

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMAZON.COM, INC.,
AMAZON.COM SERVICES LLC, and
AMAZON WEB SERVICES, INC.,
Petitioners,

v.

SOUNDCLEAR TECHNOLOGIES LLC,
Patent Owner.

Case No. IPR2025-00673
U.S. Patent No. 11,244,675

PETITIONERS' OPPOSITION TO MOTION TO AMEND

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Patent Owner’s (“PO”) proposed substitute claim 8 is unpatentable for at least three reasons: (1) it is directed to ineligible subject matter under § 101; (2) it is indefinite, lacks written description support, and is not enabled; and (3) it would have been obvious. Accordingly, the Board should deny PO’s motion to amend.

I. SUBSTITUTE CLAIM 8 IS UNPATENTABLE UNDER § 101.

Section 101 “contains an important implicit exception” that prohibits patenting “abstract ideas.” *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014). *Alice*’s two-step framework governs eligibility under § 101. *Id.* at 217-27.

A. Step One: Claim 8 Is Directed to an Abstract Idea.

Alice Step One determines whether a claim is directed to an abstract idea despite its use of technological components. *Id.* at 217-18.

In co-pending litigation, the district court held that all of the original claims of the ’675 patent, including claim 5, were directed to an abstract idea. (EX-1008, 13 (holding all claims invalid under § 101), 12 (finding claim 1 representative of all claims).) Although the court amended that judgment and later found that a plausible claim of validity exists under *Alice* Step Two, the court did not alter its findings under Step One. (See EX-1014 (addressing only Step 2).)

The court held that claims merely “tailor[] the output response based on its classification of the speaker’s voice and can omit information from the response if the speaker is not a ‘predetermined’ voice.” (*Id.*, 13.) The Court held the claims

were abstract because: (1) the claims were result-oriented; and (2) the claims seek “to cover a process of minimal tailoring based on a user’s information, which is an abstract idea.” (*Id.*) Claim 8 is abstract for the same reasons.

1. Claim 8 Recites Results Without Reciting Solutions.

Claims are abstract if they fail to specify *how* to achieve the results the claim recites. See *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1342 (Fed. Cir. 2017) (“[T]he claim language here provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it. Our law demands more.”). The district court found that the original claims contain “both results-focused language and generic language that does not explain how the process is executed within the device.” (EX-1008, 13).

The amendments to claim 8 do not fix these problems. Claim 8 still recites the same result-oriented steps that the district court analyzed. The claim still recites calculating a distance “to classify the voice,” “analyz[ing] the acquired voice” to detect intent information, “acquir[ing] notification information” based on the intent information, “generat[ing]” a first output sentence wherein “at least one word selected among words included in the content information of the notification information is replaced with another word,” and “generat[ing]” a second output sentence which “includes all of the intention information and the content information.” But claim 8 still does not recite *how* any of these functions are performed. Rather, the

claim recites only generic “units” configured to somehow produce the desired results. (EX-1202 ¶34.) As the district court correctly held, such claims are abstract. *Ericsson Inc. v. TCL Commc’n Tech. Holdings Ltd.*, 955 F.3d 1317, 1328 (Fed. Cir. 2020) (claims abstract where they recited “functions in general terms, without limiting them to technical means for performing the functions”); *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1343 (Fed. Cir. 2018); *Two-Way Media Ltd. v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017) (claims are abstract if they recite merely “generic functional language to achieve [the] purported solutions” without claiming “*how* the desired result is achieved”); *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1244 (Fed. Cir. 2016); *Elec. Power*, 830 F.3d at 1351.

The proposed amendment does not make the claim any less abstract. It merely adds a step of determining whether the voice is a whisper based on a threshold. Even then, it does not recite what the threshold should be or *how* the threshold is determined to facilitate the whisper/non-whisper determination. (EX-1202 ¶35.)

2. The Claim Is Analogous to Human Activity.

Claim 8 is abstract for a second, independent reason: there is a clear non-technical analog. *Beteiro, LLC v. Draftkings Inc.*, 104 F.4th 1350 (Fed. Cir. 2024) (analogy “to longstanding ‘real-world’ ... activities” showed claims’ abstractness); *Parus Holdings, Inc. v. Sallie Mae Bank*, 137 F. Supp. 3d 660, 671 (D. Del. 2015), *aff’d*, 677 F. App’x 682 (Fed. Cir. 2017) (speech recognition claims abstract due to

“pre-Internet analogs”).

The claim here is analogous to a listener responding to a friend. The friend asks the listener where to meet. If the friend is close, the listener responds that they are meeting at “the Patent & Trademark Office” (first output sentence). If the friend is far away, the listener responds that they are meeting at “the agency” (second output sentence). This allows the listener to shout without informing others who could hear where the two are meeting. The listener can also determine whether the friend is whispering and, if so, may respond with the first output sentence. (EX-1202 ¶36.)

This analogy demonstrates that claim 8 focuses on a fundamental practice humans have long used to communicate: tailoring the information provided based on the other person’s location/proximity. (*Id.* ¶37.) The claim does nothing more than instruct the user to “do it on a computer.” Such claims are abstract. *Univ. of Fla. Rsch. Found., Inc. v. GE Co.*, 916 F.3d 1363, 1366 (Fed. Cir. 2019); *Impact Engine, Inc. v. Google, LLC*, No. 2022-2291, 2024 WL 3287126, at *6 (Fed. Cir. July 3, 2024) (claims to “processing information—turning user-provided input into user-tailored output—and not any improved concrete tools or methods” ineligible); *Broadband iTV, Inc. v. Amazon.com, Inc.*, 113 F.4th 1359, 1371-73 (Fed. Cir. 2024) (analyzing data to generate a “viewer-individualized electronic program guide” is abstract); *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1369 (Fed. Cir. 2015) (“*Capital One*”) (“tailoring” website content based on user

location is an abstract idea even when claims require software “tasked with tailoring information and providing it to the user”); *Brit. Telecomm. PLC v. IAC/InterActive Corp.*, 813 F. App’x 584, 587 (Fed. Cir. 2020) (“tailoring the provision of information to a user’s characteristics, such as location, is an abstract idea”).

The district court correctly held that the original claims were abstract for this reason, citing the Federal Circuit’s decision in *Capital One*. (EX-1008, 13.) That case involved a system for presenting “web pages tailored to an individual user.” *Capital One*, 792 F.3d at 1369. The page was tailored based on a “user’s personal characteristics,” including the user’s location. *Id.* The Federal Circuit found the claims abstract because “this sort of information tailoring is a fundamental practice long prevalent in our system.” *Id.* (cleaned up). The court explained that this tailoring was analogous to how “newspaper inserts” were tailored based on a customer’s location. *Id.*; see also *Affinity Labs of Texas, LLC v. Amazon.com Inc.*, 838 F.3d 1266, 1270 (Fed. Cir. 2016). Just as tailoring visual output based on location is abstract, so too is tailoring audio output based on the user’s location (distance).

The proposed amendment does not make the claim less abstract. It merely adds detecting a whisper. Tailoring output based on the other person’s distance *and* how they speak (e.g., shouting or whispering) is a fundamental practice and is an abstract idea. Adding one abstract idea to another does not render the claim non-abstract. *RecogniCorp, LLC v. Nintendo Co.*, 855 F.3d 1322, 1327 (Fed. Cir. 2017).

Proposed substitute claim 8 is also analogous to the claims invalidated in *Dialware Commc'ns, LLC v. Hasbro, Inc.*, Civil Action No. 16-9012-R, 2017 WL 3453298 (C. D. Cal., Mar. 22, 2017), *aff'd*, 718 F. App'x 974 (Fed. Cir. 2018). In *Dialware*, a patent at issue claimed “a method comprising ‘generating a sound; receiving the sound’ by a second device; ‘analyzing’ the sound based on three possible features; and ‘responding’ with a ‘physical response.’” *Id.* at *1. The *Dialware* court explained that such a claim does “not state a means by which to communicate, but rather [is] directed at the abstract process of communication itself.” *Id.* at *2. The court also found that the claim was abstract because it relied on “generic descriptors,” such as “generating” and “analyzing,” instead of “technical elements.” *Id.* at *3. Here, claim 8 relies on the same generic descriptors and is similarly directed to collecting information, analyzing it, and responding. In other words, claim 8 is directed to “the abstract process of communication itself.” *Id.* at *2.

3. Claim 8 Recites Only Collecting Information, Analyzing Information, and Presenting Results.

Claim 8 is abstract for a third independent reason that the district court did not address. Claim 8, like the original claims, is abstract because it reflects nothing more than collecting information, analyzing the information, and presenting results.

First, the claim recites a unit configured to “acquire a voice spoken by a user.” This unit merely collects information of a particular type (sound). (EX-1202 ¶26.)

Second, the claim recites a unit configured to calculate the user-to-device

distance. This step requires analyzing information to determine a distance. *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (“analyzing information ... by mathematical algorithms” is abstract). Although the claim recites a “proximity sensor” for collecting the distance information, the proximity sensor is not the focus of the claimed advance over the prior art. Indeed, the specification never explains the sensor or how it operates. (EX-1001, 10:32-39.) The sensor is undisputedly conventional and generic. (EX-1202 ¶27.) Accordingly, the claim is not “directed to” the sensor at *Alice* step one. *Trinity Info*, 72 F.4th at 1361.

That unit is also configured to “classify the voice ... based on the calculated distance.” The specification describes only one way of doing so: comparing calculated distance to a threshold value. (EX-1001, 10:17-38; EX-1202 ¶28.) This also reflects merely analyzing information, which is abstract. *See Elec. Power*, 830 F.3d at 1354; *see also Hum Indus. Tech., Inc. v. Amsted Rail Co., Inc.*, IPR2023-00539, Paper 58 at 76 (P.T.A.B., July 18, 2024) (comparing values to thresholds is abstract).

Third, the claim recites a unit configured to “analyze the voice” to “detect intention information[.]” The claim does not provide any detail on how this analysis occurs. Thus, this unit merely analyzes the collected information. (EX-1202 ¶30.)

Fourth, the claim recites a unit configured to “acquire notification information” based on the analysis of the acquired voice. This step simply refers to collecting additional information. (*Id.* ¶31.)

Fifth, the claim requires a unit configured to “generate” output information (an “output sentence”) to provide to the user. This unit is merely analyzes information and presents the results to the user. (*Id.* ¶32.)

In the amended limitation, the voice classifying unit is configured to “determine the voice to be a predetermined voice” when it is “determined to be a whisper based upon whether a peak frequency is equal to or lower than a threshold.” This step merely analyzes information (frequency characteristics, threshold). (*Id.* ¶29.)

Thus, claim 8 focuses on collecting information, analyzing the information, and presenting results. (*Id.* ¶33.) Such claims are abstract. *Elec. Power*, 830 F.3d at 1353-54. That the information presented is tailored to the user does not make the claims any less abstract. *Impact Engine*, 2024 WL 3287126, at *6; *Broadband iTV*, 113 F.4th at 1371-73; *Capital One*, 792 F.3d at 1369; *Brit. Telecomm.*, 813 F. App’x at 587. And, the fact that the information presented is based on the collected information’s “classification” also does not make the claims non-abstract. *In re TLI Commc’ns LLC*, 823 F.3d 607, 612 (Fed. Cir. 2016) (claims to the abstract idea of “classifying an image and storing the image based on its classification” invalid).

PO argues that the claim is non-abstract under Step One because it recites an improvement to a “specific device” or a “concrete, hardware item.” (MTA, 4-5.) That is not the test. If it were, every § 101 case discussed above, all of which involve computing hardware, would have been held to be non-abstract.

In sum, the district court already found the original claims to be abstract the amendments in claim 8 do nothing to make the claim any less abstract.

B. Step Two: Claim 8 Recites No Inventive Concept.

If a claim is directed to an abstract idea, then Step Two considers “what else” the claims recite. *Alice*, 573 U.S. at 217. The claim elements are considered individually and “as an ordered combination” to determine whether the *additional elements* beyond the abstract idea provide an “inventive concept.” *Id.* at 217-18. Claim limitations that implement an abstract idea using merely generic components or “well-understood, routine, conventional activities” are not inventive. *Id.* at 225. Nor are limitations that merely confine the claims to a “particular field of use or technological environment.” *Capital One*, 792 F.3d at 1366.

When the district court initially held the claims invalid under § 101, it found that there was no “inventive concept” in the original claims and “no unconventional features or unique steps that transform this abstract idea into something innovative or inventive.” (EX-1008, 13.) The district court later amended its judgment based on an Amazon employee’s testimony that it was not conventional *at Amazon* to use distance calculation in connection with voice content control devices. (EX-1014, 2.) The district court noted that, under *Alice* Step Two, the question of whether something is well-understood, routine, or conventional is a factual determination and then held that, in view of the employee’s testimony and “taking all factual inference

most favorably to SoundClear,” there was a “plausible claim” for patent validity and therefore it would not be held invalid at the pleading stage of the case. (*Id.*)

PO’s assertion that the district court “confirmed that the claims are valid at Step Two” and “agreed that the ’675 patent is valid” (MTA, 4-5) is incorrect. Finding that a “plausible claim for validity exists” to survive a motion to dismiss does not mean the claims are valid. It merely means that the court would decide the issue at a later date (e.g., on summary judgment).

The Board should hold that claim 8 recites no inventive concept. There is nothing “else” in claim 8 that “transform[s] the nature of the claim” and ensures that it “amounts to significantly more” than just the abstract idea as *Alice* requires.

Aside from the abstract idea, claim 8 recites only generic processing “units.” (EX-1202 ¶38.) It is a technology-agnostic method where every step is a part of the abstract idea of classifying a voice based on distance, tailoring output accordingly, and detecting whisper based on a threshold. Thus, the elements, both individually and as an ordered combination, do nothing more than recite an abstract idea.

The only other hardware recited in claim 8 is a generic, known proximity sensor. PO’s assertion that “distance calculation to classify voices in connection with such voice-control devices was not conventional” misses the point. (MTA, 5.) It is undisputed that distance calculation using a proximity sensor was conventional. (EX-1202 ¶39.) Using a conventional, generic “proximity sensor” performing its

routine function to implement an abstract idea cannot supply an inventive concept.

Even if claim 8 had recited other hardware, the specification confirms that only conventional components, such as a microphone, speaker, and CPU are used to perform the claimed methods. (EX-1001, 3:27-28, 3:36-39, 3:55-56; EX-1202 ¶40.) As a matter of law, such components fail to supply an inventive concept. *See Hawk Tech. Sys., LLC v. Castle Retail, LLC*, 60 F.4th 1349, 1359 (Fed. Cir. 2023) (“an abstract idea performed on a set of generic [electronic] components ... would not contain an inventive concept.”); *TLI*, 823 F.3d at 613-615 (physical components that operate “according to their ordinary use” do not provide an inventive concept).

C. PO’s Arguments Regarding Patent Eligibility Fail.

PO argues the claims are eligible under Step Two because an Amazon employee purportedly testified that the invention was not “conventional.” (MTA, 4-5.)¹ But novelty is not the test. *Hum Industrial*, IPR2023-00539, Paper 58 at 79 (collecting cases and recognizing that “[e]ven if the techniques are groundbreaking, innovative, or brilliant, that is not enough for eligibility”).

Tellingly, PO provides no evidence to support its patent eligibility theory. PO’s expert provides no testimony that the claims are directed to a technological

¹ PO misstates the testimony. The employee testified that classifying voices based on distance was not conventional *at Amazon*.

improvement to the computer itself. Nor does PO's expert contend that any of the hardware components are non-generic or are performing anything other than their well-understood, routine, and conventional functions. PO's expert merely testifies that the limitations are not disclosed in the prior art references. That is incorrect. But even if true, alleged novelty is insufficient to establish patent eligibility.

II. SUBSTITUTE CLAIM 8 IS UNPATENTABLE UNDER § 112.

A. Claim 8 Is Indefinite.

A claim is indefinite if, in view of the specification and prosecution history, it fails to inform, with reasonable certainty, a POSITA about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). Claim 8 is indefinite for two reasons.

1. “a predetermined voice”

A POSITA would not know what “a predetermined voice” means. (EX-1202 ¶43.) Limitation 8[b] states that the voice is classified as “a first voice” or “a second voice” based on distance. It is unclear whether the “predetermined voice” refers to the first voice, second voice, or some other category of voice. (*Id.*) Nor does the claim provide any indication of how such a voice is “predetermined.” (*Id.*)

The specification provides no clarification. It discloses an embodiment in which “[t]he first voice V1A corresponds to a predetermined voice” and “classifies the voice V1 to the first voice V1A when the voice V1 is determined to be a whisper

as a result of analysis (determines as the predetermined voice).” (EX-1001, 9:58-10:1.) However, the specification does not explain what “a predetermined voice” is or whether or when it corresponds to the first and second voices, including when the classification as a first or second voice is based on distance. (EX-1202 ¶44.)

PO’s expert testimony confirms the claim is indefinite. According to PO’s expert, the predetermined voice may be the recited “first voice” or the recited “second voice,” not just the first voice as described in the specification. (EX-1201, 25:23-26:16.) Because the patent fails to explain what the “predetermined voice” is or refers to, it fails to reasonably inform a POSITA of the scope of the claim.

2. “peak frequency [] equal to or lower than a threshold”

This limitation is indefinite because a POSITA would not know the boundaries of this claim limitation. The only relevant disclosure² in the specification is:

[T]he voice classifying unit 42 acquires a time waveform of intensity of the voice V1, and performs Fourier-transformation on the time waveform, thereby acquiring a spectrum that indicates intensity of the voice V1 per frequency. The voice classifying unit 42 classifies the voice V1 either to the first voice V1A or the second voice V1B by using *a peak frequency that is equal to or higher than a predetermined intensity in the spectrum as a feature value*. For example, the voice classifying unit 42 determines the voice as a whisper to classify to the first voice V1A

² The remaining disclosure PO identifies (MTA, 9) is not relevant.

when the peak frequency is equal to or lower than the threshold, and determines the voice as not a whisper to classify to the second voice V1B when the peak frequency is larger than the threshold.

(EX-1001, 10:13-22 (emphasis added); EX-1007, 143; EX-1202 ¶45.) Thus, the specification describes classifying a voice by using a “peak frequency that is equal to or higher than a predetermined intensity in the spectrum as a feature value.” PO’s expert testified that this portion of the specification describes the procedure recited in claim 8. (EX-1201, 29:3-31:3.) And, both experts agree that a POSITA would have understood this to mean that the voice is classified based on whether the peak frequency *intensity* is equal to or lower than a threshold. (EX-1202 ¶45; EX-2016 ¶171; EX-1201, 35:16-36:17.) Otherwise, it would require comparing a frequency (measured in Hertz) to an intensity threshold (measured in decibels), which is not possible. (EX-1202 ¶45; EX-1201, 33:11-16.)

Both experts therefore agree that the claim limitation *includes* determining a whisper based upon whether the peak frequency’s *intensity* is equal to or lower than an *intensity* threshold.³ What is unclear is whether the claim element also covers determining a whisper based on other characteristics. PO’s expert testified that the claimed threshold could include a threshold frequency, intensity, mel value, or some

³ To the extent PO argues that the claim is limited to comparing peak frequency to a frequency threshold, it is not enabled for the reasons discussed below.

other threshold. (*Id.*, 43:1-44:22.) Because a POSITA would not know, with reasonable certainty, the scope of the claim, it is indefinite. (EX-1202 ¶46.)

B. Claim 8 Lacks Written Description and Is Not Enabled.

A claim lacks written description if the specification does not convey with reasonable clarity that the inventor possessed the claimed invention at the time the application was filed. *Centrak, Inc. v. Sonitor Techs., Inc.*, 915 F.3d 1360, 1365 (Fed. Cir. 2019). A claim is enabled only if a POSITA, reading the specification, could make and use the claimed invention without undue experimentation. *Automotive Techs. Int’l, Inc. v. BMW of N. Am., Inc.*, 501 F.3d 1274, 1281-82 (Fed. Cir. 2007). The specification itself, and not the knowledge of a POSITA, must supply the novel aspects of an invention to adequately enable it. *Id.* at 1283.

Claim 8’s point of novelty must be determining whether a voice is a whisper based on peak frequency. According to PO’s expert, claim 8 encompasses determining a whisper based on whether the intensity at a peak frequency is less than a threshold *and* whether the peak frequency is less than a *frequency* threshold. But the patent’s specification neither describes nor enables such determinations.⁴ (*See*

⁴ To the extent the claim can be construed to encompass threshold frequencies, intensities, mel values, and other thresholds as PO’s expert testified (*supra* §II.A.2), the specification provides *no* details about many of those options. (EX-1202 ¶48.)

supra §II.A.2.) The specification describes using a predetermined *intensity* (measured in dB) as a feature value, but never discloses what an appropriate intensity threshold would be to distinguish between whispers and non-whispers. It does not describe using a frequency threshold (measured in Hz) at all, let alone describe an appropriate frequency threshold for detecting whisper. Thus, the claim as written lacks written description support.⁵ (EX-1202 ¶48.) Moreover, because the patent never describes what threshold intensity or frequency would distinguish between whispers and non-whispers, it is not enabled. Even if a POSITA would have understood some method for comparing intensity or frequency to an appropriate threshold, that would still not provide sufficient § 112 support because the specification itself must enable any novel aspects. *Automotive Techs.*, 501 F.3d 1274 at 1283.

Moreover, to the extent PO argues that the claims require voice classification based on both distance and whisper, the specification fails to enable the claim. The specification only details voice classification based on distance *or* peak frequency.

⁵ In support of its written description arguments, PO provided only citations to the issued patent. (MTA, 8-11.) This is improper. *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-0119, Paper 15 at 8 (P.T.A.B. Feb. 25, 2019) (precedential) (citation must be to “the original disclosure of the application, as filed”); *Hisense USA Corp. v. Brightplus Ventures LLC*, IPR2023-01410, Paper 19 at 6 (P.T.A.B. Oct. 23, 2024).

(EX-1001, 10:9-46; EX-1202 ¶49.) Although the specification teaches that the device may “combin[e] the classification methods,” it provides no details as to how to do so. (EX-1001, 11:1-4; EX-1202 ¶49.)

Accordingly, proposed substitute claim 8 is unpatentable under §112.

III. SUBSTITUTE CLAIM 8 IS UNPATENTABLE UNDER § 103.

Claims 1 and 5 are unpatentable as obvious. (Paper 1 (“Pet.”); Paper 25.) Accordingly, this Opposition addresses only the new and/or different limitations in claim 8. *See Aqua Prods., Inc. v. Matal*, 872 F.3d 1290, 1326 (Fed. Cir. 2017) (endorsing “consideration of the entirety of the IPR record”).

PO’s Motion to Amend must “set forth support in an earlier filed disclosure for each claim for which benefit of the filing date of the earlier filed disclosure is sought.” *Lectrosonics*, IPR2018-01129, Paper 15 at 7. PO’s Motion set forth no disclosure in any priority document. (MTA, 8-11.) Thus, the priority date of proposed substitute claim 8 is no earlier than March 7, 2019. (EX-1001, 1.)

A. Claim 8’s New Limitation Was Known.

Schuster discloses determining whether a received voice is a whisper. (EX-1016, 3:1-11.) Schuster discloses making such a determination based on cepstral analysis, but also discloses that whisper can be detected using “any suitable method.” (*Id.*; EX-1202 ¶52.)

As discussed above, both experts agree that a POSITA would have understood

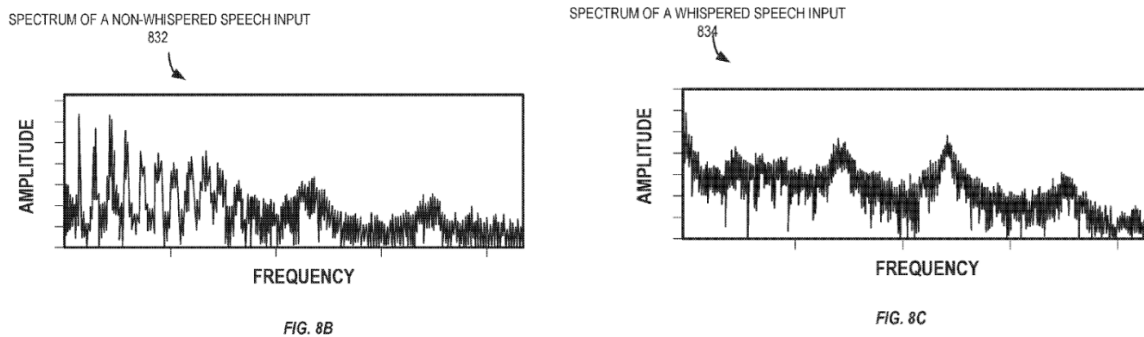
this limitation to include detecting whispers when the intensity is less than a threshold intensity. Determining whether the received voice is a whisper based on such a threshold must have been obvious in view of Schuster because only two options exist: either (1) such a threshold for detecting whisper was known to a POSITA, and therefore would have been disclosed or suggested by Schuster’s disclosure that whisper can be detected using “any suitable method”; or (2) it was not known by a POSITA, in which case the claim is invalid under § 112 because the specification does not describe and enable a POSITA to identify whisper using a threshold intensity (or frequency). If this idea was novel, then the inventors were required to describe it and explain it in the specification. They did not do so.

To the extent the Board finds that determining whisper using a peak frequency threshold was not known as a “suitable method” *and* determines that the specification adequately describes and enables that limitation, then the claim still would have been obvious in view of the references discussed below.⁶

⁶ Each reference discussed below is prior art to the ’675 patent under 35 U.S.C. §§102(a)(1) and (2) because it published more than one year before March 7, 2019. Each reference is also analogous because it is from the same field as the ’675 patent (e.g., controlling voice output) and pertinent to a problem the inventors focused on (e.g., adjusting voice output to improve user interaction.) (EX-1202 ¶51.)

1. Raitio

Raitio (2017) discloses a device that includes a “[w]hispered speech determination module 820” that “can determine whether the speech input includes a whispered speech input based on one or more differences between” whispered and non-whispered speech. (EX-1209 ¶[0243].) Raitio discloses that “the non-whispered speech input and the whispered speech input can have differing spectrums” (*id.* ¶[0244]) and includes figures showing exemplary spectrums:



(*Id.*, Figs. 8B-8C; EX-1202 ¶53.)

Raitio discloses determining whether a voice is a whisper based on “spectrum characteristics such as the amplitude, the energy, the volume, and the slope.” (EX-1209 ¶[0245].) Raitio further discloses detecting whisper when “the amplitude of the spectrum of the speech input is smaller than a threshold amplitude below a pre-determined frequency (e.g., 800 Hz)[.]” (*Id.*; *id.* ¶[0247], claim 6.) Thus, Raitio discloses the new limitation in claim 8, i.e., determining the voice to be a predetermined voice (e.g., whisper or “first voice”) when the voice spoken by the user is

determined to be a whisper based upon whether the peak frequency intensity (amplitude) is equal to or lower than a threshold. (EX-1202 ¶54.)

To the extent PO argues that the claim limitation is limited to detecting whisper when the peak frequency is equal to or less than a *frequency* threshold, Raitio renders it obvious. (*Id.* ¶55.) Raitio renders it obvious because it discloses detecting whispered voice using a threshold frequency (e.g., 800 Hz). (EX-1209 ¶[0245].) Raitio also renders it obvious because a POSITA would have recognized that, in the whispered speech spectrum of Fig. 8B, the peak frequency is at the extreme left side, whereas in the non-whispered speech spectrum of Fig. 8C, the peak frequency is rightward of the extreme left side. (*Id.*, Figs. 8B, 8C; EX-1202 ¶55.) To a POSITA, this discloses, or at least suggests, that there exists some threshold peak frequency that distinguishes whispered and non-whispered speech. (*Id.*) Moreover, Raitio discloses detecting whisper “based on one or more spectrum characteristics” and “using any desired classification methods and/or spectral estimation methods.” (EX-1209 ¶[0250].) A POSITA knew that peak frequency is a “spectrum characteristic” and, therefore, Raitio suggests classifying whispered and non-whispered speech based on comparing peak frequency to a threshold. (EX-1202 ¶55.)

2. Chen

Chen (2016) discloses a device configured to detect whispered speech. (EX-1211 ¶¶[0046]-[0074], Figs. 1-2.) Chen discloses that whispered speech “can

be detected by finding one or more energy levels about one or more predefined thresholds in one or more predefined frequencies.” (*Id.* ¶¶[0065], [0068], [0070] (detecting normal speech rather than whispered speech “when the power exceeds a predefined level” in certain frequency ranges), [0002] (whispered speech “exhibits a lower energy level”).) Thus, Chen discloses exactly what the ’675 patent’s specification describes, i.e., determining whether a voice is a whisper based on a threshold intensity (energy level). (EX-1202 ¶56.) Notably, like the ’675 patent, Chen also discloses using a “proximity sensor” and user-to-device distance to classify the received voice. (EX-1211 ¶¶[0040], [0043], [0092].)

3. Additional References

Detecting whisper was widely known. (EX-1202 ¶57.) In addition to the above references, many other references disclosed methods for detecting whispers using speech characteristics and thresholds. For example, Basye (published in 2016) disclosed “a system that may determine that an input utterance was whispered” “based on audio (and possibly non-audio) paralinguistic feature data[.]” (EX-1208 ¶[0051]; *id.* ¶[0018].) Basye discloses a system that is “trained to recognize whispered speech based on resonance, volume, and/or other features of input audio.” (*Id.* ¶[0051].) Basye discloses detecting whispered speech when the speech “has resonance below a threshold[.]” (*Id.* ¶[0052]; *id.* ¶¶[0058], [0060] (output tailored based on whether the voice was whispered).) As another example, Jain (published

in 2006) disclosed detecting whisper based on “the absence of pitch[.]” (EX-1210 ¶[0045].) Thus, even if Raitio and Chen did not expressly disclose it, detecting whisper based on a threshold intensity or threshold peak frequency would have been obvious to a POSITA in view of additional references such as Basye and Jain.

Lastly, determining whisper based on a threshold intensity (or frequency) would have been obvious to try. (EX-1202 ¶58.) The references above disclose detecting whisper by examining various speech properties, including resonance (EX-1208 ¶[0051]), volume (*Id.* ¶[0051]; EX-1209 ¶[0244]), amplitude or energy (EX-1209 ¶[0244]; EX-1211 ¶[0065]), spectrum slope or tilt (EX-1209 ¶[0244]), and/or lack of pitch (EX-1210 ¶[0045]). The references also disclose that combinations of these and other properties can be examined to determine whisper. (EX-1208 ¶[0051]; EX-1209 ¶¶[0244]-[0245].) To the extent those references do not expressly disclose using the claimed peak frequency threshold, a POSITA would have understood that peak frequency is a similar speech characteristic and would have found it obvious to try detecting whisper using peak frequency. (EX-1202 ¶58.)

B. The References Disclose or Suggest Determining Whisper Based on Distance *and* Peak Frequency.

To the extent PO argues that claim 8 requires that a single voice classification be made based on both user-to-device distance and peak frequency, the prior art discloses this as well. Chen discloses detecting whisper based on energy level at a frequency (*supra* §III.A.2) and “a proximity sensor for sensing a distance between a

user and the mobile computerized device[.]” (EX-1211 ¶¶[0040]-[0041].) Basye discloses detecting whisper based on audio data (e.g., resonance, volume) and non-audio data including the “proximity of the user to a device.” (EX-1208 ¶¶[0055], [0049], [0064].) Thus, the prior art discloses using, and it would have been obvious to use, both peak frequency and distance to classify voice. (EX-1202 ¶59.)

C. Motivation to Combine

A POSITA would have been motivated to combine the teachings of one or more of the prior art references discussed above (Raitio, Chen, Basye, or Jain) with the prior art discussed in the Petition to create a device capable of classifying voice as a whisper based on a peak frequency threshold. (EX-1202 ¶¶60-64.)

First, the prior art discloses the benefits of detecting whispered speech. For example, Raitio discloses that “the user may whisper speech to the device and/or desire that responses be whispered” and thus it is “important that the device recognizes the user’s whispered speech[.]” (EX-1209 ¶[0003]; *see also* EX-1208 ¶¶[0014]-[0016]; EX-1211 ¶[0004] (“[t]here is a growing need to detect whispered speech”).) As another example, Schuster teaches that configuring a device to respond in a “private communication mode” when the user whispers to the device “allows the user to interact with the device in a private manner, [] avoid disturbing other people, [] keep their interaction confidential, or simply [] avoid social awkwardness[.]” (EX-1016, 2:59-67; *see also* EX-1012, Abstract, 3:8-27, 4:30-36.) Thus, a

POSITA would have been motivated to configure Shin and Shimomura’s devices to detect whisper, and do so by comparing peak frequency intensity to a threshold as taught by Raitio or Chen, to achieve the benefits of detecting whispered speech. (EX-1202 ¶61.)

Second, a POSITA would have been motivated to combine Schuster’s disclosure with the other references in the Petition to detect whispered speech. (Pet., 66-67.) Schuster does not disclose detailed methods for detecting whispered speech. (EX-1202 ¶62.) This would have motivated a POSITA to look to references like Raitio and Chen for details on implementing whisper detection. (*Id.*)

Third, such a combination merely represents the addition of one known element (whispered speech detection using peak frequency) to another known element (Shin’s or Shimomura’s output-content control device) to obtain predictable results (a device capable of classifying speech as whispered and adjusting output accordingly). *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007); (EX-1202 ¶63.) Fourth, such a combination applies a known technique (detecting whispered speech using peak frequency) to improve a similar device and method (e.g., Shin’s or Shimomura’s) in the same way. (*Id.*) Fifth, such a combination applies a known technique (detecting whispered speech using peak frequency) to a known device and method (e.g., Shin’s or Shimomura’s) that is ready for improvement and yields predictable results (a device capable of classifying speech as whispered and

adjusting output accordingly). (*Id.*)

A POSITA would have reasonably expected success in combining the teachings. First, detecting whispered speech was well known, as demonstrated by the references above. (EX-1202 ¶64.) Second, the references discussed above disclose very similar devices to Shin and Shimomura; for example, each reference discloses a device with a microphone for acquiring a voice signal and a processor for analyzing the voice signal and providing appropriate output. (*Id.*; *e.g.*, EX-1209 ¶[0036] (Raitio’s device can be “any suitable electronic device” including “portable multi-functional device” or “personal electronic device”); EX-1211 ¶[0039] (Chen’s device may be “a smartphone ..., a media player, a streamer, or any other computerized system”).)

Thus, the prior art renders proposed substitute claim 8 obvious.

* * *

For the foregoing reasons, the Board should deny PO’s motion to amend.

Respectfully submitted,

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March 18, 2026

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing **PETITIONERS’
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