other things, "opening a communication channel with a remote server if a trigger event is detected." *Id.* at 18:10–11. The Court adopted a variation of Samsung's proposal in preliminary constructions distributed to the parties before the hearing: "when a trigger event is detected, a communication channel must be opened."

The parties dispute about this term is somewhat unclear. Samsung's proposal aligns with Techiya's position before the PTAB. As Techiya explained in its IPR response, "[t]he proper interpretation of 'if' is not 'sometimes if.'" Patent Owner's Resp., Dkt. No. 203-20 at 34; *see also id.* at 35 ("Thus, when a trigger event is detected, a communication channel *must* be opened." (emphasis added)). Techiya also agreed with this construction during the hearing. *See* H'rg Tr., Dkt. No. 237 at 107:4–6 ("It is our position that the opening of a channel must occur if a trigger event is detected."). And when asked whether it thought the plain and ordinary meaning of this phrase is different than the preliminary construction, Techiya responded, "We have argued to the PTO an interpretation that aligns with the preliminary construction here that this Court has rendered." H'rg Tr., Dkt. No. 237 at 108:8–10. Techiya's basis for contesting what it thinks is a proper construction for the term is potential inconsistency with the PTAB's recent construction of the same term. *See generally* Dkt. No. 237 at 107:23–109:6 ("we think outcome odd if these claims are going to proceed with multiple scopes at the same time under the same claim construction standard").

Although the PTAB's reasoning may be informative, it is not binding on the Court. In any event, the PTAB's decision granting institution is not in the record. But the parties' apparent agreement as to the plain and ordinary meaning of this disputed phrase *is* in the record. The Court adopts

its preliminary construction for this phrase: "when a trigger event is detected, a communication channel must be opened."

### P. "the external gain" ('701 Patent, Claims 5, 12)

| Term | Techiya's Proposal | Samsung's Proposal |
|---|---|---|
| "the external gain" (Claim 5) | No construction necessary | "the external gain value" |
| "the external gain" (Claim 12) | not indefinite | indefinite |

The '701 Patent relates to "a method and device for suppressing echo in an ear-canal when capturing a user's voice when using an ambient sound microphone and an ear canal microphone." '701 Patent at 1:25–28. The disputed terms are found in Claims 5 and 12, which indirectly depend from Claim 1 and directly depend from Claims 3 and 4, respectively. These five claims recite:

> 1. A method, comprising:
>
> receiving an electronic ambient signal, where the ambient signal is produced by measurement by an ambient microphone;
>
> receiving an electronic internal signal, where the electronic internal signal is produced by measurement of an ear canal microphone, wherein the electronic internal signal includes an echo of a spoken voice generated by a wearer of an earpiece;
>
> calculating a background noise signal using the electronic ambient signal and the electronic internal signal;
>
> producing a modified electronic internal signal by reducing the echo in the electronic internal signal;
>
> generating a voice activity level using the modified electronic signal and the background noise signal;
>
> mixing the electronic ambient signal with the modified electronic internal signal in a ratio dependent on the background noise signal to produce a mixed signal that includes a reduced echo; and

sending the mixed signal to an ear canal receiver.

2. The method of claim 1, further comprising: generating an internal gain value.

3. The method of claim 1, further comprising: generating an external gain value.

4. The method of claim 2, further comprising: applying the internal gain value to the modified electronic internal signal.

5. The method of claim 3, further comprising: applying the external gain to the electronic ambient signal.

* * *

12. The method of claim 4, further comprising applying the external gain to the electronic ambient signal.

*Id.* at 12:35–13:18.

According to the specification, the internal and external gain are used to mix the "[t]he electronic ambient signal and the electronic internal signal . . . in a ratio dependent on the background noise signal to produce a mixed signal without echo." '701 Patent at 2:10–14. For example, "[t]he method can include applying a first gain (G1) to the electronic ambient signal, and applying a second gain (G2) to the electronic internal signal. The first gain and second gain can be a function of the background noise level and the voice activity level." *Id.* at 3:19–23; *see also id.* at 2:15–18 (tying "internal gain" to the "electronic internal signal" and "external gain" to the ambient signal).

First, Samsung urges the Court to construe "the external gain" in Claim 5 as "the external gain *value*" given the claim's dependence on Claim 3, which recites "generating an external gain value." Dkt. No. 203 at 18. Second, because none of the claims from which Claim 12 depends provides antecedent basis for this term, Samsung argues Claim 12 is indefinite. *Id.*

Techiya counters that, with respect to Claim 5, Samsung's construction is unnecessary. Dkt. No. 191 at 28. As for Claim 12, Techiya relies on its expert's declaration that a skilled artisan would understand the scope of Claim 12 with reasonable certainty. *Id.* at 29 (citing Struck Decl., Dkt. No. 191-2 ¶ 31).

Regarding Claim 5, the parties present no meaningful dispute over the scope of the term. Techiya argues only that the addition of "value" to the claim term is unnecessary—not that it somehow changes the scope of the term from its plain and ordinary meaning. Because of potential juror confusion given the inconsistency in the use of the slightly different terms in Claim 5 and Claim 3, the Court adopts Samsung's construction.

Claim 12 is not indefinite. As noted *supra*, the patent consistently describes the use of an external gain to mix the ratio of the internal signal to the external signal. And although not dispositive of the issue, Claim 12 as written is not inconsistent with any of the claims from which it depends. Considering the specification, a skilled artisan would understand Claim 12 as narrowing the scope of Claim 4 by requiring the additional step of applying an external gain value to the electronic ambient signal.

## V. CONCLUSION

| Disputed Term | The Court's Construction |
|---|---|
| "a processor . . . the processor" ('244 Patent, Claim 1, 28; '259 Patent, Claim 1) | Different processors may perform each of the recited functions. |

| | |
|---|---|
| "a processor . . . the processor"<br>('591 Patent, Claims 1, 11, 14; '244 Patent, Claims 17, 18; '424 Patent, Claims 1, 12; '082 Patent, Claim 14; '015 Patent, Claim 12; '836 Patent, Claims 1, 9, 14; '237 Patent, Claim 1; '666 Patent, Claim 1; '400 Patent, Claims 1, 18) | The same processor must perform each of the recited functions. |
| "an acoustic signal . . . the acoustic signal"<br>('259 patent, Claims 1, 2, 3, 5, 11, 12, 15, 16) | The recited operations must be performed on the same acoustic signal. |
| "a remote server . . . the remote server"<br>('259 Patent, Claims 1, 2, 3, 6, 12) | The same remote server must perform each of the recited functions. |
| "An Always-On Recording System (AORS) comprising:"<br>('839 Patent, Claim 1; '982 Patent, Claim 1) | The preamble is limiting. |
| "A method for close proximity detection and audio mixing performed by a processor suitable for use with an earphone, the method comprising the steps of:"<br>('244 Patent, Claim 1)<br>"A method for enhancing two-way conversation, the method implemented by a processor operatively coupled to an earphone comprising the steps of:"<br>('244 patent, Claim 28) | The preamble is limiting, but does not require that all steps be performed by the same processor. |
| "An communication system for close proximity detection and audio mixing, comprising:"<br>('244 Patent, Claim 17) | The preamble is limiting, and all steps must be performed by the same processor |

| | |
|---|---|
| "An electronic audio device for use with at least one earpiece or a pair of earpieces, or a pair of earpieces in a headphone, each earpiece having a microphone operatively coupled to the earpiece and a speaker located therein, comprising:"<br>('424 Patent, Claim 1) | Preamble is limiting. |
| "A method for [automatically] activating ambient sound pass-through in an earphone . . . comprising:"<br>('082 Patent, Claim 1; '015 Patent, Claim 1) | Preamble is limiting. |
| "An earphone configured to perform an eartip fit test comprising:"<br>('836 Patent, Claims 1, 9, 14) | Preamble is limiting. |
| "A wearable device, comprising:"<br>('259 Patent, Claim 1) | Preamble is limiting. |
| "the processor is configured to save a portion of at least one of the captured ambient sound and the captured internal sound in response to an event"<br>('591 Patent, Claim 11)<br>"the processor is configured to save a portion of at least one of the captured ambient sound, the captured internal sound, and the delivered audio content in response to an event"<br>('591 Patent, Claim 14) | Plain and ordinary meaning. |
| "sound signal"<br>('400 Patent, Claims 1, 3-8, 10–20) | Plain and ordinary meaning. |
| "noise signal"<br>('400 Patent, Claims 1, 3–8, 10–20) | Plain and ordinary meaning. |

| | |
|---|---|
| "filtered to provide a natural sounding voice to the user"<br>('400 Patent, Claim 2) | Indefinite. |
| Order of "activating" and "adjusting" steps<br>('244 Patent, Claims 1, 17, 28) | The "activating" step must precede the "adjusting" step. |
| "adjusting . . . during [a]/[the] voice timer"<br>('244 patent, Claims 1, 2)<br>"adjusts . . . during the voice timer"<br>('244 Patent, Claims 17, 18)<br>"adjusting . . . during activation of the voice timer"<br>('244 Patent, Claim 28) | The "activating" step must precede the "adjusting" step. |
| "proximate to the earphone device"<br>('542 Patent, Claims 1, 7) | "included in the earphone device" |
| "proximate to the earphone device"<br>('542 Patent, Clam 13) | Plain and ordinary meaning. |
| "detecting a cessation of the voice activity"<br>('542 Patent, Claim 1)<br>"detect a cessation of the voice activity" ('542 Patent, Claim 13) | "detect[ing] an end of speech, as opposed to a short silence (e.g., between words)" |
| "seal quality"<br>('424 Patent, Claim 1) | Plain and ordinary meaning. |
| "sound pressure level"<br>('424 Patent, Claim 12) | "measurement of sound pressure" |
| "applying the ASM gain to the ASM signal until a new keyword is detected or manually adjusted"<br>('015 Patent, Claim 1) | "applying the ASM gain to the ASM signal until a new keyword is detected or the ASM gain is manually adjusted." |

| | |
|---|---|
| "where the increase or decrease gain is applied until a new keyword is identified or manually changed"<br>('015 Patent, Claim 12) | "where the increase or decrease gain is applied until a new keyword is identified or the gain is manually changed" |
| "trigger event"<br>('259 Patent, Claims 1, 5, 12) | Plain and ordinary meaning. |
| "sound signature"<br>('259 Patent, Claims 1, 11, 12, 15, 16) | "a specific sound event, such as, but not limited to, a car horn, a signal, or a whistle" |
| "opening a communication channel with a remote server if a trigger event is detected"<br>('259 Patent, Claim 1) | "when a trigger event is detected, a communication channel must be opened" |
| "the external gain"<br>('701 Patent, Claim 5, 12) | "external gain value" |

The Court **ORDERS** each party not to refer, directly or indirectly, to its own or any other party's claim-construction positions in the presence of the jury. Likewise, the Court **ORDERS** the parties to refrain from mentioning any part of this opinion, other than the actual positions adopted by the Court, in the presence of the jury. Neither party may take a position before the jury that contradicts the Court's reasoning in this opinion. Any reference to claim construction proceedings is limited to informing the jury of the positions adopted by the Court.

**SIGNED this 8th day of February, 2023.**

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE