

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VALVE CORPORATION,
Petitioner,

v.

IMMERSION CORPORATION,
Patent Owner.

Case IPR2024-00557
U.S. Patent 10,665,067

PATENT OWNER'S SUR-REPLY

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I. INTRODUCTION

Each challenged claim is patentable over Banerjee, Meglan, and Rogers.

II. CLAIM CONSTRUCTION

A. Limitation [1A]: “a proxy object comprising one or more haptic output devices”

Immersion's proposed construction of limitation [1A] as “a physical object that acts as a proxy for a virtual object and that itself contains inside a haptic output device, e.g., an actuator” clarifies the “proxy object” must itself “contain inside” a “haptic output device.” The Board should adopt Immersion's construction because it is supported by intrinsic evidence. POR, 10-14.

Valve argues that Immersion ignores an embodiment that uses “haptic tape” (EX1001, 4:23-38), and cites an unrelated patent (EX1039, 5:16-34) that allegedly shows “haptic tape” can adhere to an exterior. Reply, 4. But both the '067 Patent and this unrelated patent teach the opposite—i.e., that “haptic tape” is embedded in the *interior* of the device. The '067 Patent teaches that haptic tape is “integrated into a proxy object.” EX1001, 4:26-39. The unrelated patent also supports Immersion: “[t]he embedded actuator 308 is coupled to the display 306 ... by a layer of adhesive 312. When assembled, the *embedded actuator 308* in combination with the adhesive layer 312 forms a seal *between the touch-sensitive input device 304 and display 306*....Such an embodiment might be referred to as a ‘*haptic tape*.’” EX1039, 5:19-

29 (emphasis added). This is further supported by Fig. 3, which shows embedded actuator 308 integrated between touch-sensitive input device 304 and display 306:

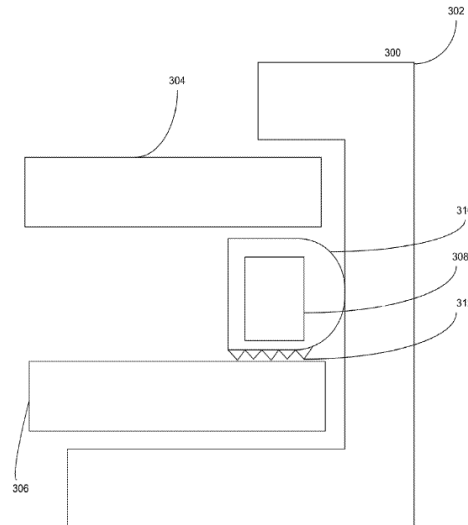


Figure 3

EX1039, Fig. 3. Thus, the '067 Patent's disclosure that "haptic tape" is "integrated into a proxy object" (EX1001, 4:31-39) is reinforced by EX1039 and supports Immersion's proposed construction.

Regarding the prosecution history, it is undisputed that applicants entered amendments clarifying the relationship between the proxy object and haptic output devices to distinguish art where the two structures were external and separate from each other. *See, e.g.*, EX1002, 287 (distinguishing Gonzalez because the proxy object with overlaid visual effects did not contain haptic output device, which was in separate glove without visual overlay). First, applicants claimed a proxy object

“mechanically coupled” to a haptic output device. EX2001, 124. Applicants changed it to “within” before deciding on “comprising.” EX2001, 280. In each case, however, the applicants distinguished the claimed arrangement from arrangements where the proxy object is external to a haptic output device. The cases cited by Valve hold that limitations that are not a part of a claim cannot be imported into it. Reply, 5. But that is inapposite because, as detailed below, the issued claim states that the proxy object comprises the haptic output device. *Infra* II.C.

B. Limitation [1D2]: “determine a haptic effect based in part on data received from the sensor”

1. “determine a haptic effect based in part on data received from the sensor”

Immersion’s proposed construction clarifies that limitation [1D2] means “determine a haptic effect based in part on position data of the proxy object received from the sensor that tracks a position of the proxy object.” Valve does not dispute that the data from “the sensor” must at least include data “for tracking a position of the proxy object.” Reply, 6 (acknowledging limitation [1C] requires sensor for tracking position of proxy object). Immersion’s construction should be adopted as it applies the term “sensor” consistently across the claim. *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001) (“a claim term should be construed consistently with its appearance in other places in the same claim.”).

The '067 Patent is generally directed towards, as the title suggests, systems and methods for integrating haptics overlay in augmented reality. Immersion, a pioneer in haptics, invented a haptic overlay to accompany a visual overlay, with both based on position. The claims reflect this teaching by determining not only “a modified visual effect” but also a “haptic effect” that is based on data received from a sensor that tracks the position of a proxy object. EX1001, 10:46-51.

Ignoring the plain language of claim 1, Valve argues that “the sensor” in limitation [1D2] can determine a haptic effect based on *any* type of data. But claim 1 is explicit at limitation [1C] that the claim requires “a sensor for tracking a position of the proxy object” not a sensor for tracking any kind of data. That same sensor is referenced in limitation [1D2], relying on [1C] for its antecedent basis. Crucially, “for tracking a position of the proxy object” is an adjectival modifier that modifies the noun “sensor,” limiting the relevant data that the sensor processes in claim 1. Courts have recognized in analogous situations that an adjectival modifier introduced in a claim to describe a structural element that limits the claim can be used in the interpretation of later relevant terms to properly assess their meaning. *Smith v. Honeywell Int'l, Inc.*, No. 2:14-CV-665, 2015 U.S. Dist. LEXIS 79503, at *59 (E.D. Tex. June 18, 2015) (construing “inputs to said wireless communication unit are operable for monitoring” as “signals provided to the wireless communication unit via a wired electrical connection that may be monitored”

because “electrical signal inputs” used “electrical signal” as adjectival modifier of “inputs” to explain structural inputs recited in claims). Moreover, construing the term to exclude a requirement that the sensor transmits positional data reads out this express requirement for position tracking, rendering the term superfluous and inconsistent across the claim. *Power Mosfet Techs., L.L.C. v. Siemens AG*, 378 F.3d 1396, 1410 (Fed. Cir. 2004) (claim construction which renders claim terms superfluous is disfavored).

Valve misstates the premise when it argues that “Immersion’s argument ... is premised on the implicit assertion that the only data the ‘sensor for tracking a position of the proxy object’ in limitation [1C] generates is positional data for the proxy object.” Reply, 6-7. The premise is not that the sensor can only generate positional data, but that limitation [1C] establishes that positional data must be generated by the sensor, and thus “the data received from the sensor” referenced at limitation [1D2] must include positional data. In other words, positional data is a baseline requirement for limitation [1D2] established by limitation [1C]; whether other data is also present is irrelevant. And that dependent claim 7 lists alternative sensor types simply means that the position sensor of claim 1 can also comprise sensors that transmit other types of data alongside positional data; claim 7 in no way deletes from claim 1 the requirement that the sensor of claim 1 must be “for tracking a position of the proxy object.” *Littelfuse, Inc. v. Mersen USA EP Corp.*, 29 F.4th

1376, 1380 (Fed. Cir. 2022) (“an independent claim is broader than a claim that depends from it”).

2. “position”

Valve contends that “position” is a non-technical term with a broad ordinary meaning that encompasses movement. Reply, 22. Yet claims must be read as understood by a POSITA at the time of the invention. *See Innova/Pure Water, Inc. v. Safari Water Filtration Sys.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004) (“A court construing a patent claim seeks to accord a claim the meaning it would have to a person of ordinary skill in the art at the time of the invention”). Here, a POSITA would read the plain meaning of “position” to be location in free space, e.g., by tracking its X-Y-Z coordinates. EX2007, ¶98. “Position” (X-Y-Z) is also distinct from orientation (rotation). EX2007, ¶98.

Immersion's expert explained that “movement” and “position” are two different things. EX2007, ¶98. Movement includes a change of either (1) position or (2) orientation; similar to how acceleration is a change in speed. Valve's expert does not dispute any of these distinctions between “position” (X-Y-Z), “orientation” (rotation), and “movement” as a change to (1) position or (2) orientation. Thus, Valve's overbroad reading of “position” to include *all* types of movement should be rejected, including changes to *orientation*. *Google LLC v. Lee*, 759 Fed. Appx. 992,

996-997 (Fed. Cir. 2019) (reversing Board's construction because it ignored un rebutted expert testimony).

In its Reply, Valve attempts to construe "position" at odds with its plain meaning, by—for example—conflating position and *all* movement. Reply, 20-25. But tracking position does not categorically involve tracking *all* types of movement—only movement with accompanying changes in position. Thus, the mere disclosure of "movement" does not disclose "position" because a genus ("movement") does not disclose a species ("position"). *Wasica Fin. GmbH v. Cont'l Auto. Sys.*, 853 F.3d 1272, 1285 (Fed. Cir. 2017) (recognizing that disclosure of genus in prior art is not disclosure of every species). Similarly, the mere disclosure of rotational movement does not disclose "position."

Valve mischaracterizes Immersion's contention to imply that tracking position does not include tracking movement at all. Reply, 22-23, 24. Not true. The plain meaning of "position" includes movement that involves a change in position. POR, 43-44 (contrasting location from orientation). Although changes in orientation are not excluded, the challenged claims expressly require "position." *Homeland Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372, 1375 (Fed. Cir. 2017) ("claim-construction ... begins and ends in all cases with the actual words of the claim."). That is, the '067 Patent teaches "position" as a precedent condition across all embodiments.

This reading is also consistent with intrinsic evidence. The specification discloses a sensor 108 used to track the position of a wearable peripheral device to provide haptics upon “contact” between the wearable device and an object, where the haptic effect corresponds to the object and its texture. EX1001, 6:38-45. Determining such “contact” or collision necessarily requires “position,” or a change in position of the device, i.e., the species of movement that falls within the claim scope. Unlike Rogers’ reload embodiment, the ’067 Patent does not disclose an embodiment where position is irrelevant. Thus, the plain reading of “position” does not exclude any embodiments, as Valve contends. Reply, 25.

C. The Plain and Ordinary Meaning of “Proxy Object”

If the Board rejects Immersion’s proposed construction of limitation [1A], it must give each term its plain meaning in light of its surrounding claim language. *Apple Inc. v. MPH Techs. Oy*, 28 F.4th 254 (Fed. Cir. 2022) (affirming Board’s application of plain meaning, approvingly noting Board’s consideration of surrounding claim language). Claim 1 states three criteria for a “proxy object.”

First, limitation [1D-3] recites “the modified visual effect *to be displayed on the proxy object*.” The proxy object must include a visual overlay.

Second, limitation [1C] recites “a sensor for *tracking the position of the proxy object*.” The proxy object must include a sensor that tracks its position.

Third, limitation [1A] recites “a proxy object ***comprising one or more haptic output devices***.” The proxy object must comprise—i.e., contain or otherwise include—a haptic output device. *Willis Elec. Co. v. Polygroup Macau Ltd. (BVI)*, 777 Fed. Appx. 495, 499 (Fed. Cir. 2019) (reading term “comprising” as synonymous with “containing” such that ordinary meaning of “contain” is “to have within”) (citations omitted). Valve accepts this premise: “limitation [1A] should be afforded its ***plain meaning***, e.g., a proxy object ***including*** or ***having*** one or more haptic output devices.” (Reply, 5) (emphasis added).

The Federal Circuit has affirmed the Board’s interpretation of similar claims. For example, in *Willis Elec.* the limitation read “the female end having a central void and a channel void.” 777 Fed. Appx at 497. The Board considered the surrounding claim language and found “channel void” required a “hollow aperture *disposed within* a portion of the female end.” *Id.* at 498 (emphasis in original). The Federal Circuit affirmed, noting the Board gave “full effect to the express claim language” because the surroundings limitations “indicate that the channel void is an element of the female end.” *Id.* at 498-99. Here, claim 1 indicates that the proxy object must include a haptic input device. Because a proper interpretation reflects not just the claim elements but also their arrangement, *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed. Cir. 2008) (requiring prior art to disclose limitations as they are “arranged as in the clam”), the plain meaning of “proxy object” requires the

proxy object to include a haptic output device. Moreover, a reference disclosing an alleged “proxy object” that does not meet the above criteria cannot anticipate. *Raytheon Co. v. Sony Corp.*, 727 Fed. Appx. 662, 672 (Fed. Cir. 2018) (“The signal ‘comprising’ does not render a claim anticipated by a device that contains less (rather th[a]n more) than what is claimed.”).

III. GROUND 1: BANERJEE DOES NOT ANTICIPATE OR RENDER THE CLAIMS OBVIOUS

It is undisputed that if the Board adopts Immersion's proposed construction of “a proxy object comprising one or more haptic output devices” then Banerjee does not anticipate or render the claims obvious. *Infra*, III.B. But Banerjee also does not anticipate or render the claims obvious under the plain meaning of “proxy object.”

A. Banerjee Does Not Disclose the Claimed “Proxy Object”

1. Valve fails to identify a “proxy object” that includes a “haptic output device.”

Despite conceding that the proxy object must include the haptic output device, (Reply, 5), Valve's argument hinges on rejecting this premise. Valve argues that stylus 27 has a visual overlay and has its position tracked. But to be a proxy object, stylus 27 would have to “comprise” a haptic output device. The Board correctly found, however, that stylus 27 alone does not. DI, 17. Unable to cure this deficiency, Valve identifies the *inverse* relationship: a haptic device 22 (i.e., the alleged haptic

output device) that includes stylus 27 (i.e., the alleged proxy object). Reply, 11. This does not meet the plain meaning of proxy object.

Valve argues that haptic device 22 and stylus 27 together form the proxy object. Although the Board preliminarily accepted Valve's argument, (DI, 16), it should reject it as inconsistent with the requirement that the proxy object include the haptic output device. This is set by the claim and cannot be inverted. Valve, however, concedes that Banerjee inverts it: "Banerjee's claim 1 explicitly recites 'a first haptic device comprising a hand-held stylus.'" Reply, 11. The Board does too: "haptic device 22 comprises haptic stylus 27." DI, 16. Banerjee's inverted structure does not anticipate because it is not arranged as in the claim. *Net MoneyIN, Inc.*, 545 F.3d at 1369 ("the prior art ...must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements arranged as in the claim.").

Valve may argue that "comprising" is open-ended and urge the Board to accept the inverted disclosure. The Board should not. "Comprising" is open-ended in the sense that it "does not exclude additional, unrecited elements." *MagSil Corp. v. Hitachi Global Storage Techs., Inc.*, 687 F.3d 1377, 1383 (Fed. Cir. 2012) (citation omitted). When used in a ***non-limiting preamble***, such as "[a] system comprising," it does not limit the claimed structure beyond requiring a "system." But here, "comprising" is used in a ***limitation*** to indicate that one component (proxy

object) comprises another component (haptic output device) dictating the relationship between the two. The Federal Circuit has found that A “comprising” B means A “includes” B and does *not* cover the inverse where B includes A. *Smith & Nephew, Inc. v. Arthrex, Inc.*, 453 Fed. Appx. 977, 980-81 (Fed. Cir. 2011) (ruling that plain meaning of “a graft connection element *comprising* a sling member” means “the graft connection element *includes* at least a sling member” and expressly does *not* include sling member comprising graft connection element) (emphasis added). In *Smith & Nephew*, defendants argued that this reversed relationship was a “distinction without a difference.” *Id.* at 980. The Federal Circuit rejected this argument, ruling that the “graft connection element” is a portion of the “sling member,” but the “graft connection element” does not include the entire “sling member.” *Id.* Because the claimed arrangement matters, Valve cannot show that haptic device 22 comprising stylus 27 is equivalent to the inverse.

2. Valve inconsistently interprets the term across the claim, or reads a limitation into claim 1.

Valve's reliance on two disparate components requires an implicit construction that is inconsistent across the limitations. *Google LLC v. Ecolfactor, Inc.*, 92 F.4th 1049, 1056 (Fed. Cir. 2024) (“We have found implicit claim constructions even when the Board does not recognize that it is construing a claim.) (cleaned up). That is improper. *Rexnord Corp.*, 274 F.3d at 1342 (“a claim term

should be construed consistently with its appearance in other places in the same claim.”).

In limitation [1A], Valve argues that “proxy object” can be met by the combination of haptic device 22 and stylus 27. But limitation [1C] also uses the term “proxy object,” and—because limitation [1C] requires a sensor for tracking the position of the proxy object—the Board would necessarily limit its interpretation of proxy object to stylus 27 to meet this element. That is because the position of haptic device 22 is not tracked by any sensor, as the Board recognized, and Valve does not dispute. Reply, 9 fn. 2.

Replacing Valve’s mapping inline into the claim limitations illustrates this inconsistency:

Claim Limitation	Valve’s Mapping
[1A] a proxy object comprising one or more haptic output devices	[1A] a [haptic device 22 + stylus 27] comprising [haptic device 22]
[1C] a sensor for tracking a position of the proxy object	[1C] a sensor for tracking a position of the [stylus 27]

Thus, this implicit construction is based on an inconsistent reading of the term as shown below:

Claim Limitation	Valve's Implicit Construction
[1A] a proxy object comprising one or more haptic output devices	[1A] a [whole] proxy object comprising one or more haptic output devices
[1C] a sensor for tracking a position of the proxy object	[1C] a sensor for tracking [part of] a position of the proxy object

The implicit construction necessary to make Valve's argument work either (1) inconsistently applies the term proxy object across limitations or (2) requires reading "part of" into limitation [1C] because the position of haptic device 22 is not tracked by any sensor in Banerjee. The first scenario violates the rule that terms must be consistently construed across the claim. *Rexnord Corp.*, 274 F.3d at 1342; *Net MoneyIN*, 545 F.3d at 1370. The second scenario violates the rule against reading limitations into the claim. *Am. Piledriving Equip., Inc. v. Geoquip, Inc.*, 637 F.3d 1324, 1331 (Fed. Cir. 2011).

B. It Is Undisputed that Banerjee Does Not Disclose "A Proxy Object Comprising One or More Haptic Output Devices" Under Immersion's Proposed Construction

If the Board accepts Immersion's proposed construction, Valve does not dispute that Banerjee fails to disclose a proxy object comprising one or more haptic output devices. Reply, 10-12.

IV. GROUND 2: MEGLAN DOES NOT ANTICIPATE OR RENDER THE CLAIMS OBVIOUS

A. Overview of Meglan

1. Meglan does not track the position of the surrogate “to determine a haptic effect.”

Although Valve argues that Immersion's argument is based on two “unfounded assertions,” its purported support for this only underscores Valve's own misrepresentations. The primary dispute concerns the surrogate at ¶90, because Valve relies on it for its central premise, i.e., its contention that Meglan teaches (1) tracking the position of the surrogate (2) “to determine a haptic effect.” Pet, 57-58; *see also* DI, 25; Reply, 12. But ¶90 makes no such disclosure. This is fatal to Valve's argument. *Infra*, IV.B.

The sole theory under which Valve argues the surrogate qualifies as the claimed “proxy object” requires the substrate for haptics. This hinges on Valve's discussion of ¶90. But the surrogate at ¶90 does not include the substrate nor does it include a haptic device inside the surrogate. ¶87 explains that the embodiment discussed at ¶90 includes pulse-feedback gloves: “[a]ccording to an embodiment of the invention, the trainee 100 wears *pulse-feedback gloves* 70.” EX1012, ¶87. The

source of haptics are the glove's pulse generators.¹ ¶90 explains the glove embodiment, and makes no disclosure that suggests Meglan tracks the position of the surrogate for determining haptics. EX1012, ¶90. Instead, ¶90 describes tracking the position of the “finger locations”—not of the surrogate nor the substrate—because it describes the glove embodiment. Further, it teaches combining the information from the load sensor and the finger locations “to reflect the strength of the trainee's pressing into the surrogate 20.” *Id.* ¶90 does not teach tracking the position of the surrogate for determining haptics.

Attempting to fill the evidentiary hole, Valve cites claims 1 and 13 of Meglan. Reply, 13. ***But neither claim 1 nor 13 recite haptics.*** Claim 1 recites determining location for “visual rendering.” It is concerned with making sure the “rendering is viewable along a line of sight toward the position of the visual rendering relative to the surrogate”—i.e., that the user's hand does not block the view of the surrogate.

¹ Valve only contends that the surrogate and/or substrate, either alone or in combination, constitutes the “proxy object”—notably excluding the glove embodiment from its Petition. As discussed below, however, even including the glove embodiment does not cure Meglan's deficiencies.

And dependent claim 13 references a “hand of the user” and not the glove embodiment or any other component that comprises haptics.

Valve's remaining citations discuss position tracking generally and do not teach determining a haptic effect based on that tracking. EX1012, ¶¶72-74. But because, as explained above, position tracking is also disclosed for visual effects purposes, the disclosure of position tracking does not mean it is done for haptics.

The foregoing disclosures—¶90, claims 1 and 13, and ¶¶72-74—are the sole bases upon which the Board concluded that “[t]he haptic effect is therefore based, at least in part, on the position of surrogate 20 as sensed from the camera feed, and whether the user's hands are in contact with that position.” DI, 25. None of these disclosures support that proposition. Meglan does not teach tracking the position of the surrogate for determining haptics; it discloses tracking the position of the surrogate for visual effects.

2. The substrate does not have visual overlays.

In an alternate embodiment, the substrate contains inside it a haptic output device. But the substrate does not have a visual overlay. Valve does not contend that the substrate alone has an overlay. Pet, 55-57 (citing ¶¶72-83, 94); Figs. 1, 2, 3, and 5.) Nor could it. The cited disclosure depicts the surrogate, not the substrate:

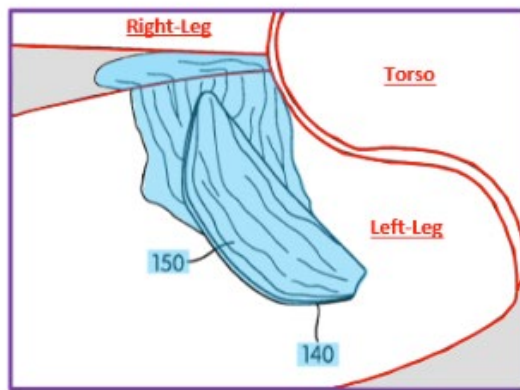


FIG. 2

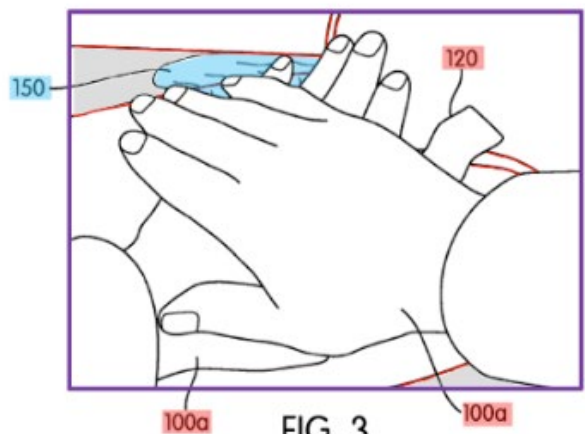


FIG. 3

Pet, 56.

In fact, Meglan discloses the opposite of an overlay: it teaches a clear “line of sight” in the substrate embodiment similar to claims 1 and 13 detailed above, where the substrate may be filtered out of the display, such that the substrate is *invisible*.² EX1012, ¶112. The substrate is not a proxy object.

² The phrase “may filter” in ¶112 refers to a possible approach to achieve a clear “line of sight” onto the surrogate, such as by rendering the substrate invisible. The alternative is that the substrate remains visible, not that the substrate has an overlay. There is no disclosure of displaying an overlay on the substrate, and Valve cites none. Instead, Meglan treats an overlay on either the user’s hands or the substrate as unwanted behavior to eliminate.

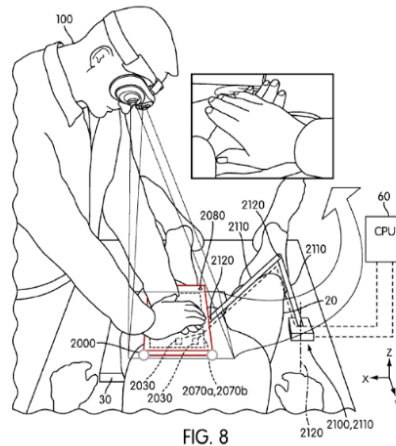
3. The surrogate does not comprise the substrate.

Although Meglan discloses an embodiment in which the surrogate and substrate are used, it does not determine haptics based on position tracking of the alleged combination because, as detailed above, only the position of the substrate is tracked to determine haptics. IV.A.1 and IV.A.2. Moreover, although Valve argues the surrogate and substrate can be combined to arrive at the claimed proxy object, this mischaracterizes Meglan. Nowhere does Meglan suggest that the surrogate includes the substrate. Meglan discloses that the substrate and the surrogate are separate physical structures even when used together:

The substrate 2000 mounts to the automated positioning device 2100, which in turn, either directly or indirectly, connects to the surrogate 20. For example, in the embodiment illustrated in FIG. 8, the device 210 *mounts to a table on which the surrogate 20 is placed* (e.g., gravity-based connection between the surrogate 20 and table). The device 2100 includes means for *selectively positioning* the substrate 2000 *relative to* the surrogate 20.

EX 1012, ¶108 (emphasis added). As discussed at II.C, the plain meaning of proxy object means that the surrogate (i.e., the alleged proxy object) would need to include the substrate (i.e., the alleged haptic output device). But the physically separate surrogate does not include the substrate merely because they “contact” each other as

Valve contends. Pet, 51. Fig. 8, as annotated by Valve, illustrates this separation, separately showing substrate 2000 and surrogate 20:



Pet, 49 (annotations by Valve). The surrogate does not comprise the substrate.

B. Meglan Does Not Disclose the Claimed “Proxy Object”

Valve fails to establish that Meglan discloses anything that satisfies the three necessary conditions of a proxy object. *Supra* II.C.

1. The surrogate is not a “proxy object.”

The surrogate is not a proxy object because it does not include a haptic output device. Valve argues that the surrogate comprises a haptic device only because it allegedly comprises the substrate. Pet, 51 (“surrogate 20 itself meets [1A] because POSAs understood that surrogate 20 comprises the connected substrate”). Thus, although Valve purports to argue that the surrogate alone is a proxy device, its argument combines the surrogate with the substrate. Valve thus concedes the surrogate alone is not a proxy object.

2. The substrate is not a “proxy object.”

The substrate is not a proxy object. Although Valve argues in its Petition that “surrogate 20 and haptic substrate 2000, by themselves or together as a unit” disclose a proxy object, (Pet, 48), Valve made no attempt to support its contention that the substrate alone can be a proxy object. One of the conditions of a proxy object is that a “modified visual effect” can be “displayed on the proxy object.” II.C. Although Valve cites ¶¶82-84 in support of its argument that the substrate “gets overlaid with the virtual wound in the output video,” (Pet, 53), neither these paragraphs nor any part of Meglan make any reference to a visual overlay on the substrate. Meglan teaches the opposite: it teaches *excluding* the substrate from the visual overlay to make it invisible to the user. *Supra* IV.A.2.

3. The surrogate and substrate together are not a “proxy object.”

The combination of the surrogate and the substrate is not a proxy object. As detailed above with respect to Banerjee, Valve's argument hinges on accepting that it is enough for *part of* the alleged proxy object to have its position tracked. *Supra* III.A.2. Valve repeats this error here. Although Meglan may track the position of surrogate for visual rendering, it does not do so for haptics (IV.A), nor does the surrogate contain a haptic output device. Only the substrate includes haptics. Valve's mapping illustrates this inconsistency:

Claim Limitation	Valve's Mapping
[1A] a proxy object comprising one or more haptic output devices	[1A] a [substrate + surrogate] comprising [substrate]
[1C] a sensor for tracking a position of the proxy object	[1C] a sensor for tracking a position of the [substrate]
[1D2] determine a haptic effect based in part on data received from the sensor [for tracking a position of the proxy object]	[1D2] determine a haptic effect based in part on data received from the sensor [for tracking a position of the substrate]

The implicit construction required to accept this mapping departs from the plain meaning and adopts a construction based on an inconsistent reading of the term as shown below:

Claim Limitation	Valve's Implicit Construction
[1A] a proxy object comprising one or more haptic output devices	[1A] a [whole] proxy object comprising one or more haptic output devices
[1C] a sensor for tracking a position of the proxy object	[1C] a sensor for tracking [part of] a position of the proxy object
[1D2] determine a haptic effect based in part on data received from the sensor [for tracking a position of the proxy object]	[1D2] determine a haptic effect based in part on data received from the sensor [for tracking [part of] a position of the proxy object]

Further, although Valve does not contend that the glove embodiment (IV.A.1) constitutes claim 1's proxy object, this would also fail. Like the substrate, there is no disclosure that the glove has a visual overlay. Further, the surrogate does not

contain or otherwise include the glove, as these are separate physical structures.

Thus, the surrogate cannot “comprise” the glove. II.C.

C. Meglan Does Not Disclose Limitation [1A] Under Immersion's Proposed Construction

The surrogate does not contain inside it a haptic output device, the substrate does not have a visual effect on it, and the surrogate does not contain inside the substrate. IV.A. Meglan does not disclose limitation [1A] under Immersions proposed construction.

V. GROUND 3: ROGERS DOES ANTICIPATE OR RENDER THE CLAIMS OBVIOUS

A. Overview of Rogers

Rogers discloses a “directional interface object” that has a “pointing direction.” EX1010, ¶105. The way this “pointing direction” is tracked differs across the embodiments. The mere disclosure of tracking “pointing direction” does *not* disclose tracking position. “Position” is irrelevant in the reloading embodiment—only orientation is required. But Valve conflates: (1) a shooting/aiming embodiment, which requires position (X-Y-Z) and orientation (rotation), but does not produce a haptic effect; and a (2) reloading embodiment, which produces a haptic effect but does *not* require position (X-Y-Z), and instead only requires orientation (rotation). As discussed in II.B.2, these differences establish why Rogers does not anticipate.

Valve cites ¶106 to argue that the position tracking data is used for the weapon reload case. Reply, 20. This disclosure, however, expressly refers to the shooting/aiming embodiment—with no mention of reloading—further demonstrating that Valve conflates these embodiments: “The directional interface object 104 is utilized to *aim* a weapon in the VR environment and *shoot* at objects such as the threatening bear shown in the view 900.” EX1010, ¶106 (emphasis added). Second, this disclosure explains that shooting/aiming requires both a combination of data from the separate visual tracking (X-Y-Z position) and inertial sensors (rotation). That is, for shooting/aiming, both position and orientation matter because the user is specifically selecting a target. Position establishes the origin, and orientation establishes the pointing direction. The combination of the two enables specifically aiming or shooting a target. This embodiment *produces no haptic effects*.

In contrast, reloading does *not* depend on position (X-Y-Z) and instead merely requires detecting tilting the directional interface object upward (rotation). EX1010, ¶105 (“pointing the directional interface object 104 upward”). The user can reload anywhere and is not pointing at anything in particular—just “upward.” Moving the directional interface object in any X-Y-Z position, ad infinitum, will never orient the device upwards. “Position” is *irrelevant*. Thus, the mere disclosure of determining “pointing direction” does not teach determining a *position*, as required by the claims.

Rogers further describes the distinction between position versus orientation tracking by disclosing the following: “In various implementations, the directional interface object 104 includes a *light which can be tracked*, and/or *inertial sensor(s)*, to determine its *location* and *orientation*.” EX1010, ¶44. The location (X-Y-Z) can be tracked by tracking an attached light, and the inertial sensor determines the orientation (rotation), such as whether the directional interface object is pointing “upward.” Immersion’s expert explained that a POSITA would understand this to mean that the reload embodiment uses the inertial sensor to track rotational movement and not position (X-Y-Z), as the user merely tilts the gun “upward” and the position is irrelevant *See* EX2007, ¶99.

B. Rogers Does Not Disclose “Determine a Haptic Effect Based in Part on Data Received from the Sensor”

Immersion’s proposed construction clarifies that limitation [1D2] means “determine a haptic effect based in part on position data of the proxy object received from the sensor that tracks a position of the proxy object.” Further, the plain meaning of “position” requires tracking X-Y-Z location. As explained above, Rogers does not disclose tracking position (X-Y-Z) for the reload embodiment. Thus, Rogers does not “determine a haptic effect based in part on data received from the sensor.”

Given Rogers’ disclosure, a POSITA would understand that the reload embodiment uses the inertial sensor to track rotational movement and not position,

as the user merely tilts the gun “upward” and the position is irrelevant. EX2007, ¶99. Valve’s expert does not dispute this and, therefore, Valve’s argument should be rejected. *Google LLC*, 759 Fed. Appx. at 996-997. At best, Rogers discloses tracking “movement,” which is a genus that includes two species, tracking changes in position **and** orientation (rotation). A genus (movement) cannot anticipate a species (position). “It is well established that disclosure of a genus in the prior art is not necessarily a disclosure of every species that is a member of that genus.” *Wasica Fin. GmbH v. Cont’l Auto. Sys.*, 853 F.3d 1272, 1285 (Fed. Cir. 2017); *see also Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004) (“A prior art reference that discloses a genus still does not inherently disclose all species within that broad category.”).

Valve further cites to Rogers’ claim 17 as support for Rogers disclosing the for “determining a position” limitation. Reply, 23. Rogers’ claim 17, however, makes no mention of ***haptics***. Instead, it determines a position for ***visual*** purposes: “to determine a position of a virtual object ***that is rendered*** in the view of the virtual environment.”

Lastly, Valve cites ¶47 as purportedly confirming the camera’s role in determining when to generate haptics. Reply, 21. This disclosure, however, does not state that the ***camera*** is used to determine the ***location*** of the directional interface object for the ***reload*** embodiment, which is required for Rogers to anticipate. *Net*

MoneyIN, Inc., 545 F.3d at 1369. Rather, this paragraph generically states that multiple inputs result in multiple outputs.

Accordingly, Rogers does not disclose “determine a haptic effect based in part on data received from the sensor” as required by the claims.

Respectfully Submitted,

Dated: March 18, 2025

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(Case No. IPR2024-00557)

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CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

Under the provisions of 37 C.F.R. § 42.24(d), the undersigned hereby certifies that the word count for all portions of the foregoing Patent Owner's Response totals 5,594 words per Microsoft Word, which complies with the requirement of 5,600 words allowed under 37 C.F.R. § 42.24(c)(4).

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As authorized by Patent Owner's Mandatory Notice, I hereby certify that on March 18, 2025, a copy of this document has been served in its entirety by electronic mail on Petitioner's lead and backup counsel.

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