

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

EIGHT KHZ, LLC,

Plaintiff,

v.

**META PLATFORMS, INC.; META
PLATFORMS TECHNOLOGIES, LLC;
TWISTED PIXEL GAMES, LLC,**

Defendants.

Civil Action No. 6:22-cv-575-ADA-DTG

JURY TRIAL DEMANDED

PLAINTIFF'S SUR-REPLY TO META'S REPLY CLAIM CONSTRUCTION BRIEF

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I. Introduction

Defendants Meta Platforms, Inc., Meta Platforms Technologies, LLC, and Twisted Pixel Games, LLC's (collectively, "Defendants" or "Meta") reply invites this Court to misconstrue the Patents-in-Suit, offering misleading constructions untethered from a PHOSITA's understanding. Meta's arguments are also inconsistent. In its recent IPRs, Meta abandoned its district court constructions, adopted Plaintiff's constructions, and asserted factual positions at odds with its assertions here. *See* Robinson Decl. ¶5 for a table of Meta's hypocrisy. Meta effectively sacrificed its claim construction efforts in favor of possible success before PTAB. This Court should not allow them to have it both ways. Plaintiff's constructions are correct and supported.

II. The Claim Terms Relating to Calls Should be Construed as Plaintiff Proposes

The Court should adopt Plaintiff's construction of the terms "electronic call," "electronic phone call," and "telephone call." It is clear from the specifications that the terms are used interchangeably in all the patents and a PHOSITA would be able to determine the scope of each. Importantly, as mentioned above, Meta has adopted Plaintiff's construction in their filed IPRs, all while contradicting the substance of their arguments. Robinson Decl. ¶¶5-8. Meta's statement here that its "constructions come directly from the claims" is false. Dkt. 109, 1. Meta's construction for two of the terms is "call between at least two parties using at least one phone." Dkt. 83, 3 (emphasis added). However, while the '090 Patent uses the word "phone" and the '628 Patent use the word "telephone," *nowhere* in the '090 or '628 claims is there a requirement for a phone. In fact, in the '090 claim at issue, the only physical equipment required in the claim is "a first wearable device," a "second wearable device," and a "processor." There is no mention of a "phone" or "telephone" in the claim language, only the *call*. Moreover, the specifications specify various types of calls which do not require a traditional phone. Dkt. 92, 5-6, and that is "the single best guide to [a claim's] meaning. . ." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir.

2005). Meta fails to identify any embodiment in the '090 or '628 Patents *requiring* a phone. Therefore, a construction which would require one would be error.

Next, Meta mis-cites Plaintiff's briefing claiming that it is "wrong as a technical matter" to claim an SLP cannot be perceived by a normal phone (held to one ear). Meta cites the portion stating that "[p]erceiving an SLP by a person is *simply not possible* when using a normal telephone;" but omits the sentence's caveat which immediately follows "(unless earphones or a headset is used)[.]" Dkt. 92, 5. Meta's partial citation highlights a willful evasion of the critical point: *two ears are necessary to perceive an SLP*. Meta also gives cumulative examples of phones using earphones and headsets from the specification, but *each of those requires two ears*. Meta also mischaracterizes Dr. Begault's testimony. Dkt. 109, 2. Dr. Begault testified that a phone held to one ear can provide "spatial audio cues," but that a spatial audio cue is *not equivalent* to establishing an SLP. Begault S. Decl. ¶¶5-6. Even Meta's expert, Dr. McMullen admitted that ". . . our ears, we have two of them, . . . which is very important, in allowing us to receive two different signals, and our brain compares those signals to determine the difference between the signals and that helps us to determine location." Ex. 1, 40:13-19 (*emphasis added*). The "normal telephone" statement is correct and consistent with Dr. Begault's testimony. Begault S. Decl. ¶¶7-9.

Moreover, '090 Patent's specification and figures support Plaintiff's construction of "voice communication over an electronic network between at least two parties." Figures 16-25 show a network and at least two people communicating via their voices over the network. '090 Patent at Figs. 16-25. Likewise, those figures show examples of devices, including phones and wearable electronic devices. *Id.* at 29:45-40:3. Plaintiff has *never* stated that phones will not work in the claimed invention but has stated consistently that phones are *not required* in the claim construction. In its desperation to include the word "phone" in the construction, Meta elides this distinction.

Meta’s argument that their proposed constructions do not exclude sample embodiments (Dkt. 109, 2) is likewise demonstrably erroneous from the face of the ’090 specification. If the construction “call between two parties using at least one phone” is applied to the term “telephone call” in the ’090 Patent, the example embodiment located at 2:42-46 would be excluded because it does not use a phone and instead uses a computer system.

Further, Meta misinterprets the holding of *Haddad v. United States*, 164 Fed. Cl. 28 (2023). The plaintiff in *Haddad* wanted three claim terms to have a single construction, namely “authenticity risk rating,” “authentication rating,” and “ID forgery risks rating” and argued that “a PHOSITA would understand that all three terms relate to the same output.” *Id.*, at 66. As here, different words were used in each of the claim terms. However, the *Haddad* court construed these terms as equivalent terms with a single construction based on reasoning equally applicable here. First, “no specific definition of each of the terms exists in the intrinsic record to suggest the terms are not interchangeable.” *Id.* at 67. Here, too, there are no specific definitions for the “call” terms in the specifications or claims, let alone any definitions to suggest they are not interchangeable. Second, and more importantly, because “the patentee used the [three] terms interchangeably,” they must be given the same construction. *Id.*, at 67. Here, again, Plaintiff has shown several examples from the specifications where these terms were used interchangeably. Dkt. 92, 7-8.

Meta cites *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 810 (Fed. Cir. 2021) and *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) to argue that *all* the words in a claim must be considered in construction. But here, as in *Haddad*, the different words in the claim terms are irrelevant because “[w]hen viewed within context, a skilled artisan would know the scope of the claimed invention with reasonable certainty—these rating descriptors refer to the same output and are interchangeable.” 164 Fed. Cl. at 67.

Relying on *Phillips*, Meta criticizes Plaintiff's expert for allegedly failing to perform a careful read of the patents or file histories. Dkt. 109, 5. But Meta's reliance on *Phillips* is inapplicable here as the citation is not directed at an actual expert such as Dr. Begault, who, ***by Meta's own expert's admission, published the "seminal reference" in the art.*** Ex. 1, 17:17-21 (emphasis added). It is instead directed at the hypothetical person of ordinary skill in the art (*i.e.*, a PHOSITA). *Phillips* also distinguishes a PHOSITA from an expert. *Compare* 415 F.3d at 1313-14 and *id.*, at 1318. An expert's role is to "provide background on the technology at issue, to explain how an invention works" among other things. *Id.* at 1318. None of these tasks require a careful reading of every word in a given patent. Dr. McMullen herself has admitted that she has not completely read all the information in the patents.¹ Thus, for the reasons above, Plaintiff's proposed constructions for the claim terms "electronic call," "electronic phone call," and "telephone call" should be adopted.

III. The Claim Term "away from and proximate to" Should be Construed as Plaintiff Proposes

Again, Meta has adopted Plaintiff's construction in their filed IPRs, undercutting the notion that "away from and proximate to" is somehow indefinite. Robinson Decl. ¶¶5, 9-12. Putting that aside, Meta's indefiniteness theory is to artificially break up the terms "away from" and "proximate to" and argue that they are "two contradictory conditions" that cannot occur simultaneously. Dkt.

¹ When asked if she had "looked through the specification of the '090 and the '628 Patents to see if these three terms were indeed used interchangeably," she stated "I didn't go through it with that specific -- I went through with that in mind, but maybe not as close with that specific lens, to see if they were used interchangeably." Ex. 1, 223:19-224:5. And when asked if she checked the file histories for 112 rejections, she answered "I did not see the file histories of that -- or if I do, I don't recall what the actual rejection may have been." *Id.* at 167:5-10. However, Dr. McMullen's failure to make a careful read of the patents did not prevent her from generating extensive opinions on them sufficient to fill more than 200 pages of declarations (Dkt. 83-7 and Dkt. 109-3).

109, 9-10; Dkt. 83, 7-8. This notion, however, does not comport with a PHOSITA's understanding of these terms in the context of spatial audio. Begault S. Decl. ¶¶11, 19-20. Meta's expert concession that "[i]n the context of spatial audio, away from, using the typical definition, could mean away from, like, outside of the head of the person." Ex. 1, 193:1-8, fatally undermines Meta's argument. Dkt. 109, 9-10; *see also* Begault S. Decl. ¶¶12, 19.

Ignoring this, Meta contends that Dr. Begault "cites no evidence supporting his purported opinion" about "away from." Dkt. 109, 7. Not so. In his reference book—which Meta itself put into evidence, and which its own expert "definitely regard[s] as a seminal reference," Ex. 1, 17:17-21—Dr. Begault consistently used "away from" to mean outside the head. *See* Dkt. 83-14, at 70.² Dr. Begault did not arrive his definition just for this case; he established his opinion 23 years ago in his "seminal reference" of the art. "The phrase 'away from' describes a sound that is 'externalized,' that is, localized at a distance 'outside-the-head,' as distinct from a sound that is located 'inside of' the head of a listener." Dkt. 92-7, 4; *see also* Begault S. Decl. ¶¶12, 19.

Meta next points to examples from the specifications of the '090 and '196 Patents to conclude that the term "away from" is used "to describe distances between sounds and objects." Dkt. 109, 8. Of course, this position is exceedingly broad, excludes a PHOSITA's knowledge, and is inaccurate as to the Patents-in-Suit. Sounds are nothing but pressure waves originating from a point in space and propagating through a medium. Begault S. Decl. ¶13. Thus, one cannot define a distance "between sounds and objects," as Meta suggests. Nor do the specifications of the '090 and '196 Patents use "away from" as Meta characterizes. In fact, these patents consistently use "away from" to describe a distance "with respect to a head of a listener." '090 at 28:45-47. Further,

² At page 70, Dr. Begault's book provides examples where a listener estimates the apparent distance of a sound "to be 20 inches away from the outside of my head" and providing examples where listeners report a distance away from their head for "externalized stimuli." Dkt. 83-14.

and more importantly, Meta fails to explain how the examples disclosed in the specifications, such as, “two feet away from the listener,” “ten feet away from the first individual,” “fifteen (15) feet away from,” “twenty (20) feet away from,” “thirty feet away from the listener,” ’090 Patent at 5:23-25, 5:25-28, 13:59-60, 17:48-51, 18:51-54, contradict Plaintiff’s construction. These examples all describe a localization point outside the listener’s head.

Meta next takes issue with Plaintiff’s “cleav[ing] ‘proximate to’ from the broader ‘away from and proximate to’ term.” Dkt. 109, 8. But this position directly undermines Meta’s dictionary-driven theory of indefiniteness, which is based on dissection of “the broader ‘away from and proximate to’ term” into constituent words. Dkt. 83, 7-8. Meta advances three arguments, all of which must be rejected. *First*, they argue that Plaintiff’s construction of “proximate to” as a distance at which “[t]wo persons [can have] a conversation at a normal sound level” fails to explain what “a normal sound level” might be. Dkt. 109, 7. The term “normal sound level” has a clearly established meaning in the art. *See* Dkt. 83-14, 70 (providing “a nominal level of about 70 dB SPL ... corresponds roughly to normal speech”); *see also* Begault S. Decl. ¶16. (“Scientific studies of average speech levels show that, at a distance of 1 meter, a ‘causal’ voice level for a male talker is 53 dBA; a ‘normal’ level is 58 dBA; and a ‘raised’ level is 65 dBA.”). A patentee need not spell out what a normal sound level might be to a PHOSITA, as it is well-known in the art.

Second, Meta argues that Plaintiff’s construction “does not bring any meaningful specificity to when sounds are or are not ‘proximate,’” because “Dr. Begault could not say, for example, if sounds at distances of five, ten, or fifteen feet would be proximate.” But as is clear below, a response cannot be provided for all cases when the relevant environment has not been provided. This is clear from the technology, from Dr. Begault’s testimony, and from common sense. Indeed, actual distances do not exist in virtual reality, only simulated distances. As the

Federal Circuit has explained, “if the language is as precise as the subject matter permits, the courts can demand no more.” *In re Packard*, 751 F.3d 1307, 1313 (Fed. Cir. 2014). “[T]he certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter.” *Sonix Tech. Co., Ltd. v. Pub. Inter., Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017) In the world of virtual reality, just because a listener might consider “proximate” to vary slightly in differing environments does not render the term indefinite. It is a *PHOSITA*’s perspective that must be considered in such a determination. *Nautilus, Inc. v. Biosig Instr., Inc.*, 572 U.S. 898, 901 (2014). Dr. Begault affirms that a PHOSITA would understand the bounds of “proximate” to include environmental factors such as background noise conditions, manner of speaking, and distance between the sound source and the listener. *See* Begault S. Decl. ¶¶11, 14-15, 17-18.

Additionally, in its IPRs, Meta has no problem understanding this term in its attempt to invalidate the ’090 and ’196 Patents, including citing prior art using the same term. Robinson Decl. ¶5,11 Further, Meta fails to recognize that in the context of spatial audio, **whether listeners perceive a sound source to be proximate to them is based on the listener’s environment**, and depends on factors such as, background noise conditions, manner of speaking, and distance between the sound source and the listener. *See* Begault S. Decl. ¶¶11, 14-15, 17-18. As Dr. Begault explains, knowing the distance between a sound source and a listener does not, by and of itself, determine proximity to the listener. *Id.* at ¶18 (explaining the effect of background noise level). Dr. Begault’s “seminal reference” book discloses that a sound source at 65 dB SPL is perceived at a point 4 feet away but if and only if “the noise floor of the audio system [is] at 40 dB SP.” *See* Dkt. 83-14, 72. As Dr. Begault explains under specific conditions of this example, a distance of equal or lesser than 4 feet from the listener’s head constitutes the range of proximity. Begault S. Decl. ¶16. However, any change in the background noise level would affect the listener’s

perception of the source sound as well as the range of proximity to the listener’s head. Begault S. Decl. ¶¶15, 17-18. Therefore, given the necessarily environmental nature of proximity, Meta’s assertion that a fixed universal cutoff distance must be set to distinguish proximate from not proximate contradicts the technology and the knowledge of a PHOSITA. A PHOSITA would understand the claim language of “the SLP ... is away from and proximate to the user,” ‘196 Patent at cl. 1, to mean that the SLP is located outside the user’s head at a distance from which the user—taking into account all factors, such as, background noise—perceives a normal sound level. Begault S. Decl. ¶20.

Third, Meta argues that “away from and proximate to” is indefinite, because “none of the patents-in-suit” say anything about proximate being defined in reference to “conversation at a normal sound level.” Dkt. 109, 8. *DDR Holdings, LLC v. Hotels.com, L.P.* forecloses this argument. 773 F.3d 1245 (Fed. Cir. 2014).³ There, the Federal Circuit held that because phrase “look and feel” had an established, sufficiently objective meaning in the art, the phrase was not indefinite. Similarly, here both “away from” and “proximate to” have objectively ascertainable, well-known meanings in the art. *Presidio Comp., Inc. v. Amer. Tech. Ceramics Corp.*, 875 F.3d 1369, 1376 (Fed. Cir. 2017) (“A patent need not explicitly include information that is already well-known in the art.”). Moreover, the specifications provide examples defining proximity in reference to the conversational sound level. Dkt. 109, 8. The ’090 Patent discloses that the level of

³ Defendants cite two inapposite cases to support their indefiniteness theory: *GE Lighting Sols., LLC v. Lights of Am. Inc.*, 663 F. App’x 938, 940 (Fed. Cir. 2016), and *Versata Software, Inc. v. Zoho Corp.*, 213 F. S. 3d 829, 836 (W.D. Tex. 2016). As the Federal Circuit cautioned “*GE Lighting* is a non-precedential decision, which is not binding, and should be read as limited to the particular claim and specification at issue in that case.” *Exmark Mfg. Co. Inc. v. Briggs & Stratton Power Prod. Grp., LLC*, 879 F.3d 1332, 1346 (Fed. Cir. 2018). In *Versata Software* the term “space-constrained display” was held indefinite because it relied on “the unrestrained, subjective opinion of the person practicing the invention.” 213 F. S. 3d at 835-36. In contrast, here it is the laws of physics that determine proximate distances under various conditions.

background noise is a factor determining where a SLP should be placed. '090 Patent at 38:10-23. When at a public place, the SLP is placed “proximate to a head of the person (e.g., between one and three feet from a face and/or mouth of the person).” Also, Meta’s pre-occupation with the phrase “empty space” is completely irrelevant. When in a private room, “proximate to the listener” means *anywhere* in the room. In the specifications, the boundaries of “proximate to” change from “between three and ten feet from a face and/or mouth of the person” to “farther away from the face and mouth of the person” depending on the loudness of the sound source. These disclosures are consistent with Dr. Begault’s opinions. *See* Begault S. Decl. ¶¶17-18, 21.

Exmark Mfg. controls here. There, the Federal Circuit held that “elongated and substantially straight baffle portion” was not indefinite, even though not specifically defined, because the specification provided that “the baffle extends such that the elongated portion connects two arcuate portions of the baffle.” 879 F.3d at 1435. The Federal Circuit reasoned that this language in the specification informs a PHOSITA that “the elongated and straight portion of the baffle must be long enough and straight enough to at least connect these two arcuate portions of the baffle.” *Id.* Likewise, here the specifications of the '090 and '196 Patents reasonably inform a PHOSITA that “proximate” is a distance near enough to a listener from which the listener perceives a sound at a normal sound level—specifications further inform that several factors, such as, location of the listener (i.e., private or public) and manner of speech (i.e., loudness) determines whether a distance meets this test. Meta’s construction must be rejected, and “away from and proximate to” should be afforded its ordinary and customary meaning.

IV. The Claim Term “HRTF” Should be Construed as Plaintiff Proposes

As with other terms, Meta has adopted Plaintiff’s construction of HRTF in their IPRs. Robinson Decl. ¶¶5, 13-16. Meta’s argument here as to the HRTFs term is riddled with straw men. Contrary to Meta’s assertions, Plaintiff has never asserted that HRTFs by and of themselves

modify anything. Plaintiff has repeatedly stated that HRTFs are “functions that describe transformations of sound that modify the spectrum and time of arrival at a listener’s ears.” Dkt. 92, 16 (emphasis added). Confronted with their own expert’s admission made under oath that “HRTFs ... describes the entire, you know, transformation of sound at lots of different locations around a user,” Dkt. 92, 19 (emphasis added), Meta now plucks statements from their expert’s deposition where she disproved an assertion—not raised or advanced by Plaintiff—that “HRTFs do not transform or modify sound by themselves.” Dkt. 109, 12. But Meta’s own expert confirmed that HRTFs mathematically describe transformation of sound. *Id.* (citing Dr. McMullen’s deposition indicating that HRTFs are “the mathematical representation of the transformation.”).

Meta does not dispute that it is possible to calculate HRTFs with fewer than three variables and that, in practice, they are measured with two variables. Dkt. 92-7, 6; *see also* Begault S. Decl. ¶¶24, 27-28. Instead, Meta asserts that Plaintiff defined (in the patents) HRTFs with three spatial variables and “that given definition should control.” Dkt. 109, 11. This is, of course, inconsistent with Meta’s previous position that HRTFs’ “plain and ordinary meaning” always includes the three spatial variables. Dkt. 83, 11-12. In any event, Meta fails to explain how their new position is reconciled with the specifications’ repeatedly disclosing measurements of HRTFs with fewer than three variables. Dkt. 92, 18. Even Meta’s own expert recognized this fact:

Q. Did you look through the patents-in-suit to see if there were any examples given that did not use one of the three spatial variables referred to in paragraph 180?

A. I read through the patents, not specifically with that lens, but I did read through the patents, and there -- there are examples where they’re mentioned, but they’re not used in the definition given.

Ex. 1, 52:16-24; *see also* Begault S. Decl. ¶¶30-32. Meta’s proposed construction would exclude some embodiments and examples. Plaintiff’s is the only construction that embraces all embodiments. Therefore, Meta’s proposed construction “flies in the face of the many statements

in the written description” clearly indicating that HRTFs can be measured with fewer than three spatial variables. *SciMed Life Sys., Inc. v. Adv. Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343–44 (Fed. Cir. 2001) (holding that defining a claim term in such restrictive way as to exclude certain examples is forbidden).

Finally, Meta does not dispute that a listener’s perception of sound depends, in part, on how the sound is modified by factors other than the shape of the human pinnae. Dkt. 83-14, 76. Nor does Meta dispute that modifications resulted from these factors are not described by HRTFs. Yet, Meta insists that “HRTFs represent how sound reaches the ears of a listener.” Dkt. 109, 11. For this assertion to be true Meta must show that HRTFs describe all modifications made on sound *before it reaches the ears of a listener*. This, Meta cannot do. Begault S. Decl. ¶29. Portions of the specifications that Meta relies on in fact undermine their construction. For example, HRTFs cannot “represent how sound reaches the ears of a listener,” because HRTFs describe only those “[c]hanges to [sound] waves from the anatomy of the human body.” Dkt. 109, 11 (citing the ’628 Patent at 28:54-60). Meta’s proposed construction must be rejected.

V. The Claim Term “digital signal processor” Should be Construed as Plaintiff Proposes

Foremost, Meta has adopted Plaintiff’s construction in their filed IPRs, contradicting the substance of their arguments. Robinson Decl. ¶¶17-20. Meta mistakenly relies on a distinction between a digital signal processor and general-purpose microprocessor while ignoring basic claim construction principles to propose a construction that offers zero insight into how a skilled artisan would understand a DSP at the time of the invention. Meta relies on a “snippet” from the ’836 Patent specification wherein a single embodiment includes a “specialized processor that has better power performance and efficiency than a general-purpose microprocessor,” but chooses to ignore the specification’s description of a DSP’s function in the same paragraph: “processing and/or convolving sound into binaural sound.” ’836 Patent at 39:7-10. Plaintiff’s proposed construction,

on the other hand, notes the function of a DSP as supported by the patent specifications and Meta's own expert witness. Simply put, power performance and efficiency are not the key defining features of a DSP.

The '836 specification repeatedly describes digital signal processors as processors that convolve and transform sound into binaural sound. *See* '836 Patent at 4:26-29, 27:34-35, 27:43-44, 31:34-37, and 39:4-7. Meta's proposed construction stems from a single embodiment, in which a particular DSP is characterized as having "a better power performance or power efficiency compared to a general-purpose microprocessor." '836 Patent at 39:7-14. Nowhere else in the patents' claims and specifications are digital signal processors described by their relation to general-purpose microprocessors. The claim should not be confined to this embodiment. *Phillips*, 415 F.3d at 1323 ("[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.").

Meta relies on *IDB Ventures, LLC v. Charlotte Russe Holdings, Inc.*, to suggest that Plaintiff's proposed construction should fail because it is "redundant" or "would be confusing to the extent" it "differ[ed] from the language in the claims[.]" *See* No. 2:17-cv-660, 2018 WL 5629620, at *2 (E.D. Tex. Oct. 31, 2018). To the contrary, it is Meta's construction that would be "redundant" and "confusing." Meta proposes to construe DSP as a "specialized processor that has better power performance and efficiency than a general-purpose microprocessor." This would be redundant to a PHOSITA and would require jurors to already understand the function of general-purpose microprocessors, defeating the purpose of claim construction. *Bd. of Trustees of Leland Stanford Junior Univ. v. Roche Molecular Sys., Inc.*, 528 F. S. 2d 967, 982 (N.D. Cal. 2007) ("The purpose of claim construction is to resolve disputed meanings and technical scope in order to aid the fact-finder.").

Plaintiff's proposed construction, on the other hand, offers a technical explanation of a DSP in light of the patent specifications, as understood by a PHOSITA, and in a manner that will aid the fact-finder. Contrary to Meta's assertions, "transforming an input signal at its output" aligns with the patent specifications and extrinsic evidence. '836 Patent at 29:60-61 (describing an example embodiment as "input signals [being] convolved into binaural audio output"); Dkt. 92-7, Begault Decl. ¶14 ("The DSP's transformation involves 'HRTF filtering' (convolution) of an acoustic input, and rendering at its output a binaural signal having the spectral and time modifications caused by a binaural HRTF.'). The testimony of Meta's own expert, Dr. McMullen, supports this construction explicitly. When asked "what is audio signal processing?" she answered, "it can refer to any of hundreds of algorithms or *transformations* that would happen to this sort of digital *signal* inside of a system to change its *output*" (emphasis added). Ex. 1, 21:16-22:2.

Meta's own technical expert fails to support their proposed construction. Dr. McMullen describes a DSP by noting the functions the processors perform, not by the literal differences between a DSP and a general-purpose microprocessor. *Id.* at 163:16-164:2 ("DSPs mostly have . . . been optimized to perform lots of different kinds of mathematical functions"); and ("So you'll see DSPs . . . specialized to perform certain operations, like mathematical operations, quickly"). Even when referring to the speed that DSPs perform functions, Dr. McMullen does not compare this speed to a general-purpose microprocessor. Meta's proposed construction is not supported by the patents' claim language or specifications, or even their own expert's testimony. Finally, DSPs can include both software and hardware and perform the same functions. There are currently readily available commercial software-based DSPs. Ex. 2, Ex. 3. Moreover, software-based DSPs existed well before the time of the invention. Ex. 4. Plaintiff's construction "specialized processor or software optimized for transforming an input signal at its output" should be adopted.

VI. The Claim Terms “wearable electronic device” / “WED” and “handheld portable electronic device” / “HPED” Should be Construed as Plaintiff Proposes

While insisting in a one-paragraph argument in their Reply brief that the word “wireless” should not be included in the construction of these terms (Dkt 109, 15), Meta rebuts themselves in the filed IPRs by providing a reference that requires a wireless interface. Robinson Decl. ¶21-26.

VII. The “Processor” Terms Are Not Subject to Section 112(f) and Are Otherwise Described with Sufficient Structure

A. Meta, again, fails to meet their burden to prove that § 112(f) applies

Section 112(f) does not apply because Meta has failed to carry their burden to overcome the presumption that a claim lacking “means” is not written in means-plus function format. *See* Dkt. 92 at 25-38. In general, Meta adds nothing new to their argument that § 112(f) applies, continuing instead to misrepresent Plaintiff’s arguments and cling to inapplicable precedents.

1. Meta misrepresents Plaintiff’s arguments

First, Plaintiff did not, as Meta contends, fault Meta’s expert, Dr. McMullen, for not analyzing charts created for Plaintiff’s opening brief. *See* Dkt. 109 at 16. Rather, Plaintiff pointed out that Dr. McMullen did not analyze the disclosed charts in the specification of the *patents themselves*. *See* Dkt. 92 at 31 (citing the specific figures and text in the patents ignored in her initial declaration). The Court should decline Meta’s request to relitigate its failed efforts to strike Plaintiff’s reply to Meta’s processor constructions. *Compare* Dkt. 109 at 16 *with* Dkt. 106.

Second, Meta takes out of context and misquotes the ‘090, ‘196 and ‘628 Patent specifications, implying that Plaintiff concedes that “the patents’ processors require ‘applications, data, programs, [and] algorithms to implement or assist in implementing example embodiments’” that are otherwise undisclosed. Dkt. 109 at 17 (edits and omissions in the original). However, the patent specifications *actually* say, “[t]he processing unit communicates with memory and performs operations and tasks that implement one or more blocks of the flow diagrams discussed herein,”

and “[t]he memory, for example, stores applications, data, programs, algorithms (including software to implement or assist in implementing example embodiments) and other data,” thereby pointing to the disclosed processes the processor is meant to perform. ‘090 pat. at 41:20-31; ’196 pat. at 41:20-31; ’628 pat. at 42:6-18.

Lastly, Meta mischaracterizes Plaintiff’s convolution example. Dkt. 109 at 18. Meta quotes Plaintiff as stating that “[convolution is] the only algorithm required to perform the claimed processes” implying that Plaintiff asserted convolution as the *only* needed algorithm to complete *all* claimed processes. *Id.* This is patently false. It is clear from Plaintiff’s briefing that convolution was offered as an *example* disclosure for implementing the *specific* claimed function of applying an HRTF to a sound wherein the brief characterizes convolution as “the only algorithm required to perform the claimed processes of applying an HRTF is a known unambiguous mathematical operation.” Dkt. 92 at 37.

2. Meta doubled down on the same inapplicable case law

The foundation of Meta’s arguments that § 112(f) applies to the disputed claim limitations is that the patents either fail to disclose an algorithm for the “processor” claims or that any Plaintiff identified disclosed structure—including algorithms—are insufficient to connote adequate structure to avoid § 112(f). *See* Dkt. 109 at 15-18. As Plaintiff previously made clear, it is settled law that disclosure of an algorithm is “not necessarily required” to determine whether § 112 (f) is applicable. *See* Dkt 92 at 29-30. However, Meta persists with the notion that only an algorithm is required, leaning on a citation to *In re Katz Interactive Call Processing Pat. Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) to justify their insistence. Dkt. 109 at 15; Dkt. 83 at 26 n. 10.

Apple v. Motorola made it clear that the analysis in *Katz* is inapplicable to a determination of whether § 112(f) applies to a claim term. 757 F.3d 1286, 1298 (Fed. Cir. 2014), (“Hence, where a claim is not drafted in means-plus-function format, the reasoning in the *Aristocrat* line of cases

does not automatically apply[.]”), *overruled on other grounds by Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed Cir. 2015). The *Apple* court noted that the *Aristocrat* line of cases included *Katz* and that the application of § 112(f) was undisputed, which was the basis for invoking 112(f). *Id.* However, Meta asserts that *Katz* stands for the principle that claiming a “processor” creates a special algorithm requirement for “processor” terms unlike any other computer implemented term. *See* Dkt. 109 at 15-16.⁴ On the contrary, the significance of *Katz* is that it created a narrow exception to the *Aristocrat* algorithm rule wherein processor implemented functions in a claim subject 112(f) that disclosed a function coextensive with generic processor is not indefinite absent an algorithm. *Katz*, 639 F.3d at 1316. This narrow exception was not created to read in a rigid algorithm requirement for all “processor” implemented terms not necessarily subject to § 112(f) that perform any function not described in *Katz*.

The correct standard, remaining unmodified by *Katz*, is whether a claim term, read in light of all the intrinsic and extrinsic evidence, would be understood by a PHOSITA to have sufficient definite structure. *See Apple*, 757 F.3d at 1296; *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1007 (Fed. Cir. 2018). Furthermore, when a claim is plainly not written in means-plus-function format, a party challenging the presumption that § 112(f) does not apply must show by a *preponderance of the evidence* that § 112(f) should be applied to the claim. Dkt. 92 at 25; *see also*, e.g., *Zeroclick*,

⁴ Defendants slip into a footnote a string of non-binding cases that purportedly support this assertion. *See* Dkt. 109 at 16 n. 10. Despite the lengthy nature of the string all the cited cases except *Konami Gaming, Inc. v. High 5 Games, LLC*, No. 2:14-cv-1483, 2018 WL 1020120, at *13-14 (D. Nev. Feb. 22, 2018) base their decision on *GoDaddy.com v. RPost Commc’ns Ltd.*, No. 2:14-cv-126, 2016 WL 212676, at *56 (D. Ariz. Jan. 19, 2016). *GoDaddy.com* imports the idea that *Katz* creates the algorithm rule from *Ex Parte Aaron Smith*, No. APPEAL 2012-007631, 2013 WL 1341109 (P.T.A.B. Mar. 12, 2013). 2016 WL 212676 at *57. This particular logic has never been endorsed by the Federal Circuit and has been explicitly rejected by other courts. *See*, e.g., *Smartflash LLC v. Apple Inc.*, No. 6:13-CV-447-JRG-KNM, 2015 WL 4208754 at *4 n. 7 (E.D. Tex. July 7, 2015).

891 F.3d at 1107. However, Meta incorrectly asserts that because they present *some* evidence, albeit based on their erroneous application of *Katz*, they meet that burden because they imply that *Zeroclick* loosened the preponderance standard simply because the challenger in that case presented no evidence. *Compare* Dkt. 109 at 16 with *Zeroclick*, 891 F.3d at 1107-08. Using this incorrect standard, Meta asserts that the only evidence capable of connoting structure is disclosure of specific specialized programming. Dkt. 109 at 17. However, this ignores all the other structural clues that a PHOSITA may rely on to define the structure including additional structural definitions in the description, well-known methods for performing claimed functions, and using the function itself to adequately define the structure. *See*, Dkt. 92 at 30-31, 35 (citing *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1320 (Fed. Cir. 2004); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339-40 (Fed. Cir. 2016); *Dyfan*, 28 F.4th at 1366).

Finally, Meta elevates the structural disclosure standards beyond what the law requires. Whether it is equating the structural disclosure requirements of specific structures like a DSP to more general structures like a processor or requiring exhaustive detail in performing any claimed function, Meta would require that the patents spoon-feed every permutation and step required to avoid § 112(f). Dkt. 109 at 17-18. This is incorrect. A patentee need not disclose well-known methods if the patentee points the PHOSITA to such conventional methods. *See Zeroclick*, 891 F.3d at 1108. Moreover, “a recited algorithm, or other type of structure for a section 112(f) claim limitation, need not be so particularized as to eliminate the need for any implementation choices by a skilled artisan;” rather, it need only be “sufficiently defined to render the bounds of the claim.” *Ibormeith IP, LLC v. Mercedes-Benz USA, LLC*, 732 F.3d 1376 (Fed. Cir. 2013). Instead of arguing within the boundaries of Federal Circuit precedent, Meta discounts Plaintiff’s asserted structural components, like convolution, as insufficient to a PHOSITA without adequate support. Dkt. 109

at 17-18. In contrast, for example, the methods of implementing convolution on a DSP are well-known in the art. *See* Dkt. 109-2 at 138:11-142:2, 148:22-149:14; *see also* Dkt. 83-14, 100-54 (applying HRTFs, convolution, and other techniques on a DSP). Furthermore, Meta impermissibly discounts the disclosure of convolution because there are multiple convolution methods, judging the disclosure on the basis that it leaves a PHOSITA with choice rather than whether the disclosure adequately defines the bounds of the claim. Dkt. 109 at 18.

B. Processor terms' recited functions

Plaintiff stands on its proposed constructions of ordinary and customary meaning. To the extent that Plaintiff provides structure for any of Meta's proposed functions, it is solely for the purpose of rebutting Meta's lengthy and improper constructions of the disputed claim terms. Since Meta initially proposed these terms for construction under §112(f), Plaintiff was unaware of Meta's construction of these terms until briefing. Plaintiff can now rebut Meta's constructions in the alternative to ordinary and customary meaning. The function for each of the terms is defined inherently within the claim term in the table below. The plain language of the claim adequately discloses the function, such that no construction is required.

PLAINTIFFS' CHART OF IDENTIFIED ALTERNATIVE FUNCTIONS		
Claim	Function(s)	Structure
'090 Pat., cl. 15	"executes the instructions to adjust binaural voice"	Identified in Begault S. Decl. ¶34
'196 Pat., cl. 15	"executes the instructions to receive a command from the person to move the SLP"	Identified in Begault S. Decl. ¶34
'196 Pat., cl. 19	"executes the instructions to change attenuation and reverberation of the binaural sound"	Identified in Begault S. Decl. ¶34
'628 Pat., cls. 9, 12	"processes a voice of the calling party with HRTFs as binaural sound"	Identified in Begault S. Decl. ¶34

'628 Pat., cl. 16	“processes a voice of the calling party with HRTFs as binaural sound”/“changing, in response to head movements, the HRTFs”	Identified in Begault S. Decl. ¶34
'737 Pat., cl. 1	“processes a sound with HRTFs to generate a binaural sound” / “processes a sound with HRTFs to externally localize it as a binaural sound”	Identified in Begault S. Decl. ¶34
'836 Pat., cls. 8, 10	“processes a sound to generate a binaural sound”	Identified in Begault S. Decl. ¶34
'836 Pat., cls. 8, 10	“processes a sound with far-field HRTFs”	Identified in Begault S. Decl. ¶34
'179 Pat., cl. 14; '184 pat., cl. 14	“processes a sound with HRTFs to generate a binaural sound”	Identified in Begault S. Decl. ¶34

C. To the extent § 112(f) applies, sufficient structure is disclosed

As an initial matter, Meta’s argument that Plaintiff’s identification of algorithms in its brief is improper without expert collaboration is absurd. *See* Dkt. 109 at 22. The Federal Circuit has been clear that an expert’s role in claim interpretation is minimal and that “they *cannot be used* to prove the proper or legal construction of any instrument of writing.” *Diebold Nixdorf, Inc. v. Int’l Trade Comm’n*, 899 F.3d 1291, 1299 (Fed. Cir. 2018) (internal quotations omitted) (emphasis added). *Estee Lauder Inc. v. L’Oreal, S.A.*, is inapposite because the comparison of attorney argument versus expert testimony was predicated on a *purely* factual contention, not an operation of law in *Estee Lauder*. *See* 129 F.3d 588, 595 (Fed. Cir. 1997). Intrinsic evidence primarily controls. Expert testimony “at odds with the claim construction mandated by the claims themselves,” should be discounted. *Phillips*, 415 F.3d at 1318.

Meta doubles down on their argument that the patents do not disclose algorithms *at all*. Dkt. 109 at 19. They continue to restrict an algorithm’s definition to a hyper-specific description of *how* a function is implemented, excluding established ways of describing an algorithm. *See* Dkt.

109 at 19-21 (belaboring the idea that an algorithm must disclose every incremental step for an algorithm); *see also* Dkt. 109, Dkt. 109-3, ¶20 (asserting that a mathematical function is not an algorithm). This is contrary to precedent finding that an algorithm is “procedure for [] accomplishing some end,” and can be expressed in “any understandable terms,” at a level of detail depending on the prior art and the knowledge of the PHOSITA in field. *Typhoon*, 659 F.3d at 1384-85. Further, Meta ignores that “a recited algorithm. . . need not be so particularized as to eliminate the need for any implementation choices by a skilled artisan; but it must be sufficiently defined to render the bounds of the claim—declared by section 112(f) to cover the particular structure and its equivalents—understandable by the implementer.” *Ibormeith*, 732 F.3d at 1379.

Contrary to Meta’s mischaracterizations, Plaintiff cited to *Enfish* not as substitute for an algorithm, but for the proposition that “structures well-known to PHOSITAs may be relied upon in the algorithm.” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339-40 (Fed. Cir. 2016)). As in *Enfish*, the Patents-in-Suit disclose a number of multi-step flow charts. Dkt. 92 at 39; *Enfish* 822 F.3d at 1339-40. One example is in Claim 1 of the ‘737 Patent. There, Figure 10 shows a three-part algorithm that describes the function of providing binaural sound to a user as required as part of Meta’s asserted § 112(f) function. *See* ‘737 Patent, cl. 1, Fig. 10. Step two of Figure 10 discusses processing with convolution the sound localization information that is further described in the specification as being an HRTF or other information. *Id.* at Fig. 10, 38:57-39:2. The disclosure of the well-known conventional method of convolution serves as adequate disclosure for performing part of the disclosed algorithm. The patentee leveraging tools already in the PHOSITA’s toolbox to succinctly describe the performed function is consistent with *Enfish*.

Furthermore, Meta’s repeated insistence that an algorithmic element must describe *how* to perform its step is misplaced. A patentee is not required to explain how to perform each of the

individual steps or functions in an algorithm that a PHOSITA is presumed to already know. It is only for the steps or functions that the PHOSITA cannot be presumed to already know how to perform that the *how* must be explained. *See supra* (citing *Typhoon*, 659 F.3d at 1384-85; *Ibormeith*, 732 F.3d at 1379). The absurdity of Meta's position is self-evident. Imagine a simple algorithm consisting of adding x to y , then multiplying the sum by z . Under Meta's standard, it would be necessary to explain *how to add* and *how to multiply* in the algorithm itself. Absent some basis to believe that the PHOSITA here needs greater detail, Meta's argument fails.

Meta's remaining challenges assert that various elements of Plaintiff's disclosed elements are either not linked to the claimed function or that equation disclosures do not disclose *how* they are used in an algorithm. Dkt. 109 at 20-22. Meta's example in the '090 Patent for Fig. 9 sums up their folly. *Id.* at 20. On the one hand, Meta demands *how* a specific element of an asserted algorithm is performed, like for element 330 of Figure 3 in the '090 Patent. *See* Dkt. 109, McMullen Reply Decl. ¶¶40-42. The associated language for element 330 describes "alter[ing] a HRTF . . . in response to . . . head orientation." Pat. '090 at 9:51-53. On the other hand, Figure 9 explains *how* that process is performed, "adjust[ing] . . . stored . . . HRTFs . . . in response to the movements of the head." Dkt. 109 at 20 (Quoting Pat. '090 Figure 9). By reading everything in a vacuum, Meta can conveniently argue that algorithmic disclosures are insufficient while simultaneously asserting that additional disclosures are unrelated to performing the claimed functions. That is improper.

In conclusion, the Court should adopt Plaintiff's construction of ordinary and customary meaning because Meta has failed to prove that § 112(f) applies or that such claims are indefinite.

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CERTIFICATE OF SERVICE

I hereby certify that on June 14, 2023 the foregoing was filed electronically in compliance with Local Rule CV-5(b)(1) and served via the Court's electronic filing system on all counsel who have consented to electronic service.

/s/Erick S. Robinson

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