IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

MULLEN INDUSTRIES LLC,	§	
	§	
Plaintiff,	§	Civil Action No. 1:24-cv-00354-DAE
	§	
v.	§	JURY TRIAL DEMANDED
	§	
META PLATFORMS, INC.,	§	
	§	
Defendant.	§	
	§	

DEFENDANT META PLATFORMS, INC.'S
OPENING CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

Defendant Meta Platforms, Inc. ("Meta") seeks to assist the Court and the jury by providing clear and correct claim constructions and weeding out indefinite claim language. On the other side, Plaintiff Mullen Industries LLC ("Mullen") seeks the broadest possible scope for all terms—even when it contradicts the patents and leads to absurdities—and hides behind an unspecified "plain and ordinary meaning" even where Meta has raised significant questions of claim scope and indefiniteness. The Court should reject Mullen's approach and adopt Meta's proposals.

II. OVERVIEW OF THE ASSERTED PATENTS

The ten remaining patents-in-suit relate to location-based games and augmented reality (AR)—*i.e.*, software that allows a user to view and walk around the real world while showing the user a game that changes with the user's real-world location.[1] The asserted patents generally fall into two patent families. *First*, U.S. Patent Nos. 8,585,476 ("'476 patent"); 9,744,448 ("'448 patent"); 10,179,277 ("'277 patent"); 10,828,559 ("'559 patent"); and 11,376,493 ("'493 patent") (claiming November 16, 2004 priority date) are directed to game systems that use a player's real-world location, including "landscape characteristics" of the surrounding terrain, to provide a game. *Second*, U.S. Patent Nos. 10,967,270 ("'270 patent"); 11,033,821 ("'821 patent"); and 11,904,243 ("'243 patent") (claiming September 2, 2003 priority date) and the related U.S. Patent No. 11,947,716 ("'716 patent") (claiming August 20, 2004 priority date) are directed to using a player's real-world location to provide virtual objects that the player can see. The remaining

[1] The asserted claims are the following: '476 patent, claims 1, 2, 4-7, 17; '448 patent, claims 1, 3, 6-8; '277 patent, claims 8, 13, 20; '559 patent, claims 1, 12, 17, 20; '270 patent, claims 4, 5, 16, 17, 19; '821 patent, claims 1, 4, 11, 16, 30, 102; '493 patent, claims 1, 12, 17, 20; '243 patent, claims 1, 8, 10, 14, 22, 24, 27, 28, 30;'716 patent, claims 1, 8, 16, 18; '791 patent, claims 21, 23, 31, 37, 41, 42. In addition to the asserted claims, the present brief pertains to certain non-asserted claims of the asserted patents where any asserted claims depend from those non-asserted claims.

patent—U.S. Patent No. 12,019,791 ("'791 patent") (claiming October 11, 2007 priority date)—is directed to head-mounted displays that can display virtual objects and detect real-world objects or surfaces.

III. LEGAL STANDARD

The words of a claim are generally given their ordinary and customary meaning, *i.e.*, the meaning the term would have to a person of ordinary skill in the art at the time of the alleged invention. *Phillips v. AWH*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc). A patent's claims, specification, and prosecution history comprise the "intrinsic evidence" that must be consulted before considering any "extrinsic evidence" (*e.g.*, dictionaries) when construing patent claims. *Vederi v. Google*, 744 F.3d 1376, 1382 (Fed. Cir. 2014). Extrinsic evidence can be relied upon only if it "does not contradict any definition found in or ascertained by a reading of the patent documents." *Starhome GmbH v. AT&T Mobility*, 743 F.3d 849, 856 (Fed. Cir. 2014) (cleaned up).

"[A] patent is invalid for indefiniteness if its claims, read in light of the specification … and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus v. Biosig Instruments*, 572 U.S. 898, 901 (2014).

IV. THE COURT SHOULD ADOPT META'S PROPOSALS

A. "physical" versus "virtual"

Term	Meta construction	Mullen construction
"physical" ('476, claims 1, 2, 6, 7, 13; '448, claim 1; '277, claim 1; '559, claim 1; '821, claims 1, 11, 102; '493, claim 1; '243, claims 6-10, 30; '791, claims 21, 37)	"real world"	Plain and ordinary meaning
"virtual" ('476, claims 1, 2, 13; '448, claims 1, 3, 6-8; '270, claim 4; '821, claims 1, 102; '243, claims 1, 6, 14, 30; '716, claims 1, 16, 18; '791, claims 21, 41)	"not real world"	Plain and ordinary meaning

The patents use the terms "physical" and "virtual" consistent with their plain and ordinary meaning—*i.e.*, "physical" items exist in the real world and "virtual" items do *not*. Accordingly, the plain and ordinary meaning of these terms in light of the intrinsic record indicates they are binary opposites. Mullen invokes "plain and ordinary meaning," but in fact Mullen seeks to broaden and obfuscate the scope of these terms, presumably in an effort to fix deficiencies in its infringement case. In meet-and-confer, Mullen argued that virtual objects derived from physical objects are part "physical" and part "virtual"—suggesting that these terms are *not* binary opposites. But that interpretation has no support in the patents and is directly contrary to the plain and ordinary meaning of the "physical" and "virtual" terms. Indeed, Mullen's proposal would lead to the absurdity that objects—real world or not real world—can be considered both "virtual" and "physical," despite clear language distinguishing these terms from each other. Accordingly, the Court should construe "physical" as "real world" and "virtual" as "not real world," to prevent Mullen from confusing the jury as to these clear-cut claim terms. *O2 Micro Int'l v. Beyond Innovation Tech.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008) ("A determination that a claim term 'needs

no construction' or has the 'plain and ordinary meaning' may be inadequate when a term has more than one 'ordinary' meaning or when reliance on a term's 'ordinary' meaning does not resolve the parties' dispute."); *Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d 1314, 1319-20 (Fed. Cir. 2016) (holding that district court erred by leaving terms as "plain and ordinary meaning" with no constructions); *Bandspeed v. Realtek Semiconductor*, No. 1:20-CV-765-DAE, 2023 WL 11915723, at *7 (W.D. Tex. Aug. 11, 2023) (construing term where "additional clarity may aid a jury in better comprehending the term").

1. The intrinsic record shows that "physical" and "virtual" are binary opposites

Throughout the intrinsic evidence, the patents use "physical" and "virtual" to reflect the binary distinction between "a virtual, alternate reality" on the one hand, and the "physical, actual world" on the other. ('448, 1:23-24[2], 16:23-24, 5:45-58 ("augment these virtual advertisements over the real world"), 18:5-10); *Phillips*, 415 F.3d at 1315 (the "claims must be read in view of the specification, of which they are a part" and "the specification is always highly relevant to the claim construction analysis" (cleaned up)). Consistently, the specifications indicate that the "physical world" refers to the actual, real world, "such as the planet Earth or New York City." ('448, 11:12-14; *see also id.*, 1:28-31 ("the user may trip, or bump into, a physical object (e.g., a rock or chair)"), 4:8-13 ("close, physical hazards"), 6:24-27 ("physically detected impenetrable objects"), 16:11-18 (discussing the "status of an actual, physical object (e.g., a door)"), 18:5-10, 4:18-21, 20:54-58.) "Virtual" objects, on the other hand, do not exist in the real world, but rather exist after they are *generated*. (*See, e.g.*, '448, 16:23-24 (discussing "virtual objects not present in the physical, actual world"), 21:14-16, 19:33-34 (disclosing "virtual characters … generated on display screens"), 15:55-59 (disclosing "[v]irtual objects generated by a Location-Based (LB) or AR game

[2] All emphasis in quoted text in this brief is added unless otherwise noted.

(or other AR or LB service) that do not correspond to actual objects"), 12:20-26 (contrasting "actual objects" versus "virtual objects"), 17:59-62, 5:27-29.) The binary distinction between "physical" and "virtual" is central to the patents, which are directed to location-based and augmented reality games using *both* the "physical" real world *and* the "virtual" game world. Augmented reality games, as their name suggests, *add* something to the real world (*i.e.*, they "augment" the real world). Therefore, it is vitally important, as the specifications make clear, to understand what is real or physical versus what is not real or virtual. ('448, 1:55-2:13 (discussion in "Summary of the Invention" section); *see also id.*, 16:54-62 ("virtual indicia (e.g., virtual game objects and characters) augmented over actual, physical environments"), 12:60-61 ("playfields … could be actual or virtual"), 12:27-30, 5:45-48, 15:46-49, 16:63-17:2, 18:5-10, 3:50-55, 1:28-31[3].)

[3] Similar disclosures appear in the other patents. (*Compare* '821 patent (substantially sharing specification with '243 and '270 patents), 1:28-30 ("actual physical movement"), 11:65-12:2 ("a user's actual physical location on a physical playfield"), 14:35-38 ("tripping over the physical playfield (e.g., tripping over a rock"), 19:50-52 ("physical interactive objects may include, for example, a soccer ball, baseball, football"), 20:17-19 ("map a virtual playfield to a physical playfield"), 8:12-16 ("a user's physical location is utilized as the main control device for a game (e.g., control a character's location in a video game's virtual playfield)"), 12:21-25, 3:11-15, 3:34-36; '791 patent, 2:3-5 ("physical object … like a large book"), 3:2-6 ("physical playfield (e.g., the table)"), 3:24-27 ("physical surfaces (e.g., tabletop, wall, stairwell, floor, sink, bed, couch, TV screen"), 11:43-46 ("user's actual, physical environment"), 6:5-7 ("physical environments (e.g., in a car on a user's lap versus in a room with a large floor)"), 1:24-26 ("Video game indicia may be perceived to be located in a user's physical environment through virtual indicia that are placed on a head-mounted display."), 6:51-55 ("physical manual control interfaces"), 7:19-20 ("physical object (e.g., a table)"), 7:23-27 ("physically move (e.g., exercise)"), 8:18-23 ("virtual/physical collision"), 6:67-7:3 (listing "[p]hysical interfaces" including "buttons, joysticks, directional pads, and touch interfaces"), 6:41-44, 11:53-56, 12:35-39, 13:5-9, 13:33-36, *with* '821 patent, 8:45-50 ("virtual video-game playfield"), 13:67-14:3 ("gaming indicia (e.g., virtual game characters, virtual interactive objects, and virtual impenetrable objects)"), 3:11-15 ("video game display completely immerses a user into a virtual reality so that a user cannot see his/her physical environment"), 21:60-63 ("generated virtual playfield"), 3:34-36 ("virtual objects can be overlayed/placed onto the user's actual, physical environment"), 12:67-13:4, 11:27-30, 11:65-12:2; '716 patent, 2:33-38 ("a user can work in a virtual world (e.g., check email from an email server or surf the internet on a browser) while working in an actual world (e.g., while walking to work in the morning)"), 13:65-14:9 ("virtual objects are placed on a display without a background

The claim language itself further supports the binary distinction between "physical" (real world) and "virtual" (not real world). For example, claim 1 of the '476 patent recites "overlay[ing] virtual indicia onto a physical playfield." If "virtual" and "physical" were not binary opposites, it is unclear how "virtual" imagery could be "overlay[ed]" over "physical" objects as claim 1 requires. Other claims reflect the same distinction between "physical" and "virtual." (*See* '476, claim 2 ("virtual object is overlayed … on said physical playfield"), claim 13 ("overlays virtual indicia onto a physical playfield"); '243, claim 6 ("physical boundaries for said physical playfield that correlate to one or more virtual location boundaries of said virtual playfield"), claim 30 ("physical playfield that correlates to a virtual playfield"); '791, claim 21 ("detect[ing] a surface of a physical object" and "display[ing] a virtual object associated with an application"); '821, claims 1, 102 ("physical playfield" and a "virtual playfield"); '559, claim 1 (display of "3-D video game indicia" with respect to a "physical playfield").)

2. Extrinsic evidence favors Meta's constructions of "physical" and "virtual"

The plain and ordinary meaning of "physical" (real world) and "virtual" (not real world) is clear and unmistakable from the intrinsic evidence, so extrinsic evidence need not be consulted. Nonetheless, the extrinsic evidence comports with the clear meaning reflected in the patents. *Phillips*, 415 F.3d at 1317-19 (if extrinsic evidence is considered, it should be "considered in the context of the intrinsic evidence"); *Starhome*, 743 F.3d at 856 ("[D]ictionaries and treatises can often be useful in claim construction" though a dictionary definition may be relied upon only if it "does not contradict any definition found in or ascertained by a reading of the patent documents" (cleaned up)). For example, the term "virtual" is consistently defined to mean items that do not

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such that a user can interact both in a virtual world and an actual environment at the same time"), 15:35-37 ("virtual objects displayed on a display screen").)

exist in the real world, such as computer-generated objects. (*See*, *e.g.*, Microsoft Encarta Dictionary (2003) (defining "virtual" as "generated by computer" or "being something in effect, if not in reality or name"), Ex. A at META_MULL_00024108; Sean M. Grady, Virtual Reality (2003) (defining "virtual" as "something that exists in theory or in the imagination but not in fact"), Ex. B at MIND_010925; Microsoft Computer Dictionary (5th ed. 2002) (defining "virtual" as "[o]f or pertaining to a device, service, or sensory input that is perceived to be what it is not in actuality, usually as more 'real' or concrete than it actually is."), Ex. C at META_MULL_00024103.)

3. Mullen's attempt to merge the "physical" and "virtual" terms contradicts the intrinsic evidence

By proposing "plain and ordinary meaning" for "physical" and "virtual," Mullen cloaks its attempt to broaden the terms so they bleed into each other. Mullen's approach should be rejected, and clear constructions adopted. Even when the specifications discuss virtual objects being derived from physical objects—the situation Mullen raised in meet-and-confer—they indicate that "physical objects … may be virtualized as virtual objects in the video game." ('448, 16:63-65, 17:34-39, 21:14-16, 19:33-34.) In other words, when game objects are derived from the real world, the resulting objects are "virtual," because they have been "virtualized" by the device to become part of the virtual world. (*Id.*) The resulting objects are not partly "physical" or partly "real world"—they are simply virtual or "not real world" objects that disappear when the user stops playing the game.

* * *

Accordingly, the Court should construe "physical" as "real world" and "virtual" as "not real world" to ensure the jury considers the true plain and ordinary meaning of these terms and is not misled by Mullen's attempts to broaden and confuse their scope.

B. "landscape characteristics"

Term	Meta construction	Mullen construction
"landscape characteristics" ('476 patent, claims 1, 4, 13; '448 patent, claim 1; '277 patent, claim 1; '559 patent, claim 1; '493 patent, claim 1)	"features or traits of outdoor surroundings"	"features or traits of a physical environment"

Meta's construction properly reflects the plain and ordinary meaning of the term "landscape" as used by the patents: outdoor surroundings. This same meaning is familiar from everyday life. For example, a landscape painting depicts outdoor scenery. Mullen's construction, on the other hand, would ignore the word the inventor chose in prosecuting the patents to impermissibly broaden the meaning of "landscape" to cover any "physical environment" including indoor settings inside an enclosed space, contradicting the ordinary meaning of the term "landscape" as used in the patents. Indeed, whenever the term appears in the claims, it is in the context: "landscape characteristics *of said physical playfield*." ('476, cl. 1, 13; '448, cl. 1; '277, cl. 1; '559, cl. 1; '493, cl. 1.) In essence, Mullen asks for the phrase "landscape characteristics of said physical playfield" to be rewritten as simply "~~landscape~~ characteristics of said physical playfield," reading out the term "landscape" entirely. Mullen's construction would therefore *delete* the term "landscape" from the claims, rendering it void or meaningless, which is improper. *Wasica Fin. GmbH v. Cont'l Auto. Sys.*, 853 F.3d 1272, 1288 n.10 (Fed. Cir. 2017) ("It is highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous."). Accordingly, the Court should adopt Meta's construction, which will resolve the parties' dispute and clarify the plain and ordinary meaning of "landscape characteristics" for the jury.[4] *O2 Micro*,

[4] The parties previously raised this dispute in briefing related to Meta's Rule 12(b)(6) motion, with the Court finding that claim construction would be required to resolve the dispute. (Dkt. 64 at 7.)

521 F.3d at 1361; *Eon Corp.*, 815 F.3d at 1319-20.

1. The intrinsic record dictates that "landscape characteristics" are outdoor features

The intrinsic evidence indicates that "landscape" means *outdoor* surroundings and distinguishes "landscape" specifically from "physical environment" more generally. For example, a "landscape detector" discussed by the specification detects "information on the physical terrain of the user's physical environment[.]" ('448, 4:18-21.)[5] In other words, a "landscape detector" does not detect just *any* features of a user's "physical environment"—but rather the "physical terrain," *i.e.*, outdoor features. ('448, 4:18-21; *see also id.*, 5:22-27 (discussing "the landscape of a pre-determined area (e.g., a particular square area of a military base[])"), 17:12-23 (discussing use of "environmental objects (e.g., houses, boulders, trees)" to align a virtual environment with the real-world "landscape"); Abstract (discussing a "user's physical environment" versus referencing a "landscape detector" to "obtain information about a user's landscape").)[6] Similarly, the specification discusses virtual indicia "standing on the landscape." ('448, 20:40-45.) If a "landscape" could be any enclosed space, virtual indicia would not be said to stand *on* it (rather than exist *in* it). Consistent with this discussion in the specification, the sole depiction of a "landscape detector"—item **451** in Figure 4, highlighted below—shows a device scanning *outdoor* objects such as a brick wall and a tree:

[5] Because the five patents reciting "landscape characteristics" share a common specification, references to the '448 patent apply equally to the other four patents ('277, '476, '493, and '559).
[6] The patents' Abstract reinforces the difference between "physical environment" and "landscape," contrary to the argument Mullen raised in the context of Meta's motion to dismiss. (Dkt. 24 at 8-9.)

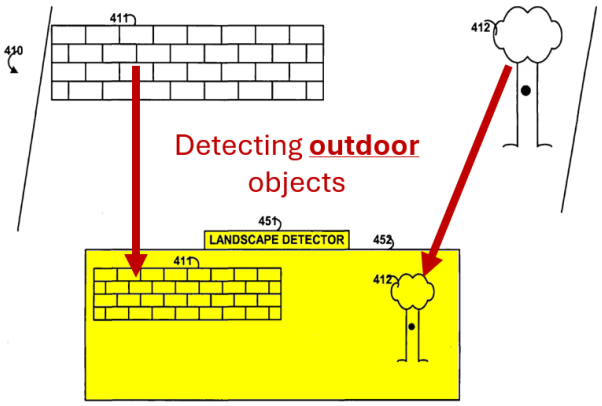

FIG. 4

('448, Fig. 4 (highlighting and colored annotations added), 14:66-15:7; *see also id.*, 17:12-23.)

2. Extrinsic evidence confirms that "landscape" refers to outdoor surroundings

While extrinsic evidence is unnecessary to consider here given the clear import of the intrinsic evidence, the extrinsic evidence introduced by *both parties* confirms that a "landscape" is an outdoor space, not *any* "physical environment" as Mullen asserts. *Starhome*, 743 F.3d at 856. For example, all definitions in the Oxford English Dictionary from around the patents' asserted priority dates support Meta's construction: "1 all the visible features of an area of land. 2 a picture of an area of countryside." (Ex. D at META_MULL_00024124.) Similarly, the Webster Comprehensive Dictionary Encyclopedic Edition from 2005 defines "landscape" as "1 A stretch of country as seen from a single point. 2 A picture representing natural scenery." (Ex. E at META_MULL_00024170.) All definitions on Dictionary.com reflect the same: "1 a section or expanse of rural scenery, usually extensive, that can be seen from a single point. … 2 a picture representing natural inland or coastal scenery. 3 *Fine Arts*. the category of aesthetic subject matter in which natural scenery is represented." (Ex. F at META_MULL_00024097.) Mullen's extrinsic evidence also confirms that "landscape" means outdoor surroundings. For example, Mullen produced excerpts from a 2003 Merriam-Webster's Collegiate Dictionary, which indicates that

"landscape" relates to "natural inland scenery." (Ex. G at MIND_10903.) Similarly, Mullen's other extrinsic evidence defines "landscape" as relating to "scenery," including that of a "desert landscape." (*See, e.g.*, The American Heritage Dictionary of the English Language, 4th Ed. (2000), Ex. H at MIND_010870; Microsoft Encarta College Dictionary (2001), Ex. I at MIND_010911.)

3. Mullen's attempt to improperly broaden its claims should be rejected

Mullen proposes that "landscape characteristics" can relate to *any* "physical environment"—indoor or outdoor. But there is no indication anywhere in the patent that the term "landscape" could be viewed more broadly to include indoor environments. There is *no* discussion in the specification of a "landscape detector" being used indoors. *Gemalto S.A. v. HTC Corp.*, 754 F.3d 1364, 1369 (Fed. Cir. 2014) ("[T]he claims cannot be of broader scope than the invention that is set forth in the specification." (citation omitted)). Indeed, even where the specification contemplates a landscape detector scanning manmade features like doors, this is in the context of recognizing the outside of a door "*to* the building"—*i.e.*, to determine whether enemies can move *out* of a building to attack a player. ('448, 16:9-23.) In the context of Meta's motion to dismiss, Mullen argued that the specification does not explicitly use the term "outdoors" (Dkt. 24 at 9). But the specification did not need to do so since it discusses outdoor examples whenever it refers to a "landscape." "Nothing in the intrinsic record requires a departure from this plain and ordinary meaning." *GE Lighting Sols. v. AgiLight*, 750 F.3d 1304, 1308-09 (Fed. Cir. 2014).[7]

Mullen selected the term "landscape characteristics" for its claims and cannot now turn around and argue for an overbroad construction that ignores what a landscape really is. *Chef Am. v. Lamb-Weston*, 358 F.3d 1371, 1374 (Fed. Cir. 2004) ("[W]e construe the claim as written, not

[7] Indeed, the specification can "only compel departure from the plain meaning in two instances: lexicography and disavowal"—and the "exacting" standards for such findings are not met here. *GE Lighting*, 750 F.3d at 1309.

as the patentees wish they had written it."); *Source Vagabond Sys. v. Hydrapak*, 753 F.3d 1291, 1299 (Fed. Cir. 2014) ("[A] claim construction analysis must begin and remain centered on the claim language itself, for that is the language the patentee has chosen to particularly point out and distinctly claim the subject matter which the patentee regards as his invention." (cleaned up)); *Wasica*, 853 F.3d at 1288 n.10.

Indeed, other patents not asserted in this case show that Mullen knew how to claim detection of characteristics of *any* physical environment, but expressly chose not to with its "landscape characteristics" claims. For example, Mullen's U.S. Patent No. 10,001,832 claims a "video camera operable to capture three-dimensional physical surroundings in the proximity of said head-mounted display." (Ex. J, claim 1.) Furthermore, the specifications of the asserted patents in the present case similarly show that Mullen knew how to refer to a "physical environment" generally and a "landscape" specifically, and Mullen chose to claim "landscape characteristics," not "physical environment characteristics." (*Compare* '448, 1:28-31 (discussing "physical environment" including either a "rock or chair"), *with id.*, 4:18-21 (discussing "landscape detector' for "physical terrain of the user's physical environment"); *see also id.*, Abstract (separately discussing "video game indicia … overlaid onto a user's physical environment" and "[a] landscape detector … that may obtain information about a user's landscape").) "[W]e must consider the word that the inventor actually chose" in the claims—*i.e.*, "landscape," *not* "physical environment." *Int'l Rectifier v. IXYS*, 361 F.3d 1363, 1374 (Fed. Cir. 2004); *id.* at 1372 (rejecting construction where patentee "could have claimed … more broadly but chose" not to); *Aptalis PharmaTech, v. Apotex*, 718 F. App'x 965, 970 (Fed. Cir. 2018) (construing claims as requiring a continuous coating when "the specification demonstrates the inventors' ability to describe a *non*-continuous coating when they so desired" (emphasis in original)).

* * *

Accordingly, the Court should construe "landscape characteristics" as "features or traits of outdoor surroundings" to tie the claims to the plain and ordinary meaning in the patents and to prevent Mullen from unduly broadening the scope of its claims.

V. THE REMAINING DISPUTED TERMS ARE INDEFINITE

Longstanding precedent requires that a "patent must describe the exact scope of an invention and its manufacture … to apprise the public of what is still open to them." *Markman v. Westview Instruments*, 517 U.S. 370, 373 (1996) (cleaned up); *see also United Carbon v. Binney & Smith*, 317 U.S. 228, 236 (1942) ("A zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims would discourage invention[.]"). Here, the "semi-visible environment" and "camera"-related terms are indefinite as to their full scope, because their scope is subjective and the patents fail to provide an objective boundary to the claims. Courts regularly find such claims, which fail to put the public on notice of what is infringing and what is not, full-scope indefinite. *See Interval Licensing v. AOL*, 766 F.3d 1364, 1373 (Fed. Cir. 2014) (affirming indefiniteness where "facially subjective claim language" was "without an objective boundary"); *Intell. Ventures I v. T-Mobile USA*, 902 F.3d 1372, 1381 (Fed. Cir. 2018) (affirming indefiniteness of "purely subjective" claims).

A. "semi-visible environment" is indefinite as to its full scope

Term	Meta construction	Mullen construction
"semi-visible environment" ('243 patent, claim 1)	Indefinite as to full scope	Plain and ordinary meaning

The full scope of the term "semi-visible environment" is indefinite. The scope of "semi-visible" is subjective and no objective boundaries are provided by the claim language, the

specification, or otherwise. For example, the patents fail to provide any objective boundary on what is sufficient for the environment to be "visible" or not "visible." Accordingly, the term is indefinite as to its full scope. *Intell. Ventures I*, 902 F.3d at 1381; *Interval Licensing*, 766 F.3d at 1373; *IBSA Institut Biochimique v. Teva Pharms. USA*, 966 F.3d 1374, 1381 (Fed. Cir. 2020) (affirming indefiniteness of "half-liquid"); *Berkheimer v. HP*, 881 F.3d 1360, 1363-64 (Fed. Cir. 2018) (affirming indefiniteness of the term "minimal redundancy").

The claims recite a "head-mounted device" that provides "a location based game in a semi-visible environment" in which "a user" can "simultaneously view at least a portion of a real-world environment around said user as well as virtual indicia" for the game. ('243, claim 1.) This claim language begs important questions of claim scope which neither the claims nor the specification answer. What "portion" of the environment must be visible for it to be "semi-visible"? Is 1% sufficient, or 0.01%? What about the fact that eyesight varies considerably between different users? (*See infra* § V.B.) What is "semi-visible" to one user may be *in*visible to another. And what if the user can see only a portion of the real-world environment at any given moment (for example, if part of the user's view is blocked by "virtual indicia"), but over time the user can see the entire environment by moving their head around—is that a "semi-visible environment" or not? Some example scenarios might fall within the claim scope—for example, a display half-filled with virtual objects persistently blocking a user of average vision from seeing the corresponding real-world objects "behind" them—but the full claim scope is a hazy "zone of uncertainty." *United Carbon*, 317 U.S. at 236.

The patent's specification only further muddies the waters, stating that in a "semi-visible environment game system … the user may be able to see all of, or part of, his/her physical environment." ('243, 2:61-3:4.) The specification similarly discusses "visible or semi-visible

environment displays such that a user can see the environment around him/her." (*Id*., 13:64-67.) In other words, the specification confusingly suggests that a "semi-visible environment" can be completely visible—the "user can see the environment," "all of" it. These descriptions only exacerbate the full-scope indefiniteness of the claim language. *See Infinity Comp. Prods. v. Oki Data Ams.*, 987 F.3d 1053, 1060 (Fed. Cir. 2021) ("[T]he intrinsic evidence leaves an ordinarily skilled artisan without reasonable certainty as to where the passive link ends and where the computer begins."); *Horizon Pharma v. Dr. Reddy's Lab'ys*, 839 F. App'x 500, 505 (Fed. Cir. 2021).

Beyond those confusing statements, "semi-visible" only appears a handful of times in the specification, without any discussion of the distribution of real and virtual imagery—let alone clear objective limits. ('243, 2:56-3:4, 13:64-14:3, 14:33-42.) *See Mantissa v. First Fin.*, No. 2022-1963, 2024 WL 607717, at *4 (Fed. Cir. Feb. 14, 2024) ("Given the breadth of transactions described, the dearth of details defining the contours of 'transaction partner' and the 'individual categories' creates a 'zone of uncertainty'" (quoting *Nautilus*, 572 U.S. at 909)); *Berkheimer*, 881 F.3d at 1364 ("The specification contains no point of comparison for skilled artisans to determine an objective boundary" for the claim language).

Accordingly, the Court should find "semi-visible environment" indefinite as to its full scope.

B. "a camera pointed in a field-of-vision of said wearer" / "a camera is pointed in a field-of-vision of said wearer" is indefinite as to its full scope

Term	Meta construction	Mullen construction
"a camera pointed in a field-of-vision of said wearer" / "camera is pointed in a field-of-vision of said wearer" ('716 patent, claims 1, 18)	Indefinite as to full scope	Plain and ordinary meaning

The claim language reciting a camera "pointed in a field-of-vision of said wearer" is indefinite because its full scope has no objective boundary. The indefiniteness as to full scope arises from two fundamental defects. *First*, "field-of-vision" is specific to the "wearer" of a device and varies significantly from person to person, leaving no objective boundary to the claim scope. *Second*, the '716 patent fails to provide any objective boundary to determine when a camera is "pointed in" a field of vision of a wearer. Due to these deficiencies, claims 1 and 18 are indefinite as to their full scope.

It is a basic fact of human anatomy and biology that field of vision varies substantially between individuals. For example, "[t]he normal field of vision varies according to the individual's bone structure," with "some noses interfer[ing] more with vision than others." (Pilot Medical Handbook (2009), Ex. K at META_MULL_00024121.) Field of vision "var[ies] considerably with respect to different individuals, and sometimes even with respect to the two eyes of the same individual." (A Dictionary of Science, Literature, & Art (1866), Ex. L at META_MULL_00024069.) A medical dictionary further explains that "[t]he field of vision varies for different colours [sic]." (Black's Medical Dictionary (1979), Ex. M at META_MULL_00024129-24130.) Accordingly, "field of vision" is a highly subjective concept without an objective boundary. *Cf. Ave. Innovations v. E. Mishan & Sons*, 310 F. Supp. 3d 457, 459 (S.D.N.Y. 2018) (finding "operative position most convenient to the user" to be indefinite),

aff'd, 829 F. App'x 529 (Fed. Cir. 2020).

This inherent subjectivity of "field-of-vision" is fatal to the '716 patent claims because the intrinsic evidence teaches that the claimed "field-of-vision" is that of a particular *user*, and nothing in the intrinsic evidence provides an objective boundary to overcome the inherent individual variation. The claim language itself recites that the camera is pointed in the field-of-vision of the "wearer" of the head-wearable device. ('716 patent, claims 1, 18.) Similarly, the '716 specification discusses a "user's field of vision." ('716, 14:61-64; *see also id.*, 14:64-67.) While the claim scope of "the field of vision of said wearer" could be determined for a given individual in a given scenario, the claim scope changes when the same device is worn by different people with different fields-of-vision. As the field-of-vision changes from user to user, so too does the field-of-vision in which the camera would be pointed. The '716 patent fails to account for such subjective variation and makes no attempt to provide an objective boundary. The Federal Circuit has repeatedly held that claims with inherently subjective scope like these are indefinite. *Interval Licensing*, 766 F.3d at 1373 (affirming indefiniteness where "facially subjective claim language" to display in "unobtrusive manner" was "without an objective boundary"); *Intell. Ventures I*, 902 F.3d at 1381 (affirming indefiniteness where "the end-user experience is the final arbiter" of scope).

Further confusing the scope of claims 1 and 18 is the requirement that a camera be "pointed in" a field-of-vision. The patent fails to provide any objective boundary for the scope of this language as well. For example, a camera might be considered "pointed in" a field-of-vision if there is *some overlap* between the camera view and the field-of-vision. Alternatively, a camera might be considered "pointed in" a field-of-vision if the *center point* of the camera view is in the field-of-vision. Other alternatives are possible as well—for example, majority overlap between

camera view and field-of-vision, or correspondence between the center points of the camera and field-of-vision. To be sure, some example scenarios may be understood to fall within the claim scope, such as a camera mounted on top of the user's head and pointing straight ahead when a user with average vision in both eyes is looking straight ahead. But the '716 patent fails to define the outer boundary of the full claim scope. The specification provides only a vague and cursory discussion that a camera may somehow provide video of "the environment in the user's field of vision," with no description of where or how the camera might be "pointed." ('716, 14:53-64; *see also id.*, 14:64-67 (discussing a camera "pointed *outside* a user's field of vision").)

Thus, in addition to the "field-of-vision" term rendering the claims indefinite as to their full scope, the lack of clarity in the "pointed in" language further renders the claims full-scope indefinite. *See Dow Chem. v. Nova Chems.*, 803 F.3d 620, 630 (Fed. Cir. 2015) ("[T]he patent and prosecution history must disclose a single known approach or establish that, where multiple known approaches exist, a person having ordinary skill in the art would know which approach to select." (citing *Teva Pharms. USA v. Sandoz*, 789 F.3d 1335, 1341, 1344-45 (Fed. Cir. 2015))); *Media Rights Techs. v. Capital One Fin.*, 800 F.3d 1366, 1371 (Fed. Cir. 2015) ("[A] claim is indefinite if its language might mean several different things and no informed and confident choice is available among the contending definitions" (quotation marks and citation omitted)); *Trusted Knight v. IBM*, 681 F. App'x 898, 904 (Fed. Cir. 2017) (affirming indefiniteness of claim language "subject to reasonable debate").

Without reasonable certainty as to the full scope of the "field-of-vision" or "pointed in" language, claims 1 and 18 of the '716 patent should be found indefinite as to their full scope.

VI. CONCLUSION

For the foregoing reasons, Meta's claim construction proposals should be adopted.

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CERTIFICATE OF SERVICE

Pursuant to the Federal Rules of Civil Procedure and Local Rule CV-5, I hereby certify that, on February 26, 2025, all counsel of record who have appeared in this case are being served with a copy of the foregoing via the Court's CM/ECF system.

/s/ Heidi Keefe
Heidi L. Keefe