

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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APPLE INC.,  
Petitioner,

v.

IMMERSION CORPORATION,  
Patent Owner.

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Case IPR2017-01368  
Patent No. 8,581,710

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**IMMERSION CORPORATION'S  
PATENT OWNER PRELIMINARY RESPONSE**

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Patent Trial and Appeal Board  
U.S. Patent and Trademark Office  
P.O. Box 1450  
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## TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION .....	1
II. THE '710 PATENT .....	7
III. LEVEL OF ORDINARY SKILL IN THE ART .....	9
IV. THIS PETITION SHOULD BE DENIED UNDER 35 U.S.C. §§ 314(A) AND 325(D) .....	10
V. CLAIM CONSTRUCTION .....	16
A. The Board Previously Provided an Overbroad Reading of the “If ... Otherwise” Conditional in the Claims of the '710 Patent .....	19
1. The Claimed Method Requires a Binary Logic Structure .....	20
2. <i>Ex Parte Schulhauser</i> Does Not Require That The “otherwise” Branch Be Ignored .....	22
B. “Signal” (Claim 13) .....	24
C. “A haptic effect is configured to emulate the command” (Claim 20) .....	25
VI. GROUND 1: MARTIN AND MAKELA DO NOT RENDER CLAIMS 13 AND 19-20 OBVIOUS UNDER 35 U.S.C. § 103(A) .....	26
A. Overview of Martin .....	26
B. Martin Does Not Disclose The Claimed Binary Logic Structure Disclosed In The '710 Patent .....	31
1. The Petition Fails to Adequately Address the Key “Otherwise ...” Limitations in the Challenged Claims .....	31
C. Martin In View of Makela Does Not Render The Challenged Claims Obvious .....	34

1.	Overview Of Makela.....	35
2.	Petitioner Fails to Provide Motivation to Combine Martin and Makela.....	35
D.	Martin Does Not Disclose The First Haptic Effect Emulating A Command .....	38
E.	The Petition Offers Insufficient Evidence For Ground 1.....	40
VII.	GROUND 2: THEODORE AND SHAHOIAN DO NOT RENDER CLAIMS 13, 18 AND 19 OBVIOUS UNDER 35 U.S.C. § 103(A) .....	41
A.	Overview Of Theodore.....	41
B.	Theodore In View Of Shahoian Does Not Disclose The Claimed Binary Logic Structure Disclosed In The '710 Patent .....	44
1.	Theodore Does Not Disclose Differential “First” Or “Second” Actuator Signals Or The “[I]f ...” Portion of the Clause .....	45
2.	Shahoian Does Not Remedy The Deficiencies In Theodore .....	49
3.	The Petition Also Fails to Address the Key “Otherwise ...” Limitations in the Challenged Claims.....	51
C.	The Petition Offers Insufficient Evidence For Ground 2.....	52
VIII.	CONCLUSION.....	53

**TABLE OF AUTHORITIES**

	<b>Page(s)</b>
<b>Cases</b>	
<i>Akamai Technologies, Inc. v. Limelight Networks, Inc.</i> , IPR2017-00358, Paper 9 (P.T.A.B. May 2, 2017) .....	<i>passim</i>
<i>Apple Inc. v. Immersion Corp.</i> , No. IPR2016-01371, Paper 7 (P.T.A.B. Jan. 11, 2017) .....	25
<i>Arendi S.A.R.L. v. Apple Inc.</i> , 832 F.3d 1355 (Fed. Cir. 2016) .....	40, 53
<i>In re Constr. Equip. Co.</i> , 665 F.3d 1254 (Fed. Cir. 2011) .....	40
<i>Cuozzo Speed Techs., LLC v. Michelle K. Lee</i> , 136 S. Ct. 2131 (2016) .....	16
<i>Immersion Corp. v. Apple Inc., et al.</i> , Nos. 1-16-cv-00077 and 1:16-cv-00325 (D. Del.) .....	1
<i>In re Kahn</i> , 441 F.3d 977 (Fed. Cir. 2006) .....	40
<i>KSR Int’l Co. v. Teleflex Inc.</i> , 550 U.S. 398 (2007) .....	40
<i>Microprocessor Enhancement Corp. v. Tex. Instruments Inc.</i> , 520 F.3d 1367 (Fed. Cir. 2008) .....	22
<i>Microsoft Corp. v. Proxyconn, Inc.</i> , 789 F.3d 1292 (Fed. Cir. 2015) .....	18
<i>Samsung Elec. Co. Ltd. v. Rembrandt Wireless Techs., LP</i> , Case IPR2015-00114, Paper 14 (P.T.A.B. Jan. 28, 2015) .....	13
<i>Ex Parte Schulhauser</i> , Appeal 2013-007847, 2016 WL 6277792 (P.T.A.B. Apr. 28, 2016) .....	22

<i>In re Skvorecz</i> , 580 F.3d 1262 (Fed. Cir. 2009) .....	19
<i>Sony Corp. of America v. Network-1 Security Sols., Inc.</i> , IPR2013-00092, 2013 WL 5947702 (P.T.A.B. May 24, 2013) .....	41
<i>In re Suitco Surface, Inc.</i> , 603 F.3d 1255 (Fed. Cir. 2010) .....	19
<i>ZTE Corp. v. ContentGuard Holdings, Inc.</i> , Case IPR2013-00454, Paper 12 (P.T.A.B. Sept. 25, 2013).....	14

## **Statutes**

35 U.S.C. § 103(a) .....	5, 26, 41
35 U.S.C. § 314(a) .....	<i>passim</i>
35 U.S.C. § 325(d) .....	1, 10, 15

## **Rules and Regulations**

37 C.F.R. § 42.100(b) .....	16
37 C.F.R. § 42.108(a).....	15

**EXHIBIT LIST**

Immersion Ex. 2001	Declaration of Yon Visell, Ph.D. in Support of Immersion Corporation's Patent Owner Preliminary Response
Immersion Ex. 2002	<i>Curriculum Vitae</i> of Yon Visell, Ph.D.
Immersion Ex. 2003	Deposition Transcript of Tony Givargis (June 15, 2017) in IPR2016-01603
Immersion Ex. 2004	Deposition Transcript of Tony Givargis (Jan. 24, 2017) in ITC Inv. Nos. 337-TA-1004 and 337-TA-990
Immersion Ex. 2005	U.S. Patent No. 5,774,841
Immersion Ex. 2006	May 3, 2017 ITC Hearing Testimony of Dr. Givargis
Immersion Ex. 2007	Annotated Amended Claims excepted from Application EP2497004 (Jan. 28, 2013)
Immersion Ex. 2008	File History for U.S. Patent No. 8,581,710

**STATEMENT OF MATERIAL FACTS IN DISPUTE**

Petitioner Apple Inc. did not submit a statement of material facts in this Petition. Accordingly, no response is due pursuant to 37 C.F.R. § 42.23(a), and no facts are admitted.

## I. INTRODUCTION

The Patent Trial and Appeal Board (“Board”) should deny Apple Inc.’s (“Petitioner”) second petition for *inter partes* review (“Petition”) of U.S. Patent No. 8,581,710 (the “’710 patent”) under 35 U.S.C. § 325(d) and § 314(a) to stop Petitioner’s pattern of filing serial petitions in an effort to harass Patent Owner Immersion Corporation and drive up litigation costs. As of this writing, the Board has twice rejected “Petitioner’s strategy—namely, withholding additional challenges until receiving the Board’s feedback to help shape those challenges—as unfair to Patent Owner.” IPR2017-00896, Paper 10 at 14 (P.T.A.B. Aug. 17, 2017); IPR2017-00897, Paper 11 at 12 (P.T.A.B. Aug. 17, 2017). The same reasoning holds true here. The Board should exercise its discretion and not institute *inter partes* review.

The ’710 patent is among seven of Patent Owner’s patents that are the subject of one or both of the following ITC and District Court cases: *Immersion Corp. v. Apple Inc., et al.*, Nos. 1-16-cv-00077 and 1:16-cv-00325 (D. Del.) (stayed); *In the Matter of: Certain Mobile and Portable Electronic Devices Incorporating Haptics (Including Smartphones and Laptops) and Components Thereof*, ITC Investigation Nos. 337-TA-990 and -1004 (consolidated). The other patents are U.S. Patent Nos. 8,619,051 (the “’051 patent”); 8,659,571 (the “’571 patent”); 7,808,488 (the “’488 patent”); 8,749,507 (the “’507 patent”); 7,336,260



(the “’260 patent”) and 8,773,356 (the “’356 patent”). For *each patent* asserted in these cases, Petitioner has filed two petitions, sequential in time. The dates of the petitions for each patent are listed below, with information for the ’710 patent in bold for convenience.

<u>Patent</u>	<u>IPR #1 Case No.</u>	<u>Filed</u>	<u>Board Decision</u>	<u>IPR #2 Case No.</u>	<u>Filed</u>
’051	IPR2016-01371	7-7-16	1-11-17	IPR2017-00887	2-10-17
’571	IPR2016-01372	7-7-16	1-11-17	IPR2017-00896	2-12-17
’356	IPR2016-01381	7-8-16	1-11-17	IPR2017-00897	2-12-17
<b>’710</b>	<b>IPR2016-01603</b>	<b>8-12-16</b>	<b>2-23-17</b>	<b>IPR2017-01368</b>	<b>5-4-17</b>
’507	IPR2016-01777	9-12-16	4-27-17	IPR2017-01310	4-21-17
’260	IPR2016-01884	9-23-16	4-3-17	IPR2017-01369	5-4-17
’488	IPR2016-01907	9-29-16	4-3-17	IPR2017-01371	5-4-17

In each instance, Petitioner waited for the Patent Owner to file a preliminary response and the Board to make a decision before crafting the second petition.

The Board has rejected Petitioner’s strategic approach of burdening the Board and the Patent Owner with serial petitions. For example, the Board has declined to institute *inter partes* reviews as requested in Petitioner’s second petitions regarding Patent Owner’s ’571 and ’356 patents. In rejecting Petitioner’s second petition in IPR2017-00896 regarding the ’571 patent, the Board explained how “the specific circumstances of this case invoke a concern, under 35 U.S.C. § 314(a), over the potential inequity of Petitioner filing multiple attacks, adjusting

along the way based on Patent Owner's contentions and the Board's decision responding to a prior challenge." IPR2017-00896, Paper 10 at 12. Putting the point more directly, the Board stated: "[w]e view Petitioner's strategy—namely, withholding additional challenges until receiving the Board's feedback to help shape those challenges—as unfair to Patent Owner." *Id.* at 14. The Board held that the same considerations also applied to Petitioner's second petition concerning the '356 patent: "[w]e are persuaded that the specific circumstances of this case invoke a concern, under 35 U.S.C. § 314(a), over the potential inequity of Petitioner filing multiple attacks, with the benefit of having seen Patent Owner's contentions and the Board's decision regarding a prior challenge by the same Petitioner to the same patent." IPR2017-00897, Paper 11 at 8. The Board "view[ed] Petitioner's strategy in this particular case as burdensome to Patent Owner and the Board with no persuasive explanation of why it should be allowed." *Id.* at 12.

Petitioner's serial Petition regarding the '710 patent is part of the same strategy rejected in IPR2017-00896 and IPR2017-00897, and the Board should decline to institute trial here for the same reasons set out in those decisions and in *Akamai Technologies, Inc. v. Limelight Networks, Inc.*, IPR2017-00358, Paper 9 at 12 (P.T.A.B. May 2, 2017). Petitioner previously requested *inter partes* review of claims 1, 7-10, and 12 of the '710 patent on August 12, 2016 in IPR2016-01603

based on the same primary reference in Ground 1 of this Petition, U.S. Patent No. 7,336,260 (“Martin”) (Ex. 1106). *See* IPR2016-01603, Paper 1 at 9 (Ground 1). Petitioner also filed this second Petition five months after receiving Patent Owner’s Preliminary Response in the first petition on November 28, 2016 (Paper 6) and over two months after the Board’s Institution Decision on February 23, 2017 (Paper 7). The Petition concedes the second Petition is directed at “substantially identical” limitations also at issue in the first petition. *See* Pet. at 9-10 (“[c]hallenged claim 13 includes substantially identical ‘if’ and ‘otherwise’ conditional limitations as claim 1”). Petitioner’s reliance on Ground 2 in this second Petition based on U.S. Patent No. 6,505,159 (“Theodore”) (Ex. 1104) does not change the analysis. This is not a new reference to the Patent Office or to Petitioner. During the original prosecution of the ’710 patent, the foreign counterpart of Theodore (WO 99/045531) was before the examiner and is cited on the face of the ’710 patent. Ex. 1101 (Foreign References).

Adjusting positions and asserting repeated Petitions only after learning from earlier Patent Owner filings and Institution Decisions burdens the Board and imposes an inequity on the Patent Owner. *Akamai Technologies*, IPR2017-00358, Paper 9 at 12 (“Petitioner’s strategy of adjusting its challenge in a second Petition based on the Board’s feedback in an earlier Institution Decision imposes inequities on Patent Owner ... *inter partes* review proceedings ‘are not to be used as tools for

harassment or a means to prevent market entry through repeated litigation and administrative attacks on the validity of a patent. Doing so would frustrate the purpose of the section as providing quick and cost effective alternatives to litigation.””). It would be unjust to allow Petitioner to benefit from the strategic filing of a serial petition based on an earlier Board decision, especially when (1) both Petitions share the same primary reference for certain grounds, *i.e.*, Martin, and (2) the foreign counterpart to the primary reference for the remaining ground is a cited reference on the face of the ’710 patent. Patent Owner respectfully requests the Board to exercise its discretion and deny institution of *inter partes* review.

The Board also can and should decline to institute trial on the grounds that the Petition fails to establish a reasonable likelihood that Petitioner would carry its burden to show that any claim of the ’710 patent is not patentable. The Petition advances two grounds of challenge: Ground 1, alleging that claims 13, 19 and 20 are obvious under 35 U.S.C. § 103(a) in view of Martin (Ex. 1106) and U.S. Patent Pub. No. 2009/0164207 (“Makela”) (Ex. 1107), and Ground 2, alleging that claims 13, 18 and 19 are obvious under 35 U.S.C. § 103(a) over Theodore (Ex. 1104) and U.S. Patent 2002/0033795 (“Shahoian”) (Ex. 1105). Both grounds are deficient for several reasons.

The combinations proposed in Petitioner’s Grounds 1 and 2 are inconsistent with the teachings of the references on which Petitioner relies. For example,

Petitioner proposes combining speech recognition systems with pressure-feedback systems without explanation as to how such systems would be combined or why one of skill in the art would do so. As another example, Petitioner seizes on an offhand reference to a “buzzer” as somehow teaching differential haptic feedback systems. The hindsight reconstruction of the cited references to match the approach of the ’710 patent would not have been apparent to a person of ordinary skill in the art (“POSITA”).

In addition to relying on hindsight to reconstruct the invention out of disparate references, the Petition fails to adequately explain how the cited references disclose or render obvious key limitations present in each of the challenged claims. For several limitations, Petitioner improperly relies on amorphous claim constructions based on its self-serving characterizations of contentions about Apple products at issue in ITC proceedings, rather than the disclosure of the ’710 patent. Petitioner also incorrectly reads the “if ... otherwise” claim language out of the claims.

The Petition also fails to provide reasoned analysis or evidentiary support for its repeated conclusory statements about what a POSITA would have found obvious and an alleged motivation to combine. Petitioner’s expert declaration simply *repeats* these conclusory statements. In short, Petitioner offers insufficient evidence for its obviousness arguments.

## II. THE '710 PATENT

The '710 patent is entitled “Systems and Methods for Haptic Confirmation of Commands.” Ex. 1101. The patent relates to providing tactile sensations on an electronic device in response to user input, such as providing haptic effects to confirm the determination of a command associated with a given input. *Id.* at Abstract. The challenged claims are directed to a computer-implemented method for outputting “haptic effects.” *Id.*, cl. 13. In particular, the claimed method uses a binary logic structure in which one of two haptic effects is provided for a particular user input. *Id.* For applications utilizing this method, if the user input is recognized and a command determined, a first haptic effect is provided. Second, in the alternative, a different haptic effect is provided. *Id.*

The required binary logic structure is reflected primarily in the “if...otherwise” elements of claim 13. Challenged claim 13 reads:

A computer-implemented method comprising the steps of:  
receiving, from a sensor, a sensor signal associated with a user input;  
recognizing the user input and determining a command associated with the speech information;  
    **if** the user input is recognized and the command is determined: generating a first actuator signal configured to cause an actuator to output a first haptic effect; and transmitting the first actuator signal to the actuator;

**otherwise:** generating a second actuator signal configured to cause the actuator to output a second haptic effect; and transmitting the second actuator signal to the actuator.

*Id.* (emphasis added). The explicit language of the claimed method requires that the claimed computer-implementation include both the “if” branch (corresponding to a first actuator signal configured to output a first haptic effect) and “otherwise” branch (corresponding to a second actuator signal configured to output a second haptic effect). *Id.* This binary logic structure is required to practice the claimed invention. Declaration of Yon Visell, Ph.D. (“Visell Decl.”) (Ex. 2001) at ¶¶ 30-31.

The specification of the ’710 patent provides examples of how the invention may be used. As one illustration, the ’710 patent teaches that a user of a mobile phone may direct a telephone with a specific user input of a vocal command to “call home.” Ex. 1101 at 2:16-19. When the user provides that input, if the phone recognizes it and determines a command (*e.g.*, to dial a number that corresponds to “home”), the system “generates a [first] haptic effect to provide a tactile indication to the user that the spoken command was recognized and that the phone will perform the requested function” of calling the number corresponding to “home.” *Id.* at 2:19-25. Alternatively, for example, if the phone has no stored number for

“home,” and thus no command is determined, the phone “generates a second haptic effect.” *Id.* at 2:25-29; *see also* 3:50-4:12 (explaining similar functionality in response to a command to “add an appointment to the calendar for Tuesday at 3 pm.”). Visell Decl. at ¶ 32.

In this binary logic structure, the first and second haptic effects are configured as mutually exclusive alternatives. *Id.* at ¶ 33. The confirmatory effects may be affirmative to communicate success, or negative to communicate that the input was not recognized or that a command is not available. *Id.*

Claim 13 also requires “speech information.” Ex. 1101, cl. 13. The challenged dependent claims contain limitations directed to properties of the user input or the confirmatory first haptic effect or the provision of associated sounds and images. Claim 20 requires that the first haptic effect be “configured to emulate a command.” *Id.*, cl. 20. Dependent claims 18-19 recite providing sounds and images as a result of determining a command. *Id.*, cls.18-19.

### **III. LEVEL OF ORDINARY SKILL IN THE ART**

A person of ordinary skill in the art for the field of the ’710 patent would have at least: (1) a Bachelor’s of Science degree in an engineering discipline such as Mechanical Engineering or Computer Science, or (2) at least two years of experience working with human machine interface systems, graphical user interfaces, haptic feedback systems, speech recognition systems, biomechanics, or



mobile devices or equivalent embedded systems. Visell Decl. at ¶ 22. In the Institution Decision for the first petition on the '710 patent, the Board determined that “the level of skill in the art is evidenced by the prior art of record and the type of problems and solutions described in the '710 patent, and includes experience in haptic response technology in mobile systems with touchscreen.” IPR2016-01603, Paper 7 (“Decision”) at 14. Although this level of skill differs from the level Patent Owner proposes, the conclusions regarding claim construction and validity contained herein would be the same regardless of whether slightly higher or lower level of skill were adopted. Visell Decl. at ¶ 23.

**IV. THIS PETITION SHOULD BE DENIED UNDER 35 U.S.C. §§ 314(a) AND 325(d)**

Institution of an *inter partes* review is discretionary under 35 U.S.C. § 314(a). *Akamai*, IPR2017-00358, Paper 9 at 6. Because of the “potential inequity of Petitioner filing multiple attacks, adjusting along the way based on Patent Owner’s contentions and the Board’s decision responding to a prior challenge” (*id.*, at 8), the Board should exercise its discretion and deny the petition under 35 U.S.C. § 325(d).

The Board has identified the following factors to consider when deciding whether to exercise its discretion not to institute review based on concerns of the inequity that results from multiple petitions:

- (a) whether the same petitioner previously filed a petition directed to the same claims of the same patent;
- (b) whether the petitioner knew or should have known of the prior art asserted in the later petition when it filed its earlier petition;
- (c) whether at the time of filing of the later petition, the petitioner already received the patent owner's preliminary response to the first petition or received the Board's decision on whether to institute review in the earlier petition;
- (d) the length of time that elapsed between when the petitioner had the patent owner's or Board's analysis on the earlier petition and when petitioner filed the later petition; and
- (e) whether the petitioner provides adequate explanation why we should permit another attack on the same claims of the same patent.

*Akamai*, IPR2017-00358, Paper 9 at 9. As discussed below, all of these factors favor denial of this Petition.

Whether the same petitioner previously filed a petition directed to the same claims of the same patent: The petition in the earlier IPR2016-01603 was directed to claims 1, 7-10 and 12 of the '710 patent and was based on Martin as the primary reference. IPR2016-01603, Paper 1 at 9 (Ground 1). The claims in the prior petition were directed to "[a] system for generating haptic effects" having a novel processor configuration using the same binary logic structure described above in which one of two haptic effects is provided for a particular user input. Ex. 1101,

cl. 1 (containing same “if...otherwise” elements as claim 13). Petitioner acknowledges that the claims at issue in this Petition (claims 13, 18-20) share many of the same substantive limitations as the first petition: “[c]hallenged claim 13 includes *substantially identical* ‘if’ and ‘otherwise’ conditional limitations as claim 1.” Pet. at 9-10 (emphasis added). Claims 7-8 at issue in the prior petition contain similar limitations to claims 19-20 raised in this Petition. Ex. 1101, cls. 7-8, 19-20.

Whether the petitioner knew or should have known of the prior art asserted in the later petition when it filed its earlier petition: Petitioner was aware or should have been aware of the asserted prior art (Martin, Makela, Theodore and Shahoian) before it filed the first petition (IPR2016-01603) on August 12, 2016.

Ground 1 of the present Petition is based primarily on Martin (Ex. 1106). In earlier petition (IPR2016-01603), Martin was also the primary reference and it goes without saying that Petitioner was well aware of this reference. Ground 2 of the present Petition is based primarily on Theodore (Ex. 1104) and relies on remarks of the European Patent Office regarding a foreign counterpart to the ’710 patent. Pet. at 36. Both the foreign counterpart to Theodore, and the associated prosecution history from the foreign counterpart to the ’710 patent were before the examiner during the prosecution of the ’710 patent and appear as citations on the face of the ’710 patent. Exs. 1101, 1112. Petitioner also knew or should have

known of Shahoian at the time—it relied on Shahoian as a prior art reference in IPR2016-01777, a petition filed against another patent of Patent Owner less than a month after IPR2016-01603. Petitioner also was aware, or should have been aware, of Makela before filing the first petition. Makela was published on June 25, 2009, seven years before Petitioner filed its first petition. In rejecting Petitioner’s second petition regarding Patent Owner’s ’571 patent, the Board described similar circumstances: “Although there is not sufficient evidence in the record before us that Petitioner was aware of Tecot prior to filing the First Petition, we note that Tecot was published on September 13, 1992. Ex. 1015, at [43]. Petitioner says nothing about whether it reasonably should have known about Tecot or why it could not have presented Tecot in the First Petition.” IPR2017-00896, Paper 10 at 14. Petitioner is similarly silent regarding its awareness of Makela.

Petitioner could and should have raised its arguments in the first petition. In rejecting Petitioner’s second petition regarding Patent Owner’s ’571 patent, the Board determined that “to the extent there are any substantive differences in the arguments, Petitioner does not provide any persuasive reason why the purported different or new arguments presented in the Second Petition could not have been presented in the First Petition.” IPR2017-00896, Paper 10 at 10 (*citing Samsung Elec. Co. Ltd. v. Rembrandt Wireless Techs., LP*, Case IPR2015-00114, Paper 14 at 6 (P.T.A.B. Jan. 28, 2015) (“[I]t is more efficient for the parties and the Board to

address a matter once rather than twice.”); *ZTE Corp. v. ContentGuard Holdings, Inc.*, Case IPR2013-00454, Paper 12 at 5–6 (P.T.A.B. Sept. 25, 2013) (“The Board is concerned about encouraging, unnecessarily, the filing of petitions which are partially inadequate.”)); *see also* IPR2017-00897, Paper 11 at 8 (similar reasoning). The same reasoning should apply here.

Whether at the time of filing of the later petition, the petitioner already received the patent owner’s preliminary response to the first petition or received the Board’s decision on whether to institute review in the earlier petition: There is no debate that when it filed this second Petition, Petitioner had already received the Patent Owner’s preliminary response and the Board’s Institution Decision. Petitioner received the Patent Owner’s preliminary response on November 28, 2016, and the Board’s Institution Decision on February 23, 2017, both before filing this Petition on May 4, 2017.

The length of time that elapsed between when the petitioner had patent owner’s or Board’s analysis on the earlier petition and when petitioner filed the later petition: Given that Petitioner filed this Petition on May 4, 2017 and the Board issued its decision in IPR2016-01603 on February 23, 2017, Petitioner had over five months to analyze the Patent Owner preliminary response and over two months to review the Board’s decision.

Whether the petitioner provides adequate explanation why we should permit

another attack on the same claims of the same patent: Petitioner contends that this second Petition is proper because it is “only” the second petition and adds additional claims and prior art. Pet. at 50. However, Petitioner knew of the prior art raised in this Petition well before it filed its first IPR petition (IPR2016-01603). There is no reason Petitioner could not have filed this Petition earlier, and certainly before the Board’s decision in the first IPR petition (IPR2016-01603). Petitioner has not provided any meaningful explanation for its strategic choice to impose burdens on the Board and the Patent Owner with serial petitions. As the Board explained in *Akamai*:

Our primary concern in this proceeding, however, is not that “the same or substantially the same prior art or arguments previously were presented to the Office” as expressed in 35 U.S.C. § 325(d), but rather the potential inequity of Petitioner filing multiple attacks, adjusting along the way based on Patent Owner’s contentions and the Board’s decision responding to a prior challenge.

*Akamai*, IPR2017-00358, Paper 9 at 8.

Due to the inequity of allowing Petitioner to file multiple attacks and adjust along the way as Petitioner learns from the Patent Owner filings and prior Board decisions, Patent Owner respectfully requests that the Board exercise its discretion under 35 U.S.C. § 314(a) and 37 C.F.R. § 42.108(a) not to institute *inter partes* review of claims 13 and 18-20 of the ’710 patent.

## V. CLAIM CONSTRUCTION

During *inter partes* review, claims are given their “broadest reasonable construction in light of the specification.” *Cuozzo Speed Techs., LLC v. Michelle K. Lee*, 136 S. Ct. 2131, 2133 (2016); 37 C.F.R. § 42.100(b). The standard for claim construction at the Patent Office is different from that used during a U.S. District Court litigation. 37 C.F.R. § 42.100(b). Immersion expressly reserves the right to argue a different claim construction in litigation for any term of the ’710 patent, as appropriate in that proceeding.

In its decision to institute the prior *inter partes* review of the ’710 patent in IPR2016-01603, the Board recognized that the ’710 patent describes a binary logic approach for a specific user input: provide a confirmatory tactile sensation *if* that user input is recognized and a command associated with it is determined; *otherwise*, provide a different tactile sensation. Decision at 4-5. In this Petition, the Petitioner specifically acknowledges that “[t]he ’710 patent discloses generating and transmitting an actuator signal for a haptic effect that indicates that the command is recognized if the command is recognized, and ‘otherwise’ generating and transmitting an actuator signal for another haptic effect that indicates that the command was not recognized.” Pet. at 6. This binary logic structure is set out in the “if ... otherwise” conditionals in independent claims 1 (challenged in the prior petition) and 13 (challenged in this petition). Ex. 1101,

claims 1 and 13.

In its Institution Decision in IPR2016-01603, the Board stated it “need not construe explicitly” any terms of the ’710 patent, including the “if ... otherwise” language in claim 1. Decision at 7. The Board, however, elsewhere in the Decision did construe the “if ... otherwise” portion of claim 1 in a manner that was essential to its decision. Specifically, in addressing the scope of the claims, the Board stated that “a prior art reference need not satisfy the ‘otherwise’ portion to render claim 1 obvious.” *Id.* at 19. In other words, the Board construed the claim to require only that the “if” portion of the binary logic structure be established. *Id.* at 20 (“In other words, in order to demonstrate a reasonable likelihood of prevailing with respect to claim 1, Petitioner only needs to make a sufficient showing that Martin teaches all of the structural limitations and all of the functional limitations of claim 1 up to the ‘if-block’ limitations.”).

In this Petition, Petitioner changes course and offers a new claim construction and position based on adopting the Board’s prior construction of similar terms in claim 1 of the ’710 patent for the purposes of this second Petition. Pet. at 8. This highlights the unfairness of this Petition, and the strategic nature of Petitioner’s shifting positions. Petitioner previously did not take the position that the “otherwise” elements are not required—not in the ITC proceedings or in the first petition. Petitioner did not assert in its prior petition that the claims should be



interpreted in the manner described in the Institution Decision for IPR2016-01603.

Indeed, in the related ITC proceedings, Petitioner took a different position.

Petitioner's expert repeatedly acknowledged that the "otherwise" portion of the processor configuration recited in the claim language was required and expressly characterized the "if ... otherwise" clause as requiring a binary logic structure. Ex. 2006 (Givargis Tr.) 1183:10-13 ("Q: And we spoke a moment ago about the fact that you read the '710 patent claim 1 to require a binary logic structure of some kind; correct? A: Among other things, yes."). Petitioner also specifically relied on the "otherwise" claim language as the primary basis for contesting infringement and arguing that in its view the accused devices were not configured in a way that met the claim.

Patent Owner respectfully submits that the Board's prior analysis and conclusion is incorrect and ignores the full claim language and the description in the specification and the heart of the claimed invention. Any construction that the "otherwise" portions of the binary logic structure are not required ignores the plain claim language and does not duly consider that language in light of the description of the invention in the specification. The Board's construction is thus at odds with cases such as *Microsoft Corp. v. Proxyconn, Inc.*, which make clear the Board may not "construe claims during IPR so broadly that its constructions are unreasonable under general claim construction principles." 789 F.3d 1292, 1298 (Fed. Cir.

2015) (“That is not to say, however, that the Board may construe claims during IPR so broadly that its constructions are unreasonable under general claim construction principles. As we have explained in other contexts, ‘[t]he protocol of giving claims their broadest reasonable interpretation ... does not include giving claims a legally incorrect interpretation.’”) (*citing In re Skvorecz*, 580 F.3d 1262, 1267 (Fed. Cir. 2009)); *see also In re Suitco Surface, Inc.*, 603 F.3d 1255, 1260 (Fed. Cir. 2010) (“The broadest-construction rubric coupled with the term ‘comprising’ does not give the PTO an unfettered license to interpret claims to embrace anything remotely related to the claimed invention.”). As such, the Board’s prior preliminary construction in IPR2016-01603 is unreasonable under general claim construction principles.

Patent Owner addresses these points further below. First, Patent Owner discusses the “if ... otherwise” language of claim 13. Then, Patent Owner discusses the construction of “signal” of claim 13 and “haptic effect configured to emulate the command” language of claim 20.

**A. The Board Previously Provided an Overbroad Reading of the “If ... Otherwise” Conditional in the Claims of the ’710 Patent**

All of the challenged claims in this Petition are directed to a computer implemented method using the following binary logic structure:

**if the user input is recognized and the command is determined:**

generating a first actuator signal **configured to cause** the actuator to output a first haptic effect; and  
transmitting the first actuator signal to the actuator;

**otherwise:**

generating a second actuator signal **configured to cause** the actuator to output a second haptic effect; and  
transmitting the second actuator signal to the actuator.

Ex. 1101, cl. 13 (emphasis added).

A POSITA would understand, in view of the plain meaning of the claims and the specification, that the broadest reasonable construction of the “if ... otherwise” binary logic structure requires that implementing functionality include ***both*** branches of the “if ... otherwise” clause. Visell Decl. at ¶¶ 35-38.

### **1. The Claimed Method Requires a Binary Logic Structure**

The plain language of claim 13 requires use of a binary logic structure for a given user input that entails two mutually exclusive alternatives for a scenario—“if” the particular user input is recognized and a command is determined, a first confirmatory haptic effect is generated; “otherwise,” a second haptic effect is generated. Ex. 1101, cl. 13; Visell Decl. at ¶¶ 34-38.

This plain meaning is consistent with the teachings of the ’710 patent. The specification discloses that, as to features for which a system designer has elected to provide haptic feedback and implement the binary approach, a “second haptic

effect” is generated when the user input is not recognized or a command is not determined: “if the phone does not recognize the command, it generates a second haptic effect.” Ex. 1101 at 2:25-27 (Detailed Description); *see also id.* at 2:16-29 (in “Call Home” embodiment, if the phone understands the user’s input seeking to call home but has no stored number for “home,” the phone generates a second haptic effect), 3:50-4:12 (explaining similar functionality in response to a command to “add an appointment to a calendar for Tuesday ... at 3 p.m.”), 3:21-27 (describing Figure 1, “if the speech information is not recognized, or if a command corresponding to the speech information is not found, the processor 110 ... then transmits the second actuator signal to the actuator 130, which outputs the second haptic effect”), 6:33-37 (describing Figure 2, “if the speech information or a corresponding command is not recognized, the processor 160 generates a second actuator signal configured to cause the actuator 130 to output a second haptic effect”), 9:37-47 (describing Figure 5, “if the processor is unable to recognize the speech information, or is unable to determine a command associated with the speech information ... the processor 110 generates a second actuator signal configured to cause an actuator to output a second haptic effect”); 12:25-52 (describing Figure 7, “the processor 620 generates an actuator signal corresponding to a haptic effect configured to indicate that a command was not recognized”); *see also* Visell Decl. ¶ 39.

The claim language, specification, and expert testimony thus all confirm that the “if ... otherwise” language describes a computer-implemented method based on a binary logic structure. This claim language may not be ignored.

**2. *Ex Parte Schulhauser* Does Not Require That The “otherwise” Branch Be Ignored**

In the prior Institution Decision, the Board relied primarily on *Ex Parte Schulhauser* as the basis for reaching the preliminary conclusion that the “otherwise” portion of the processor’s configuration is “not required” under the broadest reasonable construction, so long as the “if” portion of the processor’s configuration is established. Decision at 14 and 20 (relying on *Ex Parte Schulhauser*, Appeal 2013-007847, 2016 WL 6277792 (P.T.A.B. Apr. 28, 2016)). Patent Owner respectfully submits that the cited discussion in *Ex Parte Schulhauser* is inapposite.

In particular, unlike in *Schulhauser*, the method claims at issue here recite a binary logic configuration that must be implemented in a system to utilize the claimed methods. *Schulhauser* did not address the presence of a structural limitation within a method claim. It is well established that method claims may recite structural limitations of the environment in which the claimed method is practiced. See *Microprocessor Enhancement Corp. v. Tex. Instruments Inc.*, 520 F.3d 1367, 1375 (Fed. Cir. 2008) (“Direct infringement of claim 1 is clearly

limited to practicing the claimed method in a pipelined processor *possessing the requisite structure.*") (emphasis added).

As explained above, the "if ... otherwise" language of claim 13 requires the use of a binary logic structure. In the context of the computer-implemented method of claim 13, the configuration of the first and second haptic effects in the binary logic structure would be implemented in computer hardware or software. Visell Decl. ¶ 36. Petitioner's own expert agrees that the "if ... otherwise" language as used in the '710 patent indicates a particular structure to implement the claimed configuration. Ex. 2003 (Givargis Depo. Tr.) at 43:9-13 ("A person skilled in the art reading the 710 patent arriving at the if and otherwise would recognize a binary structure."); 22:19-21 ("In computer science or generally in systems that carry out some algorithm, a binary structure is a **structure** where one of two outcomes are possible.") (emphasis added).

The language in claim 13 describes the required configuration containing both branches. For example, the "if" branch of the binary logic structure is configured such that a "first haptic effect" is provided. The "otherwise" branch is configured such that a "second haptic effect" is provided. The specification makes clear that "the identifiers 'first' and 'second' are used" within the patent "to differentiate between *different* signals and effects." Ex. 1001, 3:33-36 (emphasis added). Accordingly, the "first haptic effect" and "second haptic effect" are

necessarily distinct from one another and the relationships between inputs and these haptic effects are defined according to the binary logic structure. Visell Decl. at ¶ 37.

A person of ordinary skill in the art would thus understand that a method utilizing the claimed invention makes use of a structure having a first haptic effect associated with the “if” branch of that structure, and a different, second haptic effect associated with the “otherwise” branch of that structure. *Id.* The “second haptic effect” of the “otherwise” branch derives meaning by being different from a “first haptic effect” associated with the “if” branch. *Id.* at ¶ 38. Because the claimed steps in both the “if” and “otherwise” clauses derive meaning by reference to each other, the “if” clause and “otherwise” clause cannot be read in isolation. *Id.* Disconnecting the “if” and “otherwise” eliminates the binary logic structure and the capability of providing both of the alternative haptic effects that the claim language requires. *Id.* The claimed method recites a binary logic structure. *Id.* The use of this binary logic in the claimed method cannot be read out of the claim language.

**B. “Signal” (Claim 13)**

Petitioner requests construction of the term “signal.” The Board in its prior initial decision declined to construe the term “signal.” Decision at 7. In the event that the Board revisits this issue, the plain meaning of the limitation should apply.

**C. “A haptic effect is configured to emulate the command” (Claim 20)**

The Board in its prior initial decision declined to construe the term “haptic effect configured to emulate the command.” Decision at 7. In the event that the Board revisits this issue, the plain meaning of the limitation should apply. The ’710 patent gives examples of “haptic effects that emulate the command determined by the processor ... or the function performed by the processor,” such as a haptic effect including “a vibration that begins in the middle of the back of the wheelchair and moves to the right” in response to a command to turn a wheelchair to the right. Ex. 1101 at 6:55-67, 12:6-24. This teaching is consistent with the plain meaning of the limitation. Visell Decl. at ¶ 40.

Petitioner argues that the term “a haptic effect configured to emulate the command” should be “construed in accordance with Immersion’s infringement contentions” in a parallel ITC proceeding. This is improper because Immersion’s infringement contentions in that proceeding do not purport to set forth a claim construction and no claim construction was endorsed by the Administrative Law Judge. In similar circumstances where Petitioner has attempted to rely upon claim charts provided in the ITC, the Board expressly declined to adopt Petitioner’s gloss on those charts as the broadest reasonable interpretation. *See Apple Inc. v. Immersion Corp.*, No. IPR2016-01371, Paper 7 at 5-6 (P.T.A.B. Jan. 11, 2017)



(explaining that no claim construction can be properly inferred from claim charts in the absence of “detailed analysis regarding the operation of the products accused of infringement such that we can determine the implication of the claim charts,” and that in any event, “[the Board is] not bound, nor is Patent Owner, by Patent Owner’s representations to the ITC”).

**VI. GROUND 1: MARTIN AND MAKELA DO NOT RENDER CLAIMS 13 AND 19-20 OBVIOUS UNDER 35 U.S.C. § 103(A)**

**A. Overview of Martin**

Martin discloses a multipath approach to providing haptic effects in response to user inputs, not a binary logic structure for providing confirmatory haptic effects. Martin’s system for determining which, if any, of the twenty three possible haptic effects to play is illustrated in Figures 8-9 (reproduced below):

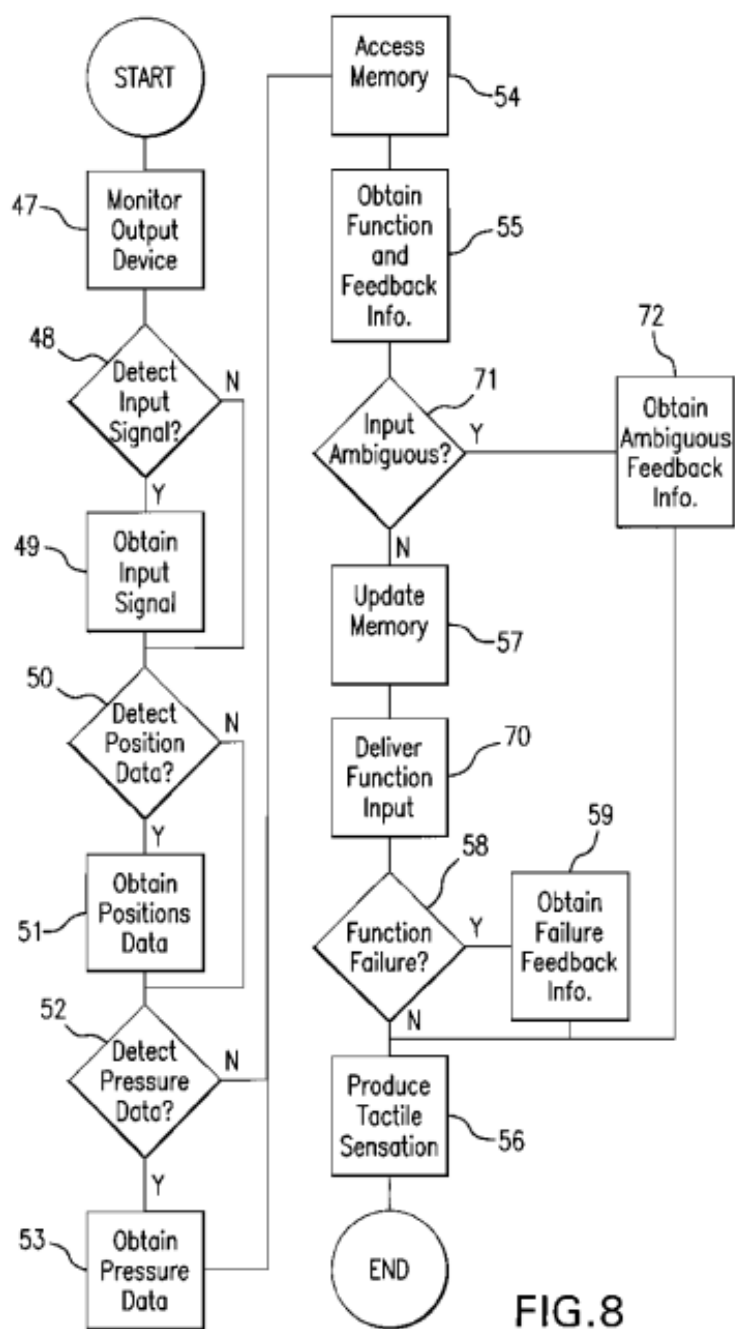


FIG. 8

INPUT DEVICE	INPUT SIGNAL	POSITION DATA	PRESSURE DATA	FUNCTION	TACTILE SENSATION
1	--	Location 1	< Pressure 1	Search	Sensation 1
	Input 1	Location 1	Pressure 1 <=	Select	Sensation 2
2	--	Position 1	--	On	Sensation 3
	--	Position 2	--	Off	Sensation 4
3	Input 2A	--	Pressure 1	9	Sensation 5
	Input 2B	--	Pressure 2	W	Sensation 6
	Input 2C	--	Pressure 3	X	Sensation 7
	Input 2D	--	Pressure 4	Y	Sensation 8
	Input 2E	--	Pressure 5	Z	Sensation 9
4	Input 3	--	Pressure 1	Menu 1	Sensation 10
		--	Pressure 2	Menu 2	Sensation 11
		--	Pressure 3	Menu 3	Sensation 12
5	--	--	Pressure 1	2	Sensation 13
		--	Pressure 2	A	Sensation 14
		--	Pressure 3	B	Sensation 15
		--	Pressure 4	C	Sensation 16
6	Input 4	Position 1	Pressure 1	Function 1	Sensation 17
	Input 5	Position 2	Pressure 2	Function 2	Sensation 18
	Input 6	Position 3	Pressure 3	Function 3	Sensation 19
7	Input 7	Location 1	Pressure 1	Function 1	Sensation 20
	Input 8	Location 2	Pressure 2	Function 2	Sensation 21
--	AMBIGUOUS	--	--	--	Sensation 22
--	Function Failure	--	--	--	Sensation 23

FIG. 9

Martin teaches that user “inputs” are used to identify an associated entry in the FUNCTION column and an associated “tactile sensation” (Sensations 1-21) in Figure 9. Ex. 1106 at 14:22-32; *see also* Fig. 8 (Step 55 “Obtain Function and Feedback Info.”); Visell Decl. at ¶¶ 42-51.

Petitioner incorrectly equates one of the listed entries in the FUNCTION column to a “command” in the ’710 patent. *See* Pet. at 22 (identifying “Menu 1” as a command). The entries in this column, however, cannot be generally equated to the claimed commands. At least some of Sensations 1-21 in Martin play when no action is performed and thus no command has been determined. Visell Decl. at ¶ 45. For example, if a user input is matched to the “SEARCH” entry in the “FUNCTION” column of Figure 9, the associated sensation is Sensation 1. *See, e.g.,* Ex. 1106 at Fig. 9 (first entry showing “Sensation 1” associated with a

“SEARCH” entry in the “FUNCTION” column). The Martin specification discloses that the “SEARCH” entry means the user is “simply searching or feeling for the location of the desired button or key ... [t]herefore, the controller ***does not provide a function input*** to the electronic device.” *Id.* at 15:38-42 (emphasis added). Entries such as SEARCH, for which there is no associated command, cannot correspond to the “if” branch of claim 1 in the ’710 patent, which requires a command to be determined. Visell Decl. ¶ 45.

In addition to “SEARCH,” another example of a scenario in which no command is determined for a given user input is the “AMBIGUOUS” determination. Ex. 1106 at 16:3-21; Fig. 8 (step 71); Visell Decl. ¶ 46. An “ambiguous input can represent a [user input] that is not represented [in] the data contained in memory,” or it “can represent input simultaneously from two input devices or an input from a portion of a touchpad that is not associated with an input device.” Ex. 1106 at 16:4-10. If the input in Martin is deemed AMBIGUOUS, the tactile sensation associated with an AMBIGUOUS input, sensation 22, is obtained from memory, and that tactile sensation is provided to the appropriate input device. *Id.* at 16:10-14. In this path, any preliminary sensation information obtained in step 55 is replaced by the AMBIGUOUS tactile sensation at step 72, which is output to the user in step 56. Visell Decl. ¶ 46.

Yet another path in the multi-path approach described in Martin where no command is determined for a given user input is when an input is classified as “Function Failure” and Sensation 23 played. As illustrated in Figure 9, when an input is classified as “Function Failure,” there is *no* associated function. See Ex. 1106, Fig. 9 (“Function” column empty for “Function Failure”). One type of “Function Failure” is where no function has been assigned at all. *Id.* at 17:3-6. Another is where a function was preliminarily associated at step 55 but not available. *Id.* at 18:7-11; Visell Decl. ¶ 49.

Martin teaches, for example, that a rocker switch can be assigned to a variety of functions, but if the rocker switch is activated when no function is assigned to it, it “will not provide any function in the mobile phone *since no function is currently assigned and a function failure tactile sensation ... will be output through the rocker switch.*” Ex. 1106 at 16:59-17:6 (emphasis added).

Alternatively, the function may not be available for execution, because for example, the user may not have authority to access the function. *Id.* at 18:11-16. If the indicated function is not available or assigned for a given user input, “the controller obtains the tactile sensation information for the tactile sensation associated with function failure 59, Sensation 23, and produces that sensation in the appropriate input device.” *Id.* at 18:7-11. In this path, any preliminary tactile sensation information obtained in step 55 is replaced by the failure haptic feedback

information in step 59, which is output to the user in step 56. Visell Decl. ¶¶ 50-51.

**B. Martin Does Not Disclose The Claimed Binary Logic Structure Disclosed In The '710 Patent**

As discussed above in Section V.A, the “if ... otherwise” clause in the challenged claims describes a binary logic structure that can be used for a given user input: *if* a user input is recognized and a command is determined, a first confirmatory haptic effect is output; *otherwise*, a second haptic effect is output. *See also* Ex. 1101, claim 13. Petitioner relies solely on the Martin reference in Ground 1 to address the “if ... otherwise” limitations (Pet. at 24-26), but fails to establish that Martin discloses either path of such a binary logic structure. Visell Decl. ¶¶ 52-56.

**1. The Petition Fails to Adequately Address the Key “Otherwise ...” Limitations in the Challenged Claims**

The Petition explicitly and erroneously construes the “if ... otherwise” conditional of claim 13 (and claims 18-20, which depend from claim 13) as being taught by a system in which there is no “otherwise” step (and its “second actuator signal” and “second haptic effect”). Pet. at 26-27. As discussed above, Petitioner’s attempt to write out the “otherwise” portion of the claimed binary structure and its associated limitations is without merit.

Despite its argument that the “otherwise” branch should be ignored, Petitioner also incorrectly argues that Martin discloses the “otherwise” step. Petitioner relies on the scenario in which the system makes an AMBIGUOUS determination and provides Sensation 22. *Id.* at 26 (discussing Figure 9). However, this does not describe a binary logic structure. Petitioner fails to address other permutations addressed above where, from the same user input, a command is not determined and different haptic effects are provided, including at least Function Failure and SEARCH and their associated Sensations 1 and 23. Visell Decl. ¶ 54.

As illustrated in Figure 9, there are at least two sensations (the AMBIGUOUS Sensation 22 and the Function Failure Sensation 23) that have *no* associated function. *See* Ex. 1106 at Fig. 9 (“FUNCTION” column empty for AMBIGUOUS and Function Failure lines); Visell Decl. ¶ 52. In the ITC action, Petitioner’s expert confirmed that these two entries “have nothing to do with functions” (what Petitioner equates to commands). Ex. 2004 (Givargis ITC Depo.) at 148:14-25 (“If you look at Figure 9, there are two table entries where there is no function. And those are examples of sensations that have nothing to do with functions or pressure or location. They’re strictly for the purpose of accommodating—providing an ‘Ambiguous’ feedback as well as providing a ‘Function Failure’ feedback.”). Petitioner argues that Figure 8 of Martin discloses

a two-path structure (Pet. at 27-28), but ignores Function Failure, which is an alternative path available for a given user input for which no command is determined (Figure 8, steps 56 and 58). Visell Decl. ¶ 52.

Additionally, as discussed above, at least some of the entries in the FUNCTION column and their corresponding tactile sensations also result when there is no command determined. *Id.* at ¶ 53. For example, Martin discloses that the “SEARCH” entry in the “FUNCTION” column means the user is “simply searching or feeling for the location of the desired button or key. Therefore, the controller *does not provide a function input to the electronic device.*” Ex. 1106 at 15:31-45 (emphasis added). The SEARCH entry cannot be a command because it is not an instruction to cause an action to be carried out. Visell Decl. ¶ 53. In other words, “SEARCH” is not a command that can be executed by Martin’s system, but rather describes what the user is doing—namely, searching for a button or key. *Id.* In this circumstance, no command is determined and Sensation 1 is provided to the input device. Ex. 1106 at 15:43-45.

Contrary to the binary logic structure required by the challenged claims, there are several different branching possibilities disclosed in Martin that can result from any given user input. Rather than one “otherwise” path with one haptic effect, in Martin there are always at least two different sensations (AMBIGUOUS (Sensation 22) and Function Failure (Sensation 23)) that can result when a



command is not determined. In some cases, for a given input, there may be even more possible sensations that can result when a command is not determined (*e.g.*, Sensation 1 associated with SEARCH)). Further, according to the testimony of Petitioner's expert, there is yet another scenario in which *no* haptic effect is played: "Q. According to Martin, if the input is not recognized ... you never get to the table in Figure 9 [and] *no* sensation is provided? A. If the input is not recognized to the degree that you can't qualify this input, there's certainly no need to go to the table." Ex. 2003 (Givargis Depo. at 100:8-14).

**C. Martin In View of Makela Does Not Render The Challenged Claims Obvious**

Claim 13 has the additional requirement that the user input be in the form of "speech information." Ex. 1101, claim 13 ("... recognizing the user input and determining a command associated with the speech information ...."). Petitioner acknowledges that "Martin does not expressly disclose the input device (sensor) as comprising a sensor for sensing user inputs comprising speech information, as recited in limitation 13." Pet. at 16. Petitioner relies on the Makela reference (Ex. 1107) as disclosing input of speech information and incorrectly argues that it would have been obvious to combine these teachings of Makela with Martin. Pet. at 17.

## **1. Overview Of Makela**

Makela does not relate to providing haptic effects for confirmation of commands. Visell Decl. at ¶ 61. Instead, Makela discloses the use of “trigger events” to cause generation of “presentation tokens” associated with outputs from a device. Ex. 1107, Abstract. Makela teaches that a “microphone 24 may be coupled with the speech recognition functionality of the device 10 (the VR 24A)” to receive such trigger events. *Id.* at ¶ 17.

Petitioner relies on the example in Makela of a voice output of a “Caller ID.” Pet. at 20 (citing Ex. 1107 at ¶ 38). In this example, “the user receives a call in a mobile context ... indicated with a ringing tone. To hear the caller name via the speech synthesizer 20 the user triggers a voice output token with a speech command: ‘who’.” Ex. 1107 at ¶ 38. This disclosure has nothing to do with confirmation of a command using haptic output. Visell Decl. ¶ 62. Instead, the user input (the trigger “who”) merely causes a function to take place (output of the “Caller ID” on the voice synthesizer), with no corresponding haptic output. *Id.*

## **2. Petitioner Fails to Provide Motivation to Combine Martin and Makela**

Petitioner erroneously asserts that a person of skill in the art would be motivated to combine Makela’s speech input functionality with the system disclosed in Martin (which does not include speech recognition functionality, much

less any system for providing haptic feedback to confirm whether or not speech inputs are recognized). Pet. at 17. Petitioner's analysis is flawed because obviousness is based on the claim as a whole, not on an element by element basis. Visell Decl. ¶ 63.

Martin is directed to input device that is more efficient and easier to use through the incorporation of pressure detection and haptic functionality, and contains a detailed discussion of how detecting pressure variance as a user interacts with a device, and providing corresponding tactile sensations, aids the user experience and addresses limitations of the prior art. Ex. 1106 (*e.g.*, a “first pressure” and a “second pressure” in claim 1). Martin explains that the inventions help to address a problem with prior art devices, which is that users cannot always rely on visual feedback when providing pressure input to electronic devices (*e.g.*, has a button been selected when they need to be watching the road while driving, in a distracting environment, or the user interface screen is not visible). *Id.* at 1:60-2:5. The specification states that the input device thus has “multiple positions” resulting from the user's pressure input. *Id.* at 3:14-17; Visell Decl. ¶ 64.

The speech input of Makela is an entirely different approach for a different purpose. Visell Decl. ¶ 65. Petitioner has not established why the existing pressure-input system in Martin is deficient such that a person of ordinary skill would be motivated to add speech inputs as part of generating haptic effects or

what benefit such an addition would be in the context of a device focused on the application of pressure by a user. *Id.* Further, a person of ordinary skill in the art would find that adding such additional inputs would make the system needlessly more complex. *Id.*

Petitioner asserts that the Martin device “was ready for improvement (as taught by Makela),” but fails to explain how speech input could be used in the Martin system. *See* Pet. at 19. Petitioner thus fails to explain how a person of skill in the art would have a reasonable expectation of success or predictable results in incorporating the speech inputs of Makela into the Martin system. Visell Decl. ¶ 66. Petitioner also argues that the inputs in Figure 9 of Martin could be modified to include speech inputs. Pet. at 22-23. Petitioner fails to explain any motivation for making such a modification or what use such additional inputs would serve in Martin’s system. Visell Decl. ¶ 66.

Petitioner relies on examples in Martin relating to “missed phone calls” and a “mobile phone” implementation arguing that the associated microphones could be used for speech input. Pet. at 18 (citing Ex. 1106 at 16:33-37 and 16:59-61). The cited examples expressly involve the pressure inputs disclosed in Martin: “the function corresponding to the input signals, positions, and pressures detected by the controller ....” Ex. 1106 at 16:22-26; *see also* 16:67-17:2 (“Light searching pressure applied to the assignable input device and the rocker switch will produce

first and second distinct tactile sensations ....”); *see also* Visell Decl. ¶67.

A POSITA would therefore not have been motivated to combine Martin and Makela in the way described. *Id.*

**D. Martin Does Not Disclose The First Haptic Effect Emulating A Command**

As explained above, Petitioner has not established that Martin and Makela disclose or render obvious claim 13, and thus also has not established that that these references disclose or render obvious claims 19 or 20, which depend upon claim 13. Furthermore, Claim 20 depends upon Claim 13, and recites the additional limitation that “the first haptic effect is configured to emulate the command.” Ex. 1101, claim 20. Petitioner relies solely on the Martin reference in Ground 1 to address the additional limitation of claim 20. Pet. at 31-32. Petitioner has provided no evidence that Martin discloses any haptic effect that emulates a command that is determined.

The ’710 patent gives several examples of emulation of a command, including where a phone “call home” command is emulated by “a series of haptic effects corresponding to each number dialed and each ring of the phone being called,” and a “right turn” command is emulated by a vibration that “moves to the right.” Ex. 1101 at 6:55-66, 12:6-19; Visell Decl. ¶ 57. Petitioner’s own expert maintains that this limitation requires “a haptic effect that resembles some

attributes of the function being executed.” Ex. 2004 (Givargis ITC Depo. at 144:3-17).

However, Petitioner offers only the conclusory assertion that Martin’s reference to a “pop” effect renders obvious emulating a command resulting in the display of a menu “because a POSITA would find it obvious to select a ‘pop’ haptic effect when ‘popping up’ of a menu.” Pet. at 32. Similarly, Petitioner’s argument that Martin’s disclosure that ““the number of occurrences of a distinct vibrotactile sensation, such as a pop, corresponds to the index number of the menu option within a list of options”” renders claim 20 obvious because the number of pops corresponds to the position of the command in the menu” is conclusory and incorrect. *Id.* at 33. The index number of a menu option is not a command—Dr. Givargis admits that “a command is an instruction to a computer program that causes an action to be carried out,” (Ex. 2003 (Givargis Depo.) at 76:7-12), and the index number of a menu option is not an instruction that causes an action to be carried out. Visell Decl. at ¶¶ 58-59. Furthermore, Petitioner provides no reason why a POSITA would have modified Martin such that any of its haptic effects emulated a command determined by its system. Accordingly, Martin does not disclose or render obvious claim 20.

**E. The Petition Offers Insufficient Evidence For Ground 1**

Petitioner's arguments regarding Ground 1 fail for the second independent reason that insufficient evidence is offered to support them. "The determination of what a reference teaches is one of fact," *In re Constr. Equip. Co.*, 665 F.3d 1254, 1255 (Fed. Cir. 2011), and "[t]o facilitate review, [obviousness] analysis should be made explicit." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.")).

While Petitioner's arguments for Ground 1 contain multiple statements regarding what the POSITA would have known or recognized, the only "evidence" for these assertions is an expert declaration that simply *repeats* these assertions. *Compare, e.g.,* Pet. at 17 with Ex. 1102 (Givargis Decl.) ¶58. Indeed, Paragraphs 58-60 of the declaration recite pages 17-20 of the Petition nearly verbatim. *See generally* Ex. 1102 (Givargis Decl.). Furthermore, the reasoning in many instances is wholly conclusory, and not supported by any credible reasoning in the Petition or the expert declaration that parrots the Petition. This is insufficient to establish the likelihood of obviousness. *See, e.g., Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1366 (Fed. Cir. 2016) (reversing obviousness determination based on

“conclusory statements and unspecific expert testimony”); *see also Sony Corp. of America v. Network-1 Security Sols., Inc.*, IPR2013-00092, 2013 WL 5947702, at \*10 (P.T.A.B. May 24, 2013) (declining to institute *inter partes* review where Petitioners did not “provide any facts or reasoning as to why a person of ordinary skill in the art would have found the claimed subject matter obvious”).

**VII. GROUND 2: THEODORE AND SHAHOIAN DO NOT RENDER CLAIMS 13, 18 AND 19 OBVIOUS UNDER 35 U.S.C. § 103(A)**

Ground 2 of the Petitioner is based primarily on Theodore. *See* Pet. at 33. The foreign counterpart of Theodore is a cited reference considered during prosecution, and the challenged claims of the ’710 patent were determined to be over its disclosures patentable. *See* Ex. 1101, Foreign Patent Documents, WO 99/45531 (corresponding to Theodore). Petitioner offers no reason to revisit the Examiner’s initial determinations that challenged claims 13 and 18-19 are patentable over the disclosure of Theodore.

**A. Overview Of Theodore**

Theodore is not directed to confirmation of commands associated with user input using haptic effects. Instead, Theodore discloses “a speech recognition system and an input device.” Ex. 1104 at Abstract. “[T]he apparatus 10 includes a computer 12 programmed to carry out voice recognition based on voice data produced from sound spoken by a user through an input device 14.” *Id.* at 2:20-23.



The input device is “remote from the computer [and] ... includes a microphone, an indicator and a user operated switch [for] input[ting] speech.” *Id.* at Abstract.

“[T]he user operates the user operated switch wherein an activation signal is transmitted from the input device to the computer” and the computer readies for speech input. *Id.* at 1:57-59; Visell Decl. ¶¶ 68-69.

After the user provides speech input to the microphone, “the speech recognition module 98 [in the computer] evaluates the input voice instruction against the set of valid instructions. If the voice instruction received from the user does not correspond with any of the expected instructions in the set of valid instructions, program flow continues to step 122 whereat a ‘Not Recognized Signal’ is transmitted to the user indicating that the voice instruction received was not recognized.” Ex. 1104 at 6:62-7:2; Visell Decl. ¶ 70. In the described embodiment, “the Not Recognized Signal is generated as a tone and transmitted through the speaker 66 of the handset 18 to the user.” Ex. 1104 at 7:2-4. “If at step 120, the speech recognition module 98 does determine that the received voice instruction corresponds to one of the set of valid voice instructions, the system generates a ‘Recognized Signal’ that is transmitted to the user through the input device 14 at step 124 ... the Recognition Signal is used to initiate an audible tone provided to the user.” *Id.* at 7:11-18; Visell Decl. ¶ 70.

Theodore also includes a general statement that “visual indicators such as lights, or tactile indicators such as buzzers” may be used in lieu of, or in addition to, the audio signals. Ex. 1104 at 7:34-36. Theodore does not further describe any “tactile indications” or describe how “buzzers” would be implemented in the described system. Visell Decl. ¶ 71. Theodore only states that “[i]f the signals are inaudible, suitable circuitry is provided in the telephone 130 to generate audible tones, or activate other indicating devices such as lights, buzzers, etc. on the telephone 130.” Ex. 1104 at 8:2-5; Visell Decl. ¶ 71. Neither Theodore nor any reference cited by Theodore mentions providing different first and second haptic effects or a binary structure for providing haptic effects, as required by claim 13. *Id.*, ¶ 72.

Indeed, the only reference cited on the face of Theodore that provides any discussion of a “buzzer” refers to only a single sound or tone, and only in response to “questionable recognition” of a user input. *Id.*; *see also* Ex. 2005 at 4:5-8 (“a buzzer is sounded upon questionable recognition of a spoken command as a query to ascertain the correct spoken word”), 14:49-57 (if “the word spoken has a low degree of confidence” the system “send[s] the query buzzer tone back to the user”). Like Theodore, this reference does not discuss whether its buzzer even has the capability of providing distinct haptic effects, let alone the different confirmatory

haptic effects (“first haptic effect” and “second haptic effect”) in the challenged claims of the ’710 patent. Visell Decl. ¶ 72.

Petitioner’s arguments regarding Theodore boil down to an argument that the claims are obvious because speech is a known input to certain devices. Put another way, Petitioner essentially contends that the field of haptics, and how to apply haptic effects to improve user interactions, is obvious in view of prior audio feedback techniques. *Id.* ¶ 73. Such arguments ignore the industry acknowledged benefits of advances in haptics by expanding integration of haptics into electronic devices to improve the functionality. *Id.* Such arguments are also belied by Patent Owner’s extensive portfolio of haptics patents. *Id.*

**B. Theodore In View Of Shahoian Does Not Disclose The Claimed Binary Logic Structure Disclosed In The ’710 Patent**

As discussed above in Section V.A, the “if ... otherwise” clause in the challenged claims describe a binary logic structure that can be used for a given user input: *if* a user input is recognized and a command is determined, a first confirmatory haptic effect is output; *otherwise*, a second haptic effect is output. Ex. 1101, claim 13. This functionality is implemented in a computer and the claimed method carried out via two paths corresponding to two haptic effects. The Petition’s arguments regarding Ground 2 fail to demonstrate how Theodore and Shahoian disclose or render obvious the “if ... otherwise” conditional of claim 13

and its corresponding limitations. Visell Decl. ¶ 74. The Petition therefore also fails to disclose or render obvious the remaining claims challenged in Petitioner's Second Ground, which depend from claim 13, as Petitioner's arguments regarding the dependent claims do not address the "if ... otherwise" conditional and its corresponding limitations.

**1. Theodore Does Not Disclose Differential "First" Or "Second" Actuator Signals Or The "[I]f ..." Portion of the Clause**

The "if" portion of the "if ... otherwise" clause requires that a "first haptic effect" be provided if (1) "user input is recognized" and (2) a "command is determined." Ex. 1101, cl. 13. Petitioner relies on the disclosure in Theodore of a speech recognition module on a computer providing a "Recognized Signal" to the remote input device when speech information "corresponds to one of the set of valid voice instructions." Pet. at 35 (citing Ex. 1104 at 7:11-18). Petitioner does not address, and Theodore does not disclose, what happens when the input speech information is not recognized. Visell Decl. ¶75.

As a result of the "if" clause returning true, the challenged claims also require the system to "generate a first actuator signal configured to cause the actuator to output a first haptic effect." Ex. 1101, cl. 13. Petitioner acknowledges that Theodore discloses the use of audible tones to provide "indications of whether the voice input was 'Recognized.'" Pet. at 35 (citing Ex. 1104 at 6:62-7:18).

Petitioner relies on a general statement in Theodore that a “tactile buzzer” can be used in lieu of audio tones as disclosure of this portion of the limitation. *Id.* (citing Ex. 1104 at 7:30-36). The cited disclosures, however, do not reference confirmatory haptic effects. Visell Decl. at ¶ 76.

For example, Theodore is silent on having differential haptic effects indicating whether or not the speech input was recognized and a command was determined. *Id.* at ¶77. Any such differentiated feedback would require specialized drive circuitry and programming that is not addressed in Theodore. *Id.* Theodore also fails to disclose the subsequent limitations regarding “a first actuator signal” and “a first haptic effect.” *Id.* While Theodore indicates that certain audible indications to a user can be replaced by an indication from a buzzer, Theodore does not teach that a “Recognized Signal” and a “Not Recognized Signal” that is distinguishable from the “Recognized Signal” would be or even could be provided using a buzzer. *Id.* at ¶78.

Petitioner’s reliance on the mention of a piezoelectric buzzer in Shahoian to cure this deficiency is misplaced. First, Theodore does not mention “piezoelectric” buzzers. *See* Ex. 1104; Visell Decl. at ¶79. Second, such buzzers are typically driven at a resonant frequency, and produce poor results if driven at a different frequency. *Id.* For example, they become horribly inefficient at other frequencies compared to resonance. *Id.* Third, to produce differential haptic effects, a buzzer

would require a specialized driving circuit and programming. *Id.* Theodore does not describe such driving circuit and programming.

The fact that tactile buzzers were not considered for providing distinct haptic effects to indicate both (1) recognition of user input and determination of a command and (2) failure to recognize the user input or determination of a command is shown by the references cited on the face of Theodore. Of all of these references, only one discusses the use of a “buzzer,” and it is similarly ambiguous regarding what any such “buzzer” might entail. Visell Decl. at ¶ 80; Ex. 2005 (U.S. Patent No. 5,774,841). The ’841 reference teaches only that the buzzer is used to indicate to the user when a user input is *not* fully recognized—no teaching is provided that the buzzer can also be used to indicate to the user when the input *is* recognized. Ex. 2005 at 11:33-35 (“A single tone indicates good recognition. A double tone indicates vocabulary node transition. A buzzer indicates a questionable recognition.”); Visell Decl. at ¶ 80. This teaching would confirm to a POSITA that Theodore’s tactile buzzer would not be used to provide distinct haptic effects corresponding to both (1) a confirmation that an input is recognized and a command determined, and (2) an indication that an input was not recognized or a command not determined, as required by claim 13. *Id.* The prior art does not teach or suggest using a buzzer to provide effects for *both* branches of a binary logic structure, and Petitioner provides no explanation why such a solution would

have been obvious in view of the difficulties in adapting Theodore's buzzer to accomplish such an implementation. *Id.*

Petitioner argues that "the European Patent Office found that the PCT application of Theodore (WO 99/45531 A1) anticipated all claims of the '710 patent's corresponding PCT application" and that the same reasoning should apply here. Pet. at 36. The initial findings of the European Patent Office addressed different claims with different limitations. *See* Ex. 1112 (Patent Cooperation Treaty, International Search Report, Application No. PCT/US2010/054967); Ex. 1114 (PCT/US2010/054967, claims). While Petitioner argues that the claims are substantially similar to the challenged claims in the '710 patent, the examiner was aware of the corresponding PCT application and findings of the European Patent Office during the prosecution of the challenged claims and allowed the claims over the Theodore reference. *See* Ex. 1112 ('710 patent file history); Visell Decl. ¶ 81. Moreover, the corresponding European application is still undergoing prosecution and the prior art, including the foreign counterpart to Theodore, has been differentiated, for example, on the basis that the prior art does not address the steps of both "recognizing" the user input and "determining a command." Ex. 2007 (1/28/2013 Annotated Amended Claims in Application EP2497004); Visell Decl. at ¶ 81.

## **2. Shahoian Does Not Remedy The Deficiencies In Theodore**

Petitioner relies on the Shahoian reference (Ex. 1105) as disclosing the generation and transmission of an actuator signal and mistakenly argues that it would have been obvious to combine these teachings of Shahoian with Theodore. Pet. at 44-47. Shahoian has nothing to do with haptic confirmation of commands. Visell Decl. at ¶ 82.

Shahoian discloses a computer system with a touch input device and an actuator that can provide haptic feedback in response to user inputs on the touch input device. Ex. 1105 at [0008]. The touch input device provides coordinate data to a processor based on the sensed location of an object near the touchpad. *Id.* at [0041]. Capacitive or resistor sensors can be used to determine the location of the object. *Id.* The system may include a local microprocessor that receives input signals from the sensors and provides output signals to actuators in accordance with instruction from a host processor. *Id.* at [0066]. The actuator provides haptic feedback to the user. *Id.* Haptic feedback is provided in response to detection of contact by the user on the touch input device. *Id.* at [0077]. In other words, Shahoian addresses providing haptic feedback to a user based upon user inputs, not based upon whether or not such inputs are associated with a command. Visell Decl. at ¶¶ 82-83.



Petitioner mistakenly asserts that it would have been obvious to combine the buzzer of Theodore with the more complex actuator drive systems of Shaohoian. Pet. at 43. Theodore is focused primarily on audio inputs and feedback. Ex. 1104, 7:11-18 (feedback as “audible tone”); Visell Decl. at ¶84. Theodore includes a single general statement that “visual indicators such as lights, or tactile indicators such as buzzers” may be used in lieu of, or in addition to, the audio signals. Ex. 1104 at 7:34-36. There is no need in the system of Theodore for a complex system of haptic feedback providing positive a negative confirmation of commands. Visell Decl. at ¶84. Petitioner provides no motivation to combine the two systems.

Petitioner argues that a POSITA would be motivated to combine the references because both references disclose “tactile buzzers.” Pet. at 44-45. The “tactile buzzer” disclosed in Theodore is disclosed as merely providing a single response to the user. Visell Decl. at ¶ 85; Ex. 1104 at 7:34-36. Shahoian, on the other hand, discloses a more complex system of haptic feedback directed at producing different types of haptic sensations. Ex. 1105 at [0106] (“To provide the desired haptic sensations, a large piezo buzzer should provide large sustainable displacements (accelerations) of the mass and the carrier frequency (the frequency at which it oscillates) should be modulated with the haptic signal.”) (emphasis added); Visell Decl. at ¶85. There is no need for such a complex tactile feedback mechanism in the speech recognition system of Theodore. *Id.*

### **3. The Petition Also Fails to Address the Key “Otherwise ...” Limitations in the Challenged Claims**

As discussed above in Section V.A, the Petition explicitly and erroneously construes the “if ... otherwise” conditional of claim 13 (and claims 18-20, which depend from claim 13) as being taught by a system in which the “otherwise” step (and its “second actuator signal” and “second haptic effect”) is never reached. Pet. at 46.

Despite its argument that the “otherwise” branch should be ignored, Petitioner also argues that Theodore combined with Shahoian disclose the “otherwise” limitations. Pet. at 46-47. There are several problems with Petitioner’s arguments. First, as discussed above, Petitioner fails to provide motivation for combining the “speech recognition” system of Theodore with a haptic feedback system like Shahoian. Visell Decl. at ¶¶ 86-87. Second, Petitioner fails to identify disclosure in either reference of having a “first haptic effect” and an “otherwise” path with a “second haptic effect,” wherein the first haptic effect is distinct from the second haptic effect as required by claim 13. *See* Pet. at 46-47; Ex. 1101 at 3:33-36 “the identifiers ‘first’ and ‘second’ are used here to differentiate between different signals and effects”). Neither reference discloses such first and second haptic effects at all, much less an “otherwise” path in which a distinct, second effect is output. Visell Decl. at ¶¶ 88. Theodore discloses only

that a tactile buzzer can be used, and as described above does not describe the tactile indications that might be created by the buzzer, or even whether its buzzer would be capable of generating distinct effects. Ex. 1104 at 7:34-36; Visell Decl. at ¶ 88. Furthermore, the only reference cited by Theodore that discusses a buzzer implemented a buzzer to provide a single indication that a user input was *not* fully recognized, and did not also use the buzzer to provide a confirmation under different circumstances such as an input being recognized. Ex. 2005 at 11:33-35 (“A single tone indicates good recognition. A double tone indicates vocabulary node transition. A buzzer indicates a questionable recognition.”); Visell Decl. at ¶ 89. Furthermore, as discussed above, Shahoian is not directed at confirmation of commands and thus does not tie the haptic effects to such confirmation. Visell Decl. at ¶ 90.

### **C. The Petition Offers Insufficient Evidence For Ground 2**

Petitioner’s Ground 2 shares a similar defect as Ground 1—namely, a lack of evidentiary support. *See* Section VI.E above. The only basis for Petitioner’s alleged reason to combine Theodore and Shahoian in the way described in the Petition is an expert declaration that merely repeats the Petition’s conclusory statement that a POSITA would have had such a motivation based upon the usage of the term “buzzer” in both references. Pet. at 46-47; Ex. 1102 (Givargis Decl.) ¶¶ 107-108. But “[c]onclusory statements ... do not fulfill the ... obligation to

explain all material facts relating to a motivation to combine.” *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362 (Fed. Cir. 2016) (reversing Board finding of obviousness).

## VIII. CONCLUSION

The Petition fails to show that there is a reasonable likelihood Petitioner will prevail with respect to at least one of the challenged claims under 35 U.S.C. § 314(a). Consequently, the Board should deny the Petition and not institute an *inter partes* review.

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Respectfully submitted,

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**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. § 42.6, the undersigned certifies that on August 24, 2017, a copy of the foregoing document **IMMERSION CORPORATION'S PATENT OWNER PRELIMINARY RESPONSE and EXHIBITS 2001-2008** were served, by electronic mail, as agreed to by the parties, upon the following:

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**CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24**

Pursuant to 37 C.F.R. § 42.24 (d), I certify that the present paper contains 11,850 words as counted by the word-processing program used to generate the brief. This total does not include the tables of contents and authorities, the caption page, table of exhibits, signature blocks, certificate of service, or this certificate of word count.

Dated: August 24, 2017

Respectfully submitted,

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