

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

META PLATFORMS, INC.
Petitioner,

v.

EIGHT KHZ, LLC
Patent Owner.

Case No. IPR2023-01003
U.S. Patent No. 9,226,090

**PETITIONER'S SUPPLEMENTAL BRIEF
(PURSUANT TO PAPER NO. 56)**

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PO's construction limiting the claims to HRTFs is factually and legally improper. The intrinsic evidence consistently states there are multiple techniques to create SLPs, including ITD and ILD, even expressly stating these techniques are "not limited to ... HRTFs." *See* EX1001, 35:49-55; Reply 6. Indeed, the specification includes multiple examples of using ITD and/or ILD alone to "designate" a SLP. *See, e.g.*, EX1001, 38:15-17 ("A SLP is designated to the right of the listener by adjusting an ITD by about 0.7 ms and by adjusting the ILD."), *see also id.*, 38:40-56 (using ITD alone to designate and move an SLP), 38:24-25, 39:15-21, 39:38-42. There is no language in the claims—whether "sound localization point" itself or terms that only appear in some independent claims, including "binaural sound," "binaural voice," "designating," "adjusting," "providing," or "wearable electronic device"—that is tied to HRTFs. *See* Reply 2-9.

To narrow the terms to HRTFs, PO relies exclusively on extrinsic evidence, including self-contradictory expert testimony and a tortured reading of the intrinsic evidence supported only by flawed attorney argument. But the Federal Circuit rejected PO's extrinsic evidence-first approach in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1319-1324 (Fed. Cir. 2005). Thus, adopting PO's construction would be error. *See also id.* at 1318 ("[A] court should discount any expert testimony 'that is clearly at odds with the claim construction mandated by the [intrinsic record], in other words, with the written record of the patent.'").

I. REQUIRING HRTFS RENDERS CERTAIN TERMS SUPERFLUOUS

No language in independent claims 1, 8, and 15 can require HRTFs. When the patent intended to limit the dependent claims to “HRTF” it explicitly used the term. As such, requiring HRTFs in the independent claims would render superfluous the “HRTF” terms in the dependent claims. *See* Reply 3-5.

“It is highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous.” *Intel Corp. v. Qualcomm, Inc.*, 21 F.4th 801, 810 (Fed. Cir. 2022). Here, independent claim 15 recites “a processor that executes the instructions to adjust the binaural voice ... in order to position a [SLP].” Claim 17 narrows “the instructions to change an interaural time difference (ITD), an interaural level difference (ILD), and *a head-related transfer function (HRTF)* in order to position the [SLP].” If HRTF was already required to designate or position the SLP, reciting “HRTF” in claim 17 would serve no purpose. *See* Reply 5.

PO counters that the “HRTF” in the claims refer to “adjusting an already-synthesized binaural voice.” Sur-Reply 9. This is detached from the claim language. Claim 15 recites only two actions related to a binaural voice—“captures a binaural voice” and “adjust the binaural voice.” No claim language (nor intrinsic evidence) suggests (let alone requires) the system to capture a binaural voice, ignore the captured binaural voice, and synthesize a new binaural voice. *See* Reply 15 n.6.

PO does not (and cannot) identify any language recited in any independent

claims that require binaural synthesis. Claims 1 and 15 capture binaural sound/voice and adjust it. Thus, these claims create binaural sound/voice through capture, *not synthesis*. Kyriakakis ¶¶54-55; *see also* Reply 21-22; EX1001, 3:57-59.

Claim 8 does not recite “binaural” at all. PO argues that “voice” in both claims 8 and 15 means binaural voice. But only claim 15 recites “binaural,” and requiring binaural synthesis in claim 8 would render “binaural” in claims 1 and 15 superfluous. *Intel*, 21 F.4th at 810 (“[T]he striking fact that [PO] ... did not just say ‘buffer,’ but instead said ‘hardware buffer,’ provides a strong reason to avoid the disfavored result of rendering the word ‘hardware’ superfluous.”).

To give the terms “HRTF,” “capture” / “capturing,” and “binaural” meaning in the claims, PO’s construction must be rejected.

II. THE SPECIFICATION EXPRESSLY REJECTS PO’S POSITION

“We depart from the plain and ordinary meaning of claim terms based on the specification in only two instances: lexicography and disavowal.” *Hill-Rom Services, Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014). There is no disavowal. For lexicography, “the patentee must ‘clearly set forth a definition of the disputed claim term’ other than its plain and ordinary meaning” and “must ‘clearly express an intent’ to redefine the term.” *Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1044 (Fed. Cir. 2019). Here, the specification does not define any claim term to require HRTFs. Instead, it states that creating, setting, designating, adjusting,

providing, and positioning a SLP is “not limited to ... HRTFs.” *See, e.g.*, EX1001, 35:49-55; *see also* Reply 1, 6. Thus, the claims are entitled to their full scope of plain and ordinary meaning. *Wasica Fin. GmbH v. Cont'l Auto. Sys.*, 853 F.3d 1272 (Fed. Cir. 2017).

A. The Term “Sound Localization Point” Does Not Require HRTFs

The specification expressly defines “sound localization” as “a process of determining a location, an origin, or a place of emanation of sound.” EX1001, 41:42-45; *see also* Reply 3-6. Likewise, the specification expressly defines “sound localization point” as “a particular location or position that is determined to be a location, an origin or a place of emanation of sound.” EX1001, 41:40-41; *see also* Reply 3-6. Critically, HRTFs are found nowhere in these definitions, nor does the specification ever tie these terms to HRTFs alone. Instead, the specification repeatedly and consistently associates “sound localization” with a broad set of techniques not limited to HRTFs. *See* Reply 5-6.

After binaural sound is captured, the specification explains that the “binaural sound delivered to this listener can be *altered* in order to *create*, move, and/or adjust the [SLP].” EX1001, 3:57-59; *see also* Reply 5-6. Specifically, “[a] location of sound ... can be altered or *created* using *one or more of* head-related transfer functions (HRTFs), accounting for differences in arrival times between the ears (interaural time differences), differences in amplitude or level of the sound between

the ears (interaural level differences), asymmetrical spectral reflections from parts of the body (such as torso, shoulders, and pinnae), phase delays, group delays, and a ratio of the direct signal to the reverberated signal.” EX1001, 3:59-67; Reply 5-6.

PO counters that HRTFs are required when the SLP “is initially created” and the specification merely discloses “various methods to adjust sound” after that initial creation. Sur-Reply 10. But the specification soundly rejects this counter. First, by using “one or more of” (rather than just “one or more”) in the passage above (EX1001, 3:59-67; Reply 5-6), the words that follow are a list, not a single technique requiring HRTF. To adopt PO’s tortured interpretation, the Board would have to rewrite the passage to remove “of.”

Second, PO never addresses the other passages stating a SLP can be created using multiple techniques. *See* Reply 5-6. For example, in Figure 23, “the first, second, and third users localize a voice of the fifth user 2368 at the [SLP] 2390.” EX1001, 35:48-49; Reply 6. This localization is done through “[a]djustments ... to the sound” which “include, but are not limited to, calculations for and changes to ITDs, ILDs, HRTFs, attenuation, reverberations, and other aspects of sound discussed herein.” EX1001, 35:49-55; Reply 1, 6. The patent then states “[f]urther, these adjustments” can also apply when the SLP moves. EX1001, 35:55-57; Reply 5-6. Thus, these multiple techniques apply to both SLP creation and adjustment.

Third, there is not a single passage in the patent that expresses a clear intent

to limit the creation of a SLP to HRTFs. To the contrary, adopting such limitation would require the Board to ignore the overall teachings of the patent.

B. No Other Language In The Claims Requires HRTFs

PO concedes that the only other language that appears in each independent claim—"empty space away from and proximate to a user"—does not require HRTFs. Sur-Reply 1. PO further concedes that "adjusting" binaural sound (in claims 1 and 15) does not require HRTFs. *Id.*, 8. PO's expert suggested the term "wearable electronic device" in claim 15 requires HRTFs (EX2011, ¶¶59-60, 85), but PO appears to have dropped that argument. *See generally* Sur-Reply.

During the hearing, PO for the first time argued that "designat[ing]" a SLP in claims 1 and 8 (not present in claim 15) requires HRTFs. Paper No. 57 (Tr.), 31:6-32:16; *see generally* POR, EX2011, Sur-Reply (no discussion of "designate"). But this untimely argument only confirms that the claims are not limited to HRTFs.

Critically, the patent confirms "designating" a SLP includes ITD and/or ILD alone *without* HRTFs. The specification explains during a call with a first speaker, "[a] SLP is *designated* to the right of the listener by adjusting an ITD by about 0.7 ms and by adjusting the ILD." EX1001, 38:15-17; *see also* Reply 1, 9. When a second speaker joins the call, "a second SLP is *designated* to the left of the Listener using the ITD and ILD as with the first speaker." EX1001, 38:24-25; *see also* Reply, 1, 9. When a fourth speaker joins the call, "[a] fourth SLP is *designated* for the

fourth speaker at a same location with the first SLP with a same or similar ITD as the sound for the first speaker.” EX1001, 38:40-43 (using ITD alone to designate the SLP); *see also* Reply 1, 9. No discussion of HRTFs appears in this passage. *Nobel Biocare v. Instradent*, 903 F.3d 1365, 1381 (Fed. Cir. 2018) (“there is a strong presumption against a claim construction that excludes a disclosed embodiment”).

III. PO'S EXTRINSIC EVIDENCE CONFLICTS WITH THE PATENT

“[E]xtrinsic evidence in general, and expert testimony in particular, ... may not be used to vary or contradict the claim language.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996). “Indeed, where the patent documents are unambiguous, expert testimony regarding the meaning of a claim is entitled to no weight.” *Id.* This is true here where PO's expert inconsistently opines on what the claims require and fails to tie requirements to terms. *See* Reply 2-3.

PO's expert repeatedly argues the claims require both HRTFs and 6DOF tracking. *See, e.g.*, EX2011, ¶79 (“externalization for a listener requires **both** binaural sound with HRTFs and 6DOF tracking”), ¶¶11, 15; *see also* Reply 2. PO argues that it merely “referenc[ed] 6DOF tracking in the context of limitation 8[d].” Sur-Reply 3. While PO may have restricted its arguments as such, PO's expert did not. *See, e.g.*, EX2011, ¶64 (For “sound that is captured under claim 1 ... The means of providing binaural sound ... is to use binaural synthesis techniques that include 6DOF tracking”). PO's cherry-picked expert testimony is entitled to no weight.

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CERTIFICATE OF SERVICE

The undersigned certifies that a true and correct copy of **PETITIONER'S SUPPLEMENTAL BRIEF (PURSUANT TO PAPER NO. 56)** was served via electronic email on Patent Owner's counsel of record listed below, pursuant to its Mandatory Notices, on November 12, 2024:

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