

**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;  
AND TWISTED PIXEL GAMES, LLC,

*Defendants.*

Civil Action No. 6:22-CV-00575-ADA

**META’S REPLY CLAIM CONSTRUCTION BRIEF**

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## I. Introduction

Plaintiff Eight kHz, LLC (“8K”) proposes constructions that deviate from the meanings persons of ordinary skill in the art would ascribe to the disputed terms in the context of the asserted patents, improperly attempting to broaden the scope of its claims and inviting legal error. Meta’s proposed constructions, in contrast, are supported by the language of the asserted claims and the intrinsic and extrinsic records, and they are faithful to the meanings skilled artisans would attribute to the disputed terms and settled precedent regarding means-plus-function terms. Meta respectfully requests that the Court adopt its constructions.

## II. The “electronic call,” “electronic phone call,” and “telephone call” Terms Should Be Construed as Meta Proposes

The Court should adopt Meta’s proposed constructions for the “electronic call,” “electronic phone call,” and “telephone call” terms because Meta’s constructions come directly from the claims and reflect how skilled artisans would understand these terms (Dkt. 83 at 3-5), and because adopting “plain and ordinary meaning” here “does not resolve the parties’ dispute[s].” *O2 Micro Int’l, Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008); *see also Digital Retail Apps, Inc. v. H-E-B, LP*, No. 6:19-cv-00167, 2020 WL 376664, at \*9-10 (W.D. Tex. Jan. 23, 2020) (“[B]ecause the parties differ with respect to what the plain-and-ordinary meaning is, the Court will provide a construction for the plain-and-ordinary meaning.”).<sup>1</sup> 8K’s proposed constructions, on the other hand, improperly ignore the differences in claim language among the three terms, and read “phone” and “telephone” out of two terms entirely.

In its efforts to erase “phone” from the claim language, 8K makes a host of arguments, each of which should be rejected. First, 8K contends that “nowhere in any embodiment of the ’090 Patent is there a requirement that there is at least one phone used in a conversation.” Dkt. 92 at 4

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<sup>1</sup> Tables with the parties’ competing proposals are set out in Meta’s opening brief. Dkt. 83.

(8K’s emphasis).<sup>2</sup> But, of course, the *claims* set forth the “requirements” and expressly compel a “phone.” 8K has no answer for the explicit language of the claims or the fact that, in the ’090 and ’628 patents, some claims use the term “electronic call” and so are “presumed to ... have different meanings” from the other claims reciting a “phone” or a “telephone.” *See Karlin Tech., Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 972 (Fed. Cir. 1999); *see also Absolute Software, Inc. v. World Comput. Sec. Corp.*, No. 1:09-cv-142, 2014 WL 496879, at \*11 (W.D. Tex. Feb. 6, 2014) (applying the “presumption that two independent claims have different scope when different words or phrases are used in those claims”).<sup>3</sup>

8K next contends that Meta’s constructions of “electronic phone call” and “telephone call” defeat the purpose of its alleged invention because “[p]erceiving an SLP by a person is *simply not possible* when using a normal telephone.” Dkt. 92 at 4-5 (8K’s emphasis). This contention is belied by multiple embodiments in the specification which include a person using a telephone. *See* ’090 patent at 5:32-44, 11:52-55, 12:9-11, 18:48-50, 33:56-60, 38:57-59; ’628 patent at 5:37-50, 11:63-66, 12:20-22, 19:1-3, 34:37-41, 39:42-45. It is also wrong as a technical matter, as 8K’s expert, Dr. Durand Begault, conceded at his deposition.<sup>4</sup> Indeed, 8K admits that a person using a

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<sup>2</sup> Unless otherwise noted, internal citations and quotations are omitted and emphasis is added.

<sup>3</sup> 8K relies on a secondary dictionary definition of “phone,” *see* Dkt. 92 at 6-7 (citing Dkt. 92-2 at 1278 (“phone”)), which does not track 8K’s construction and which ignores the primary definition that supports Meta. *See* Dkt. 92-2 at 1278 (“phone” is “short for TELEPHONE”). Like 8K’s proposed construction, this dictionary definition would improperly replace “electronic call,” “phone call,” and “telephone call” with broader terms never claimed in the patents—“voice communication” and “electronic network.” *See* Dkt. 92 at 4-8; *see also* Phillips, 415 F.3d at 1322 (dictionaries “cannot overcome” “art-specific evidence of the meaning of a claim term” or “extend patent protection beyond what should properly be afforded by the inventor’s patent”).

<sup>4</sup> *See* Ex. J (Begault Tr.) 224:12-225:9 (explaining how a person can perceive sound “spatially” with “a single-ear telephone”); Dkt. 83-14, Begault, *3-D Sound for Virtual Reality and Multimedia*, 4 (Apr. 2000) (“[O]ne-ear hearing can provide spatial cues, as proven by experience with telephone conversations.”). Unless otherwise noted, lettered exhibits are attached to the Declaration of Gabrielle A. LaHatte (“LaHatte Decl.”), filed concurrently.

telephone *can* perceive SLPs when “earphones or a headset is used” (Dkt. 92 at 5), which is also described in the patents. *See, e.g.*, ’090 patent at 11:52-55 (“an electronic telephone call in which both people wear headphones”), 18:48-51 (“an electronic phone call” where “[t]he first individual wears headphones or an earpiece”), 26:28-31 (similar); *see also* Dkt. 92-3 (McMullen Tr.) 230:7-9 (“[Y]ou can use headphones, speakers, and microphones with your telephone.”). Finally, even if 8K were correct that claims requiring phones would not capture the purpose of the alleged invention, the law does not permit 8K to rewrite claims during *Markman* proceedings to fix that. *Rembrandt Data Techs., LP v. AOL, LLC*, 641 F.3d 1331, 1339 (Fed. Cir. 2011) (“[C]ourts may not redraft claims” “to make them operable”) (citing *Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004)).

8K also retreats to the ’737 patent for an alleged “instructive definition.” Dkt. 92 at 5-6. But the later-in-time ’737 patent is unrelated to the ’090 and ’628 patents (which include the “phone” terms) and is thus, at best, inferior extrinsic evidence. *See, e.g., Goldenberg v. Cytogen, Inc.*, 373 F.3d 1158, 1167-68 (Fed. Cir. 2004) (statements in unrelated patent and prosecution history irrelevant to claim construction “[a]bsent a formal relationship or incorporation during prosecution”); *Northeastern Univ. v. Google*, No. 2:07-cv-486, 2010 WL 4511010, at \*5 (E.D. Tex. Nov. 9, 2010) (“unrelated patent,” even if “filed by the same inventor,” is extrinsic evidence). No such purported definition exists in the ’090 and ’628 patents.

Doubling down, 8K then compares the ’737 patent to documents relating to the accused products, which 8K contends are “of particular importance.” Dkt. 92 at 5-6. Any comparison between an unrelated patent’s disclosures and the accused products is especially irrelevant. *See Luhn v. Scott*, No. 1:04-cv-521, 2006 WL 6112197, at \*4 (W.D. Tex. May 26, 2006) (infringement analyses “may occur only after the claims have been *construed without reference to the accused*

device”) (emphasis in original) (quoting *SRI Int’l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1118 (Fed. Cir. 1985)).

8K asserts that Meta’s proposed construction for the “electronic phone call” and “telephone call” terms “exclude example embodiments.” Dkt. 92 at 6. This too is incorrect; on their face, some of 8K’s claims cover any “electronic call” embodiments broadly, whereas other claims are limited to more narrow subsets of “phone” and “telephone” calls only. *SIMO Holdings Inc. v. Hong Kong uCloudlink Network Tech. Ltd.*, 983 F.3d 1367, 1378 (Fed. Cir. 2021) (“It is not necessary that each claim read on every embodiment.”); *see also* Dkt. 92-3 (McMullen Tr.) 183:5-8 (“[E]lectronic call seems to be a super class, and electronic phone call, the word ‘phone’ is a modifier there, where it is an electronic call that uses a phone.”). Moreover, the passages in the asserted patents 8K cites do not support its argument. For example, 8K emphasizes examples using headphones and microphones (Dkt. 92 at 6-7), but, again, this hardware can also be used while making a telephone call. Further, other passages 8K highlights actually depict and describe people using handheld portable electronic devices (“HPEDs”), which include phones. ’090 patent at Fig. 21, 15:12, 32:49-54; Dkt. 92-3 (McMullen Tr.) 232:11-22 (Fig. 21 shows a “person [] holding a telephone”); *see also* Ex. J (Begault Tr.) 175:1-10 (agreeing a smartphone is a HPED).

8K next contends that the terms are all “interchangeable” with each other, citing two inapposite cases, *Haddad v. United States*, 164 Fed. Cl. 28 (2023) and *Baran v. Med. Device Techs., Inc.*, 616 F.3d 1309 (Fed. Cir. 2010). In *Haddad*, the court found certain terms to be interchangeable because they were, unlike the “phone” terms, used in the same claim and throughout the specification to describe “the same process” by “the same apparatus” operating on “the same aspects.” 164 Fed. Cl. at 65-67. Similarly, in *Baran*, the terms at issue were consistently used to describe “the same structure” in the same way. 616 F.3d at 1312-13. Here, however, the

claims are clear that different “apparatuses” are contemplated by the claim language. *Haddad* also demonstrates where the line is drawn on “interchangeability,” as the court rejected a second “interchangeability argument” because the patentee failed to show that disputed terms were “consistently interchange[d]” in the specification. 164 Fed. Cl. at 69-70. 8K has not shown—and cannot show—that, in the ’090 and ’628 patents, the “electronic call,” “electronic phone call,” and “telephone call” terms are “consistently interchange[d].” *See id.*

8K leans heavily on its expert, Dr. Begault. But, even setting aside the reduced weight expert testimony gets to begin with,<sup>5</sup> Dr. Begault’s declaration simply parrots 8K’s position and, strikingly, in response to 8K’s own questions, Dr. Begault admitted in deposition that he had not carefully reviewed the patents:

[8K’s counsel]: ... [C]orrect me if I’m wrong, but I think you said you haven’t reviewed the patents carefully?

A. *That’s correct. I don’t -- would not say I’ve had a careful review of the patents.*

Ex. J (Begault Tr.) 263:24-264:6; *see also id.* at 18:15-19 (“Q. And have you reviewed each of th[e] [asserted] patents? A. Briefly.”), 24:17-19 (“Q. Have you reviewed the file histories for the asserted patents? A. No.”), 95:4-14. These are remarkable concessions given the essential role of the specification in claim construction. *Phillips*, 415 F.3d at 1313 (“Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.”), 1315 (“[C]laims must be read in view of the specification, of which they are a part.”). It comes as no surprise then that Dr. Begault’s declaration frequently lacks explanation or citations to intrinsic or extrinsic evidence of any kind to support his opinions. *See* Dkt. 92-7 ¶ 8;

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<sup>5</sup> *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1318-19 (Fed. Cir. 2005).

Ex. J (Begault Tr.) 136:2-22 (conceding lack of supporting citations); *see also id.* at 267:12-269:22, 271:12-272:11. Such conclusory testimony is entitled to no weight. *In re Walter*, 698 F. App'x 1022, 1027 (Fed. Cir. 2017) (giving expert declaration “no weight” because expert “[id] not support his opinion with evidence or analysis, and his testimony [was] wholly conclusory”); *Sinorgchem Co., Shandong v. Int’l Trade Comm’n*, 511 F.3d 1132, 1137 n.3 (Fed. Cir. 2007) (same); *Phillips*, 415 F.3d at 1318 (“[U]nsupported assertions by experts as to the definition of a claim term are not useful.”).

In the end, 8K’s proposed construction should be rejected because it would render the terms “phone” and “telephone” meaningless. *See Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 810 (Fed. Cir. 2021) (“It is highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous.”); *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) (“[C]laims are interpreted with an eye toward giving effect to all terms in the claim”). Meta’s proposed constructions for “electronic call,” “electronic phone call,” and “telephone call” should be adopted.

### **III. “Away from and proximate to” is Indefinite**

The “away from and proximate to” term in the asserted claims of the ’090 and ’196 patents is indefinite. Dkt. 83 at 6-9. 8K argues this term’s meaning is “clear to a PHOSITA,” but neither 8K nor its expert can land on a meaning, let alone a “clear” one. Dkt. 92 at 8. 8K, through Dr. Begault, argues that this term means “distance[s] ‘outside-the-head’” that are appropriate for “[t]wo persons having a conversation at a normal sound level within the same room” *Id.* at 8-10; Dkt. 92-7 ¶¶ 9-11. This construction, like the claim language, lacks “objective boundar[ies]” and “fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).

8K’s proposed construction of “a distance from” brings no certainty to the “away from and proximate to” term because it covers *any* distance. Demonstrating this, Dr. Begault, sitting for his

deposition in Muir Beach, California, admitted that sounds in Massachusetts, in Japan, on the moon, and on Mars would all be “a distance from” him. Ex. J (Begault Tr.) 83:13-84:9, 85:25-86:10. And, under 8K’s construction, so would a sound emanating a millimeter “outside” of Dr. Begault’s head. Thus, 8K’s proposed construction “fails to provide an objective standard” by which “a skilled artisan [could] know not only what falls inside the scope of the” “away from and proximate to” term, “but also what falls outside of it.” *Versata Software, Inc. v. Zoho Corp.*, 213 F. Supp. 3d 829, 836 (W.D. Tex. 2016); *see also GE Lighting Sols., LLC v. Lights of Am. Inc.*, 663 F. App’x 938, 940 (Fed. Cir. 2016) (holding claims indefinite because skilled artisans could not differentiate infringing and non-infringing elements).

8K’s new addition that the “distance” it contemplates is one commensurate with “[t]wo persons having a conversation at a normal sound level within the same room” is equally problematic and leaves more questions than answers concerning what “distances” are covered and what a “normal” sound level might be.

8K primarily relies on three paragraphs from Dr. Begault’s declaration to support its constructions. Dkt. 92 at 8-10. But, here again, Dr. Begault cites *no* evidence supporting his purported opinions. *See* Dkt. 92-7 ¶¶ 9-11. Thus, Dr. Begault’s statements should be afforded no weight. *Walter*, 698 F. App’x at 1027; *Sinorgchem*, 511 F.3d at 1137 n.3; *Phillips*, 415 F.3d at 1318.

The two disclosures from the ’090 and ’196 patents that 8K argues show that “away from” describes only “a sound that is ‘externalized’” or “‘outside-the-head’” say nothing of the sort. Dkt. 92 at 8-9 (citing ’090 patent at 1:6-15, 38:34). The first passage does not use the terms “away from,” “externalized,” or “outside-the-head,” and the second is a single line providing that a sound localization point (“SLP”) can be designated “*inside* the head.” ’090 patent at 1:6-15, 38:34.

These passages do not inform or define what “away from” means in the context of the ’090 and ’196 patents. Contradicting 8K further, these patents consistently use “away from” to describe distances between sounds and objects—e.g., “two feet away from the listener,” “ten feet away from,” “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—and use different language, such as “apart from,” to indicate separation exists. *See* ’090 patent at 3:44-46 (“Example embodiments can modify or move the sound localization point to a location that is *apart from and away from* the device emitting the sound.”).

8K also cleaves “proximate to” from the broader “away from and proximate to” term and argues “proximate” is a “clear[] modifie[r],” invoking Dr. Begault’s opinion that “proximate” means at a “normal ... conversational distance” for “conversation at a normal sound level.” Dkt. 92 at 9; Dkt. 92-7 ¶¶ 10-11. But none of the patents-in-suit say anything of the kind, and one is still left to guess when an SLP is somehow both “away from” and yet also “proximate to” a user.

Dr. Begault tried—but failed—to explain 8K’s position at his deposition. He testified that “‘proximate’ means at a distance at which *speech intelligibility* between two talkers can be maintained without ... shouting or a mega phone.” Ex. J (Begault Tr.) 92:14-21; *see also id.* 97:3-6 (“Q. What’s your definition for proximate distance? A. My definition for proximate distance would be normal speech levels, the levels at which those – normal speech level would be *intelligible*.”). He further testified that “intelligibility” depends on “vocal effort,” “sound pressure level,” “what kind of sound we’re talking about,” “eye contact,” “visual cues,” “lip reading,” and “other things.” *Id.* at 92:-22-93:20, 101:15-24, 110:8-111:3. Thus, unsurprisingly, he could not apply 8K’s new proposed construction with any reasonable degree of certainty. Dr. Begault could not say, for example, if sounds at distances of five, ten, or fifteen feet would be proximate. *See id.*

at 101:15-24 (5 feet: “[i]t depends on what kind of sound we’re talking about”), 106:8-13 (10 feet: same), 106:24-108:19 (15 feet: “it’s a gray area”). Dr. Begault purported to “draw the line” at twenty feet, but even that depended on “background noise conditions,” as he testified that if a listener is “outdoors with lots of wind in the trees” or “near a freeway,” “then that proximate point would need to be closer.” *Id.* at 108:12-110:6.<sup>6</sup> Dr. Begault’s testimony does not bring any meaningful specificity to when sounds are or are not “proximate,” let alone “away from *and* proximate.” To the contrary, it confirms that “away from and proximate to” is indefinite. *See Versata Software*, 213 F. Supp. 3d at 837-38 (finding “space-constrained display” indefinite, rejecting expert’s “factors” “found nowhere in the [asserted] patent” that were “context-dependent” and “fail[ed] to establish any boundary enabling a skilled artisan to distinguish between a display that is space constrained from one that is not”).

8K emphasizes that the SLP in claim 1 of the ’196 patent must be “located in empty space.” Dkt. 92 at 9; *see also* ’196 patent, cl. 1. But “empty space” in the ’196 patent is *any* “point or location that is not filled or occupied” (’196 patent at 41:36-37), so this offers no guidance. In addition, 8K points to column 3, lines 33-38 of the ’090 patent and column 4, lines 30-40 of the ’196 patent. Dkt. 92 at 9. But the former passage does little more than parrot the claim language in dispute, and the latter simply provides that sound can appear to emanate from an SLP that is “away from” a listener, “proximate to the listener (such as in a same room),” or “far away from the listener (such as several kilometers away).” ’196 patent at 4:30-40. These disclosures do not show how or when an SLP could be both “away from” and “proximate to” an individual at

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<sup>6</sup> *See also* Ex. J (Begault Tr.) 98:23-99:2 (“Q. Do you remember any of the asserted patents even mentioning intelligibility? [Dr. Begault]: I don’t remember the specific word intelligibility.”), 97:21-98:8 (“Do you recall the asserted patents in any other way referring to intelligibility as a way to judge whether a sound is proximate to a listener. [Dr. Begault]: I would have to review the patents to give you an accurate answer to that.”).

the same time—two contradictory conditions occurring simultaneously. *See* Dkt. 83 at 6-8. 8K also points to the patents’ Figure 18 and related disclosures (31:21-31), which describe an SLP in the same room as a listener. Dkt. 92 at 10. The patents, however, do not identify this or any other configuration as defining “away from and proximate to” a listener.

Because the ’090 and ’196 patents fail to inform with reasonable certainty what “away from and proximate to” means, the asserted claims of these patents are indefinite.<sup>7</sup>

#### **IV. Meta’s Proposed Construction for “HRTF” Should be Adopted**

As an initial matter, 8K’s construction cannot be correct. 8K concedes that “[t]he Patents-in-Suit are clear that HRTFs do not transform [] sound by and of themselves.” Dkt. 92 at 17. Thus, 8K’s proposed construction, which states that HRTFs, by and of themselves, “modify the spectrum and time of arrival at a listener’s ears,” should be rejected. *See* Dkt. 83 at 14; Dkt. 83-11 (McMullen Decl.) ¶ 189 (“An HRTF by itself does not modify the spectrum and arrival time of the sound.”). This was further confirmed by Dr. McMullen at her deposition, when she testified that the “HRTF itself does not modify anything.” Dkt. 92-3 (McMullen Tr.) 208:8-209:2. Rather, HRTFs are used “in conjunction with other signal processing tools” and “specialized software programming” to render 3D sound. *Id.*; *see also id.* at 46:12-24 (“Again, the HRTF itself does not render sound.”), 98:21-101:15 (describing steps a skilled artisan takes to render 3D sound).

8K advances three challenges to Meta’s proposed construction, but none has merit. First, 8K contends that Meta’s construction improperly “reads limitations, that is, ‘three spatial

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<sup>7</sup> In one sentence, 8K states that the ’090 and ’196 patents issued without § 112 rejections from the USPTO. Dkt. 92. at 10. That is irrelevant, and 8K fails to point to anything in the patents’ prosecution histories that provides insight into the meaning of “away from and proximate to.” *See Brazabra Corp. v. Ce Soir Lingerie Co., Inc.*, No. 1:18-cv-683, 2019 WL 13136348, at \*7 (W.D. Tex. July 15, 2019) (rejecting argument that term was definite because examiner did not object during prosecution); *Versata Software*, 213 F. Supp. 3d, at 836 (holding term indefinite where “neither the claims themselves nor the prosecution history provide[d] any insight as to the meaning”).

variables,’ from the specification into the asserted claims.” Dkt. 92 at 18. Not so. Meta’s construction applies the definition 8K gave to this term in its patents, and that given definition should control. ’737 Patent at 39:46-58; ’836 patent at 28:52-64; ’628 patent at 28:62-63; *see also Phillips*, 415 F.3d at 1316 (“[O]ur cases recognize that the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.”); *Trs. of Columbia Univ. in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1365 (Fed. Cir. 2016) (applying definition given in specification); *see also Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1380 (Fed. Cir. 2009) (“patentee’s definition controls”).<sup>8</sup> The specifications further explain that HRTFs represent how sound reaches the ears of a listener. *See* ’737 patent at 39:36-45; ’836 patent at 28:42-51; ’628 patent at 28:54-60; Dkt. 83 at 13-14.

Second, in the same vein, 8K argues that Meta “gloss[es] over” examples where “HRTFs were calculated by less than three variables.” Dkt. 92 at 18 (citing ’737 patent at 39:25-35; ’628 patent at 28:63-29:3). But each of these disclosures defines HRTFs by the same three variables included in Meta’s construction. At column 39, lines 25-29, the ’737 patent states that “sound localizes to a specific point (e.g., localizing to point (R [*distance*],  $\theta$  [*azimuth angle*],  $\phi$  [*elevation angle*])) or a general location or area (e.g. localizing to a far-field location [*distance*] ( $\theta$  [*azimuth angle*],  $\phi$  [*elevation angle*]) or a near-field location [*distance*] ( $\theta$  [*azimuth angle*],  $\phi$  [*elevation angle*]))).” ’737 patent at 39:25-29.<sup>9</sup> Lines 29-35 of column 39 similarly disclose these three

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<sup>8</sup> 8K’s cases are inapposite. In *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, the written description did not provide any particular meaning of the disputed term. 345 F.3d 1318, 1327 (Fed. Cir. 2003). In *Gart v. Logitech, Inc.*, the defendants grounded their argument on drawings relating to only a preferred embodiment. 254 F.3d 1334, 1341-42 (Fed. Cir. 2001).

<sup>9</sup> *See also* Dkt. 83 at 2 (Meta and 8K agree that a “far-field distance” is a “distance greater than or equal to one meter” and a “near-field distance” is a “distance less than one meter”).

variables, providing that a “lookup table” can store HRTF coordinates, which “can include a *distance* (R) or near-field or far-field designation, an *azimuth angle* ( $\theta$ ), and/or an *elevation angle* ( $\phi$ ).” *Id.* at 39:29-35. Further, the ’737 patent’s exemplary lookup table shows that 8K’s emphasis of “and/or” in this disclosure is misplaced—one variable can be zero (which explains the “and/or”), but all three are used. *See* ’737 patent at Fig. 17, 62:9-63:15; *see also* Dkt. 92-3 (McMullen Tr.) 55:20-58:17 (explaining that even if elevation angle is zero, as Figure 17 depicts, the system is still “using an elevation angle” (zero)). Column 28 line 63 through column 29 line 3 of the ’628 patent likewise supports Meta’s proposed construction, not 8K’s. *See* ’628 patent at 28:62-29:3 (“*HRTFs are functions of frequency and three spatial variables. ... HRTFs can be estimated or interpolated for other angular positions (e.g., other angular positions,  $\theta$ , in the far field HRTF [*distance*] of  $H(f, \theta$  [*azimuth angle*],  $\phi$  [*elevation angle*]).*”).

Last, 8K asserts that Meta’s expert, Dr. McMullen, “admitted under oath that [8K]’s proposed construction is accurate.” Dkt. 92 at 19. She did not. Dr. McMullen repeatedly explained—including in the testimony that 8K relies on—that 8K’s proposed construction is inaccurate because, for example, HRTFs do not transform or modify sound by themselves. *See* Dkt. 92-3 (McMullen Tr.) 29:9-17 (the HRTF “is not the actual thing that changes the sound”), 46:12-24 (“the HRTF itself does not render the sound”), 208:8-209:2; Dkt. 83-11 (McMullen Decl.) ¶ 189; *see also* Dkt. 92-3 (McMullen Tr.) 87:3-89:9 (describing using “customized HRTFs” and a “MATLAB program” to render 3D audio), 209:3-16 (HRTFs measured at different locations “will look different, but I would not call that the HRTF spectral modification. I would call that a difference in the – the mathematical representation of the transformation”).

## V. Meta’s Proposed Construction for “Digital Signal Processor” Should be Adopted

There is no dispute that a digital signal processor (“DSP”) is a specialized processor and different from a general-purpose processor. *See* Dkt. 83 at 15-16; Dkt. 92 at 20 (8K: “The parties

agree that a DSP is a ‘specialized processor’ proven by the intrinsic evidence”). 8K, however, asserts that Meta’s proposed construction—“specialized processor with better power performance and efficiency than a general-purpose microprocessor”—would “completely side-step” a skilled artisan’s “normal understanding of what a DSP is.” *Id.* at 21. 8K ignores that Meta’s proposed construction identifies and captures the key defining features of DSPs in the context of the specifications of the relevant asserted patents (the ’836, ’179, and ’184 patents) and the extrinsic record. *See* Dkt. 83 at 15-16 (collecting references); *see also* Dkt. 83-11 (McMullen Decl.) ¶¶ 273-74 (citing ’836 patent at 4:26-27, 27:34-35, 28:29-30, 35:33-36, 39:10-26); Dkt. 92-3 (McMullen Tr.) 163:25-164:2 (“DSPs are specialized” to perform operations “quickly”).

8K argues its proposed construction should be adopted because it “focuses on the specific function the DSP performs” (Dkt. 92 at 21), but the pertinent claims of the asserted ’836, ’179, and ’184 patents already recite the claimed DSPs’ functions with no mention of “transforming an input signal at its output.” *See* ’836 patent, cl. 8 (“digital signal processor (DSP) ... processes the sound for the image with far-field head-related transfer functions (HRTFs”), cl. 10 (dependent on claim 8); ’179 patent, cl. 14 (“processing, by a digital signal processor (DSP), sound with the HRTFs to general binaural sound”); ’184 patent, cl. 14 (same). The Court, therefore, should not inject “transforming an input signal at its output” into the claims. *See IDB Ventures, LLC v. Charlotte Russe Holdings, Inc.*, No. 2:17-cv-660, 2018 WL 5629620, at \*2 (E.D. Tex. Oct. 31, 2018) (Bryson, J. by designation) (rejecting proposed construction that “include[d] a reworded version of the functions” of the disputed term “that [we]re recited in the claims” because it was “either redundant ... or would be confusing to the extent” it “differ[ed] from the language in the claims”) (cleaned up). This is true even if one accepts 8K’s unsubstantiated argument that its construction is merely a rewording of the actual language in the claims. *Am. Fireglass v.*

*Moderustic Inc.*, No. 3:15-cv-2866, 2018 WL 2392816, at \*9 (S.D. Cal. Apr. 16, 2018) (rejecting a proposed construction that “provide[d] a redundant explanation of the functioning of” a disputed term, which was “already explained in the claim language”).

8K repeatedly grounds its arguments about the “DSP” term in disclosures from the ’737 patent. Dkt. 92 at 21-22 (citing ’737 patent at 11:51-53, 24:1-4, 58:44-49, 58:57-59:3). But the ’737 patent is unrelated to, and at best extrinsic evidence for, the ’836, ’179, and ’184 patents—the patents with claims that actually recite these terms. Further, the ’737 patent disclosures 8K relies on do not support 8K’s proposed construction. They show only that DSPs can process sound with HRTFs (’737 patent at 11:51-53, 24:1-4, 58:57-59:3), which is not in dispute, and otherwise supports Meta’s proposed construction. *See id.* at 58:57-59:3 (“DSP can also ... increase execution speed and sound processing efficiency.”); *see also id.* at 58:53-55 (“Such a DSP has a better power performance or power efficiency compared to a general-purpose microprocessor.”).

Finally, a “digital signal processor” is not “software” (Dkt. 83 at 16-17), but 8K’s proposed construction would allow for a software-only DSP. 8K’s primary support for this is a single clause from a single sentence in which Dr. Begault again parrots 8K’s position without citation to supporting evidence. Dkt. 92-7 ¶ 14; *see also Walter*, 698 F. App’x at 1027; *Sinorgchem*, 511 F.3d at 1137 n.3; *SkinMedica, Inc. v. Histogen Inc.*, 727 F.3d 1187, 1209-10 (Fed. Cir. 2013); *Phillips*, 415 F.3d at 1318. Beyond this, 8K cites only to two dictionary definitions for the wrong term—“digital signal processing<sup>*ing*</sup>.” *See* Dkt. 92 at 23-24 (citing Dkt. 92-9, 92-15). To be clear, the asserted claims of the ’836, ’179, and ’184 patents do not recite “digital signal processing<sup>*ing*</sup>.” They require a “digital signal process<sup>*or*</sup>,” which is hardware—specifically, a “specialized processor with better power performance and efficiency than a general-purpose microprocessor.”

## **VI. “Wearable Electronic Device” and “Handheld Portable Electronic Device”**

8K proposed the “wearable electronic device” (“WED”) and HPED terms for construction, and Meta briefed them because 8K sought to inject into these terms an unjustifiable “wireless” requirement. *See* Dkt. 83 at 17-19. Now, 8K offers no defense of that position. Dkt. 92 at 24. Instead, 8K writes only that the parties “essentially agree,” so “the Court need not construe these claim terms.” *Id.* The Court should construe the WED and HPED terms to make clear there is no “wireless” requirement, which 8K may yet again seek to read into them.

## **VII. The “Processor” Terms are Means-Plus-Function Terms and Indefinite**

### **A. The “Processor” Terms are Subject to 112(f)**

The “Processor” terms should be construed under 35 § U.S.C. 112(f). Dkt. 83 at 24-26. 8K contends that Meta failed to show that § 112(f) applies because Meta relied on “inapplicable rules,” and because the opinions of Meta’s expert, Dr. McMullen—who earned her Ph.D. in computer science and engineering over a decade ago and is highly credentialed and award-winning (Dkt. 83-12)—are “predicated on” “technical ignorance.” Dkt. 92 at 30. Neither is true. Meta’s proposed constructions are founded on settled precedent, and 8K’s unwarranted denigration of Dr. McMullen should not distract from the merits of Meta’s positions.

Meta is not arguing that the terms “processor” or “digital signal processor” are “talismanic and immediately invoke” § 112(f), as 8K writes (Dkt. 92 at 26). In its opening brief, Meta explained that there are circumstances in which reciting a processor may be sufficient; specifically, when a claim recites functions that off-the-shelf general-purpose processors can perform. Dkt. 83 at 26 n. 10 (*citing In re Katz Interactive Call Processing Pat. Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011)). But, here, the claims recite special purpose functions requiring special programming,

and they do not recite sufficient structure for performing those functions. *See* Dkt. 83-11 (McMullen Decl.) ¶¶ 190-329. Consequently, § 112(f) applies. *See* Dkt. 83 at 25-26.<sup>10</sup>

8K faults Dr. McMullen for “not dedicat[ing] effort to explain why” charts 8K included in its responsive brief identify sufficient structure. Dkt. 92 at 31. 8K, however, fails to disclose that it provided those charts for the first time *after* Dr. McMullen submitted her opening declaration. 8K also fails to mention that Dr. McMullen, in her thorough analysis of the “Processor” terms, *did* assess passages 8K cites in its belated “Chart of Disclosed Structure,” as well as “interconnections with the ‘processors’ and other hardware” (Dkt. 92 at 31). *See* Dkt. 83-11 (McMullen Decl.) ¶¶ 192, 198, 212, 218, 232, 238, 255, 261, 272, 275, 281, 296, 302, 315, 321. Moreover, Dr. McMullen has since analyzed 8K’s untimely disclosures and confirmed their insufficiency. McMullen Suppl. Decl. ¶¶ 14-24.

8K’s contention that Meta’s positions are inconsistent with Federal Circuit precedent (Dkt. 92 at 32) should be rejected. 8K relies on *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1008 (Fed. Cir. 2018), but that case is inapposite. In *Zeroclick*, the proponent of means-plus-function constructions—unlike Meta—“provided *no evidentiary support* for [its] position,” and the Federal Circuit therefore concluded that the district court “legally erred by not giving effect to the *unrebutted* presumption against the application of § 112, ¶ 6.” 891 F.3d at 1007-08. Here,

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<sup>10</sup> *See also Rovi Guides, Inc. v. Comcast Corp.*, No. 1:16-cv-9278, 2017 WL 3447989, at \*23 (S.D.N.Y. Aug. 10, 2017) (“processor” term construed under § 112(f) because claimed functions could not be performed using “off-the-shelf processors”); *Velocity Pat. LLC v. Mercedes-Benz USA*, No. 1:13-cv-8413, 2016 WL 5234110, at \*6 (N.D. Ill. Sept. 21, 2016) (“processor” term invoked § 112(f) because the processor “require[d] additional programming” to perform its functions); *GoDaddy.com v. RPost Commc’ns Ltd.*, No. 2:14-cv-126, 2016 WL 212676, at \*56 (D. Ariz. Jan. 19, 2016) (“processor” term invoked § 112(f) because claimed function was “not a typical function found in a general purpose processor and require[d] additional programming of the processor to implement”); *Konami Gaming, Inc. v. High 5 Games, LLC*, No. 2:14-cv-1483, 2018 WL 1020120, at \*13-14 (D. Nev. Feb. 22, 2018) (same); *Parity Networks v. ZyXEL Commc’ns*, No. 8:20-cv-697, 2020 WL 8569299, at \*10-11 (C.D. Cal. Dec. 22, 2020) (same).

consistent with *Zeroclick* (and other Federal Circuit precedent), the “Processor” terms are means-plus-function terms because each “recites function without reciting sufficient structure for performing that function.” *Id.* at 1007; *see also Egenera, Inc. v. Cisco Sys., Inc.*, 972 F.3d 1367, 1372-75 (Fed. Cir. 2020) (“[T]he question is not whether ‘logic’ is utterly devoid of structure but whether the claim term recites sufficient structure to perform the claimed functions.”); *XR Commc’ns, LLC v. Arris Sols., Inc.*, No. 2022-1125, 2023 WL 3529830, at \*2 (Fed. Cir. May 18, 2023) (“[W]e conclude that the district court properly asked whether a POSITA would understand the disputed term not just as structure, but as sufficient structure for performing the claimed function.”) (cleaned up).

8K argues that the words “processors” and “digital signal processors” connote sufficient structure because skilled artisans knew that processors (e.g., CPUs, DSPs, ASICs, and FPGAs) could process sound. *See* Dkt. 92 at 35-38. But for a processor or DSP alone to be sufficient structure for the asserted claims, it would have to be capable of performing *all* of the claimed functions without special programming, and the recited functions go far beyond simply processing sound. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015). Neither 8K nor Dr. Begault cite evidence rebutting Meta’s and Dr. McMullen’s explanations that special programming is required before a processor or digital signal processor can perform the “Processor” terms’ actual claimed functions.

Dr. Begault does state in his declaration that processors identified in the patents’ specifications are “sufficiently definite structure well beyond a generic black box.” Dkt. 92-7 ¶ 15. But the specification disclosures he relies on support Meta, not 8K, as they demonstrate that the patents’ processors require “applications, data, programs, [and] algorithms to implement or assist in implementing example embodiments.” *See* ’090 patent at 41:20-31; ’196 patent at

41:20-31; '628 patent at 42:6-18; McMullen Suppl. Decl. ¶¶ 15-18. And Dr. Begault cited no other support for this (or any other) opinion. See Dkt. 92-7 ¶ 15; Ex. J (Begault Tr.) 144:8-23, 256:10-25; see also *TQ Delta, LLC v. 2Wire, Inc.*, No. 1:13-cv-01835, 2018 WL 626472, at \*10 (D. Del. Jan. 30, 2018) (rejecting expert's unsupported assertion that term had "sufficiently definite meaning as the name for structure").

8K also argues that § 112(f) does not apply because the asserted patents disclose "convolution," which, 8K and Dr. Begault say, is "the only algorithm required to perform the claimed processes." Dkt. 92 at 37. 8K and Dr. Begault, however, do not even try to show this is true, for example, by explaining how a convolution process (of which there are many<sup>11</sup>) could be used to achieve all of the Processor terms' recited functions, which on their face differ from mere convolution. McMullen Suppl. Decl. ¶¶ 19-22. An off-the-shelf processor or DSP cannot just "convolve" sound to achieve all of the "Processor" terms' specific recited functions (*id.* ¶ 23), and application of § 112(f) is "the price" 8K must pay for its functional claiming. *Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008); *Williamson*, 792 F.3d at 1349.

## **B. The "Processor" Terms' Recited Functions**

"The function of a means-plus-function limitation [] must come from the claim language itself." *Creo Prods., Inc. v. Presstek, Inc.*, 305 F.3d 1337, 1344 (Fed. Cir. 2002); *JVW Enters., Inc. v. Interact Accessories, Inc.*, 424 F.3d 1324, 1331 (Fed. Cir. 2005). 8K does not contest that Meta's proposed functions for the means-plus-function "Processor" terms adhere to this rule and should be adopted. See Dkt. 83 § IV.H.1.

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<sup>11</sup> See Dkt. 83-11 (McMullen Decl.) ¶¶ 194, 202, 214, 222, 234, 243, 257, 265, 266; see also McMullen Suppl. Decl. ¶¶ 20, 169, 177, 181, and 194.

**C. The “Processor” Terms are Indefinite Due to Insufficient Corresponding Structure**

The “Processor” terms are indefinite because the patents’ specification do not disclose “algorithm[s] for performing” the recited functions. Dkt. 83 at 27-29; *Williamson*, 792 F.3d at 1352.

8K identified for the first time in its responsive brief disclosures from the asserted patents that, in its view, provide adequate structural support for the “Processor” terms’ recited functions. *See* Dkt. 83 at 39-45 (8K’s “Chart of [Allegedly] Disclosed Algorithms”). But none of those disclosures provides an algorithm for performing the recited functions, and 8K’s late-disclosed chart and related arguments reveal fundamental flaws in 8K’s approach to the means-plus-function “Processor” terms. *See* McMullen Suppl. Decl. ¶¶ 25-237; *id.* at Appendix A (charts compiling reasons every disclosure 8K cites is inadequate).

First, 8K consistently retreats to the undisclosed knowledge of persons of ordinary skill in the art to fill in the blanks. *See, e.g.*, Dkt. 92 at 37 (“convolution was regularly taught ... for signal processing,” and “it is unnecessary to disclose structure well-known to PHOSITAs”), 39 (“Structures well-known to PHOSITAs may be relied upon” and “need not be disclosed”); Dkt. 92-7 ¶¶ 15-16 (Dr. Begault opining that the asserted patents “point a PHOSITA to known [prior art] structures” and “programming techniques”). But 8K “cannot avoid providing specificity as to structure simply because someone of ordinary skill in the art would be able to devise a means to perform the claimed function[s].” *Function Media, L.L.C. v. Google, Inc.*, 708 F.3d 1310, 1319 (Fed. Cir. 2013). 8K argues that *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339-40 (Fed. Cir. 2016) shows that “well-known elements need not be disclosed.” Dkt. 92 at 37. But in *Enfish*, the specification explicitly disclosed “three of the four steps” of the required algorithm, and “the fourth step would have been known to a POSA.” *Arendi S.A.R.L. v. LG Elecs., Inc.*, No. 1:12-cv-

1595, 2019 WL 3891150, at \*15 (D. Del. Aug. 19, 2019). Thus, the Federal Circuit found only that knowledge of skilled artisans, if proven, could be used to “address the omission of [a] detail.” *Id.* The Federal Circuit did not rule that such knowledge could “provide the algorithm itself” (*id.*), which is what 8K and Dr. Begault urge here. McMullen Suppl. Decl. ¶¶ 25-237, *id.* at Appendix A. It is also well-settled that invoking prior art processes with a known term, like “convolution,” is not sufficient disclosure of “an algorithm—i.e., a step-by-step procedure—for performing [a] claimed function.” *Triton Tech of Texas, LLC v. Nintendo of Am., Inc.*, 753 F.3d 1375, 1379 (Fed. Cir. 2014); *see also Biomedino, LLC v. Waters Techs. Corp.*, 490 F.3d 946, 953 (Fed. Cir. 2007) (“[A] bare statement that known techniques or methods can be used does not disclose structure.”).

Second, 8K identifies dozens of columns and numerous figures from its asserted patents without ever showing that such disclosures are “clearly link[ed]” to the “Processor” terms’ recited functions as the law demands. *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1311 (Fed. Cir. 2012); *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1211 (Fed. Cir. 2003) (“[S]tructure [must] be clearly linked with the claimed function in order to qualify as corresponding structure.”); McMullen Reply Decl. ¶¶ 44-49, 59-62, 86-91, 101-104, 128-131, 134-140, 146-149, 159-162, 171-174, 178-180, 207-208, 226-227. In fact, many of 8K’s identifications are plainly off-target. For example, 8K identifies Figure 9 of the ’090 Patent as corresponding structure for “adjust[ing] the binaural voice of the second person ... to position a sound localization point of the binaural voice to a location that is away from and proximate to the first person” as required by claim 15 of the ’090 patent. Dkt. 92 at 40. But Figure 9 relates to a different function having nothing to do with claim 15—“adjust[ing] ... stored ... HRTFs ... in response to the movements of the head.” *Compare* ’090 patent, cl. 15 *with id.* at Fig. 19, cl. 10; McMullen Reply Decl. ¶¶ 44-49. As another example, 8K identifies Figure 11 of the ’179 patent as purported

structure for the “processing ... sound with the HRTFs to generate binaural sound” function of claim 14 of the ’179 patent. Dkt. 92 at 45. But Figure 11 similarly relates to different functions not performed by claim 14’s digital signal processor—“[d]etermin[ing] whether a SLP is at the same coordinates where a person perceives the SLP to be located,” and “adjust[ing] [] the SLP if the coordinates of the SLP do not agree with a person’s perceived position of the SLP.” *Compare* ’179 patent, cl. 14 *with id.* at Fig. 11, 21:56-60.

Third, 8K emphasizes disclosures that merely restate or summarily rephrase the recited functions and never explain *how* the recited functions are implemented. *See* McMullen Suppl. Decl. ¶¶ 32-38, 39-43, 50, 51-52, 55-58, 63-65, 71-73, 74-80, 81-84, 92, 93-94, 97-100, 105, 106-107, 112-113, 121-127, 132-133, 141, 142-145, 150-151, 152-153, 163-165, 166-170, 175-177, 181, 187-191, 192-196, 202-206, 210, 212-216, 221-225, 229, 231-235. Such disclosures are inadequate. “[P]urely functional language, which simply restates the function associated with the means-plus-function limitation, is insufficient to provide the required corresponding structure.” *Noah Sys.*, 675 F.3d at 1317.

Fourth, while 8K identifies certain inputs and equations that could be used in sound processing, for example, HRTFs, interaural time differences, interaural level differences, and reverberation (*see, e.g.*, Dkt. 93 at 40 (citing ’090 patent at 27:5-29:44 for “calculat[ing] ITDs and ILDs”)), that too is not enough. Disclosing inputs to a claimed process does not explain *how* those inputs might be used in an algorithm for performing specific recited functions. As the Federal Circuit has explained, “lists [of] inputs” that fail to “specify[] any single formula or function or algorithm defining the contribution of any of the inputs” are insufficient, and descriptions “that place[] no limitations on how values are calculated, combined, or weighted” fail “to make the bounds of [a] claim understandable.” *Ibormeith IP, LLC v. Mercedes-Benz USA, LLC*, 732 F.3d

1376, 1382 (Fed. Cir. 2013) (finding means-plus-function term indefinite); *Augme Techs., Inc. v. Yahoo! Inc.*, 755 F.3d 1326, 1338 (Fed. Cir. 2014) (inputs to and outputs from “code assembler instructions” not an algorithm for a claimed assembly function); *see also* Dkt. 83-11 (McMullen Decl.) ¶¶ 194, 202, 214, 225, 234, 248, 257, 277, 298, 317; McMullen Suppl. Decl. ¶¶ 43, 53, 66, 85, 95, 108, 114, 116, 154.

Finally, 8K’s expert, Dr. Begault, conspicuously offers no opinions supporting 8K’s belated disclosures of purported algorithmic structure. *See* Dkt. 92-7 ¶¶ 15-16; *see also* Ex. J (Begault Tr.) 256:4-9. 8K cannot rely on attorney argument as a substitute for a required algorithm. *See Estee Lauder Inc. v. L’Oreal, S.A.*, 129 F.3d 588, 595 (Fed. Cir. 1997) (“[A]rguments of counsel cannot take the place of evidence”).

#### **VIII. Joint Proposed Construction for “Binaural Voice”**

After 8K submitted its responsive claim construction brief, the parties agreed that the term “binaural voice” should be construed as “vocal sound waves (including representations of same) as they would be received by each of the left and right ears of a listener, which a listener can localize.” This resolved the parties’ disputes for this term.

#### **IX. Conclusion**

Meta respectfully requests that the Court adopt its proposed constructions.

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Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I hereby certify that on May 31, 2023, a copy of the foregoing was served by electronic mail on all ECF-registered counsel in this action.

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