

Paper No. \_\_\_\_

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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VALVE CORPORATION.  
Petitioner,

v.

IMMERSION CORPORATION  
Patent Owner.

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Case No. 2024-00477  
Patent No. 7,336,260

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**PETITIONER'S REPLY TO PATENT OWNER RESPONSE**

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| Exhibit | Description                                                                                                                                      |
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| 1001    | U.S. Patent No. 7,336,260                                                                                                                        |
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| 1003    | Declaration of Jean Renard Ward                                                                                                                  |
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| 1005    | U.S. Patent Application Publication No. 2001/0008849 (“Komata”)                                                                                  |
| 1006    | U.S. Patent No. 6,597,347 (“Yasutake”)                                                                                                           |
| 1007    | Japanese Unexamined Patent Application Publication No. 11-212725 (“Tsuji”) and Certified Translation of same                                     |
| 1008    | WO 99/66997 (“Rosenberg”)                                                                                                                        |
| 1009    | U.S. Patent No. 5,977,867                                                                                                                        |
| 1010    | <i>Apple Inc. v. Immersion Corp.</i> , IPR2016-01884, Paper 11 (Apr. 3, 2017) (Institution Decision)                                             |
| 1011    | <i>Apple Inc. v. Immersion Corp.</i> , IPR2016-01884, Paper 11 (Jan. 4, 2017) (Patent Owner Preliminary Response)                                |
| 1012    | <i>Apple Inc. v. Immersion Corp.</i> , IPR2016-01884, Paper 11 (July. 3, 2017) (Patent Owner Response)                                           |
| 1013    | <i>Apple Inc. v. Immersion Corp.</i> , IPR2017-01369, Paper 7 (Nov. 21, 2017) (Institution Decision)                                             |
| 1014    | Complaint, <i>Immersion Corp. v. Apple Inc., et al.</i> , 1:16-cv-00325-RGA, Doc. 1 (D. Del.)                                                    |
| 1015    | Plaintiff’s Preliminary Infringement Contentions in <i>Immersion Corp. v. Valve Corp.</i> , 2:23-cv-00712-TL (W.D. Wash.) (served Oct. 20, 2023) |
| 1016    | Exhibit A to Plaintiff’s Preliminary Infringement Contentions in <i>Immersion Corp. v. Valve Corp.</i> , 2:23-cv-00712-TL (W.D. Wash.)           |
| 1017    | <i>Apple Inc. v. Immersion Corp.</i> , IPR2017-01369, Paper 39 (Mar 22. 2018) (Termination Decision)                                             |
| 1018    | <i>In re Certain Mobile and Portable Electronic Devices Incorporating Haptics</i> , Inv. No. 337-TA-990, 1004, Order No. 42 (ITC Feb. 2, 2017)   |

| <b>Exhibit</b> | <b>Description</b>                                                                                                                                             |
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| 1019           | Federal Court Management Statistics (September 2023)                                                                                                           |
| 1020           | U.S. Patent Application Publication No. 2001/0009036                                                                                                           |
| 1021           | <i>Immersion Corp. v. Valve Corp.</i> , 2:23-cv-00712-TL, Dkt. No. 46 (W.D. Wash. Nov. 11, 2023)                                                               |
| 1022           | Negroponte, “HUNCH An Experiment in Sketch Recognition” in UCLA, Environmental Design: Research and Practice, Proceedings of the EDRA 3/ar 8 Conference (1972) |
| 1023           | Foley, Fundamentals of Interactive Computer Graphics (1982) (excerpts)                                                                                         |
| 1024           | Buxton, “There’s More to Interaction than Meets the Eye” in Norman, ed., User Centered Systems Design (1986)                                                   |
| 1025           | Rosch, “Alterative Input-Digitizing Tablets-Pointing the Way to Easier Input,” PC Magazine, p. 227 (Nov. 28, 1989)                                             |
| 1026           | U.S. Patent No. 5,491,495                                                                                                                                      |
| 1027           | Buxton, “Issues and Techniques in Touch-Sensitive Tablet Input,” SIGGRAPH ‘85, 19:3, 215 (1985)                                                                |
| 1028           | U.S. Patent No. 4,202,041                                                                                                                                      |
| 1029           | U.S. Patent No. 494,562                                                                                                                                        |
| 1030           | Davis, “The RAND Tablet: A Man-Machine Graphical Communication Device” in Proceedings-Fall Joint Computer Conference (1964)                                    |
| 1031           | U.S. Patent No. 3,482,241                                                                                                                                      |
| 1032           | U.S. Patent No. 5,708,460                                                                                                                                      |
| 1033           | U.S. Patent No. 6,492,979                                                                                                                                      |
| 1034           | U.S. Patent No. 5,510,813                                                                                                                                      |
| 1035           | Buxton, “Touch Gesture and Marking,” ch. 7 in Baecker, ed., Readings in Human-Computer Interaction (1995)                                                      |
| 1036           | U.S. Patent No. 6,160,489                                                                                                                                      |
| 1037           | Strong, “An Electrotactile Display,” IEEE, Trans. On Man-Machine Sys., mms-11:1 (Mar. 1970)                                                                    |

| <b>Exhibit</b> | <b>Description</b>                                                                                                      |
|----------------|-------------------------------------------------------------------------------------------------------------------------|
| 1038           | Massie, “Initial Haptic Explorations with the Phantom: Virtual Touch Through Point Interaction” MIT Thesis (1996)       |
| 1039           | Bliss, “Optical-to-Tactile Image Conversion for the Blind,” IEEE, Trans. On Man-Machine Sys., mms-11:1 (Mar. 1970)      |
| 1040           | European Patent Publication No. EP0265011A1                                                                             |
| 1041           | U.S. Patent No. 5,388,992                                                                                               |
| 1042           | IBM, “Mouse Ball-Actuating Device with Force and Tactile Feedback,” IBM Technical Disclosure Bulletin 32:9B (Feb. 1990) |
| 1043           | Fukumoto, “Active Click Tactile Feedback for Touch Panels,” CHI 2001 Interactive Posters (2001)                         |
| 1044           | PCT Publication No. WO9200559A1                                                                                         |
| 1045           | Massie, “The Phantom Haptic Interface—A Device for Probing Virtual Objects” in ASME, Dynamic Systems and Control (1994) |
| 1046           | U.S. Patent No. 5,982,352                                                                                               |
| 1047           | U.S. Patent No. 6,131,097                                                                                               |
| 1048           | U.S. Patent No. 6,337,678                                                                                               |
| 1049           | U.S. Patent No. 6,219,034                                                                                               |
| 1050           | U.S. Patent No. 6,219,032                                                                                               |
| 1051           | U.S. Patent No. 4,885,565                                                                                               |
| 1052           | U.S. Patent No. 6,424,333                                                                                               |
| 1053           | U.S. Patent No. 5,995,026                                                                                               |
| 1054           | U.S. Patent No. 5,235,868                                                                                               |
| 1055           | U.S. Patent No. 6,005,551                                                                                               |
| 1056           | Minsky, “Computational Haptics” MIT Thesis (1995)                                                                       |
| 1057           | U.S. Patent No. 2,272,070                                                                                               |
| 1058           | <i>Immersion Corp. v. Valve Corp.</i> , 2:23-cv-00712, Proof of Service (5/18/2023)                                     |

| <b>Exhibit</b> | <b>Description</b>                                                             |
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| 1059           | Declaration of Nathan R. Speed in Support of Motion for Admission Pro Hac Vice |
| 1060           | The American Heritage Dictionary (2001)                                        |
| 1061           | Encarta World English Dictionary (1999)                                        |
| 1062           | Random House Webster's Unabridged Dictionary (2001)                            |

## I. INTRODUCTION<sup>1</sup>

The Petition’s prior art anticipates the challenged claims when those claims are given their plain meaning. Recognizing this, Immersion asks the Board to engraft narrow limitations onto the claims that would purportedly distinguish the claims from the art. Immersion’s proposed constructions, however, find no support in the intrinsic evidence and are contrary to Federal Circuit precedent. As it did at institution, the Board should reject Immersion’s constructions.

Once Immersion’s constructions are rejected, the Board should then find the challenged claims unpatentable. For Ground 1 (Komata) and Ground 2 (Tsuji), Immersion does not contest the Petition’s anticipation showing if Immersion’s “ordered-steps” construction is rejected. Regardless, both grounds render the claims unpatentable even under Immersion’s narrow construction.

As for Ground 3 (Rosenberg), Immersion principally relies on its construction for the term “*tactile sensation*,” a construction the Board should reject as it impermissibly limits “*tactile sensation*” to a particular form of tactile sensation. Immersion offers one additional argument regarding Rosenberg’s disclosure that is not dependent on claim construction. That argument, however, is irrelevant as it relates to an alleged teaching in Rosenberg that the Petition did not rely upon.

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<sup>1</sup> Emphasis added; claim language italicized.

## II. CLAIM INTERPRETATION

### A. Ordered Steps

As it did in the prior Apple IPR and in its preliminary response in this proceeding, Immersion argues the claims should be construed to require that the processor detect the claimed “*first*”/“*second*”/“*third*” pressures *in order*. Paper No. 17 (“POR”), 20-31; Paper No. 7, 26-31; EX1011, 8-14. As the Board has explained, such a narrow construction is inconsistent with the intrinsic evidence and Federal Circuit precedent. EX1010, 20-24; Paper No. 12 (“DI”), 26-29. The Board should again reject Immersion’s construction.

Claim 1 recites a computer-readable medium with instructions causing a processor to:

- [1.a] detect a first pressure on a first input device;
- [1.b] provide a first tactile sensation to the first input device, the first tactile sensation based at least in part on the first pressure;
- [1.c] detect a second pressure on the first input device, the second pressure greater than the first pressure; and
- [1.d] provide a second tactile sensation to the first input device, the second tactile sensation based at least in part on the second pressure;
- [1.e] detect a third pressure on the first input device, the third pressure greater than the second pressure; and
- [1.f] provide a third tactile sensation to the first input device.

As the Board explained at institution, the claim recites “relative magnitudes of the first, second, and third pressures,” *i.e.* the magnitude of the second pressure is greater than the first, etc. DI, 27. Those relative magnitudes, however, “do not define any temporal relationship regarding the detection of the pressures.” *Id.* That is, so long as the relative magnitude is met, the claim is agnostic as to when or in what order that magnitude was detected. *Id.*, 29. As discussed below, this understanding of the claim is consistent with the intrinsic evidence and Federal Circuit precedent.

**1. Logic does not require detecting the pressures in order.**

Immersion argues “logic” compels a different reading of the claim, and seizes on the Board’s explanation that the claim sets forth a logical order for *some* steps. POR, 21-22.<sup>2</sup> Specifically, the Board found that limitation [1b]’s language “*provide a first tactile sensation...the first tactile sensation based at least in part on the first pressure*” logically requires “*the first pressure*” be detected before “*the first tactile*

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<sup>2</sup> To support its construction, Immersion cites paragraphs from its expert’s declaration that merely parrot conclusory assertions in Immersion’s brief. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 12 at 5 (Feb. 10, 2023). Regardless, “expert testimony may not be used to diverge significantly from the intrinsic record.” *Genuine Enabling Tech. v. Nintendo Co.*, 29 F.4th 1365, 1373 (Fed. Cir. 2022).

*sensation*” can be provided. DI, 27.<sup>3</sup> In other words, limitation [1a] must occur before [1b] can occur.

But that reading of the claim is compelled by the claim language which requires that “*the first tactile sensation [be] based at least in part on the first pressure.*” Limitation [1b]’s step of providing “*the first tactile sensation*” to an input device logically cannot be “*based...on*” a pressure that has not yet been detected.

There is no similar language requiring that detection of the claimed “*first*”/“*second*”/“*third*” pressures be “*based...on*” each other. As written, the claim only requires that the “*first*”/“*second*”/“*third*” pressures be greater or less than each other, *e.g.*, “*the second pressure greater than the first pressure.*” In other words, the claims set forth a ***quantitative relationship*** for the pressures (*i.e.*, the magnitude of one pressure is greater than another, etc.), not a temporal relationship. DI, 27.

Because the claim recites a quantitative relationship, the three pressures can be detected in any order so long as the claimed quantitative relationship is satisfied. EX1003, ¶¶110-111; DI, 29. For example, the claim is met by a computer-readable medium having instructions for a processor to detect three pressures of ***predefined*** magnitudes, *e.g.*, the “*first*” pressure is predefined as 1 pound per square inch

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<sup>3</sup> This reasoning also applies to limitations [1c] and [1e] which recite “*provid[ing]*” tactile sensations based on the “*second*”/“*third*” pressures, respectively. POR, 21.

(“PSI”), the “*second*” pressure is predefined as 2 PSI, and the “*third*” pressure is predefined as 3 PSI. Such a computer-readable medium satisfies claim 1 regardless of whether the processor executing the instructions detects the pressures in progressively increasing order, decreasing order, or even out of order, *e.g.*, a pressure of 3 PSI can be detected first, and then a pressure of 1 PSI can be detected later.

## **2. Grammar does not require detecting the pressures in order.**

Immersion next says “grammar” and the Federal Circuit’s antecedent-basis caselaw compels reading the claim to require that the pressures be detected in progressively increasing order. POR, 22-28. Neither grammar nor law supports Immersion’s argument.

Immersion first recasts its above-discussed “logic” argument as a “grammar” (or antecedent-basis) argument by highlighting the use of the words “a” and “the” in limitation [1b]’s language “*provide a first tactile sensation...the first tactile sensation based at least in part on the first pressure.*” POR, 22-25. As explained above, logic and grammar—as the Board correctly found—do require that the “*first pressure*” of limitation [1a] be detected before “*the first tactile sensation*” that is “*based...on*” that “*first pressure*” can be provided. But, again, this says nothing about whether the separate “*detect*” steps need to be performed in order.

Building off of its grammar/antecedent-basis argument for limitations [1a] and [1b], Immersion notes that limitation [1c] also refers to “*the first pressure,*” *i.e.*,

*“detect a second pressure..., the second pressure greater than **the** first pressure.”*

Immersion argues that the reference to “**the** first pressure” in limitation [1c] requires that limitation [1a]’s “a first pressure” be detected **before** “a second pressure” that is “greater than the first pressure” can be detected. POR, 25-28. Again, grammar does not compel imposing such a temporal order on the claims.

Limitation [1c] contains an appositive phrase (“*the second pressure greater than the first pressure*”) that merely **quantifies** its antecedent “*the second pressure*,” *i.e.*, the second pressure needs to be greater than the first pressure. The appositive phrase, however, says nothing about any **sequence** for detecting pressures in limitations [1a] and [1c].

As a matter of grammar, there is nothing in the claim’s language that precludes the pressures from being, for example, predefined values which can be detected in any order. *3M Innovative Props. Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003) (explaining the terms “first” and “second” do not themselves “impose a serial or temporal limitation”). For example, the claim lacks any sequencing language such as “**then** detect a second pressure” or “detect a second pressure greater than the **detected** first pressure.” If the inventors wanted to impose an order of operations on claim 1, they could have done so but they did not.

### **3. The specification supports the Board’s construction.**

The Federal Circuit has explained that where, as here, claims do not require “as a matter of logic or grammar” that steps be performed in order, then imposing such an order on the claims is only proper if the specification “directly or implicitly requires such a narrow construction.” *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369-70 (Fed. Cir. 2003) (quotation omitted). There is no such requirement in the specification.

As the Board explained, the specification discloses “a scenario in which different pressures on an input device are detected separately or independently of one another.” DI, 29 (citing EX1001, 14:43-15:15, FIG. 9 and Pet., 10-12). In this scenario, a controller conducts serial “monitoring passes” and detects pressures during each pass. EX1001, 14:43-15:15. As the Board explained, the specification describes an example in which the controller detects “Pressure 1” in a first pass and “Pressure 3” in a second pass, and therefore the specification (just like the claim language) “encompasses the possibility of detecting Pressures 1 and 3 independently of one another and not in any particular order.” DI, 29; *see also* EX1003, ¶¶113-114.

Immersion has no genuine response to the Board’s reading of the specification. In fact, Immersion concedes the cited embodiment “describes a truth table” where pressures are serially detected without regard to one another. POR, 29-

30. Immersion’s only response is the bootstrapping argument that the claim’s plain language recites “a specific, progressive relationship in pressure intensity among the specific detected pressures” and therefore the cited embodiment “does not embody claim 1.” *Id.*

As discussed above, however, there is nothing in the claim language that as a matter of grammar or logic requires the pressures to be detected in progressive order. As written, the claim encompasses a “truth table” scenario like the one shown in the patent’s Figure 9 wherein the various identified pressures could be, for example, of *predefined* magnitudes and thus detected whenever the predefined magnitude is detected and without regard to the order of such detection(s).

Immersion argues the Board’s focus on Figure 9’s “truth table” embodiment “improperly imports *limitations* from a particular embodiment.” POR, 30. The Board did no such thing. The Board cited the Figure 9 embodiment as intrinsic evidence to support a *broad* reading of claim 1 that covers not only Figure 9’s “truth table” embodiment but other embodiments (that Immersion cites) where pressures are detected in order.

The Board’s reliance on Figure 9 to construe the claims is fully consistent with Federal Circuit precedent. *Google LLC v. EcoFactor, Inc.*, 92 F.4th 1049, 1058 (Fed. Cir. 2024) (“We normally do not interpret claim terms in a way that excludes embodiments disclosed in the specification.”) (quotation omitted). In contrast,

Immersion’s insistence that the claims should be limited to “specific” embodiments “where a user[] progressive[ly] press[es]” a button (POR, 29) violates black letter law. *Altiris*, 318 F.3d at 1370 (“Nor are claims ordinarily limited in scope to the preferred embodiment.”).

Finally, Immersion cites two cases for the proposition that claims need not cover all disclosed embodiments. POR, 28-29. The first case involved a term that the claims explicitly used in a manner that excluded certain embodiments. *Intamin Ltd. v. Magnetar Techs., Corp.*, 483 F.3d 1328, 1336-37 (Fed. Cir. 2007). There is nothing in claim 1 that excludes the specification’s Figure 9 embodiment. The second case is inapplicable as it addressed the broadest-reasonable interpretation standard. *PPC Broadband, Inc. v. Corning Optical Comm’ns RF, LLC*, 815 F.3d 747, 754-55 (Fed. Cir. 2016).

**4. Immersion’s antecedent basis cases do not support its ordered steps argument.**

As part of its grammar/antecedent-basis argument discussed *supra* pp. 5-6, Immersion cites several Federal Circuit cases. POR, 22-25. At a high-level, those cases merely explain the Federal Circuit’s well-established antecedent-basis caselaw. Beyond that, however, the cases shed little guidance on the claim-construction dispute *in this case* because the claims and intrinsic evidence in those past cases are profoundly different.

For example, in *Wi-LAN v. Apple*, 811 F.3d 455, 460 (Fed. Cir. 2016), the claim recited a transceiver comprising “computing means” that must “produce modulated data symbols” and “means” to “combine *the* modulated data symbols for transmission.” As a matter of grammar and logic, the claim required that “*the* modulated data symbols” be produced before they could be “combined...for transmission.” *Id.* at 462. The Court also found that interpretation “consistent with the specification” because “[e]very embodiment” required that order of operations. *Id.* Here, neither the claim language nor the specification compels Immersion’s ordered-step requirement.

The *Medtronic, Inc. v. Teleflex Life Scis.* decision likewise fails to support Immersion. *Medtronic* first confirms that “[a]s a general rule, unless the steps of a method claim actually recite an order, *the steps are not ordinarily construed to require one.*” 2024 U.S. App. LEXIS 6703, \*8 (Fed. Cir. 2024). *Medtronic* then found the particular language in that case required an order because the claims recited “inserting” an interventional-cardiology device [ICD] “alongside of *the* substantially rigid portion,” and the Court read this to mean logically that “*the*” substantially rigid portion must be inserted before the ICD can be inserted “alongside” it. *Id.* at \*9-10. The Court further found support for its interpretation in the specification which “touts” advantages to performing the method in the recited order. *Id.* at \*10-11.

*Hytera Comms. v. Motorola Sols.*, 841 F. App’x 210, 218 (Fed. Cir. 2021) is distinguishable as “each step of the method,” in that case, “provides an antecedent basis for the steps that follow.” Moreover, unlike here, the specification’s only embodiments were ones “consistent with the plain meaning of the claim in the order that is written.” *Id.* at 219.

*Tuna Processors v. Hawaii Int’l Seafood*, 327 F. App’x 204, 209-210 (Fed. Cir. 2009) is likewise distinguishable as its claim language included several “past participle[s]” that made explicit the fact that smoke needed to be produced, and then cooled before it could be used to cure fish. Such an interpretation was also consistent with the “Summary of the Invention.” *Id.*<sup>4</sup>

Immersion’s cited cases confirm that when claims as a matter of grammar and logic (and consistent with the specification) require recited steps be performed in order, then it can be proper to construe the claims as requiring that order. But claim 1 lacks any such limiting language with respect to the “*detect*” steps. Both grammar and logic permit the “*first*”/“*second*”/“*third*” pressures to be detected in any order. That the specification’s Figure 9 embodiment is consistent with this interpretation reinforces that Immersion’s ordered-step interpretation is wrong.

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<sup>4</sup> Immersion also cites *Haemonetics Corp. v. Baxter Healthcare*, 607 F.3d 776, 781-82 (Fed. Cir. 2010), but it does not even involve an ordered sequence of claim steps.

## B. “Tactile Sensation”

Immersion argues “*tactile sensation*” should be construed as limited to a particular type of tactile sensation, namely a “*vibrotactile sensation*.” POR, 19, 31-34.<sup>5</sup> Nothing in the intrinsic record support this narrow construction. The Board should instead—as it did at institution—afford the term its ordinary meaning, *i.e.*, a sensation perceptible by touch. *Luminara Worldwide LLC v. Liown Elecs. Co. Ltd.*, 814 F.3d 1343, 1353 (Fed. Cir. 2016) (“Absent lexicography or disavowal, we do not depart from the plain meaning of the claims.”).

Starting with the claim language, “*tactile*” is a common word with a well-understood meaning, *i.e.*, perceptible by touch. EX1060; EX1061-1062 (similar). Immersion *agrees*. POR, 33. Immersion also concedes there are “many kinds of possible tactile feedback” beyond vibrotactile feedback including resistive force feedback. *Id.* The ordinary meaning of “*tactile sensation*” is thus not limited to vibrotactile sensations and includes all sensations perceptible by touch.

Given the parties’ agreement that the ordinary meaning of “*tactile sensation*” is “a sensation perceptible by touch,” the lone question is whether the patentee “clearly express[ed] an intent to redefine the term” or clearly disavowed the term’s ordinary meaning. *Thorner v. Sony Comp. Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed.

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<sup>5</sup> This argument is relevant only to Ground 3 (Rosenberg).

Cir. 2012) (quotation omitted). “The standards for finding lexicography and disavowal are **exacting**.” *Luminara*, 814 F.3d at 1353 (quotation omitted). Those standards have not been met.

The principal disclosure in the specification that Immersion relies on is the following: “Suitable tactile sensations include vibrations, for example, jolts and textures, ....” EX1001, 3:47-51.

Immersion argues that because “vibrations” are identified as “[s]uitable tactile sensations,” then “*tactile sensation*” must be limited to vibrations **only**. POR, 31-32. But the passage merely states that “[s]uitable,” *i.e.*, appropriate, tactile sensations “**include** vibrations,” which plainly does not **limit** “*tactile sensation*” to vibrations only. *See Charleston Area Med. Ctr.*, 940 F.3d 1362, 1367 (Fed. Cir. 2019) (“[A] definition that states what a term ‘includes’ is open-ended.”). That the relevant passage is discussing Figure 1—*i.e.*, “one **embodiment** of the present invention”—reinforces that vibrations are but one example of tactile sensations. EX1001, 3:14; *see also id.*, 20:24-26.

Immersion also points to a sentence stating that suitable actuators can create “vibrations or other haptic sensations.” POR, 32 (quoting EX1001, 3:56-60). Immersion focuses on the word “vibrations” in that sentence, but ignores the phrase “**or other haptic sensations**.” Like the term “*tactile*,” the word “haptic” broadly relates to the sense of touch. EX1061; EX1003, ¶¶69-70. Limiting “*tactile*” to

“vibrotactile” would thus improperly render the phrase “or other haptic sensations” superfluous. *Merck & Co., Inc. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (refusing to construe term in a manner that renders phrase in specification “unnecessary”). The sentence also refutes Immersion’s contention that vibrations are “the only type of tactile sensations attributed to the invention at all.” POR, 32.

Immersion also cites a passage describing the actuator of Figure 1’s embodiment as outputting vibrations. POR, 32 (citing EX1001, 4:35-42). Again, Figure 1 is just one embodiment. In other embodiments, different actuators such as “friction brakes in contact with metal shafts” can be used, and such *resistive* actuators are plainly not limited to providing vibrations. Regardless, even if “the only embodiments, or all of the embodiments, contain a particular limitation,” that “is not enough...to limit claims beyond their plain meaning.” *Unwired Planet, LLC v. Apple, Inc.*, 829 F.3d 1353, 1359 (Fed. Cir. 2016).

Immersion contends that giving “*tactile sensation*” its plain meaning would be “unreasonabl[e]” because the claims would then cover static tactile sensations like “raised bumps” or “merely resting a finger” on a button and the patent intended to improve upon such forms of feedback. POR, 33. But the Board must “construe the claim as written, not as [Immersion] wish[es] they had written it.” *Chef Am.*,

*Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004). Immersion must bear the consequences of electing to use claim language that is broad on its face.

Regardless, although the sensations perceived when a person touches bumps or buttons *are* tactile sensations, they are not the *claimed* “*tactile sensations*” because they would not be “*provided*” by a processor, and would not be “*based on*” detected pressure as required by the claims. Moreover, the patent’s alleged “improvement” was not developing *new* forms of tactile sensations but in providing sensations based on “one or more events” such as the detection of different pressures. EX1001, 2:16-37. Affording “*tactile sensation*” its plain meaning is thus fully consistent with the alleged invention.<sup>6</sup>

Immersion also observes that “simple force feedback that applies a pressure or resistance” is mentioned in the titles of certain prior-art references cited during prosecution. POR, 32. Immersion suggests this fact supports its claim construction but the citation of general force-feedback prior art during prosecution highlights the breadth of the relevant art, reinforcing the need to afford “*tactile sensation*” its plain meaning. *V-Formation, Inc. v. Benetton Grp. SpA*, 401 F.3d 1307, 1311-12 (Fed.

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<sup>6</sup> Immersion’s suggestion (at 33) that the patent is limited to “modern” devices with touchpads is wrong. EX1001, 2:18-20; 2:66-3:4.

Cir. 2005) (approving district court’s reliance on prior art cited during prosecution “to set the context for its claim construction”).

Immersion also observes that the ’260 patent identifies “simple force feedback” in its BACKGROUND section. POR, 32-33. Again, this fact merely reinforces that such feedback is relevant, which is consistent with the patentee’s decision to use the generic term “*tactile sensation*” in the claims. Regardless, the ’260 patent never suggests that it improved on the *type* of sensation that prior-art input devices provided—its purported invention was increasing the functionality of those devices. EX1001, 2:6-12.

Finally, Immersion cites *Ruckus Wireless, Inc. v. Innovative Wireless Sols., LLC*, 824 F.3d 999, 1004 (Fed. Cir. 2016) and argues that “*tactile sensation*” must be narrowly construed to preserve the claims’ validity. POR, 34. However, *Ruckus* is clear that “[t]he canon favoring constructions that preserve claim validity” *only* applies when “after applying all other available tools of claim construction, a claim is ambiguous.” 824 F.3d at 1004. There is no such ambiguity here.

### **III. UNPATENTABILITY GROUNDS**

The Petition established how three references each anticipate or render obvious the challenged claims. The Board agreed at institution, and Immersion’s post-institution arguments do not warrant the Board reaching a different conclusion in its final written decision.

### A. Ground 1 (Komata)

Immersion does not dispute that Ground 1 demonstrates how Komata anticipates or renders obvious claims 1-7 if Immersion's ordered-steps argument is rejected. POR, 50 (defending claims only "[u]nder the appropriate construction discussed above," *i.e.*, the order-steps construction). Even if the Board adopted Immersion's ordered-steps construction, however, Komata still anticipates or renders obvious claims 1-7.

Nothing in Komata restricts its software from performing claim 1's steps *in order* when progressively increasing pressure is placed on Komata's button. Indeed, Komata teaches that "[c]hanges<sub>g</sub>" in the analog signal generated by its pressure-sensitive device "correspond to changes<sub>g</sub> in the pushing pressure" thereby creating changes in the digital signal that Komata uses to trigger its vibrations. EX1005, [0091].

In other words, Komata's software detects *changes* in the pressure applied to Komata's button and makes corresponding changes to the digital signal that causes vibrations in Komata's controller. This would occur, for example, if a user during a single contact with Komata's button first places a light pressure corresponding to digital value 10 on the button, then increases the pressure on the button such that it corresponds to digital value 100, and then increases the pressure further such that it corresponds to digital value 200. EX1005, [0032], [0036], FIG. 2.

In such a scenario, a processor executing Komata’s software would detect three distinction pressures (10, 100, 200), and would do so *in order*. Indeed, Komata explains that its software allows for “smoother and more analog-like” game control (EX1005, [0091]), *i.e.*, continuous control that varies over time. Komata thus discloses the challenged claims even under Immersion’s improper ordered-steps construction.

## **B. Ground 2 (Tsuji)**

Immersion does not dispute that Ground 2 demonstrates how Tsuji anticipates or renders obvious claims 1-7 if Immersion’s ordered-steps argument is rejected. POR, 54. Even if the Board adopted Immersion’s ordered-steps argument, however, Tsuji still anticipates or renders obvious claims 1-7.

Tsuji teaches that “a stronger vibration” can be “applied *as* the operating force *F gets larger*.” EX1007, [0111]. As the Petition explained, POSAs would have understood this disclosure to mean Tsuji’s software detects when an operating force moves from one force classification (*e.g.*, F1) to another (*e.g.*, F2) during a single-press operation, *i.e.*, *as* the user presses down harder the corresponding operating force *get larger*. Pet., 46-47; EX1003, ¶260. Tsuji thus performs the claims’ steps of detecting pressure and providing tactile sensations even if those steps (wrongly) had to be performed in progressively increasing order. EX1003, ¶260

Immersion argues the cited Tsuji disclosure only teaches that “*if* a certain force is applied, then a certain drive signal is generated, and if a stronger force is applied, then a stronger drive signal is generated.” POR, 57 (emphasis original). This is a *non sequitur*. The key aspect of Tsuji’s disclosure is the phrase “*as* the operating force F **gets larger**.” This phrase is written in the present tense and plainly describes what the software does when (“as”) the operating force that Tsuji detects transitions (“gets”) from a first classification to a second (“larger”) classification during a single pressing operation. EX1003, ¶260. This understanding of Tsuji is also consistent with other teachings in Tsuji such as [0125] which discusses what the software does “[*w*]hen the operator **weakens** the operating force...”

### C. Ground 3 (Rosenberg)

Rosenberg discloses a mouse with a button and an actuator that outputs forces on the button. EX1008, 26:5-7; 28:26-28; FIG. 9. One force or “force sensation” that the actuator(s) outputs is a “spring force” wherein the “magnitude of [the] force sensation is dependent on the distance of the button from the origin of the [simulated] spring.” EX1008, 30:29-33.

To implement its “spring force,” Rosenberg teaches the use of sensors that can “sense the position” of the button within its degree of movement so that “the further the button is moved from [its] rest position, the greater the spring force opposing that motion.” EX1008, 30:30-34. Put simply, the “spring force” mimics

a mechanical spring such that the magnitude of the force sensation that the actuator provides on the button increases as the pressure applied by the user increases to push the button further down. EX1008, 30:29-34; EX1003, ¶¶330-331.

As the Petition established (Pet., 59-73), Rosenberg anticipates or renders obvious the challenged claims. When implementing its “spring force,” Rosenberg’s software causes the mouse to detect multiple pressures that a user places on the mouse’s button—*i.e.*, progressively increasing pressures as the button is pushed down—and the mouse’s actuator outputs tactile sensations in response to each of these detected pressures—*i.e.*, progressively increasing resistive force is provided against the button’s movement downward.

Immersion advances only two arguments to distinguish Rosenberg from the claims. The first relies on an interpretation of Rosenberg that Rosenberg’s text does not support. More fundamentally, however, the argument is a strawman because it does not address Rosenberg’s “spring force” embodiment, which is the embodiment against which the Petition mapped the challenged claims. The second argument depends on Immersion’s improper construction of “*tactile sensation*.” If the Board rejects Immersion’s construction, then the second argument becomes moot.

**1. Rosenberg detects pressures and provides tactile sensations based on those pressures.**

Immersion argues Rosenberg’s mouse “has only one ‘ON’ position that registers a single click with a single corresponding feedback.” POR, 62. That is,

Immersion contends a user pressing the button on Rosenberg’s mouse would feel only a single click and that sensation would be felt only when the mouse detects that the button has been moved a certain distance within its freedom of movement to a predefined “ON” position. *Id.*, 60-62. According to Immersion, this means “[t]here is no disclosure [in Rosenberg] of multiple pressures, with one greater than another, or different tactile sensations provided for each pressure.” *Id.*, 62.

Immersion’s argument attacks a strawman. The Petition never mapped the claimed “*tactile sensation[s]*” to the conventional “click” one would expect to feel (or hear) when pressing a mouse button. Rather the Petition mapped the claimed “*tactile sensation[s]*” to the “spring force” that Rosenberg implements, and which effect mimics the tactile sensation one feels when pressing down on physical button that is biased by a mechanical spring. Pet., 59-66. The “spring force” is entirely different from the “click” sensation that Immersion *speculates* would occur in Rosenberg.<sup>7</sup>

Although Immersion wrongly contends that the resistive “spring force” being output onto Rosenberg’s button is not a “*tactile sensation*” (*infra* Section III.C.2), neither Immersion nor its expert disputes that Rosenberg’s “spring force” results in progressively increasing resistive forces being output onto Rosenberg’s button and

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<sup>7</sup> Notably, Rosenberg never even uses the word “click.”

that these forces would be felt by a user. It was this progressively increasing resistive sensation that the Petition mapped to the claimed “*tactile sensation*,” not the speculative “click” sensation that Immersion attacks.

That Rosenberg’s “spring force” effect requires detecting multiple pressures and outputting different<sup>8</sup> tactile sensations based on those different pressures cannot genuinely be disputed. Rosenberg’s mouse includes a “force sensing switch” that “is used to detect the position of [] button 316a” within its range of movement by “detect[ing] the amount of force applied to [the] button.” EX1008, 28:20-25; *see also* 25:33-26:4; 30:31-33; Pet., 57-58. The actuator then outputs a spring-force sensation onto the button that varies in magnitude depending on the button’s position. EX1008, 30:29-34. The magnitude of the resistive force sensation that the actuator provides on the button thus increases as the pressure applied by the user increases to push the button further down. EX1003, ¶330.

The only time Immersion addresses any aspect of Rosenberg related to Rosenberg’s spring-force effect is when Immersion alleges that Rosenberg uses a “continuous-range sensor” for the limited purpose of “provid[ing] flexibility on

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<sup>8</sup> Immersion has not disputed that the claimed “*tactile sensation[s]*” need not be different. Pet., 12-13. This is immaterial, however, because Rosenberg’s spring force provides progressively increasing (*i.e.*, different) resistive sensations.

where to define the threshold line for the ON or OFF state—i.e., where the mouse click happens and dead zones before or after the click happens.” POR, 61-62. There are several problems with this argument.

First, it relates to Immersion’s strawman mouse-click argument and is thus irrelevant.

Second, other than its expert’s say-so, Immersion cites nothing—including nothing in Rosenberg itself—supporting its interpretation of how Rosenberg uses its continuous-range sensor. *Xerox Corp.*, IPR2022-00624, Paper 9 at 5.

Third, Rosenberg nowhere describes a continuous-range sensor being used to set dead zones or a threshold line for an ON/OFF state. Instead, Rosenberg is clear that its continuous-range sensor is “used to detect the precise position of the button” and that such position information is used to “control a force output based on that position.” EX1008, 25:33-26:4. Rosenberg further explains that a “sophisticated sensor,” like its continuous-range sensor, is particularly useful for implementing its spring-force embodiment because “the magnitude of this force sensation is dependent on the distance of the button from the origin of the spring” and a sophisticated sensor can “sense the position of the button 316[] in its degree of freedom.” EX1008, 30:29-33; *see also id.*, 28:20-23 (contrasting “simple on/off detection switch” from “more sophisticated sensor...used to determine the position

of the button in its degree of freedom”). Immersion’s interpretation of Rosenberg is simply at odds with what Rosenberg actually discloses.

Immersion makes a similar argument to try to minimize the significance of Rosenberg’s claims 35 and 36, which respectively recite a mouse with “a sensor [that] detects a range of at least three positions of said button” (claim 35), and one in which an “output force [applied by an actuator] is dependent, at least in part, on [a] position of said button in [its] degree of freedom.” POR, 62. Essentially, Immersion argues the only “positions” that the mice in claims 35 and 36 detect are “a rest position, a stop position, and a predetermined threshold position at which the mouse outputs a force.” POR, 62. This not what the claims say, however.

Claim 35 recites a sensor that “detects a range of *at least* three positions of said button in said degree of freedom,” which means it is not limited to the three hypothetical positions that Immersion identifies. Claim 36 is even broader as it just requires that the “output force is dependent, at least in part, on said position of said button in said degree of freedom,” and the antecedent basis for “said position” is merely “a position of said button.” Again, there is nothing in the claims to support Immersion’s narrow reading of them.

Immersion also notes that both claims depend from claim 30 which says a “command signal is sent to” a computer when the button reaches a “predetermined position.” POR, 62. Immersion says this “indicates that there is a single

predetermined position that registers a click to send a single command signal.” *Id.* True or not, the “**command signal**” that controls some function of the computer is different from the “**output force**” that the “actuator” applies to the button, and the claims are clear that the output force is dependent on the button’s position(s).

Immersion’s critiques of claims 35 and 36 are also largely immaterial given the spring-force disclosures in Rosenberg’s specification upon which the Petition was premised. The Petition merely cited claims 35 and 36 as additional corroboration for what Rosenberg’s specification already plainly discloses. Pet., 63-66.

## **2. Rosenberg discloses the claimed “*tactile sensation*.”**

Immersion argues the sensation felt from Rosenberg’s “spring force” is not a “*tactile sensation*” because it is a “blunt push-back or resistive effect,” not a **vibrotactile** effect. POR, 63. As discussed *supra* Section II.B, Immersion’s attempt to limit “*tactile sensation*” to vibrotactile sensations is improper.

Immersion does not dispute that Rosenberg’s “spring force” is a “*tactile sensation*” when that term is given its plain meaning, *i.e.*, a sensation perceptible by touch. *E.g.*, POR, 33 (conceding “resistive force feedback” is a form of “tactile” feedback); EX2008, ¶¶44, 108. Indeed, Rosenberg is explicit that “tactile” feedback is generally known in the art as “force feedback,” and that such feedback “provide[s] physical sensations which are felt by the user.” EX1008, 1:24-27. Rosenberg then

explains force sensations were known in the art to include not only vibrations but also “a spring force.” EX1008, 10:15-18; 3:14-15. Rosenberg thus confirms its “spring force” is a form of “*tactile sensation*” and reinforces POSAs understanding of the term’s plain meaning.<sup>9</sup>

#### IV. CONCLUSION

The Board should find claims 1-7 unpatentable.

Respectfully submitted,  
*Valve Corp.*

Date: 01-17-2025

By: /Nathan R. Speed/  
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<sup>9</sup> Immersion notes Rosenberg’s mouse outputs vibrations, but argues those vibrations are distinct from Rosenberg’s spring force. POR, 64-65. Immersion’s argument is immaterial because the Petition mapped the claim “*tactile sensation[s]*” to the sensation produced by Rosenberg’s “spring force.” *E.g.*, Pet., 62.

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I certify that on January 17, 2025, I will cause a copy of the foregoing document, including any exhibits or appendices filed therewith, to be served via electronic mail, as previously consented to by Patent Owner, upon the following:

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