

**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

**Before the Honorable Cameron R. Elliot
Administrative Law Judge**

In the Matter of

**CERTAIN AUDIO PLAYERS AND
COMPONENTS THEREOF (II)**

Inv. No. 337-TA-1330

RESPONDENT SONOS, INC.'S OPENING CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION TO THE ASSERTED PATENTS

A. The '748 Patent

The '748 Patent discloses, “techniques [for] a plurality of computing devices to designate a particular computing device to monitor for and/or act on audio input usable to initiate interaction with at least one of the plurality of computing devices.” ’748 Patent, 2:36-41.¹ Specifically, the ’748 Patent discloses that “a plurality of computing devices ... may each be operable to monitor for and/or act on audio input that includes one or more predetermined audio commands.” *Id.*, 2:42-45. Further, “[o]ne or more of the computing devices may ... designate a particular computing device ... from among the plurality of computing devices as the best candidate for monitoring environmental audio for audio input that includes the one or more predetermined audio commands,” and “[r]esponsive to designating a particular computing device to monitor for the one or more predetermined audio inputs, other computing devices from the plurality of computing devices ... may temporarily cease to monitor for audio input.” *Id.*, 2:45:57.

Rather than being based on any analysis of the audio input, the determination of whether a computing device is the best candidate for such monitoring is based on factors related to the computing devices without regard to the audio input, such as “a ranked list of [computing] device types,” “a level of audio input quality of [the] computing devices,” “a location of the computing device,” “applications installed at the computing device,” “networks . . . available to the computing device,” “devices in proximity to the computing device,” “an operating mode . . . of the computing device,” “data obtained from one or more sensors of the computing device,” or “any other data about the status or current state of the computing device.” *Id.*, 7:37-8:52.

¹ The '748 Patent is attached hereto as Exhibit I.

In turn, the '748 Patent explains that “the particular device may be the only one of the plurality of computing devices monitoring for audio input and, in some instances, upon receiving an indication of audio input that includes a predetermined audio command, the particular device may be the only one of the plurality of computing devices to perform one or more actions responsive thereto.” *Id.*, 2:57-63.

B. The '128 and '311 Patents

The '311 and '128 Patents are related to one another and ultimately claim priority back to Non-Provisional Patent Application No. 14/675,932 (the “'932 Application”), filed on April 1, 2015, and Provisional Patent Application No. 62/061,830 (the “'830 Provisional”), filed on October 9, 2014. The '128 Patent was filed on October 3, 2016 and is a continuation-in-part of Non-Provisional Patent Application No. 15/088,477, which in turn is a continuation of the '932 Application. The '311 Patent was filed on February 10, 2020 and is the third continuation of the '128 Patent. The '128 Patent and '311 Patent share a specification.²

The '311 and '128 Patents generally describe a process for selecting a leader device to respond to a user's voice input. In particular, the '311 and '128 Patents explain that “[a] location (e.g., a room or space within a home) may include multiple devices that include voice assistant systems” and that it is “desirable for there to be a leader amongst the voice assistant devices that is responsible for responding to the user's voice inputs, in order to reduce user confusion.” *Id.*, 1:60-2:3; *see also, e.g., id.*, 7:7-14. In this vein, the '311 and '128 Patents describe a technique that involves (i) detecting a voice input (e.g., '311 pat., 21:2-5), (ii) determining a score for the voice input (e.g., '311 pat., 21:11-14) generally reflecting the quality of the captured voice input

² In this regard, when discussing either the '128 Patent or the '311 Patent, for brevity citations are made to the '311 Patent as representative (but the same disclosure can be found in the '128 Patent.). The '311 Patent is attached hereto as Exhibit J and the '128 Patent is attached hereto as Exhibit K.

(e.g., ‘311 pat., 21:11-14, 29:21-24), and (iii) exchanging the scores with the other devices that heard the voice input (e.g., ‘311 pat., 21:31-32). The device that has the highest score out of all the devices that detected the voice input will be the leader device, whereas the devices that do not have the highest score are not the leader devices. See ‘128 pat., 22:8-20. The leader device has the responsibility for responding to the user’s voice input by taking any one of a slew of possible responsive actions, including responding with a voice output (e.g., reciting the weather forecast), a visual output (blinking a light), taking an action on the device itself (e.g., changing the volume of the device, starting/stopping playback of audio on the device), or changing a state or operating mode of another connecting device in the household (e.g., turning off a light in another room). *Id.*, 7:50-63, 10:28-34, 22:4-20. Devices that do not have the highest score will not take on the responsibility of responding to the user’s voice input and can thus refrain from providing any response at all “in order to reduce user confusion.” *Id.*, 1:60-2:3, 30:4-8;

C. The ‘615 Patent

The ‘615 Patent “relates in general to the field of electronic device commissioning, and more particularly to an apparatus and method for seamless commissioning of electronic devices onto wireless local area networks (WLANs).” ‘615 Patent, 1:37-40.³ Specifically, the ‘615 Patent describes what it contends are drawbacks of prior art commissioning techniques and asserts that what is needed is “a technique for commissioning a wireless device onto a wireless network that the average consumer can employ without undue distress.” ‘615 Patent, 2:17-19. Notably, the ‘615 Patent acknowledges that known commissioning techniques “include the use of near-field communications and the use of a direct connection such as [USB].” ‘615 Patent, 6:20-22. The ‘615 Patent also acknowledge that prior art techniques may include “creat[ing] a

³ The ‘615 Patent is attached hereto as Exhibit E.

temporary network and requir[ing] the operator to configure a computing device to join the temporary network.” ’615 Patent, 6:23-26.

The ’615 Patent contemplates an apparatus, and related methods, for WLAN device commissioning that includes a smart wireless device “configured to format and direct transmission of one or more WLAN configuration packets” and a target device “configured to decode and process the one or more WLAN configuration packets to recover WLAN configuration data,” with such configuration data “enabl[ing] the target device to join a WLAN.” ’615 Patent at 2:43-3:13.

II. LEGAL STANDARDS

A. Claim Construction

The proper determination of the meaning and scope of patent claims is a question of law. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995). Patent claims should be construed as they would be by a person of ordinary skill in the pertinent art (“POSITA”).⁴ *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998).

The three primary sources considered in claim construction are: (1) the claim language, (2) the patent specification, and (3) the prosecution history. *Glaxo, Inc. v. Novopharm, Ltd.*, 110 F.3d 1562, 1565 (Fed. Cir. 1997); *Markman*, 52 F.3d at 979. First, one looks to the words of the claims themselves to define the scope of the invention. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). Second, the claims must be read in view of the specification. *Markman*, 52 F.2d at 979-80. Finally, one should consider the patent’s prosecution history. *Id.*

⁴ Sonos submits that a person of ordinary skill in the art (POSITA) for the purposes of the asserted patents would have had equivalent of a four-year degree from an accredited institution (typically denoted as a B.S. degree) in computer science, computer engineering, electrical engineering, or an equivalent thereof, and approximately 2-4 years of experience in the field of voice and/or audio processing, networking and network based systems or applications, or an equivalent level of skill, knowledge, and experience.

“The words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art[POSITA] in question at the time of the invention when read in the context of the specification and prosecution history.” *Laryngeal Mask Co. v. Ambu*, 618 F.3d 1367, 1370 (Fed. Cir. 2010) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005)). In this respect, “the person of ordinary skill in the art[POSITA] 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.” *Phillips*, 415 F.3d at 1313. Moreover, one cannot ignore claim limitations. *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 935 (Fed. Cir. 1987).

Further, a construction that renders a claim nonsensical cannot be correct. *See, e.g., Schoenhaus v. Genesco, Inc.*, 440 F.3d 1354, 1357 (Fed. Cir. 2006) (finding that plaintiff’s construction “renders [the asserted claim] nonsensical” and therefore “cannot be correct”); *ALA Eng’g Ltd. v. Magotteaux Int’l S/A*, 657 F.3d 1264, 1276 (Fed. Cir. 2011) (“We strive, where possible, to avoid nonsensical results in construing claim language.”) (citing *Bd. of Regents of the Univ. of Tex. Sys. v. BENQ Am. Corp.*, 533 F.3d 1362, 1370 (Fed. Cir. 2008) (“We decline to adopt a construction that would effect this nonsensical result.”)).

After considering the claims themselves, the analysis turns to the specification, which is “always highly relevant” and “the single best guide to the meaning of a disputed term,” and “may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess.” *Phillips*, 415 F.3d at 1315-16. Moreover, a term may be construed to include certain features when the specification “repeatedly and uniformly” described the term to include such features. *See, e.g., In re Abbott Diabetes Care Inc.*, 696 F.3d 1142, 1149-50 (Fed. Cir. 2012) (finding that a claimed “sensor” included a specific feature

where the specification “repeatedly, consistently, and exclusively” disclosed a “sensor” having the specific feature while disparaging prior art sensors lacking that feature); *ICU Med., Inc. v. Alaris Med. Sys., Inc.*, 558 F.3d 1368, 1374-75 (Fed. Cir. 2009) (construing a term to include certain features because the specification “repeatedly and uniformly” described the term to include such features).

“However, the written description is not a substitute for, nor can it be used to rewrite, the chosen claim language.” *Resonate Inc. v. Alteon Websystems, Inc.*, 338 F.3d 1360, 1364 (Fed. Cir. 2003). Although an understanding of the claim language can be aided by the explanations provided in the written description, it is improper to import limitations from the specification into a claim that are not a part of that claim. *Id.* “For example, a particular embodiment appearing in the written description may not be read into the claim when the claim language is broader than the embodiment.” *Id.* at 1364-65 (citing *Electro Med. Sys. S.A. v. Cooper Life Scis. Inc.*, 34 F.3d 1048 (Fed. Cir. 1994)).

It is also proper to look at the prosecution history in interpreting claim terms. *Markman*, 52 F.3d at 980. “Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent.” *Phillips*, 415 F.3d at 1317. Moreover, “all express representations made by or on behalf of the applicant to the examiner to induce a patent grant” limit the interpretation of the claims “so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance.” *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985).

The Chief Administrative Law Judge also may, but is not obligated to, consider “extrinsic” evidence in order to determine the meaning of claim language. *Markman*, 52 F.3d at 980-81. However, “[i]n most situations, an analysis of the intrinsic evidence alone will resolve

any ambiguity in a disputed claim term.” *Vitronics*, 90 F.3d at 1583. In this respect, “extrinsic evidence may be useful to the court, but it is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” *Phillips*, 415 F.3d at 1319. Moreover, “extrinsic evidence in general . . . may be used only to help the court come to the proper understanding of the claims; it may not be used to vary or contradict the claim language. Nor may it contradict the import of other parts of the specification.” *Vitronics*, 90 F.3d at 1584 (citation omitted).

Finally, the doctrine of claim differentiation provides that “when a patent claim does not contain a certain limitation and another claim does, that limitation cannot be read into the former claim in determining either validity or infringement.” *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1326 (Fed. Cir. 2003). “There is a rebuttable presumption that different claims are of different scope.” *Id.*; see also *Univ. of Tex. Sys.*, 533 F.3d at 1371 (“Different claim terms are presumed to have different meanings.”). But this doctrine of claim differentiation “cannot alter a definition that is otherwise clear from the claim language, description, and prosecution history.” *O.I. Corp. v. Tekmar Co., Inc.*, 115 F.3d 1576, 1582 (Fed. Cir. 1997).

B. Indefiniteness

Indefiniteness is typically addressed simultaneously with claim construction. Specifically, the Patent Act “requires the patent applicant to conclude the specification with ‘one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.’” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 902 (2014). “[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.” *Id.* at 901. “Some modicum of uncertainty” is allowed, but “a patent must be precise enough to afford clear notice of what is claimed,

thereby appris[ing] the public of what is still open to them.” *Id.* at 909 (internal quotation marks omitted). “Otherwise there would be a zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims.” *Id.*

The definiteness requirement ensures the claimed invention is properly bounded. *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (there must be “objective boundaries” to the claims). Claims are indefinite when, for example, “the claim language ‘might mean several different things and no informed and confident choice is available among the contending definitions.’” *Id.* (quoting *Nautilus, Inc.*, 572 U.S. at 911 n.8). Even seemingly clear terms may be indefinite based on inconsistent or confusing usage in the subject patent. *IQASR LLC v. Wendt Corp.*, 825 F. App’x 900, 906 (Fed. Cir. 2020); *see also Infinity Comput. Prods., Inc. v. Oki Data Ams., Inc.*, 987 F.3d 1053, 1062 (Fed. Cir. 2021) (“We recognize that, in a vacuum, it might seem odd to hold ‘computer’ indefinite Yet the indefiniteness here does not reside in the term ‘passive link’ or ‘computer’ on its own but rather in the relationship between the two in the context of these claims.”).

III. AGREED-TO CONSTRUCTION

A. ‘128 Pat.: “each of the plurality of electronic devices comprising ... one or more programs to be executed by the one or more processors, the one or more programs comprising instructions for”

Claim Term	Sonos Construction	Google Construction
“each of the plurality of electronic devices comprising ... one or more programs to be executed by the one or more processors, the one or more programs comprising instructions for”	<i>each of the plurality of electronic devices must be capable of performing all of the recited functions</i>	Google does not dispute that claim 6 requires that each device of the “plurality of electronic devices” include the recited “memory storing one or more programs to be executed by the one or more processors,” and that the “one or more programs” comprise instructions for performing the operations recited in the remainder of the claim.

The parties appear to agree that claim 6 of the ‘128 patent recites a “plurality” of electronic devices and that each “electronic device” includes “memory storing one or more programs” and that the “one or more programs” comprise instructions for performing the operations recited in the remainder of the claim. In this way, claim 6 requires that each electronic device of the recited plurality be capable of performing the operations recited in the remainder of the claim (i.e., operations 6[a], 6[b], 6[c], 6[d], and 6[e]) because each device of the plurality contains programs that comprise instructions for performing such operations.

IV. THE ‘748 PATENT TERMS

A. “predetermined spoken audio command”

Claim Term	Sonos Construction	Google Construction
“predetermined spoken audio command”	<i>any audio input usable to initiate interaction with a computing device, such as a spoken hotword</i>	No construction necessary; plain and ordinary meaning.

An inventor may act as his or her own lexicographer in the specification to define terms used in the patent claims. *Phillips*, 415 F.3d at 1316. That is the case here with the claim term “predetermined spoken audio command.” In the context of the ’748 Patent’s specification, “predetermined spoken audio command” means “any audio input usable to initiate interaction with a computing device, such as a spoken hotword.” The specification explicitly defines “predetermined spoken audio command” as such:

By designating a particular computing device to monitor for audio input and/or process indications of the audio input (e.g., monitor for one or more ***predetermined audio commands, such as “hotwords”*** or “audio triggers”) A ***predetermined audio command***, generally, ***may be any audio input*** (e.g., a word, a phrase, etc.) that that is ***usable to initiate interaction with a computing device.***”

'748 Patent at 2:64-67 and 3:67-4:2.⁵

Consequently, this definition in the specification of the '748 Patent dictates the construction of “predetermined spoken audio command” to be “any audio input usable to initiate interaction with a computing device, such as a spoken hotword.” *See Phillips*, 415 F.3d at 1316; *Biogen MA Inc. v. EMD Serono, Inc.*, 976 F.3d 1326, 1335-36 (Fed. Cir. 2020) (affirming construction where the plaintiff “explicitly defined ‘polypeptide’ in the [] patent”); *BookIT Oy v. Bank of America Corporation*, 817 F. App’x 990, 993-994 (Fed. Cir. 2020) (“The district court’s constructions were [properly] taken from the definitions set forth in the specification. There can be no clearer definitions than those expressly recited in the patent.”) (citations omitted).

The claim term “predetermined spoken audio command” is also a coined phrase that has no plain and ordinary meaning. Accordingly, the ALJ’s construction for this term must be limited to the disclosure in the specification, which supports Sonos’s proposed construction. *See Iridescent Networks, Inc. v. AT&T Mobility, LLC*, 933 F.3d 1345, 1351-53 (Fed. Cir. 2019) (finding “high quality of service connection” to be a “coined” term and affirming construction limiting the term to the minimum parameters disclosed in the specification); *Goldenberg v. Cytogen, Inc.*, 373 F.3d 1158, 1164 (Fed. Cir. 2004) (where the term “marker substance” has no accepted meaning, “we construe [the term] only as broadly as is provided by the patent itself”).

B. “[perform/performing] speech recognition”

Claim Term	Sonos Construction	Google Construction
“[perform/performing] speech recognition”	<i>[process/processing] spoken audio to determine whether it includes a predetermined spoken audio command</i>	No construction necessary; plain and ordinary meaning.

⁵ The fact that “predetermined audio command” is used in the specification while “predetermined *spoken* audio command” is used in the claims of the '748 Patent is of no consequence and does not alter this mandated construction. Moreover, Sonos has added the term “spoken” before “hotword” in its proposed construction to account for this difference (and has no objection to the term “spoken” also being added before “audio input”).

As with the claim term “predetermined spoken audio command,” the ’748 Patent’s specification also dictates that the claim term “[perform/performing] speech recognition” should be construed to mean “[process/processing] spoken audio to determine whether it includes a predetermined spoken audio command.” *See, e.g., Phillips*, 415 F.3d at 1316; *Biogen*, 976 F.3d at 1335-36; *BookIT*, 817 F. App’x at 993-994. The specification explicitly defines performing “speech recognition” as such. *See* ’748 Patent at 6:61-66 (“***In accordance with the techniques described herein, one or more computing devices*** from a plurality of computing devices may designate a particular computing device from among the plurality of computing devices to ***process audio input to determine whether the audio input includes a predetermined audio command.***”); 4:57-63 (“For instance, audio input modules may be operable to ***utilize speech recognition techniques . . . to determine whether the obtained audio input includes a predetermined audio command.***”); *see also* 10:1-7; 10:21-25.

Google itself has admitted that “[perform/performing] speech recognition” means “processing spoken audio to determine whether it includes a predetermined spoken audio command.” For example, in one of Google’s other patents, Google stated:

Upon receiving the audio signal 122, the ***keyword detector*** module 124 ***processes the audio signal 122 to determine whether it includes a keyword.*** For example, the ***keyword detector*** module 124 may ***perform speech recognition*** on the audio signal 122 ***to identify*** a portion of the signal corresponding to ***the keyword.***

Ex. A, U.S. Patent No. 10,255,922 at 7:12-17.

As a further example, Google explained the following in yet another of its patents:

Automatic ***speech recognition*** is one technology that is used in mobile devices. One task that is a common goal for this technology is to be able to use voice commands to wake up and have basic spoken interactions with the device. For example, it may be desirable ***to recognize a ‘hotword’*** that signals that the mobile device should activate when the mobile device is in a sleep state.

Ex. B, U.S. Patent No. 9,646,634 at 1:14-20; *see also* Ex. C, U.S. Patent No. 10,134,398 at 1:62-66 (“each time the [hotword is] spoken, it is picked up by a microphone, conveyed to the system, which performs *speech recognition techniques to determine whether the hotword was spoken* . . .”); Ex. D, U.S. Patent No. 10,593,330 at 1:63-67 (same).

Not surprisingly, at least one court has interpreted the term “speech recognition” consistently with the construction proposed by Sonos here. *See Phoenix Sols., Inc. v. DirecTV Grp., Inc.*, No. CV08-0984-MRPSSX, 2008 WL 5727419, at *15 (C.D. Cal. Nov. 4, 2008) (“The *Court* therefore *construes* ‘*speech recognition* operations’ to be ‘*processing* tasks performed on a digitized *speech* utterance *to recognize symbols* contain[ed] *in the speech* utterance.’”).

C. “[determine/determining] . . . based at least in part on information received from the one or more additional computing devices, whether the first computing device should perform speech recognition on the spoken audio input”

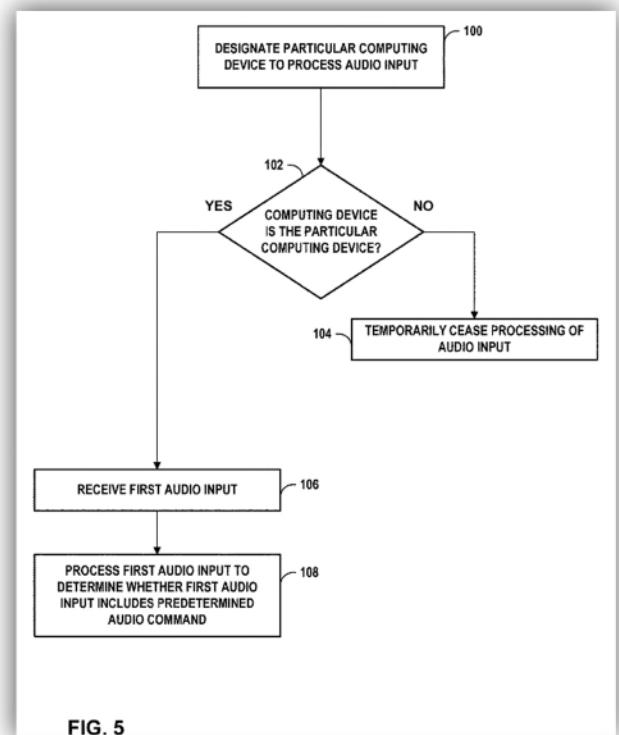
Claim Term	Sonos Construction	Google Construction
“[determine/determining] . . . based at least in part on information received from the one or more additional computing devices, whether the first computing device should perform speech recognition on the spoken audio input”	<i>determining whether the first computing device should perform speech recognition on the spoken audio input without any of the plurality of computing devices processing the spoken audio input to determine whether it includes a predetermined audio command</i>	No construction necessary; plain and ordinary meaning.

The Federal Circuit instructs that the words of the claims themselves provide substantial guidance as to the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314. Here, the express language used in the claims of the ’748 Patent requires the limitation of “[determine/determining] . . . whether the first computing device should perform speech recognition on the spoken audio input” to be construed in accordance with Sonos’s proposed construction. Specifically, the language in all the claims of the ’748 Patent recites that a determination is made as to “whether the first computing device should perform speech recognition on the spoken audio

input,” and if so, the other computing devices should “refrain from performing speech recognition.” As such, the determination as to “whether the first computing device should perform speech recognition on the spoken audio input” must be done without any of the plurality of computing devices performing speech recognition, *i.e.*, “without any of the plurality of computing devices processing the spoken audio input to determine whether it includes a predetermined audio command.”⁶ In other words, the determination as to whether speech recognition ***should be performed*** obviously cannot be made by ***performing*** speech recognition. Any other interpretation for the language used in this claim term would be illogical, and thus, inappropriate. *See Interactive Gift Exp., Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1336 (Fed. Cir. 2001) (vacating judgment based on a construction that was “illogical and [did] not accord with the plain import of the claim language”).

⁶ As explained, “[perform/performing] speech recognition” should be construed to mean “[process/processing] spoken audio to determine whether it includes a predetermined spoken audio command.” Thus, “without any of the plurality of computing devices performing speech recognition” means the same as “without any of the plurality of computing devices processing the spoken audio input to determine whether it includes a predetermined audio command.”

The specification supports this construction. Indeed, there is no disclosure in the specification of any determination of “whether the first computing device should perform speech recognition on the spoken audio input” based on performing speech recognition on the spoken audio input. Instead, according to the ’748 Patent’s specification, rather than performing speech recognition on the spoken audio input, the determination for whether a computing device should perform speech recognition is based on (1) “a ranked list of device types usable to monitor for and/or process audio input,” such as a “smartphone, smartwatch, headset, tablet, laptop, desktop, in-vehicle system, etc.” (7:37-64); (2) “a level of audio input quality associated with one or more of [the] computing devices,” such as “volume, signal-to-noise ratio, and/or other parameters” (7:65-8:13); or (3) “a determined context of one or more of [the] computing devices,” such as “a location of the computing device (e.g., a GPS location),” “applications installed at the computing device,” “networks (e.g., wireless networks) available to the computing device,” “devices in proximity to the computing device (e.g., within 10 feet, within 100 feet, or other distance),” “an operating mode (e.g., silent mode, airplane mode, driving mode, standby mode, low battery mode, or any other mode of operation) of the computing device,” “data obtained from one or more sensors of the computing device (e.g., temperature data, ambient noise level data, light level data, acceleration/movement data, image/video data, and other data), or any other data about the status or current state of the computing device” (8:26-52).



As shown, FIG 5. of the '748 Patent further illustrates that the determination for whether a computing device should be “designate[d]” to “process audio input” by performing speech recognition takes place in Step 100 – *before* the computing device “process[es] audio input to determine whether [it] includes [a] predetermined audio command” (*i.e.*, before the computing devices “perform any speech recognition”) in Step 108.

'748 Patent at FIG. 5; 25:22-67.

D. “a command to temporarily refrain from performing speech recognition”

Claim Term	Sonos Construction	Google Construction
“a command to temporarily refrain from performing speech recognition”	<i>a message instructing the second computing device to temporarily cease performing any and all speech recognition</i>	No construction necessary; plain and ordinary meaning.

As with the “[determine/determining]” limitation, the claim language itself dictates that the term “a command to temporarily refrain from performing speech recognition” should be construed as “a message instructing the second computing device to temporarily cease performing any and all speech recognition.” Any other interpretation for the language used in this claim term would be illogical, and thus, inappropriate. *See Interactive Gift*, 256 F.3d at 1336. Indeed, restraining the performance of some, but not all, speech recognition would not be “refrain[ing] from performing speech recognition,” and would fail to meet the desired goals expressed in the '748 Patent. *See KEYnetik, Inc. v. Samsung Elecs. Co.*, 837 F. App'x 786, 793 (Fed. Cir. 2020) (vacating Board’s construction as too broad because it “would eviscerate the stated purpose of the claimed invention”).

The '748 Patent specification supports this construction. For example, the specification explains that the instruction to the computing devices not selected for performing speech recognition is to “cease” and “deactivate” their “monitoring for and/or processing [of] audio

input.” See, e.g., ’748 Patent at 2:64-3:7 (“. . . sending instructions to the other, non-designated computing devices to temporarily **cease** monitoring for audio input”); 9:36-50 (“. . . output instructions to computing devices other than the particular computing device to cause the respective computing devices . . . to temporarily **deactivate** respective audio input modules. . . . That is, computing devices [] temporarily **cease** monitoring for and/or processing audio input.”).

As another example, the specification discloses that “**only one** of the plurality of computing devices” (i.e., “a **single** computing device”) should perform any speech recognition to “reduce wasted energy, avoid parallel-processing problems, and overall improve the user experience.” See, e.g., ’748 Patent at 2:52-63 (“Responsive to designating a particular computing device to monitor for the one or more predetermined audio inputs, other computing devices . . . temporarily **cease** to monitor for audio input. Thereafter, the particular device may be **the only one** of the plurality of computing devices monitoring for audio input”); 3:7-13 (“That is, when more than one computing device is operable to monitor for and/or act on audio input that includes a predetermined audio command, designating **a single device** to do so may ensure that **a single device** expends energy in the process”); 5:31-59 (“**Two or more computing devices** monitoring the same environment for audio input that includes a predetermined audio command may **waste** processing power and/or battery life through **duplicative** monitoring of environmental audio as well as through **duplicative** processing of received audio input. . . . Monitoring an environment for audio input including predetermined audio commands by only **a single computing device** may **reduce wasted** energy, **avoid parallel-processing problems**, and overall **improve** the user experience.”); 10:7-12 (“Because audio input modules . . . are temporarily **deactivated**, **neither** audio input module . . . **may waste** processing power and/or battery power **to monitor for audio input and/or process the audio input**.”). FIG.

4; FIG. 5. Having non-designated computing devices, such as the second computing device, refraining from performing any and all speech recognition is the only way to ensure that the '748 Patent's "overriding purpose" of not wasting power, energy, and battery life and avoiding duplicative/parallel processing is achieved. *See Nevro Corp. v. Bos. Sci. Corp.*, 955 F.3d 35, 44 (Fed. Cir. 2020) (limiting claims to have feature where specifications "consistently identify [the feature] as the purpose of the claimed invention."); *Howmedica Osteonics Corp. v. Tranquil Prospects, Ltd.*, 401 F.3d 1367, 1372 (Fed. Cir. 2005) (construing claim term consistent with "overriding purpose of the invention" as set forth in specification).

V. THE '128 / '311 PATENT TERMS

The parties have agreed to address these patents together as they contain similar terms, and Sonos proposes the same constructions for the same terms in each patent. These patents are in the same family and share a specification.

A. '128 Pat: "other devices" / "quality scores" '311 Pat: "second values" / "other electronic devices"

Patent / Claims	Claim Term	Sonos Construction	Google Construction
'128 Pat. Claim 1	"other devices of the plurality of electronic devices" / "quality scores generated by the other devices of the plurality of electronic devices"	"second values" means "two or more second values" "electronic devices" means "two or more electronic devices"	the plain meaning of "quality scores" is "one or more quality scores" the plain meaning of "other devices" is "one or more other devices"
'311 Pat. Claim 1	"second values ... from other electronic devices" / "second values from other electronic devices of the plurality of electronic devices"	"second values" means "two or more second values"; and "electronic devices" means "two or more electronic devices"	the plain meaning of "second values" is "one or more second values" the plain meaning of "other electronic devices of the plurality" is "one or more other electronic devices"

The dispute over these phrases is whether the plural usage of "quality scores," "other

devices,” “second values,” and “other electronic devices” should be construed consistent with standard English usage of plural nouns (i.e., to mean “two or more”) or whether usage of plural nouns should be ignored and construed to require only “one or more.” Sonos submits that the usage of plural nouns means “two or more.” Google’s position is to rewrite the claim terms to eliminate their plurality.

These terms appear in elements 1[d] and 1[f] of independent claims 1, 6, and 11 of the ‘128 patent and elements 1[c] and 1[d] of independent claims 1, 10, and 16, as well as element 16[e] of independent claim 16 of the ‘311 patent. Representative versions of these claim elements are below.

‘128 Patent, Claim 1, Elements 1[d], 1[f]:

1[d] receiving **quality scores** generated by the **other devices** of the plurality of electronic devices for detection of the voice input by the **other devices**;

1[f] in accordance with a determination that the quality score generated by the first electronic device is the highest amongst the generated quality score and received **quality scores** for the voice input . . .

‘311 Patent, Claim 1, Elements 1[c], 1[d]:

1[c] receiving **second values** associated with the voice input from **other electronic devices** of the plurality of electronic devices;

1[d] in accordance with a determination that the first value is higher than **the second values**, responding to the detected input.

Assigning a meaning of “two or more” to plural nouns is “simply an application of the general rule that claim terms are usually given their plain and ordinary meaning.” *Apple Inc. v. MPH Techs. Oy*, 28 F.4th 254, 261–62 (Fed. Cir. 2022) (holding “information fields” refers to “two or more fields”); *Leggett & Platt, Inc. v. Hickory Springs Mfg. Co.*, 285 F.3d 1353, 1357 (Fed. Cir. 2002) (“[T]he claim recites ‘support wires’ in the plural, thus requiring more than one welded ‘support wire.’”). Indeed, a plural term commands a “presum[tion]” that the terms

“refers to two or more items,” unless “the broader context shows a different meaning applies.” *Apple*, 28 F.4th at 261. Nothing in the plain language of the claims or the remainder of the specification or file history suggests a departure from assigning the plain meaning of “two or more” to these plural nouns.

The ‘128 patent claims are clear that the first device engages in a step of “receiving quality *scores* generated by the other *devices*.” Likewise, the ‘311 patent claims are clear that the first device engages in a step of “receiving second *values* associated with the voice input from other electronic *devices*.” The decision to recite plural nouns as opposed to singular nouns was deliberate. This is not an instance where a typographical error resulted in a stray term being recited as plural instead of singular. Indeed, there are two instances of plural terms in the same claim element of each patent – “*scores* generated by the other *devices*” and “*values* . . . from other electronic *devices*” – which reveals a clear intent to claim plural nouns. Also confirming the clear intent to claim a plurality is the grammatical consistency of the phrases. For instance, the terms are not preceded by an indefinite article, such as “a” or “an,” which would have signaled an intent to claim the singular.

Further confirming the Applicant’s intent to claim the plural nature of these terms is the fact that subsequent reference back to this plural antecedent is consistent with the plural usage. For instance, element [e] of independent claims 1, 6, and 11 of the ‘128 patent recites “received quality *scores*” and element 4 of independent claims 1, 10, and 16 and element [e] of independent claim 16 of the ‘311 patent recite either “the second *values*” or “the respective second *values*,” further confirming that the decision to pluralize these terms was deliberate and thus, ought to mean “two or more” as opposed to “one or more.”

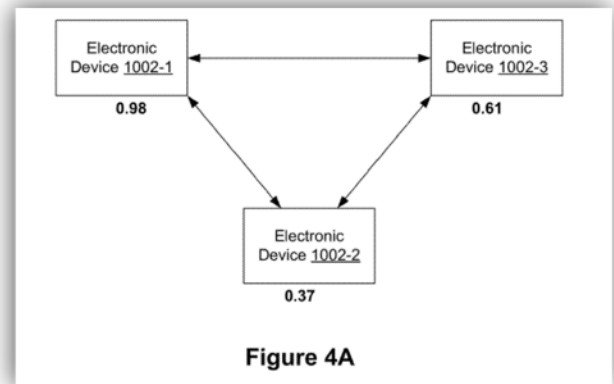
Google asks the ALJ to effectively rewrite the claim to precede the plural terms with

“one or more” in order to inappropriately broaden the claim. In this way, “receiving quality scores generated by the other devices” would become “receiving **one or more** quality scores generated by **one or more** other devices” and “receiving second values associated with the voice input from other electronic devices” would become “receiving **one or more** second values associated with the voice input from **one or more** other electronic devices.” Of course, this would be an improper ex-post rewrite of the claims and should be rejected. *See Synchronoss Techs., Inc. v. Dropbox Inc.*, 389 F. Supp. 3d 703, 715 (N.D. Cal. 2019), *aff’d*, 987 F.3d 1358 (Fed. Cir. 2021) (“To say that a person of ordinary skill would understand that ‘red’ means ‘blue,’ is the same thing as rewriting ‘red’ as ‘blue.’”).

Indeed, elsewhere the very same claims recite “one or more” followed by a plural item as a way to refer to an intentional singular term. *See, e.g.*, ‘128 Pat., cl. 1 (“**one or more** microphones, a speaker, **one or more** processors, and memory storing **one or more** programs for execution by the **one or more** processors...”); ‘311 Pat., cl. 1 (same). Thus, if the Applicant truly intended for “quality scores” and “other devices” to be singular, it would have done the same for these terms and placed the “one or more” in front of those terms itself. Instead, it chose not to. Therefore, the absence of a term the Applicant clearly knows how to use must be construed as a deliberate absence and this decision must be given patentable weight.

Helmsderfer v. Bobrick Washroom Equip., Inc., 527 F.3d 1379, 1381–1382 (Fed. Cir. 2008) (declining to add qualifiers to a term, explaining “If Brocar had intended to use these terms to describe the platform top surface, it should have.”); *Medtronic, Inc. v. Guidant Corp.*, 465 F.3d 1360, 1377 (Fed. Cir. 2006) (relying on plural and singular usages in claim as showing that more than one signal was to be detected—“The claim uses the term ‘detecting cardiac signals,’ indicating that several sensing electrodes would be used.”).

The shared specification also confirms that the plural usage in the claims ought to be construed to mean plural instead of singular. The specification describes examples where there are three electronic devices receiving a voice input and participating in the leader election selection process. *See, e.g.,* ‘311 pat., FIG. 4A, 20:55 – 21:10 (“FIG. 4A shows three voice-activated electronic devices 1002-1 thru 1002-3 (e.g., electronic devices 190) in an operating environment . . . The user makes a voice input (e.g., an utterance) (not shown), and the three electronic devices 1002-1 thru 1002-3 detect and capture a sample of the voice input at varying degrees or levels of quality.”), 21:31-35 (“[E]lectronic device 1002-1 receives the quality scores from electronic devices 1002-2 and 1002-3.”). Given this disclosure, the Applicant was thus within its rights to expressly claim this embodiment. Indeed, this is the exact configuration called for by the claims when they recite “a first electronic device,” which receives “quality scores generated by the other devices of the plurality of electronic devices.” Thus, the minimum number of devices called for by the claims is three devices.



Nowhere does the specification use strictly plural nouns to mean both plural and non-plural – in fact, the specification uses singular nouns when it is intended to refer to the singular and plural nouns when intended to refer to plural. *See, e.g.,* ‘311 pat., 2:66-67 (“determining a quality **score**”), 3:1-2 (“receiving quality **scores**”), 29:21-23 (“electronic **device** 190 determines a **score**”), 29:35-36 (“electronic device 190 communicates (1206) the quality **score** to the other **devices**”), 29:37-38 (“receives (1208) quality **scores** generated by the other **devices**”). The specification does indicate that “the singular forms ‘a’, ‘an’ and ‘the’ are intended to include the

plural forms . . .” ‘311 Pat., 35:6-7. But this passage does not say that plural forms are intended to include the singular. The Applicant could have used this opportunity to provide this indication here when discussing that singular was intended to mean plural but deliberately chose to refrain from also specifying that plural means singular. That the Applicant failed to specify this further confirms that, where used, plural means plural. Indeed, this indication simply operates as a reminder of the black letter patent law principle that “a” and “an” mean one or more. *Free Motion Fitness, Inc. v. Cybex Int’l, Inc.*, 423 F.3d 1343, 1350 (Fed. Cir. 2005). There is no similar principle that plural means “one or more.” Thus, plain meaning ought to command that as recited in these claims, plural means plural. *Apple Inc.*, 28 F.4th at 261–62 (“The written description also does not persuade us to depart from the presumption that “information fields” refers to two or more fields. For example, we see no express language indicating the plural should include the singular . . .”).

**B. ‘128 Pat.: “forgo outputting”
‘311 Pat.: “[forgoing/forgo] responding”**

Patent / Claims	Claim Term	Sonos Construction	Google Construction
‘128 Pat. Claim 1	“forgo outputting an audible response”	<i>refrain from outputting any and all audible responses</i>	No construction necessary; plain and ordinary
‘128 Pat. Claim 1	“forgoing outputting a response”	<i>refraining from outputting any and all responses</i>	No construction necessary; plain and ordinary
‘311 Pat. Claim 2	“[forgoing / forgo] responding”	<i>refraining from outputting any and all responses</i>	No construction necessary; plain and ordinary

These phrases appear in each independent claim of the ‘128 Patent and in claims 2, 3, and 12 of the ‘311 patent. Below is a reproduction of the phrases highlighted as used in the ‘128 Patent and ‘311 Patent claims. For brevity, Sonos addresses these phrases together and in places refers to them collectively as the “forgo”/“forgoing” phrases.

‘128 Pat., Claim 1, Elements 1[e], 1[f]:

1[e] in accordance with a determination that the quality score generated by the first electronic device... is the highest amongst the generated quality score and received quality scores for the voice input..., outputting an audible and/or a visual response to the detected voice input, wherein the other devices of the plurality of electronic devices **forgo outputting an audible response** to the detected voice input; and

1[f] in accordance with a determination that the quality score generated by the first electronic device... is not the highest amongst the quality scores for the voice input generated by the plurality of electronic devices..., **forgoing outputting a response** to the detected voice input.

‘311 Pat., Claims 2, 3, 12:

[2] The method of claim 1, further comprising: in accordance with a determination that the first value is not higher than the second scores, **forgoing responding** to the detected input.

[3] The method of claim 2, wherein **forgoing responding** to the detected input further comprises changing a state of operation of the first electronic device.

[12] The first electronic device of claim 10, the one or more programs further comprising instructions for: communicating to the other devices of the plurality of electronic devices to **forgo responding** to the detected output.

The dispute over these phrases is whether the phrase means that the device in question need only refrain from one instance or type of response while allowing the device in question to engage in a virtually unlimited number of other types of responses – or whether “forgoing outputting a [] response” means that the device refrains from outputting any and all responses. For instance, would it satisfy this phrase if a device forwent outputting a “beep” response but otherwise output a “ding” response? Sonos contends that this type of interpretation is contrary to the plain language of the claim and the specification. Properly interpreted, “forgo outputting an audible response” means that the device in question refrains from outputting any and all audible responses to the detected voice input and “forgoing outputting a response” means the device in

question refrains from outputting any and all responses to the detected voice input.

The invention is directed to a process for selecting a leader single device as the leader amongst a plurality of devices to handle responding to a user's voice input. In this respect, claim 1 for instance recites that the first device will (i) detect voice input, (ii) determine a quality score for the voice input, (iii) communicate the quality score to other devices, (iv) receive other quality scores from other devices, and (v) make determinations about the first device's quality score. Specifically, in accordance with a determination that the first device's quality score is the highest, the first device outputs an "audible and/or a visual response to the detected voice input" while the other devices "forgo outputting an audible response to the detected voice input." And in accordance with a determination that the first device's quality score is not the highest, the first device engages in the step of "forgoing outputting a response" to the detected voice input.

Thus, as claimed,⁷ the intended invention is that when the first device is the leader, the first device handles responsibility for responding to the voice input. This means that the first device outputs an audible and/or visual response while the other devices do not output any audible responses. When the first device is not the leader, the claims require that first device not output any response at all. This comports with the whole point of the invention, which is to select one (and only one) device to respond to the user's voice input. '311 pat., 1:67-2:3 ("It is also desirable for there to be a leader amongst the voice assistant devices that is responsible for responding to the user's voice inputs, in order to reduce user confusion."); *see also* 2:9-19, 5:52-54, 31:10-14. Assigning a single device (as opposed to multiple devices) to handle responsibility for responding to the user's voice input serves the patent's stated goal of "reduc[ing] user

⁷ As set forth elsewhere herein, Sonos contends that the claims are indefinite. Sonos's argument herein is based on Google's proposed interpretation of the claims and made in the event the ALJ holds the claims not indefinite.

confusion.” *Id.*, 1:60-2:3; Ex. F (White Dec.), ¶¶ 26-29. Indeed, if multiple devices responded to the user’s voice input then this would result in user confusion. *Id.*

Consistent with the stated point of the invention and the plain language of the claims, the “forgo”/“forgoing” phrases must be construed as “refraining from outputting any and all audible responses” and “refraining from outputting any and all responses,” respectively. Indeed, this is the only logical interpretation of these phrases in the context of the specification. To construe these phrases as only excluding one type or instance of a response while permitting other types or instances of responses would defeat the intended purpose of the claims and the invention at large, as well as circumvent the plain language.

A simple example illustrates this point. Consider a device that outputs only a “beep” sound in response to the detected voice input. Under Google’s interpretation, it could be argued that, although the device output an audible response, it forwent outputting every other possible type or instance of audible responses, such as a “ding” audible response or even a second “buzz” audible response or a “buzz” audible response of a different duration, etc. Similarly, a device that outputs only a flashing light response could be argued to have forwent outputting a continuously-on light response or that it even forwent outputting a “buzz” or “ding” response. In this respect, no matter what response a device ultimately outputs, it can always be argued that it forwent outputting a different type of response. In other words, the device always forgoes outputting what it does not output.

Such an interpretation would therefore render the “forego”/“foregoing” phrases essentially meaningless or superfluous since it could be argued that these phrases are satisfied no

matter what the device does.⁸ Under well-established principles of claim construction, however, claims should be interpreted so that no term or phrase becomes “meaningless” or “superfluous.” *See, e.g., In re Power Integrations, Inc.*, 884 F.3d 1370, 1376 (Fed. Cir. 2018) (rejecting claim construction because it rendered claim language meaningless); *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950-51 (Fed. Cir. 2006) (“Allowing a patentee to argue that physical structures and characteristics specifically described in a claim are merely superfluous would render the scope of the patent ambiguous . . .”).

Aside from the fact that Google’s interpretation would be nonsensical, further supporting the proper interpretation is the fact that the claims themselves use the indefinite articles “*an*” and “*a*” in the phrases “forgo outputting *an* audible response” and “forgoing outputting *a* response.” It is black letter patent law that “a” or “an” is not limited to “a single” or “one and only one” but instead is properly construed to mean “one or more.” *E.g. Free Motion Fitness, Inc.*, 423 F.3d at 1350 (“‘A’ or ‘an’ in patent parlance carries the meaning of ‘one or more’ in open-ended claims containing the transitional phrase ‘comprising.’”). Thus, the forego”/“foregoing” phrases, as drafted, are meant to exclude multiple types of responses rather than only excluding one particular type or instance of response while simultaneously permitting all other responses.

This is exactly what the Federal Circuit held in *Imaginal Systematic, LLC v. Leggett & Platt, Inc.* 805 F.3d 1102, 1109 (Fed. Cir. 2015). There, the Court construed the negative claim limitation “moving the fastening tool *without the use of a vision guidance system*” to exclude all types of vision guidance systems, not just excluding one type of vision guidance system. *Id.* The Court explained “[t]here is simply no support for [patentee’s] attempts to narrow the

⁸ Under this flawed interpretation, the only way to avoid meeting the “forego”/“foregoing” phrases is to have a device that outputs every possible response. Because this is impossible, this further confirms that this is not the proper interpretation.

negative claim limitation so that it disclaims only one particular vision guidance system. The fact remains that the patentee could have specifically disclaimed a particular vision guidance system disclosed in the [] Patent, but did not do so.” *Id.* at 1110 (further relying on the fact that “the claim uses the term generically, referring to “a” vision guidance system—meaning one or more—rather than a specific system.”) (citing *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342 (Fed.Cir.2008) (“That ‘a’ or ‘an’ can mean ‘one or more’ is best described as a rule, rather than merely as a presumption or even a convention.”)). The ALJ should adopt a similar approach here.

The plain language of the claims and the specification make clear that “foregoing outputting a response” means refraining from outputting any and all responses (not just refraining from outputting one type of response). For instance, the claims themselves recognize that there are multiple types of possible responses. Element 1[e] of independent claims 1, 6, and 11, as well as dependent claims 5, 10, and 15, for instance, recite “outputting an **audible** and/or a **visual** response,” and element 1[e] of independent claims 1, 6, and 11 of the ‘128 Patent recites an “**audible** response.”⁹ Similarly, claims 8 and 9 of the ‘311 patent recite “outputting an **audible** and/or a **visual** response” and “outputting an **audible** response,” respectively. Use of the qualifiers “audible” and “visual” illustrate a recognition that there are types of responses. Therefore, purposefully omitting any qualifier on “response” in the negative limitation “foregoing outputting a response” illustrates an intent not to limit this “response” to any particular type. *Helmsderfer*, 527 F.3d at 1381–1382.

For instance, if the Applicant’s intent were to only claim foregoing any and all of one type of response (e.g., forgo audible responses) but permit other types of responses (e.g., permit visual

⁹ All emphasis added unless otherwise noted.

responses or responses involving causing other household devices to change state), then the Applicant could have attached a qualifier to “response.” Indeed, the Applicant did just this with “*audible* response” in element 1[e] of independent claims 1, 6, and 11, as well as dependent claims 5, 10, and 15. Thus, the failure to attach a particular qualifier to “response” in the phrase “foregoing outputting a response” (such as “audible response,” “visual response,” or “action response”) means that this phrase does not limit the type of response the device in question is foregoing. *See Imaginal Systematic*, 805 F.3d at 1109-1110 (“no support for [patentee’s] attempts to narrow the negative claim limitation so that it disclaims only one particular vision guidance system . . . [it] could have specifically disclaimed a particular vision guidance system disclosed in the [] Patent, but did not do so.”).

The specification also makes clear that there are many types of responses that a device could engage in. *See, e.g.*, col. 10:29-34 (disclosing an audible voice message response whereby “[t]he electronic device 190 responds to the request with voice message responses to the user, where the response may include, for example, requests for additional information to fulfill the request, confirmation that the request has been fulfilled, notice that the request cannot be fulfilled, and so forth.”), 29:52-61 (disclosing an “audible” response whereby the device outputs a “voice confirmation if the user request, reading out the user-requested information”), 7:48-63 (disclosing action responses, whereby the device causes itself to take an action as in “streaming media content requested by a user (e.g., “play a Beach Boys song”)” or causes an external device to take an action, as in “changing a state or operating one or more other connected devices within the operating environment 100 (e.g., turning lights, appliances or media devices on/off, locking/unlocking a lock, opening windows, etc.)”), 9:1-24 (disclosing visual responses whereby “LEDs or other visual displays are used to convey a collective voice processing state), 29:47-52

(disclosing “the electronic device outputs . . . a visual response (e.g., a notification or a LED light pattern) to the detected voice input”). U.S. Provisional Application 62/336,566, which is incorporated by reference into the ‘311 and ‘128 patents and thus forms a part of the intrinsic record, also discloses in detail how LEDs can be used with varying patterns to “visually indicate a voice processing state,” which includes “responding to voice inputs.” Ex. G, ‘566 Application, ¶ 92, *see also id.* at ¶¶ 96-101 (describing responding to a voice inputs with varying types of LED illuminations).

The fact that the specification describes many different types of possible responses in which a device could engage means that broad usage of the generic term “response” in the claims ought to refer to all of these types of responses. Limiting “response” in the negative claim limitation of “forgoing outputting a response,” is akin to selectively reading in a limitation to the term “response” – the cardinal sin of claim construction. *See, e.g., Resonate Inc.*, 338 F.3d at 1364-65.; *Imaginal Systematic, LLC*, 805 F.3d at 1109.

C. ‘128 Pat. / ‘311 Pat.: “in accordance with a determination . . . in accordance with a determination”

Patent Claim	Claim Term	Sonos Construction	Google Construction
‘128 Pat. Claim 1	“in accordance with a determination that the quality score . . . is the highest . . . in accordance with a determination that the quality score . . . is not the highest”	<i>indefinite</i>	No construction necessary; plain and ordinary
‘311 Pat. Claim 2	“in accordance with a determination that the first value is higher than the second values . . . in accordance with a determination that the first value is not higher than the second scores”	<i>indefinite</i>	No construction necessary; plain and ordinary

These phrases appear in method claims and recite the performance of contradictory steps.

It is impossible to carry out both of these contradictory steps in the method, and thus, impossible to carry out the method as claimed. This renders the claim indefinite. For reference, claim 1 of the '128 patent and claim 2 of the '311 patent are reproduced below.

'128 patent, claim 1

- 1[pre]** A method, comprising: at a first electronic device of a plurality of electronic devices, each electronic device of the plurality of electronic devices comprising one or more microphones, a speaker, one or more processors, and memory storing one or more programs for execution by the one or more processors:
- 1[a]** detecting a voice input;
 - 1[b]** determining a quality score for the detected voice input;
 - 1[c]** communicating the quality score to the other devices of the plurality of electronic devices;
 - 1[d]** receiving quality scores generated by the other devices of the plurality of electronic devices for detection of the voice input by the other devices;
 - 1[e]** [in accordance with a determination that the quality score generated by the first electronic device is the highest](#) amongst the generated quality score and received quality scores for the voice input, outputting an audible and/or a visual response to the detected voice input, wherein the other devices of the plurality of electronic devices forgo outputting an audible response to the detected voice input; and
 - 1[f]** [in accordance with a determination that the quality score generated by the first electronic device is not the highest](#) amongst the quality scores for the voice input generated by the plurality of electronic devices, forgoing outputting a response to the detected voice input.

'311 patent, claims 1, 2

- 1[pre]** A method performed at a first electronic device of a plurality of electronic devices, each of the plurality of electronic devices comprising one or more microphones, one or more processors, and memory storing one or more programs for execution by the one or more processors, the method comprising:
- 1[a]** detecting a voice input from a user;
 - 1[b]** determining a first value associated with the voice input;
 - 1[c]** receiving second values associated with the voice input from other electronic

devices of the plurality of electronic devices; and

- 1[d] in accordance with a determination that the first value is higher than the second values, responding to the detected input.
- [2] The method of claim 1, further comprising: in accordance with a determination that the first value is not higher than the second scores, forgoing responding to the detected input.

It is black letter law that method or process claims require the performance of each and every recited step. *E.g., NTP, Inc. v. Research In Motion, Ltd.*, 418 F.3d 1282, 1318 (Fed. Cir. 2005) (“Because a process is nothing more than the sequence of actions of which it is comprised, the use of a process necessarily involves doing or performing each of the steps recited.”). If, however, it is impossible to carry out each and every recited method step (i.e., if two steps contradict each other), then that method claim is invalid for indefiniteness because it fails to reasonably inform a POSITA of the scope of the claim as well and fails to particularly point out and distinctly claim the subject matter which the applicant regards as his invention. *E.g., Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1359 (Fed. Cir. 1999) (“[W]hen an impossible limitation, such as a nonsensical method of operation, is clearly embodied within the claim, the claimed invention must be held invalid.”); *Trustees of Columbia University in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1367 (Fed. Cir. 2016) (affirming indefiniteness where the claims nonsensically recited the impossible condition of “extracting machine code instructions from something that does not have machine code instructions”); *Synchronoss Techs., Inc. v. Dropbox, Inc.*, 987 F.3d 1358, 1367 (Fed. Cir. 2021) (holding claims indefinite because, as recited, they “require an impossibility—that the digital media file contain a directory of digital media files.”); *Zeta Glob. Corp. v. Maropost Mktg. Cloud, Inc.*, No. 20-cv-3951, 2021 WL 2823563, at *5 (S.D.N.Y. July 7, 2021) (holding claim indefinite when it required the impossible situation of a “failure message” to be both (1) created only after an email is *delivered* to a

recipient, and (2) received by the sender when the ISP is **unable to deliver** an email to the recipient).

The method recited in claim 1 of the ‘128 Patent and claim 2 of the ‘311 patent is impossible to carry out. Ex. F (White Dec.), ¶¶ 65, 67-68. It is indefinite because a POSITA cannot determine the bounds of, and thus how to practice or avoid practicing, a claim that is impossible to carry out. In the same vein, it is indefinite because it fails to distinctly claim the subject matter regarded as the invention because an impossibility is not an invention. *E.g.*, *Process Control Corp.*, 190 F.3d at 1359; *Synchronoss Techs., Inc.*, 987 F.3d at 1367.

Each claim recites the performance of two alternative and contradictory steps. Ex. F (White Dec.), ¶ 65. Specifically, step 1[e] of claim 1 of the ‘128 patent requires that the first device “output[] an audible and/or a visual response to the detected voice input” (and that the other devices of the plurality “forgo outputting an audible response to the detected voice input”). The claim recites that this step 1[e] be carried out “in accordance with a determination that the quality score generated by the first electronic device **is the highest** amongst the generated quality score and received quality scores for the voice input.” Step 1[f] then requires that the first device “forgo[] outputting a response to the detected voice input.” The claim recites that this step 1[f] be carried out “in accordance with a determination that the quality score generated by the first electronic device **is not the highest** amongst the quality scores for the voice input generated by the plurality of electronic devices.”

In this way, the claim recites – and thus requires – the first electronic device to perform two contradictory steps: a determination that the first device’s quality score **is the highest**, and a determination that the first device’s quality score is **not the highest**. *Id.*, ¶65. Both of these steps cannot be carried out because the first device’s quality score cannot be both **the highest** and

not the highest. *Id.*, ¶¶65-68. Similarly, the claim recites – and thus requires – the first electronic device to perform two contradictory responsive actions: **outputting** an audible and/or a visual response to the detected voice input and **forgoing outputting** a response to the detected voice input. Both of these steps cannot be carried out because the first device cannot both output an audible and/or visual response and forgo outputting a response to the same voice input. *Id.* And, taken together, it is not possible for a device to forgo outputting a response in accordance with a determination that the first device’s score is not the highest and also output an audible and/or visual response in accordance with a determination that the first device’s score is the highest. *Id.*

Claim 2 of the ‘311 patent is indefinite for the same reasons. When read together with the limitations of claim 1, the claim requires the impossible condition of performing both (i) **in accordance with a determination that the first value is higher than the second values**, responding to the detected input, and (ii) **in accordance with a determination that the first value is not higher than the second scores**, forgoing responding to the detected input. *Id.*, ¶¶ 78-79.

The specification provides no clarity on this issue because it does not provide any information that would reasonably inform a POSITA on the scope of this claim. *Id.*, ¶¶ 69-77. In fact, the specification is consistent with the recitations in the claims requiring the performance of two contradictory and impossible method steps. *Id.* The specification merely repeats the same contradictory language used in the claims: “[i]n accordance with a determination that the quality score generated by the first electronic device is the highest . . .” and “[i]n accordance with a determination that the quality score generated by the first electronic device is not the highest . . .” ‘311 Pat., 29:44-52, 30:4-8, FIG. 6 (reciting the performance of both contradictory steps taking place within the method of the flowchart; Ex. F (White Dec.), ¶¶ 70-75.

Because there is no way to interpret the present language of these claims as requiring anything other than two contradictory and impossible to carry out method steps, the claims must be held indefinite. *E.g., Process Control Corp.*, 190 F.3d at 1359.

D. ‘128 Pat.: “cause the electronic device”

Claim Term	Sonos Construction	Google Construction
“cause the electronic device”	<i>indefinite</i>	No construction necessary; plain and ordinary

This term appears in the preamble of claim 11 of the of the ‘128 patent and again in claim 15 of the ‘128 patent (which depends from claim 11), reproduced below:

Claim 11[pre], Claim 15:

[11.pre] A non-transitory computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which, when executed by a first electronic device of a plurality of electronic devices, each of the plurality of electronic devices comprising one or more microphones, a speaker, and one or more processors, **cause the electronic device** to perform operations comprising . . .

[15.1] The computer readable storage medium of claim 11, further comprising instructions which, when executed by **the electronic device**, cause **the electronic device** to perform operations comprising:

[15.2] recognizing a command in the voice input; and

[15.3] in accordance with a determination that a type of the command is related to the first electronic device, outputting an audible and/or a visual response to the detected voice input.

The term “the electronic device” in claims 11 and 15 has no clear antecedent basis.

There is no recitation of “an electronic device” to which subsequent recitations of “the electronic device” could be referring. The claim recites “a *first* electronic device,” and “a *plurality* of electronic devices” but not “an electronic device.” Thus, by reciting that “*the* electronic device” is caused to perform operations, it is unclear to which electronic device(s) this recitation refers.

“A claim could be claim could be indefinite if a term does not have proper antecedent

basis where such basis is not otherwise present by implication or the meaning is not reasonably ascertainable.” *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1249 (Fed. Cir. 2008). Here, there is no implication as to what specific “electronic device(s)” the recitation “the electronic device” refers. In fact, there are two equally plausible interpretations on how a POSITA might interpret this claim. Ex. F (White Dec.), ¶¶ 34-39. When this is the case, the Court must hold the claim indefinite because the claims do not reasonably inform a POSITA as to the scope of the claim. *Honeywell Intern. Inc. v. ICM Controls Corp.*, 2014 WL 4248434, *8-*10 (D. Minn. 2014) (claim indefinite where it was clear that some language was missing from the preamble, and it was not clear how to correct the missing language where there were two plausible choices); *see also Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1357 (Fed. Cir. 2003) (“A district court can correct a patent only if (1) the correction is not subject to reasonable debate based on consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims.”).

The claim is either meant to recite (i) “cause the **[first]** electronic device to perform operations comprising . . .” or “cause the electronic device**[s]** to perform operations comprising . . .” Either of these corrections would alleviate the antecedent issue – but because both are equally plausible, the claim cannot be corrected or interpreted and must be held indefinite.

As mentioned, one interpretation could be that the Applicant omitted “*first*” from its recitation of “the electronic device.” Ex. F (White Dec.), ¶ 36. If this were the case, and the claim is interpreted to refer to the “first” electronic device, then the remainder of the claim limitations would refer to operations that the first electronic device would be configured to perform. In such interpretation, the claim would thus have a scope similar to that of claim 1 of the ‘128 patent, which recites a method that takes place “at a first electronic device” and thus the

steps of that method are carried out by the first electronic device. ‘128 Pat., Cl. 1.

Another interpretation could be that the Applicant omitted an ‘s’ which would have pluralized “electronic device~~/s/~~.” Ex. F (White Dec.), ¶ 36. If this were the case, and the claim is interpreted to refer to “the electronic *devices*,” then the remainder of the claim limitations would refer to operations that all of the electronic devices of the plurality would be configured to perform. In such interpretation, the claim would thus have a scope similar to that of claim 6 of the ‘128 patent, which recites “each of the plurality of electronic devices comprising . . . memory storing one or more programs to be executed by the one or more processors, the one or more programs comprising instructions for . . .”¹⁰

Consideration of the specification and file history does not eliminate one interpretation over the other. For starters, there are already claims in the ‘128 patent with similar scope to each possible claim interpretation (method claim 1 is of a scope similar to the first interpretation and device claim 6 is of a scope similar to the second interpretation). This reason alone supports the plausibility of each interpretation and thus confirms that claims 11 and 15 are uncorrectable and are thus indefinite. But the specification also does not suggest that one interpretation is unreasonable. Figure 6, for instance, purportedly depicts a process carried out at a first electronic device. The ‘128 Patent discloses “the method is implemented at an electronic device,” “[t]he electronic device detects a voice input,” “[t]he electronic device determines a quality score for the detected voice input.” ‘311 pat. at 29:8-37 (reference numerals omitted). The specification also explains that each device in the plurality can engage in the leader determination process by carrying out the steps of the process. In this respect, the ‘128 patent

¹⁰ As recited, claim 6 requires that each electronic device of the plurality of electronic devices be configured to perform the functions recited in elements 6[a] and 6[f]. See *supra* Section III.A (Google agreeing that this is the proper interpretation of claim 6 of the ‘128 Patent).

discloses “The electronic devices determine a leader amongst themselves to respond to the user’s voice input,” “the three electronic devices detect and capture a sample of the voice input,” “each of the electronic devices determines a level of quality of the respective sample of the voice input.” ‘311 pat. at 20:55 – 21:32 (reference numerals omitted). The specification thus permitted the Applicant to claim either the first device carrying out the steps or all devices in the plurality (including the first device) carrying out the steps.

Because each of these interpretations is both plausible and would result in a meaningfully different claim scope (one interpretation requiring that “the first electronic device” be configured to perform the limitations, and the other interpretation requiring that all electronic devices of the plurality be configured to perform the limitations), a POSITA would not be reasonably informed as to the proper scope of this claim. Ex. F (White Dec.), ¶¶ 36-39. Thus, the claim cannot be corrected by the ALJ. *See Honeywell Intern. Inc.*, 2014 WL 4248434 at *8; *Novo Indus., L.P.*, 350 F.3d at 1357.

E. ‘311 Pat.: “the second scores”

Claim Term	Sonos Construction	Google Construction
“the second scores”	<i>indefinite</i>	the second values

This term does not have antecedent basis and is thus indefinite. *See Halliburton Energy Servs., Inc.*, 514 F.3d at 1249 (finding claim “indefinite if a [claim] term does not have proper antecedent basis”). Claim 2 of the ‘311 patent recites “**the** second scores,” but there is no reference to “scores” in either claim 2 or claim 1 (from which claim 2 depends). Indeed, claim 1 references “second **values**,” but the Applicant chose to claim “second **scores**.”

Google asks this Court to correct claim 2 of the ‘311 Patent to recite “the second **values**,” but the Court may only do so if “(1) the correction is not subject to reasonable debate based on

consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims.” *Novo Indus., L.P.*, 350 F.3d at 1357; *see also Synchronoss Technologies, Inc.*, 2019 WL 2503642 at *7-*8 (granting summary judgment of invalidity for indefiniteness and rejecting the patentee’s argument that the court should simply construing “comprising” as “resulting in” since that would be the same as rewriting the claim, something the court was not permitted to do). Neither of these conditions apply here.

First, Google’s proposed correction *is* subject to reasonable debate at least because the claims of the ‘311 Patent discloses both “values” and “scores.” For instance, claim 16 recites “determin[ing] a first **value** associated with the detected voice input” and claim 17, which depends from claim 16, recites “wherein the first value comprises a first quality **score** of the voice input.” Because both “values” and “scores” are contemplated in the claims, a POSITA would not readily understand whether “the second scores” of claim 2 refer to “second values” or “second scores,” such as a possible “quality score” referenced in other dependent claims.

Second, the prosecution history *does* suggest a different interpretation of the claims. The ‘311 Patent was filed with only a single claim, which recited “in accordance with a determination that the first **score** is higher than the second **scores**, responding to the detected input.” Exhibit L (‘311 File History) at p. 53. A preliminary amendment was then filed that (i) amended claim 1 to recite “in accordance with a determination that the first **value** is higher than the second **values**, responding to the detected input,” and (ii) added claim 2 that recited “in accordance with a determination that the first **score** is not higher than the second **scores**, forgoing responding to the detect input.” *Id.* at 68. While this preliminary amendment was the Applicant’s first opportunity to correctly recite “the second values” in claim 2, it was not their last.

Indeed, the Applicant further amended a portion of claim 2 to recite “in accordance with

a determination that the first *value* is not higher than the second scores, forgoing responding to the detected input.” *Id.* at 78. But the Applicant left “second scores” deliberately unamended. *Id.* This amendment can reasonably be interpreted as a deliberate choice to recite “the second scores,” since the Applicant chose to amend “the first *score*” to recite “the first *value*” but did not choose to amend “the second scores” to recite “the second values.” A POSITA, upon review of the prosecution history, would thus not reasonably understand that “the second *scores*” was intended to refer to the “the second values” in claim 1. Ex. F (White Dec.), ¶¶ 45-47.

2. (Currently Amended) The method of claim 1, further comprising:
in accordance with a determination that the first value ~~score~~ is not higher than the
second scores forgoing responding to the detected input.

For either or both of the reasons that (1) Google’s proposed construction is subject to reasonable debate and (2) the prosecution history indicates the Applicant’s intent to recite the term as issued, the term “the second scores” is indefinite and this Court should not rewrite the claims to allow Google to fix its errors. *See Novo Indus.*, 350 F.3d at 1357.

F. ‘311 Pat.: “the detected output”

Claim Term	Sonos Construction	Google Construction
“the detected output”	<i>indefinite</i>	the detected input

This term also lacks antecedent basis and is therefore indefinite. *See Halliburton Energy Servs. Inc.*, 514 F.3d at 1249 (finding claim “indefinite if a [claim] term does not have proper antecedent basis”). Claim 12 recites “communicating to the other devices of the plurality of electronic devices to forgo responding to the detected *output*.” However, there is no reference to a “detected *output*” anywhere in claim 12 or in claim 10 (from which claim 12 depends).

Despite this, Google is again asking the Court to fix the Applicant’s mistakes by rewriting the term “the detected *output*” to “the detected *input*.” Of course, this is improper for at least the reasons that the Court may not rewrite claims and because Google’s proposed

correction is subject to reasonable debate. *See Novo Indus.*, 350 F.3d at 1357 (finding that correction of a term is permissible “only if ... the correction is not subject to reasonable debate.”); *see also Synchronoss Techs., Inc.*, 389 F. Supp. 3d at 715, *aff’d*, 987 F.3d 1358 (“To say that a person of ordinary skill would understand that ‘red’ means ‘blue,’ is the same thing as rewriting ‘red’ as ‘blue.’”).

As an initial matter, the claims of the ‘311 Patent recite both inputs and outputs. For instance, claim 1 recites “detecting a voice **input** from a user,” while claim 8 recites “**outputting** an audible and/or visual response to the detected voice input” and claim 9 recites “**outputting** an audible response.” Because the claims contemplate both inputs and outputs, a POSITA would not readily understand that claim 12 was supposed to recite “the detected **input**.” Ex. F (White Dec.), ¶¶ 51-54. Indeed, there’s nothing in the claims to suggest that the usage of the term “output” was intended to have the opposite meaning (“input”).

Further, even if this Court were to correct the claim as Google suggests, the antecedent basis would still be unclear. For instance, claim 1 recites “detecting a **voice input** from a user,” “determining a first value associated with the **voice input**,” “receiving second values associated with the **voice input**,” and “responding to the **detected input**.” The inconsistencies in the word modifying “input” would not assist a POSITA in concluding that the term “the detected output” was intended to read “the detected **input**.” *See 24/7 Customer, Inc. v. Liveperson, Inc.*, 235 F.Supp.3d 1102, 1108, 2016 WL 7116723, *3 (N.D. Cal. 2016) (finding the term “said interaction data” lacked antecedent basis where “the generic term ‘data’ was used in different contexts within the claim and specification”).

Accordingly, this Court should find the term “the detected output” indefinite at least because the term lacks antecedent basis and a reasonable debate exists with respect to Google’s

proposed correction to the term. *See Novo Indus.*, 350 F.3d at 1357.

VI. THE ‘615 PATENT TERMS

A. “short-range signal transmission path”

Claim Term	Sonos Construction	Google Construction
“short range signal transmission path”	<i>indefinite</i>	No construction necessary, as this term should be given its plain and ordinary meaning to a person of ordinary skill in the art at the time of the invention.

“Short-range signal transmission path” is an indefinite term of degree. Where a claim uses a term of degree (like “short,” “heavy,” or “fragile”), the intrinsic record must provide “objective boundaries” sufficient to allow persons of skill in the art to discern the scope of the claim with “reasonable certainty.” *Nautilus, Inc.*, 134 S. Ct. at 2123; *see also Berkheimer v. HP Inc.*, 881 F.3d 1360, 1364 (Fed. Cir. 2018) (Federal Circuit “case law is clear that the objective boundaries requirement applies to terms of degree.”).

The exercise of looking for “objective boundaries” in this case is complicated by the fact that it is not clear whether the term “short-range” in the phrase “short-range signal transmission path” is intended to limit the *type of signal* or the *length of the path*. Put differently, it is not clear from the phrase itself whether the term “short” describes a signal transmission path that uses “short-range” signals (e.g. a long path made up of a series of short range repeaters), *or* the term describes the *overall* length of the transmission path (and regardless of the signal technology used to construct it). But in *either* case, the term is indefinite because neither the specification nor the file history gives “objective boundaries” that would allow a person of skill in the art to discern what qualifies as “short.”

First, let’s assume that “short-range” modifies the word “signals” and that the phrase is intended to limit the *kind of signal* that can be used to create the path, but not the overall length

of the path itself. Under that assumption, the intrinsic record does not provide any objective boundaries to distinguish when a signal should be considered “short-range” versus medium-range or long-range. Indeed, the only guidance it contains is a series of non-limiting examples, namely:

- Camera flash and optical sensor 8:43-44.
- Display backlight and optical sensor. 8:45-46.
- Infrared transmission and receiving elements. 8:47-48.
- Acoustic speaker and microphone. 8:48-49.
- Bluetooth “or substantially similar radio transmissions.” 8:50-51.
- Near field communications (“NFC”). 8:52-54.
- Mechanical vibration/accelerometer transmission. 8:53-54.
- “[D]isparate radio frequencies such as, but not limited to, 433 Megahertz (MHz), 868 MHz, 900 MHz, 2.4 Gigahertz (GHz), or 5.2 GHz.” 8:56-58.

The specification does not say what other types of technologies might qualify as utilizing “short-range” signals nor provide any *standard* to determine when a signal might or might not qualify. Nor does it delineate the negative boundary by providing examples of signaling technologies that do *not* qualify as “short-range.”¹¹

A POSITA could not use this list of non-limiting technologies to develop objective boundaries of the claimed invention. Ex. F, White Decl., ¶97. Some of these technologies, like NFC, have a range of 0.1 meters. *Id.*, ¶96. Bluetooth devices have a range of roughly 150 meters. *Id.*, ¶96. Wireless sensor networks (e.g., devices that operate on the 433/868 MHz band)

¹¹ For example, the specification discusses Wi-Fi (*see* ’615 Patent at 4:31-46; *see also id.* at 7:13-18) but does not indicate whether Wi-Fi communications are considered “short-range” for its purposes.

can have a range of 1000 meters or more. *Id.*, ¶96. And many technologies can be utilized to construct mesh networks, which have the capability of covering vast distances. *Id.*, ¶100. Thus, it is not possible to look at the listed technologies and to even *discern* some sort of vague, implied distance boundary—much less the kind of “objective boundary” that *Nautilus* requires. Nor can one discern a way to distinguish any kind of signal *type* from the list of examples, which include—not just a wide range of electro-magnetic signals—but also audio and mechanical signals. Put differently, it is clear from the list that “short range” is *not* intended to be limited to any particular *type* of signal, and the list provides no way to derive an “objective boundary” for the effective *distance* of such a signal.

This problem also cannot be solved by turning to extrinsic evidence. Because, while academics often use the term “short-range” they don’t use it in a single, consistent way that provides the kind of “reasonable certainty” that *Nautilus* requires. Instead, because “short-range” is a relative term, academics use it to refer to a wide variety of different signals with vastly different characteristics *depending on context*. *Id.*, ¶93. In other words, there is no uniform standard for what is or is not “short range,” and people commonly use the term in inconstant ways. *Id.*, ¶93. Indeed, Google itself has argued that WiFi is not a “short-range wireless technology” (a position it has not taken here). See *Uniloc 2017 LLC v. Google LLC*, No. 2:18-CV-00493-JRG-RSP, 2020 U.S. Dist. LEXIS 9748 (E.D. Tex. Jan. 20, 2020).¹²

The operational range of wireless communication technologies is also inherently difficult to define. *Id.*, ¶98-99. Consider having a conversation on a mobile phone as you drive into the wilderness. The phone might start to “break up” at one point, then reconnect, and so on. Even

¹² In *Uniloc*, the Court concluded that Google had “fail[ed] to demonstrate ... that the term “short-range wireless technology” has any well-established meaning in the relevant art.” *Id.* at *75. *Uniloc 2017 LLC*, 2020 U.S. Dist. LEXIS 9748 at *75.

once a user is out of range to make a phone call, it might still be possible to send a text message. What is the range of that device? As wireless devices move towards the boundary of their range, packet loss occurs but the transmission might still be effective. *Id.*, ¶99. Therefore, even when a manufacture publishes a specific range for a device, that range is subject to some debate. *Id.*, ¶99. As a result, the term “short-range,” without context, does not provide an objective boundary as to what type of technology is or is not within the claim term. And, as discussed above, the specification of the ’615 Patent does not provide the requisite context to inform a POSITA of the term’s scope.

Second, we reach the same conclusion even if we assume that the term “short-range” refers to the *length* of the path and does not limit the *kind of signal* used to construct the path. Again, there is nothing in the specification that provides an “objective boundary” telling us how *long a signal path* may be before it stops being “short-range.” Instead, at best, the specification merely provides the non-limiting examples of signaling technologies listed above. But, as noted, those examples can be used to construct pathways of *vastly* different lengths ... even before you start adding repeaters. For example, the NFC example would be operable with directly adjacent devices, the “camera flash” example would probably be operable throughout a room, Zigbee would be operable throughout a building, and a wireless sensor using the 433/868 MHz band could operate over an entire college campus or neighborhood.¹³ Simply put, if a POSITA needed to determine whether a particular path was “short-range,” the POSITA would have no way of doing so based on the intrinsic record and would instead need to rely “on the

¹³ Without going too far afield, if you put the claimed invention on a submarine, the sound waves given as an example in the specification could travel thousands of miles. <https://www.dailymail.co.uk/sciencetech/article-5337987/How-whale-singing-heard-4-000-miles-away.html>.

unpredictable vagaries of any one person’s opinion.” *See Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1350-51 (Fed. Cir. 2005).

Objective boundaries provide notice to POSITA as to what falls within the claim’s limitation to a degree of reasonable certainty. By way of example, a claim is indefinite where the intrinsic record does not objectively define the length or shape of an “elongated” versus non-elongated core, or the level of redundancy that is “minimal” versus non-minimal, or the level of similarity that makes a shape “block-like” versus “non-block-like.” *See, e.g., GE Lighting Sols., LLC v. Lights of Am., Inc.*, 663 F. App’x 938, 940-41 (Fed. Cir. 2016) (holding that “elongated” is a term of degree and finding the claim indefinite); *Berkheimer*, 881 F.3d at 1363 (holding that “minimal redundancy” is a term of degree and finding the claim indefinite); *In re Walter*, 698 F. App’x 1022, 1024 (Fed. Cir. 2017) (holding that “block-like” is a term of degree and finding the claim indefinite).

“Short-range signal transmission path” is not, by itself, a term of art that a POSITA would understand as having objective boundaries. Although the ’615 patent specification provides non-limiting examples of signaling technologies, the examples themselves raise more questions than they provide objective boundaries. Accordingly, Sonos respectfully requests that the Court find the term “short-range signal transmission path” indefinite.

B. “in response to receiving the request, receiving one or more network configuration packets”

Claim Term	Sonos Construction	Google Construction
“in response to receiving the request, receiving one or more network configuration packets”	<i>indefinite</i>	No construction necessary, as this term should be given its plain and ordinary meaning to a person of ordinary skill in the art at the time of the invention.

The phrase “in response to receiving the request, receiving one or more network configuration packets” is indefinite because, to use a highly technical term, it is gobbledygook. Read literally, the phrase calls for the target device to *receive* something (*i.e.* configuration packets) “in response to” *receiving* something else (*i.e.* a request to initiate a commissioning process). It therefore requires *two inbound transmissions* to the target device in which the second one is “in response to” the first.

But it is not at all clear how a target device could be said to *receive* network configuration packets as a result of *receiving* a request to start the commissioning process. It might receive the two things (the request and the network packets) *sequentially* but it wouldn’t receive the network packets *as a response* to the receipt of the request.

An analogy may help make the requirements of the language clear. Take, for example, the sentence: *in response to* receiving complaints, the town council passed a new ordinance. In this example the council passed the ordinance *as a result of* receiving complaints. Put differently, the phrase “in response to” indicates that the first action, event, or condition triggers or causes the recipient to take an action. That is so because the term “response” ordinarily connotes a *reply* or *reaction*.¹⁴

But it makes no sense from a technical standpoint to say that the target device ***received*** a network packet in response to ***receiving*** a request to initiate a commissioning process – any more than it makes sense to say that you received your holiday gifts in the mail on Tuesday in response to receiving your mail on Monday, or that you caught the baseball your son threw to you in response to catching the football your daughter threw to you.

¹⁴ Ex. H at 3 (Response, The American Heritage Dictionary (4th ed. 2009)).

To put this in the relevant technical context, consider that, in connection with networked computer communications, the steps of receiving data include: (1) setting up a communication path; (2) receiving data; and (3) processing the data. Ex. F (White Decl.), ¶112. All three of these steps are expressly claimed. Claim element 1.1.2 recites “establishing a short-range signal transmission path”; claim element 1.1.3 recites “receiving ... network configuration packets”; and claim element 1.1.4 recites “decod[ing] and process[ing] the ... network configuration packets.” Thus, all of the actions necessary to “receive” information are already expressly recited in the claim. *Id.*, ¶¶113-118. Put differently, by the time we reach limitation 1.1.2, the target device doesn’t need to do anything *else* (*i.e.* to take any kind of response or reaction) in order to receive information over the previously established path. For this reason, while the relevant limitation *ostensibly* requires the target device to do something “in response to” receiving the request, the claims as written don’t indicate what that something is. *Id.*, ¶¶106-107. This creates an insoluble ambiguity – there is simply no way for a POSITA to determine what response or reaction is called for by this limitation. *Id.*

This case is similar to *Trusted Knight Corp v. IBM*. No. 14-1063-LPS-CJB, 2015 U.S. Dist. LEXIS 156414 (D. Del. 2015), *aff’d*, 681 Fed. App’x 898 (Fed. Cir. 2017). In *Trusted Knight*, the claim at issue called for “a process of (1) submitting ... while (2) clearing ..., ***in response to*** the software key logging through the API stack to an internet communication port.” See U.S. Patent No. 8,316,445, Cls. 1, 23. The defendants argued that the “in response to” phrase was indefinite “because it is unclear what action is performed ‘in response to the software key logging.’” 2015 U.S. Dist. LEXIS 156414 at *11. The Court agreed. *Id.* It recognized that “the term ‘in response to the software key logging’ suggests an event (‘response’) triggered by a

specific instance (‘the ... logging’).” *Id.* at *12. But the claims did not indicate what was required; therefore, plaintiff’s construction resulted in the disputed term being “mere surplusage.” *Id.*

A similar thing is true here. The claims provide no indication of *what* the target device must do “in response to” receiving the request that results in it receiving the network configuration packets. And the only possibility—establishing the short-range communication path—is already expressly recited in the claims. Consequently, the disputed term is indefinite. *See USB Bridge Sols., LLC v. Buffalo Inc.*, No. 1-17-cv-0011558, 2020 U.S. Dist. LEXIS 67678, at *20 (W.D. Tex. Apr. 17, 2020) (determining “conversion logic” is indefinite because the term is “never explained to perform [its] function”; rather “other components perform” the claimed conversion function).

Google’s infringement allegations indicate that it believes “in response to” simply means “after.” Put differently, Google is attempting to read the *causality* required by the ordinary meaning of the phrase “in response to” out of the claim in order to solve the problems noted above. But that is not the claim Google drafted. As an initial matter, converting the causal “in response to” phrase to a temporal one fundamentally alters the meaning of the term. *See Luminati Networks Ltd. v. BIScience Inc.*, No. 2:18-cv-00483-JRG, 2019 U.S. Dist. LEXIS 210544, at *43 (E.D. Tex. Dec. 6, 2019) (“The Court rejects that ‘in response to’ should be rewritten as ‘after.’ Doing so is not necessary to clarify any temporal relationship and threatens to change the scope of the claim.”). Moreover, when the patentee intended to establish a *temporal* relationship between steps, it used the word “after.” For example, the final limitation of claim 1 of the ’615 Patent recites “*after* receiving the network configuration packets, employing via the wireless radio....” (emphasis added). “In response to” indicates a *different* relationship that goes beyond temporal sequencing. *See, e.g., Nystrom v. TREX Co.*, 424 F.3d 1136, 1143 (Fed. Cir. 2005) (“When different words or phrases are used in separate claims, a difference in meaning is presumed.”).

Further, the '615 Patent specification provides no guidance about the scope of this term, nor does the patent's prosecution history. In fact, the specification does not mention "in response to receiving the request" at all. The specification provides a barebones recital of a *portion* of the disputed term ("receiv[ing] the one or more WLAN configuration packets") but never references receiving those packets *in response to receiving* the request. *See* '615 Patent at 2:56-57; *see also id.* at 3:6-8. The only other times "receiving" is mentioned in the specification are generic descriptions of the "elements" (*e.g.* hardware) that carries out the receiving. *See id.* at 7:55-59 ("The other device 307 is configured to include receiving elements (not shown) that correspond to the transmitting elements and transmission path 322, thus enabling the other device 307 to receive and process the configuration information."). And the specification includes no description—even using different words—of what is meant by receiving network configuration packets in response to receiving the request. Ex. F (White Decl.), ¶¶108-109.

For these reasons, the '615 Patent fails to inform, with reasonable certainty, those skilled in the art about the scope of "in response to receiving the request, receiving ... network configuration packets." "[A]n express definition" of a claim term is unnecessary, but only when "the meaning of the term is fairly inferable from the patent." *Bancorp Servs., L.L.C. v. Hartford Life Ins. Co.*, 359 F.3d 1367, 1373 (Fed. Cir. 2004). Since "there is no definition for the term[]...in the patent," '615 Patent claims containing the disputed term "do[] not 'afford clear notice of what is claimed[.]" *Saso Golf, Inc. v. Nike, Inc.*, 843 Fed. App'x 291, 296-97 (Fed. Cir. 2021) (quoting *Nautilus*, 572 U.S. at 909). Accordingly, the claim term is not sufficiently definite.

VII. CONCLUSION

For the reasons discussed herein, Sonos respectfully requests the Administrative Law Judge adopt Sonos's constructions.

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Respectfully submitted,

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