

Patent Owner's Preliminary Response
IPR2024-00582 (U.S. Patent No. 11,175,738)

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VALVE CORPORATION,
Petitioner,

v.

IMMERSION CORPORATION,
Patent Owner.

Case No. IPR2024-00582
Patent 11,175,738

PATENT OWNER'S PRELIMINARY RESPONSE

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EXHIBIT LIST

Exhibit No.	Exhibit Description
2001	Declaration of Craig Rosenberg, Ph.D. in Support of Immersion Corporation's Patent Owner Preliminary Response
2002	Curriculum Vitae of Dr. Rosenberg
2003	US 2009/0322497 A1 to Ku et al. ("Ku Application")
2004	<i>Immersion Corp. v. Valve Corp.</i> , 2:23-cv-000712-TL, Order on Motion to Stay Pending <i>Inter Partes</i> Review, Dkt. # 69
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2006	<i>Immersion Corp. v. Valve Corp.</i> , 2:23-cv-000712-TL, Valve Corp.'s Invalidity Contentions

I. INTRODUCTION

Patent Owner Immersion Corporation (“Immersion”) respectfully requests that the Board deny institution of this Petition for *inter partes* review because it fails to demonstrate a reasonable likelihood that Valve Corporation (“Petitioner”) will succeed in carrying its burden to show that the challenged claims of Immersion’s U.S. Patent No. 11,175,738 (EX1001 or the “’738 Patent”) are unpatentable.

The Petition asserts 4 Grounds: Ground 1 alleging that Claims 1-3, 5-6, 14-15, and 19 of the ’738 Patent are anticipated or rendered obvious by Pratt under 35 U.S.C. §§ 102 and 103; Ground 2 alleging that Claims 1-6, 14-16, and 19 of the ’738 Patent are obvious over Pratt in view of Ku; Ground 3 alleging that Claims 1-5, 14-16, and 19 of the ’738 Patent are obvious over Ku; and Ground 4 alleging that Claims 1-6, 14-16, and 19 of the ’738 Patent are obvious over Ku in view of Jiang.

As detailed in this Preliminary Response, Petitioner has failed to meet its burden for at least two reasons such that the Board can and should deny institution. *First*, Grounds 2, 3, and 4 rely on the Ku reference that is the same, or substantially the same, as art considered during the prosecution of the ’738 Patent. Consequently, the Board should exercise its discretion under 35 U.S.C. § 325(d) and deny institution of the Petition on these Grounds given (i) the substantial similarity between the art asserted in the Petition and previously considered art and (ii) Petitioner’s failure to show material error by the Office in its prior consideration

of the art. *Second*, Petitioner fails to show that either Pratt or Ku discloses a single haptic effect signal based in part on both a first proximity signal and a second touch signal. Instead, both Pratt and Ku are directed to providing separate haptic effects, each based independently on a proximity signal or touch signal, but not both.

The inventors of the '738 Patent recognized that in the prior art, haptic feedback to user interactions was limited in that it did not provide information about both proximity and touch in a single haptic effect. EX1001, 1:14-20, 11:26-40; Declaration of Craig Rosenberg, Ph.D. ("EX2001"), ¶51. The inventors looked to enhance haptic feedback by conveying information about both proximity and touch to the user. *Id.* In this novel way, the claimed invention of the '738 Patent provides a more intuitive experience for users interacting with touchscreen devices. EX1001, 2:54-67. For example, providing haptic feedback based on proximity in addition to touch allows vehicle or heavy-equipment operators to focus on the road, equipment, or any outside element while interacting with the user interface. *Id.*, 11:61-12:9.

In contrast, the asserted Pratt and Ku references faced a different challenge, and hence, developed a different approach to generating haptic feedback. Pratt is directed to two principal concerns. The first is reducing latency, i.e., increasing the speed with which the device produces a haptic effect upon touch. EX1006, ¶[0004], [0006], [0016], [0039]; EX2001, ¶72. Thus, in these disclosed embodiments the haptic effect is based solely on the touch signal because there is no haptic effect until

there is a touch. *Id.*, ¶[0016], [0039]; EX2001, ¶¶73-79. The second concern is conveying information to the user about the speed and direction of their approach to the screen. *Id.*, ¶[0041]. Thus, in these disclosed embodiments the haptic effect is based solely on the proximity signal rather than both the proximity and touch signal as required by the '738 Patent. *Id.*; EX2001, ¶¶83-91.

Ku is generally directed to distinguishing input signals detected by a mobile device. EX1008, Title, 2:59-64; EX2001, ¶92. More specifically, like Pratt, Ku is directed to generating different haptic effects each of which separately corresponds to only sensed proximity or sensed touch respectively: “a first vibration signal is associated with the first input signal and a second vibration signal is associated with the second input signal.” EX1008, Abstract. In Ku, these different vibration signals can overlap in time, but they are nonetheless separate haptic effect signals, each based on either the proximity sensor signal or the touch sensor signal but not both. *Id.*, FIGS. 7 & 12, 1:32-34, 1:51-56, 11:32-38; EX2001, ¶¶108-110. Moreover, as explained below in §§ VII.B-C, the fact that Ku's individual vibration signals (each only based on a proximity signal *or* touch signal, but not both) can be combined together does not meet the claimed limitation, “a haptic output signal based at least in part on the first and second sensor signals.”

Taken together, the references relied on by Petitioner teach using *either* a touch signal *or* a proximity signal, but never both touch and proximity signals as

required by the '738 patent. As detailed below, these references are not suited to the objectives of the '738 Patent which is to generate a single haptic effect based in part on both the proximity and touch signals, thereby using both pieces of information to generate the haptic output. Accordingly, institution of *inter partes* review of Claims 1-6, 14-16, and 19 of the '738 Patent should be denied.

II. IMMERSION CORPORATION—A PIONEER IN HAPTICS TECHNOLOGY

Immersion Corporation is a publicly traded company, and since its founding 30 years ago, the company has been the global leader in developing haptic technology as well as licensing software solutions and intellectual property for enabling haptic interfaces in a broad array of product markets including wearable devices, mobile ads and video, mobile devices, medical applications, automotive interfaces, gaming and virtual reality. Over 3 billion devices are licensed to use Immersion's haptic feedback software and intellectual property.

Started in 1993 by Louis Rosenberg, a pioneer in sensing interfaces and feedback technology, Immersion developed and commercialized haptic innovations beginning with its force feedback technology, allowing devices to provide tactile sensations and resistance to user interactions, such as force feedback in input devices like joysticks. Immersion was one of the first companies to release haptic joysticks, computer mice and steering wheels for video games. This technology has been

widely used in gaming controllers, medical simulators, and other applications to enhance realism and user engagement.

Throughout the mid- to late-1990s Immersion continued to develop its haptic technologies, eventually developing VR interfaces for specific medical procedures. Using Immersion's technology to provide realistic feedback, these systems are used in medical schools around that world to train physicians in surgical procedures in a realistic and safe virtual environment. Immersion also partners with manufacturers and systems integrators of actuator hardware. Through these partnerships, Immersion provides designs and guidance for the development or actuators that are required to implement advanced haptic features.

Immersion, over its 30-year history, has developed and licensed haptic products and IP across diverse applications, including gaming systems, medical devices, automobiles, touchscreens, and mobile devices. Recently a primary focus has been developing and implementing advanced haptic effects, including effects optimized for use in virtual and augmented reality ("AR/VR") systems. Immersion also has a long history of developing advanced software. For example, Immersion's TouchSense® 3000 software includes a driver package designed to operate an actuator, a haptic API that programmers can use to create, launch, and modulate haptic effects, a library containing more than 100 pre-defined effects, and user

interface support. Video game industry leaders, including Nintendo, have recognized the value of Immersion's technology and partnered with Immersion.

Immersion's industry-defining technology is used in over three billion devices worldwide, including tablets, smartphones, wearables, gaming controllers, and automotive interfaces. The Institute of Electrical and Electronics Engineers ("IEEE") has recognized Immersion in its annual IEEE Spectrum Patent Power scorecards, which evaluate the technology world's most valuable patent portfolios by quantitative benchmarks. Immersion's established and growing leadership in haptic technology is reflected by its consistent ranking in the top 20 in its industry segment.

Immersion's technological advances in the haptics space have generated over 3,500 issued patents worldwide. Immersion's patents have been proven novel through multiple challenges over the years. The patents have been challenged in 43 IPRs¹ of which only 2 cases have resulted in determinations of unpatentability.

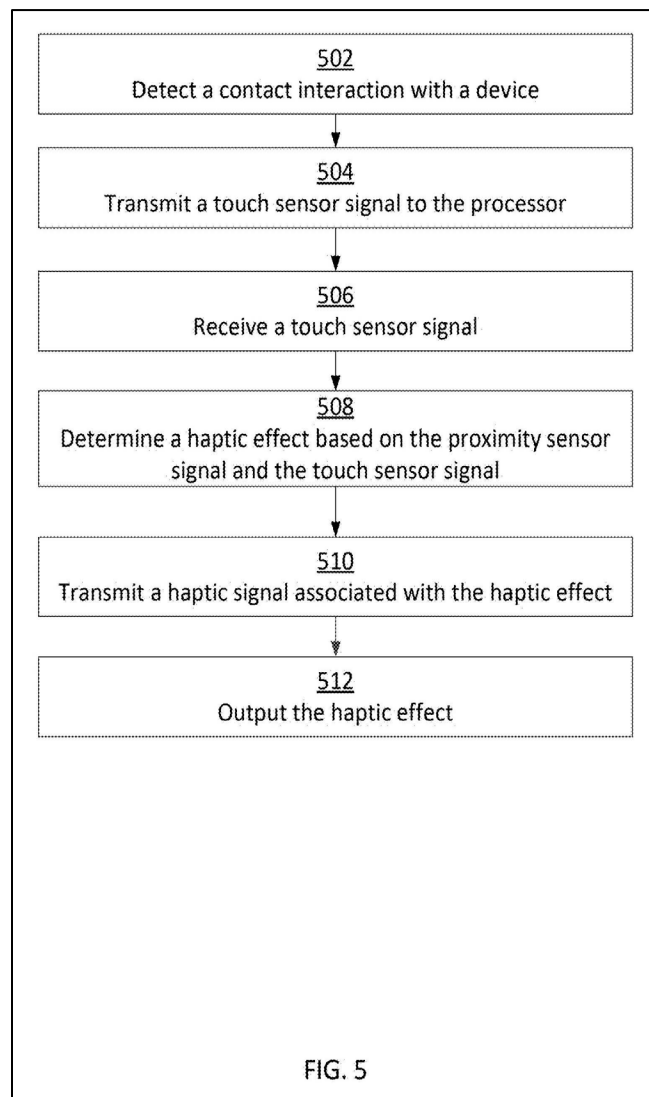
¹ 10 of these IPRs were denied institution, 14 of them were terminated prior to an institution decision in light of settlements, while 19 of them were instituted with 17 of those terminated prior to a final written decision in light of settlements.

III. THE CHALLENGED PATENT—U.S. PATENT NO. 11,175,738

A. Overview

The '738 Patent is directed to a system and method for detecting non-contact interactions, i.e., proximity interactions, with a touch-sensitive device, as well as touch interactions, and using inputs from both interactions to generate a haptic effect.

EX1001, 1:14-20, 11:26-40; EX2001, ¶50.



EX1001, Fig. 5.

As mentioned above, the '738 Patent teaches techniques that enhance the user experience in interacting with a touch-sensitive device. The inventors of the '738 Patent recognized that in conventional systems the device conveyed information either about the proximity signal or the touch signal but did not take both into account at the same time when generating a single haptic effect. *Id.* Having this combined information improves the user's experience with the touch screen device. EX1001, 11:61-12:9.

Therefore, at a minimum, the claimed invention requires the determination of a haptic effect or output signal that is based “at least in part” on a proximity sensor signal *and* a touch sensor signal. In other words, the haptic output signal is required to be based at least on those two sensor signals. That is what the claimed phrase “at least in part on” means. EX2001, ¶107. Once that minimum condition is satisfied, there could be additional inputs to the determination of the haptic output signal as described in the '738 Patent—for example, certain other user inputs (e.g., a manipulating a joystick) or system events or status (e.g., incoming call, low battery, low memory, etc.). EX1001, 8:28-44. A POSA would understand that the phrase “at least in part on” does not mean that the claimed haptic output signal is based on some other intermediate haptic signal that is associated with a proximity or touch input signal. EX2001, ¶107.

B. Claims

Petitioner challenges claims 1-6, 14-16, and 19 of the '738 Patent, including two independent claims—apparatus claim 1 and method claim 15, which are similar in scope. Claim 1 is recited below:

1. A device comprising:

a proximity sensor capable of detecting a non-contact interaction with a touch-sensitive device and outputting a first sensor signal;

a touch sensor capable of detecting a touch with the touch-sensitive input device and outputting a second sensor signal;

a haptic output device configured to receive a haptic output signal and output a haptic effect in response to the haptic output signal; and

a processor configured to:

receive the first sensor signal and the second sensor signal;

generate a haptic output signal based at least in part on the first and second sensor signals; and

transmit the haptic output signal to the haptic output device.

EX1001, 14:6-23.

C. Prosecution History

The '738 Patent application was filed on December 13, 2016. EX1002, 1. On April 4, 2018, the Examiner issued a Non-Final Office Action. Aside from noting

certain informalities that needed correction, the Examiner (1) rejected claims 1-4, 11-13 and 15-19 under 35 U.S.C. § 102 as anticipated by Choe (EX1015), (2) rejected claims 5 and 7-10 under 35 U.S.C. § 103 as rendered obvious by Choe in view of Rosenberg (EX1021), (3) rejected claim 6 under 35 U.S.C. § 103 as rendered obvious by either Choe in view of Rosenberg or Choe in view of Rosenberg⁸⁴⁸ (EX1022); and (4) rejected claim 14 under 35 U.S.C. § 103 as rendered obvious by Choe in view of Rosenberg⁸⁴⁸. EX1002, 51-62.

1. Various versions of the Petition's Ku reference were previously cited and considered by the Examiner and the Applicant of the '738 Patent

As part of the April 2018 office action the Examiner made note of 6 cited references, including US 2009/0322497 A1, which is the patent application that led to the Ku patent ("Ku Application"). EX1002, 62 listing Ku Application (EX2003). On May 8, 2018, Applicant filed an Information Disclosure Statement ("IDS") listing 5 references, including EP 2141580 (EX1014) which is the European counterpart to Ku. EX1002, 86.

Later, on January 16, 2019,² Applicant also filed a Supplemental IDS which included the Ku Application (EX2003) previously cited by the Examiner. EX1002,

² The date typed on the Information Disclosure Statement is January 16, 2018, but the year is a typo.

193, 991. And on January 18, 2019, the Examiner issued an Advisory Action with the Examiner's signature on the IDS listing 17 references, including the Ku Application, and the Examiner's initials next to the statement, "All references considered except where lined through." EX1002, 997-1001. Indeed, none of the references was lined through.

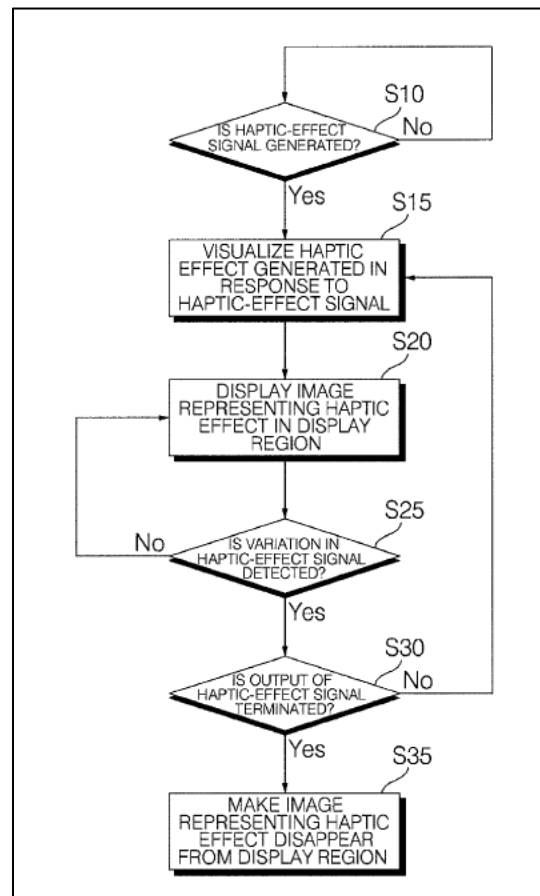
2. Applicant explained to the Examiner that Choe does not disclose a "haptic output signal based at least in part on the first and second sensor signals"

On July 24, 2018, Applicant filed a response to the Examiner's Non-Final Office Action which corrected the informalities but left the claims substantively unchanged. Applicant traversed the Examiner's objections, arguing that Choe does not disclose or suggest the claim limitation "generate a haptic output signal based at least in part on the first and second sensor signals." EX1002, 154-161.

The Choe reference is directed to an apparatus and method of helping users navigate a touchscreen with limited display area to help them reach the correct icon. EX1015, ¶[0008]. Two of Choe's inventors are the same inventors on the Ku reference asserted by Petitioner, and some of the figures in Choe are the same as those in Ku (e.g., Fig. 1). Choe discloses using the output of a proximity sensor to generate a haptic effect "whose intensity or pattern corresponds to the result of the determination performed by the proximity sensor." EX1015, ¶[0010]. "The proximity sensor 141 may determine whether there is an object nearby and

approaching the mobile terminal 100 without any mechanical contact with the entity.” EX1015, ¶[0045].

In the Non-Final Office Action Examiner cited paragraphs [0076]-[0078] of Choe. In those paragraphs Choe discloses a proximity sensor 141 “configured to output various proximity signals according to the distance between the display module 151 and the detected object,” i.e., the user’s finger. EX1015, ¶[0076]. “Then, the controller 180 may control the haptic module 157 to generate a haptic-effect signal corresponding to a touch key currently being approached by the detected object.” EX1015, ¶[0076].

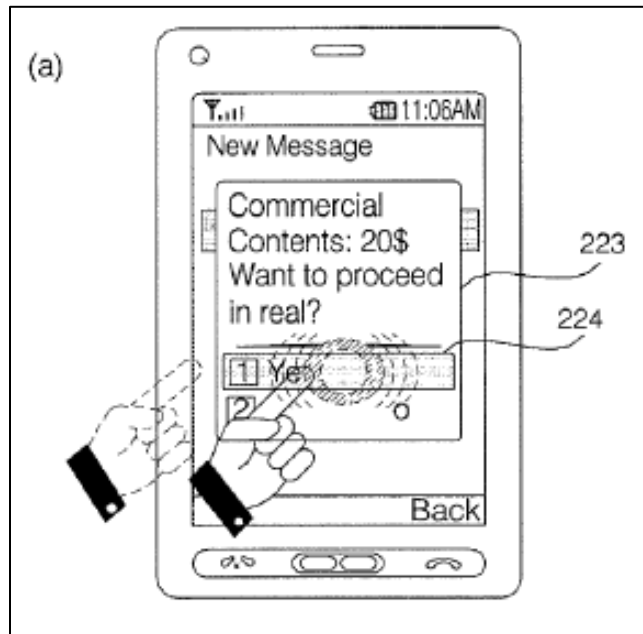


EX1015, Fig. 4

Applicant argued that the cited section “makes clear that the haptic effect is determined based only on proximity.” EX1002, 159. Applicant pointed out that the haptic effect was generated based on the signals from one or more proximity sensors and that the haptic effect was generated before the user touched the screen. EX1002, 159.

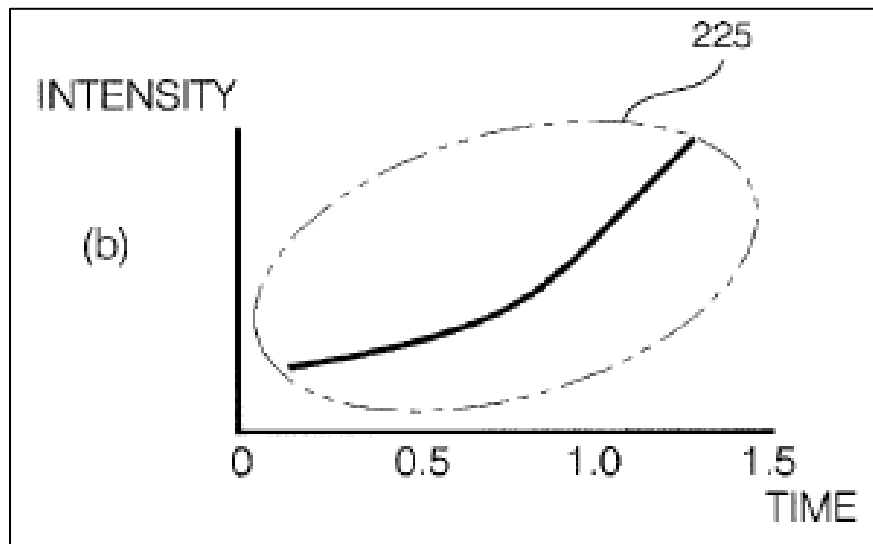
On November 13, 2018, the Examiner issued a Final Office Action that restated the rejection based on Choe and added citations to Figures 16(a)-16(c) and the corresponding paragraphs [0136]-[0138]. EX1002, 171-181. The Examiner stated that these cited paragraphs “detail an example of providing a haptic effect using the sensing signals of both the proximity sensor 141 and the touch sensor 130. Examiner argued that “[a]s the user’s finger approaches the touchscreen surface the haptic feedback effect changes to indicate the current displacement between the user’s finger and the touchscreen surface. Once the user’s finger contacts the key 224 of the touchscreen surface the haptic feedback effect changes to provide confirmation to the user that a command was issued.” EX1002, 172-173.

In Figures 16(a)-(c) and paragraphs [0136]-[0138] Choe discloses an embodiment where the screen 223 displays a region 224 that the user needs to press in order to “pay charges.” EX1015, ¶[0137]; EX2001, ¶60.



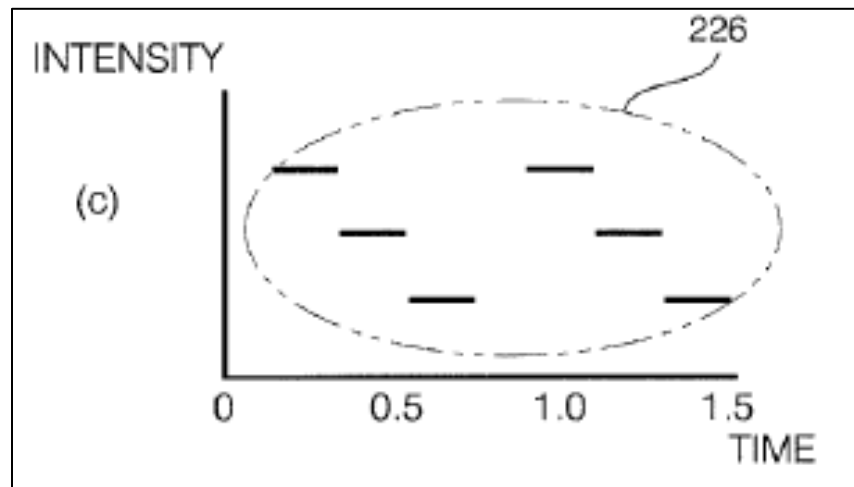
EX1015, Fig. 16(a)

The mobile terminal, e.g., smartphone, receives one of two signals: a touch signal or a proximity signal. EX1015, ¶[0137]. Haptic effect 225 is generated if the mobile terminal detects that the user's finger is in proximity to the screen but has not touched it. "[I]f it is determined that the distance between the user's finger and the key 224 has gradually decreased, the controller 180 may control the haptic module 157 to generate a haptic effect 225 in order to alert the user to the approach of the user's finger to the key 224." EX1015, ¶[0137]; EX2001, ¶61.



EX1015, Fig. 16(b)

Haptic effect 226 is generated if the mobile terminal detects that the user's finger has touched region 224. "Referring to FIG. 16(c), once the key 224 is touched or approached by the user's finger, the controller 180 may control the haptic module 157 to generate a haptic effect 226 in order to alert the user to the payment of charges." EX1015, ¶[0138]; EX2001, ¶62. Thus, as the Appeal Board later held, "Choe discloses the haptic effect 226 is generated based on a touch of the user, *or* the approach of the user's finger, but not both." EX1002, 1091.



EX1015, Fig. 16(c)

On January 16, 2019, Applicant filed a response to the Final Office Action and argued that the newly cited paragraphs of Choe still did not disclose generating a haptic output signal based at least in part on both the proximity and touch signals. EX1002, 182-190. Specifically, Applicant argued that those paragraphs of Choe disclose generating a first haptic effect 225 based on a proximity signal and a second haptic effect 226 based on a touch signal. EX1002, 187. Applicant argued that the distinct nature of the two haptic effects is underscored by the fact that the specification uses two different numerals for the haptic effects. EX1002, 187.

3. Applicant further explained to the Appeal Board that combining two separate haptic output signals that are each based on a proximity input and touch input, respectively, does not meet the claimed limitation “haptic output signal based at least in part on the first and second sensor signals”

On March 25, 2019, Applicant filed a Pre-Appeal Brief and Conference Request. EX1002, 1003-1007. In the Pre-Appeal Brief, Applicant explained that “the [proposed] claim requires determining a haptic effect based on signals from two sensors (the claimed “proximity sensor and the claimed “touch sensor”)” but that Choe ¶[0076] “makes clear that the haptic effect is determined based only on proximity.” EX1002, 1004. Applicant emphasized the following text from paragraph [0076]:

it may be determined what part of the display module 151 is being approached by the detected object and whether the detected object is being moved within the close vicinity of the display module 15 by determining *which of the plurality of proximity sensors 141 is outputting a proximity sensor* controller 180 may control the haptic module 157 to generate a haptic-effect signal corresponding to a touch key currently *being approached by the detected object.*

Applicant then addressed the additional citations to Choe made by the Examiner, namely Figures 16(a)-16(c) and paragraphs [0136]-[0138]. With respect to those disclosures Applicant argued that these do not disclose “generat[ing] a haptic output signal based at least in part on the first and second sensor signals”

because haptic effect 225 and haptic effect 226 are “two distinct haptic effects” with 225 being based solely on proximity and 226 being based solely on touch. EX1002, 1005. Applicant noted that the Choe reference uses two separate numerals to refer to these haptic effects and that under 37 C.F.R. § 1.84(p)(4) this meant that they were separate haptic effects. EX1002, 1005.

With respect to the Examiner's argument that the haptic effects disclosed in Choe ¶[0052] (“The haptic module 157 may synthesize different vibration effects and may output the result of the synthesization.”) and Figures 16-17 could be “combined,” Applicant pointedly argued that ¶[0052] “at most [discloses] synthesizing vibrations” but does not disclose outputting a single haptic effect based at least in part on first and second sensor signals.” EX1002, 1006.

On March 25, 2019, the Notice of Panel Decision from Pre-Appeal Brief Review on April 9, 2019, recommended that the claims proceed to the Board of Patent Appeals and Interferences. EX1002, 1018.

In the May 23, 2019 Appeal Brief, Applicant reiterated its position that Choe does not disclose “determin[ing] a haptic effect based on signals received from **both** ‘a proximity sensor capable of detecting a non-contact interaction with a touch-sensitive device’ **and** ‘a touch sensor capable of detecting a touch with the touch-sensitive device.’” EX1002, 1019-1040, 1032 (emphasis in original).

In the Answer, the Examiner “agree[d] with Applicant in that the first haptic effect 225 is based on a proximity input and the second haptic effect 226 is based on a contact input.” EX1002, 1057. However, Examiner argued that this disclosed the claimed generation of a haptic effect because the “[Choe] haptic effects are combinable as disclosed in paragraph [0052] and at Figures 16-17 of Choe. A first signal output from the proximity sensor 141 and a second signal output from the touchscreen 130 are supplied as input to the haptic module 157 which synthesizes different vibration effects and outputs a result of the synthesization (paragraph [0052]).” EX1002, 1057.

On December 3, 2019, Applicant filed its Reply Brief. EX1002, 1074-1077. On Reply Applicant pointed out that “the specification is explicit that these are *different effects that are not output at overlapping times*,” and also argued that it was improper to discuss combining admittedly separate haptic effects in an anticipation rejection. EX1002, 1075 (emphasis added).

4. The Appeal Board held that combining two separate haptic output signals that each are based on a proximity input and touch input, respectively, in Choe is not sufficient to meet the claimed limitation “haptic output signal based at least in part on the first and second sensor signals”

In its Appeal Decision, the Board noted that “We agree with both the Examiner and Appellant that the broadest reasonable interpretation of the argued limitation requires that both touch and proximity signals be used to generate each

haptic effect.” EX1002, 1089. With respect to the earlier cited paragraphs in Choe—[0076]-[0078]—the Board held that in the embodiment disclosed in those paragraphs there was no description of using a touch signal to generate the haptic signal. EX1002, 1089. With respect to the later cited paragraphs in Choe—[0136]-[0138] and Figures 16(a)-(c)—the Board agreed with Applicant that the first haptic effect is based only on a proximity signal and the second haptic effect is based only on a touch signal. EX1002, 1089-1091. “Generally describing the use of synthesized vibration effects does not disclose that the specific signals 225 and 226 described by Choe in a separate embodiment are combined.” EX1002, 1091. Following the Board’s decision the ’738 Patent was issued.

IV. PERSON OF ORDINARY SKILL IN THE ART (POSA)

Petitioner identifies a person of ordinary skill in the art (“POSA”) as one who would have possessed a bachelor’s degree in electrical engineering, computer science, or a related field, plus at least two years of industry or graduate-level academic experience with human-computer interaction. Pet., 6. Petitioner also states that a person could have qualified as an ordinarily skilled artisan with more formal education and less practical or industry experience, or vice versa. *Id.*

Immersion submits that a POSA at the time of the ’738 Patent would have had a bachelor’s degree in electrical engineering or computer science (or an equivalent degree), and two years of practical or industry experience in the field of human

computer interaction (HCI), including implementation of computer-based systems and software for providing haptic feedback effects to a user. EX2001, ¶33. Also, a person could have qualified as a POSA with more formal education and less practical or industry experience, or vice versa. *Id.* Immersion reserves the right to propose a different level of skill in the art if trial is instituted. In any event, the Petition fails to show that any Challenged Claim of the '738 Patent is unpatentable under either Petitioner's or Immersion's definition of a POSA.

V. CLAIM CONSTRUCTION

None of the '738 Patent's claim terms need to be construed.

VI. INSTITUTION SHOULD BE DENIED BECAUSE PETITIONER RELIES ON PREVIOUSLY CONSIDERED ART WITHOUT SHOWING A MATERIAL ERROR

The Board should deny institution under 35 U.S.C. § 325(d) because the Petitioner has failed to justify its request that the Board reconsider prior art that was previously considered by the Office.

Under 35 U.S.C. § 325(d), the Board may deny institution of a proceeding if the petition advances the same or substantially the same art or arguments that were previously presented to the Office and the petitioner fails to demonstrate that the Office erred in a manner material to the patentability of the challenged claims. *Advanced Bionics, LLC v. Med-EL Elektromedizinische Gerate GMBH*, IPR2019–01469, 2020 WL 740292, at *2 (PTAB Feb. 13, 2020) (precedential).

The Board may refer to the non-exclusive list of factors listed in *Becton, Dickinson and Co. v. B. Braun Melsungen AG*, IPR2017-01586, 2017 WL 6405100 (PTAB Dec. 15, 2017) (precedential in part) (“BD Factors”) to determine whether the *Advanced Bionics* test is satisfied. *See Advanced Bionics*, 2020 WL 740292 at *4, n.10.

Petitioner relies on Ku for 3 of the 4 asserted grounds of unpatentability. Pet., 4. Petitioner argues that “[n]one of the petition’s references were of record during prosecution” (Pet., 84) but, as detailed below, there can be no dispute that Ku was before the Office. The Ku Application (EX2003) that led to the Ku patent (EX1008) was included as part of the Examiner’s first Office Action. EX1002, 62. And the IDS filed shortly thereafter by Applicant included the European counterpart to Ku (EX1014). EX1002, 86. The disclosures of the Ku Application and the Ku patent are nearly identical and accordingly Ku is “[p]reviously presented art.” *See Advanced Bionics*, 7–8 (indicating that “previously presented art” includes “art made of record by the Examiner”).

Petitioner argues that Ku is exempt from *Advanced Bionics* because “although Ku’s published application was cited (EX1002, 62), it was never applied to reject a claim.” Pet., 84. However, the Ku Application was cited by the Examiner and was listed on an IDS, not lined through, indicating that the Examiner considered this reference. EX1002, 997-1001.

It is Petitioner's burden to establish that the Office materially erred when examining the '738 Patent but Petitioner does not identify any error. Instead, Petitioner argues that the "repeated citation of Choe rather than Ku's published application indicates the Examiner overlooked Ku's teachings." Pet., 85. However, the repeated citation of one reference does not necessarily mean that the other was overlooked. As detailed below, Ku is substantively identical to Choe in the disclosures relevant to the prosecution of the '738 Patent and so the Examiner's focus on Choe does not mean that the relevant teachings of Ku were overlooked. Rather, Ku is duplicative of Choe and so it was not necessary for the Examiner to address it separately.

A. Petitioner Relies on Identical, or Substantially Similar, Art as the Office Considered During Examination

Under the first prong of the *Advanced Bionics* framework, the Board determines whether the prior art is the same or substantially the same by considering the similarities and material differences between the asserted art and the prior art involved during examination. *Advanced Bionics*, 2020 WL 740292, at *4, n.10. As part of this analysis the Board may consider the cumulative nature of the art asserted in the petition and the prior art evaluated during examination, the extent of the overlap between arguments made during examination, and the manner in which the petitioner relies on the prior art. *Id.*

Prior art is “previously presented” if it was made “of record” by the examiner or it was provided to the Office by an applicant, such as on an IDS. *Id.* at *3. Even if the asserted art is not the same as previously presented art, it may be substantially the same if it “discloses substantially the same information.” *See id.* at *6–7. Prior art was “previously presented” if it was considered by the examiner. One way to determine whether that is the case is to look at the signed IDS. *See Nespresso USA, Inc. v. K-Fee Sys. GmbH*, IPR2021–01223, 2022 WL 214445, at * 6 (PTAB Jan. 18, 2022). In *Nespresso*, the Board found that the examiner considered the references in the IDS because the examiner marked the IDS with the statement “considered except where lined through,” certified this statement with their initials, and none of the references were “lined through.” *Id.* at *6; *see also* M.P.E.P. § 609.05(b) (instructing examiners to indicate whether information on IDS has been considered by stamping each page with phrase “[a]ll references considered except where lined through” and then lining through only those references not considered).

B. Ku Was Previously Considered

Ku—which is a reference asserted in 3 of the Petition’s 4 grounds of unpatentability—is the same, or the same for all material purposes, as art previously considered by the Office, and the disclosures relied upon by Petitioner are all substantively the same as disclosures in the previously presented art.

The Ku Application was cited by the Examiner in the first Office Action. EX1002, 62. Notably, the Examiner certified that all references listed in the IDS were considered “except where lined through,” and the Ku Application was not lined through. EX1002, 997-1001. Therefore, the Ku Application was previously considered by the office. *See Nespresso*, 2022 WL 214445, at *6; M.P.E.P. § 609.05(b).

While the issued Ku patent itself was not before the Office during examination of the '738 Patent (simply because it had not issued yet), the Ku Application and Ku patent have nearly identical specifications and the exact same figures. For example, and for the avoidance of doubt, the following comparison of the Ku material cited by Petitioner with corresponding Ku Application disclosures are representative of the references' sameness:

<i>Ku (EX1008)</i>	<i>Ku Application (EX2003) considered by Examiner</i>
1:32-34	[0005]
1:61-2:5	[0009]
Figure 12(a)	Figure 12(a)
Figure 7	Figure 7
11:54-64	[0099]
10:28-37	[0087]
11:66-12:3	[0099]

12:18-28	[0102]
16:22-27	[0134]
16:17-18	[0133]
Figure 12(d)	Figure 12(d)
2:2-3	[0009]

Therefore, Ku is substantially the same as, and cumulative with, the Ku Application, which was previously reviewed and considered by the Office during examination. *See Nespresso*, 2022 WL 214445, at * 6.

C. Petitioner Failed to Offer Any Evidence that the Office Erred During Prosecution

Under the second prong of the *Advanced Bionics* framework, the question is “whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics*, 8. Petitioner has failed to make this showing. Petitioner argues that “[t]he repeated citation of Choe rather than Ku’s published application indicates the Examiner overlooked Ku’s teachings.” Pet., 85. However, focusing on one reference instead of another is not an error. Moreover, the disclosure in Ku that Petitioner claims discloses the challenged claims is cumulative of the disclosure in Choe. As detailed below, both Choe and Ku disclose two separate vibration signals—each based on a proximity sensor signal and

a touch sensor signal, respectively—that arguably can be combined into a third vibration signal.

Petitioner argues that Examiner overlooked the disclosure in Ku Figure 12 showing vibration 715 as the combination of haptic effect 705, generated based on touch, and haptic effect 710, generated based on proximity. Pet., 85. Petitioner characterizes Choe as describing only “outputting effects sequentially” rather than “combining” signals as in Ku. Pet., 85 (citing EX1002, 1091). As explained below, however, Petitioner’s characterization of the prosecution history is incorrect. Furthermore, to the extent Choe discloses sequential haptic effects, so does Ku.

In the Advisory Action the Examiner relied on the “combination” of haptic effects in Choe to reject the '738 Patent application. EX1002, 996. In response Applicant explained why Choe did not disclose combining haptic effects:

Second, even if it were proper to combine embodiments (it is not), the cited paragraph simply describes that the “haptic module 157 may synthesize different vibration effects and may output the result of the synthesization.” Choe at [0052]. At most this is synthesizing vibrations, which does not anticipate the claimed “haptic output signal based at least in part on the first and second sensor signals,” as is required by claim 1. Appellant respectfully requests reversal of this rejection.

EX1002, 1006.

In overturning the Examiner's rejection of the Challenged Claims, the Board agreed with Applicant that Choe does not disclose combining haptic effects:

Moreover, we agree with Appellant that the Examiner's determination that Choe discloses that haptic signals may be combined is insufficient to support a finding of anticipation. As Appellant correctly notes, "Choe paragraph [0052] simply describes synthesizing different vibration effects or outputting effects sequentially." Generally describing the use of synthesized vibration effects does not disclose that the specific signals 225 and 226 described by Choe in a separate embodiment are combined.

EX1002, 1091.

However, the Board did *not* bless the idea that "combined" signals disclose the limitation of a haptic output signal based at least in part on the first and second sensor signals. On the contrary, the Board agreed that Choe disclosed two separate haptic effects: "Thus, Choe discloses the haptic effect 226 is generated based on a touch of the user, or the approach of the user's finger, but not both." EX1002, 1091. Indeed, the Board found that neither of Choe's separate haptic effects were based on both proximity and touch signals:

Although this disclosure in Choe [¶¶137-138] describes two haptic effects, neither of these haptic effects is generated based on both proximity signals and touch signals. Rather, the first

haptic effect is based only on a proximity signal, and the second haptic effect is based only on a touch signal.

EX1002, 1090.

Like Choe, Ku discloses separate haptic effect signals based on separate proximity or touch sensor input signals, but not both. Furthermore, as the Appeal Board previously held, the suggestion that these separate haptic effect signals can be combined is not sufficient to meet the claimed limitation. EX1002, 1091. The same is true for Ku—even if separate haptic effect signals, each one only based on a proximity input and a touch input, respectively, are summed when they overlap in time, they are not a single haptic effect based at least in part on a proximity signal and a touch signal. EX2001, ¶¶104-107.

VII. PETITIONER HAS NOT MET ITS BURDEN TO SHOW A REASONABLE LIKELIHOOD OF SUCCESS ON ANY OF THE ASSERTED GROUNDS OF PATENTABILITY

Petitioner raises four Grounds of unpatentability. All fail to show a reasonable likelihood of success as to any of the Challenged Claims. The asserted Grounds and Challenged Claims are as follows:

- (1) Claims 1-3, 5-6, 14-15, and 19 of the '738 Patent are anticipated by or rendered obvious by Pratt;
- (2) Claims 1-6, 14-16, and 19 of the '738 Patent are obvious over Pratt in view of Ku;
- (3) Claims 1-5, 14-16, and 19 of the '738 Patent are obvious over Ku; and

(4) Claims 1-6, 14-16, and 19 of the '738 Patent are obvious over Ku in view of Jiang.

A. Pratt Does Not Teach, Suggest, Disclose, or Render Obvious the Challenged Claims 1-3, 5-6, 14-15, and 19 of the '738 Patent

As the Board's decision on appeal makes clear, a key element of the Challenged Claims is that a single haptic effect must be generated based on *both* the proximity and touch signals. "We agree with both the Examiner and Appellant that the broadest reasonable interpretation of the argued limitation requires that both touch and proximity signals be used to generate each haptic effect." EX1002, 1089. As illustrated below, Pratt discloses generating separate haptic effects based on either a proximity signal, a touch signal, or a force signal. Yet nowhere does Pratt disclose or render obvious the claimed element of generating a haptic output based at least in part on a proximity signal and a touch signal.

1. Overview of Pratt (EX1006)

U.S. Patent Application Publication No. 2012/0249474 to Pratt et al. ("Pratt") discloses an apparatus and method for generating haptic effects based on either proximity detection, touch, or the force of the touch. EX1006, ¶[0005]; EX2001, ¶71. There are two goals articulated by Pratt. One is to reduce the latency in the haptic response, "which is the delay between the moment of user interaction and the corresponding haptics response." EX1006, ¶[0004]; EX2001, ¶72. The other is to

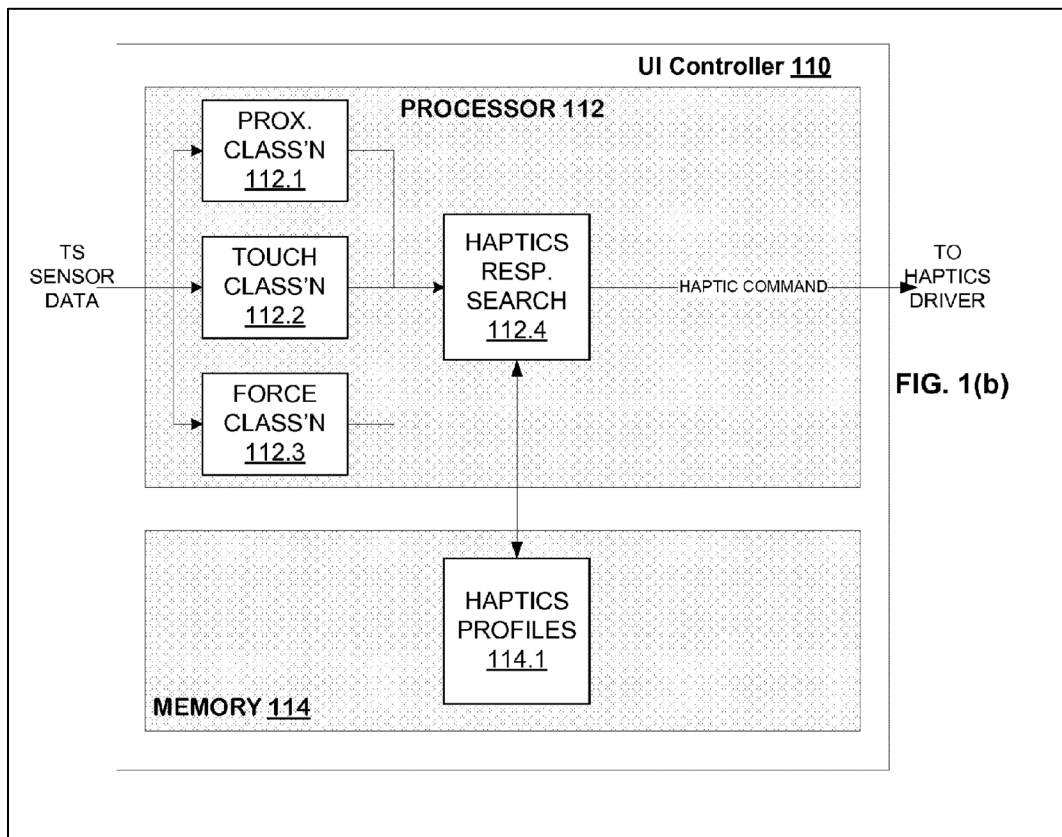
distinguish between different types of interactions with the touch-sensitive screen. EX2001, ¶73. Pratt gives three examples of interactions with the user interface: a user's finger hovering above the screen, the touch of the user's finger on the screen, and the force of the user's touch. EX1006, ¶[0005]; EX2001, ¶73.

To tell these interactions apart, the “processor 112 in the UI controller 110 may include a proximity classification module 112.1, a touch classification module 112.2, a force classification module 112.3 and a haptics response search module 112.4.” EX1006, ¶[0020]; EX2001, ¶74. Pratt describes the ways in which the proximity, touch, and force classification modules determine, for any given signal from the sensor, which of the three it is: proximity, touch, or force. EX1006, ¶[0021]-[0023]; EX2001, ¶75.

These classifications are used as inputs to the haptic response search module 112.4 which generates haptic effects:

The haptic response search module 112.4 may receive proximity, touch, and/or force events as calculated by the modules 112.1-112.3 and may generate a haptic command based on the haptics profile data 114.1. For example, the haptic response search module 112.4 may match the calculated proximity, touch, and/or force event data to a stored haptic profile and may generate a haptic command associated with the matched haptic profile.

EX1006, ¶[0024]; EX2001, ¶76.



EX1006, Fig. 1

As shown on Figure 3 the TS sensor signal is classified into proximity, touch, or force: “At time t2, the user finger may be slightly above the button 330. At time t3, the user finger may touch the screen at button 320. And at time t4, the detection area may increase detecting a larger amount of force as compared to time t3 touch.”

EX1006, ¶[0037]; EX2001, ¶¶77-78.

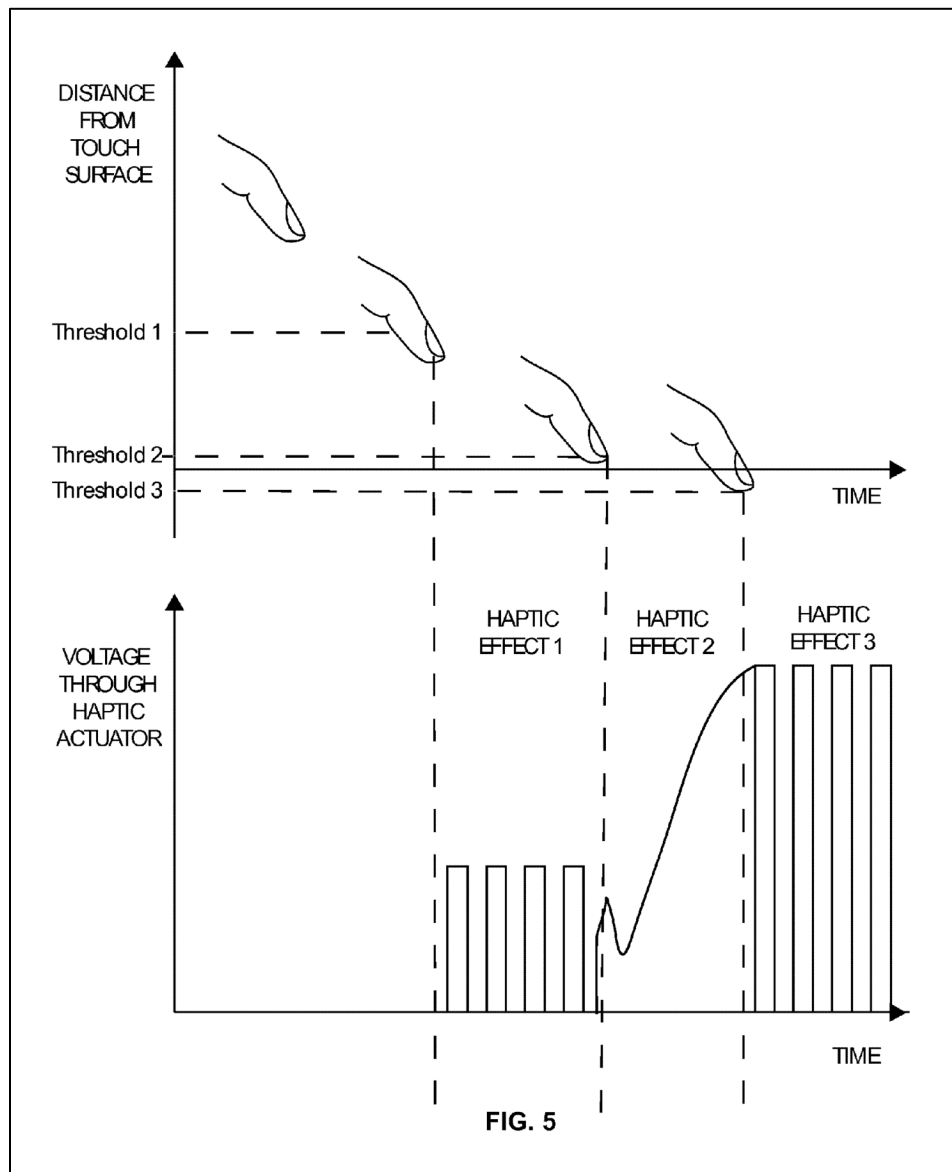
Each generated haptic effect is based on a stored haptic profile. EX1006, ¶[0025]; EX2001, ¶78. In one embodiment Pratt discloses deflecting the touch screen towards the user based on the approach, i.e., proximity, of the user's finger, and then, when the screen is touched, removing the deflection so that the screen goes

flat again. EX1006, ¶[0049]-[0050], Figs. 7(a)-(d); EX2001, ¶80. Thus, based on the proximity signal the screen is deflected upwards, and based on the touch signal the screen returns to its regular state. *Id.* Each signal, proximity and touch, generates a different haptic effect. EX2001, ¶81.

In another embodiment Pratt discloses three separate haptic effects based on three separate user interactions. As shown in Figure 5, three separate interactions generate three separate haptic effects. EX2001, ¶82.

FIG. 5 includes two plots. The top plot shows a user finger approaching the touch surface in a distance versus time graph, and the bottom plot shows a corresponding voltage through the haptic actuator versus time graph. FIG. 5 illustrates different haptic effect generation based on different user interaction events as detected by the sensor(s) via thresholds.

EX1006, ¶[0042].



EX1006, Fig. 5

2. Pratt's "bubble effect" embodiment does not teach, suggest, or disclose Challenged Claims 1-3, 5-6, 14-15, and 19 of the '738 Patent

Petitioner is incorrect that the "bubble effect" embodiment discloses a single haptic effect based in part on both a proximity signal and a touch signal. Petitioner

points to paragraphs [0049]-[0050] and Fig. 7³ of Pratt as disclosing a single haptic effect. Pet., 8-9. However, what those paragraphs disclose is two separate haptic effects that occur sequentially, not a single haptic effect based in part on both proximity and touch signals. EX2001, ¶¶83-89.

The first haptic effect in the “bubble” effect is where the touchscreen is deflected towards the user’s finger. EX2001, ¶84. This haptic effect is based entirely on the proximity signal.

*As the user’s finger approaches the touch screen, it enters the “field of view” of the touch screen and is **identified by the proximity sensor**. In response, a haptics driver may pre-charge a haptics actuator to cause the touch screen to deflect toward the user’s finger* by a predetermined amount, shown as ΔZ in FIGS. 7(a)-(d). Thus, the touch screen may be deflected toward the user’s finger by the time it makes contact with the touch screen as shown in FIG. 7(b).

EX1006, ¶[0050] (emphasis added).

The second haptic effect in the “bubble” effect is when the touchscreen moves down to its default position. EX2001, ¶85. This haptic effect is based solely on the touch signal.

³ The reference to Fig. 4 in [0049] is a typo.

When the touch sensor determines that the user's finger has made contact, it may initiate the haptic effect. As shown in FIG. 7(c), a mechanical button click may be simulated, for example, by removing the pre-charge effect and *inducing the touch screen to return to its default level* (shown as “Z”).

EX1006, ¶[0050] (emphasis added)

As Pratt explains, when a user experiences these two haptic effects one after the other the user will feel a “click effect.” EX2001, ¶86.

The click effect may be induced by the user feeling mechanical resistance at the first point of contact with the screen deflected forward (FIG. 7(b)) and then at the second point of contact with the screen at the rest position (FIG. 7(d)). This effect simulates a mechanical compression effect (i.e., the bubble effect).

Id.

Two sequential haptic effects—as is the case with the bubble effect—is the same scenario distinguished during prosecution, and as acknowledged by Petitioner.

The Board agreed that Choe disclosed “two separate haptic effects” (one “based only on a proximity signal,” the other “based only a touch signal”), whereas the claims required “both touch and proximity signals be used to generate each haptic effect.”

Pet., 7.

Petitioner is incorrect that the bubble effect is the same as the effect disclosed in the '738 Patent at 11:37-40 which involves pushing a virtual button. Pet., 10. The full quote from column 11 (see below) makes clear that the *single* determined haptic effect must be based on *both* sensor signals. It is not a combination of two separately determined haptic effects each based on a single sensor signal. “The” i.e., singular, initial “haptic effect” may be modified or combined with another haptic effect before determining the final haptic effect which is also based on the proximity sensor signal, i.e., the ultimate haptic effect is based on both signals.

The method 500 continues at step 508 when the processor 102 determines *a* haptic effect based at least in part on the touch sensor signal and on the proximity signal. For instance, the processor 102 may be configured to output a particular haptic effect associated with a particular control on a user interface element displayed on the touch sensitive surface 116. *Such a haptic effect may further be modified or combined with another haptic effect based on the proximity sensor signal.* In some embodiments, the haptic effect can include one or more haptic effects. For example, the haptic effect can include a haptic effect meant to confirm “pushing” on a virtual button.

EX1001, 11:29-40 (emphasis added).

Just as the screen deflection is based solely on the proximity signal, the disclosed haptic output signal in Pratt, i.e., the signal that causes the actuator to

discharge, does not depend in any way on the proximity signal. EX2001, ¶87. It is based solely on the touch signal. *Id.* When the user's finger contacts the screen the haptic effect occurs. The haptic effect is based on a pre-stored profile. EX1006, ¶[0025] ("Returning to FIG. 1(a), the UI controller 110 may receive the TS sensor results and may generate corresponding haptic commands accordingly based on stored haptic profiles."). Pratt discloses generating the same haptic effect whether or not there is a proximity signal. *Id.* Therefore, the bubble effect embodiment does not take into account the proximity signal in generating the haptic output signal. Thus, the haptic output signal is not based at least in part on the first and second signals.

As detailed above, in the "bubble effect" embodiment the two haptic effects are based on two separate signals that do not depend on each other. However, Petitioner takes language from different embodiments and uses it out of context to suggest that the haptic effect may be based on both the proximity and touch signals. Specifically, Petitioner quotes Pratt as follows: "[D]ifferent types of haptic events may be selected based in part on proximity, touch, and/or force events." Pet., 22 (citing EX1006, ¶[0042]). However, that language is from a different embodiment which is distinguishable from the invention of the '738 Patent and when read in context it is clear that Pratt is *not* disclosing a single haptic effect based in part on ***both*** a proximity signal and a touch signal.

The “bubble effect” embodiment is described at paragraphs [0049]-[0050]. By contrast, paragraphs [0042]-[0045] refer to Figure 5 and describe a “multi-haptic effect” embodiment in which 3 separate haptic effects occur sequentially, each one based on proximity, touch, and force. EX2001, ¶88. One haptic effect based on proximity. A second haptic effect based on touch. And a third haptic effect based on force. *Id.*

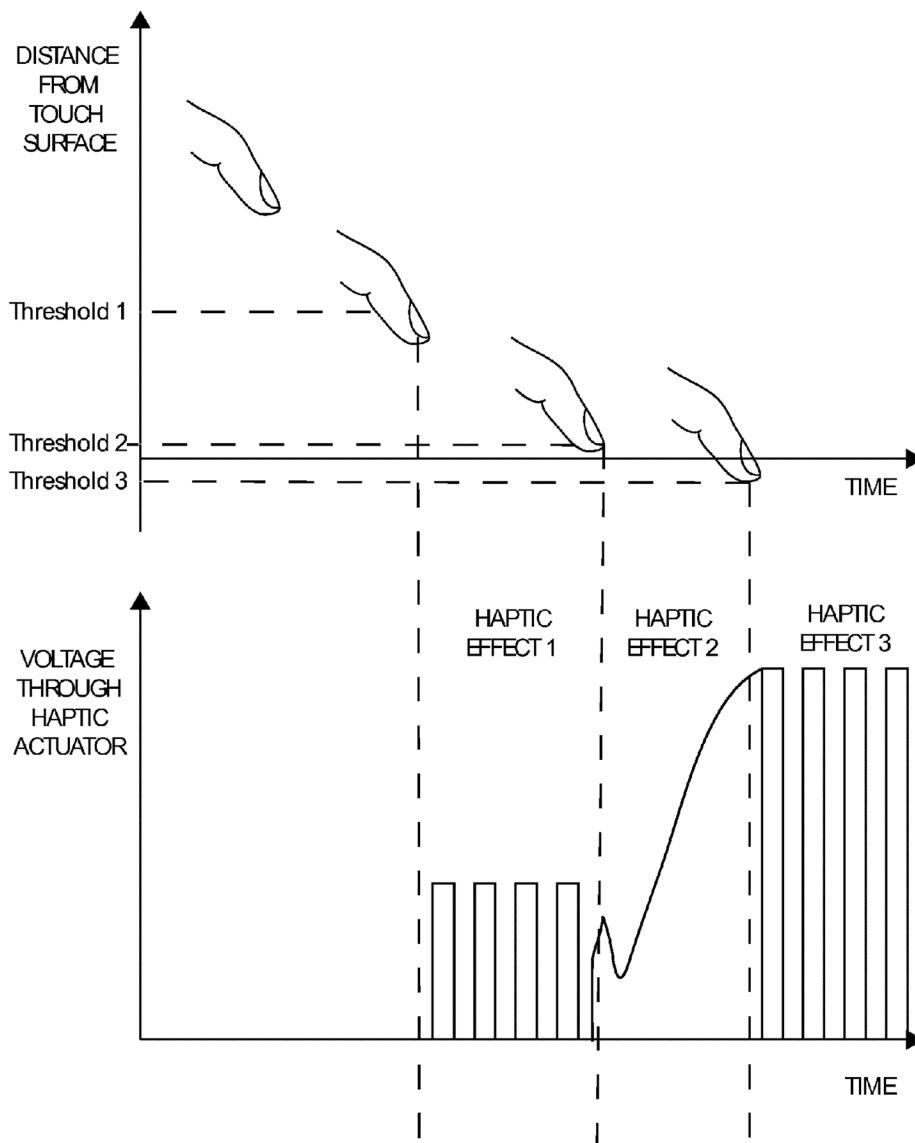


FIG. 5

EX1006, Fig 5.

Thus, the phrase “proximity, touch, and/or force events” refers to the embodiment in Figure 5, i.e. 3 separate effects based on 3 separate signals, and does not disclose generating a single haptic effect based in part on two signals. EX2001, ¶89.

3. Pratt's "rate of approach" embodiment does not render obvious Challenged Claims 1-3, 5-6, 14-15, and 19 of the '738 Patent

In addition to arguing that Pratt anticipates the '738 Patent, Petitioner also argues that Pratt's "rate of approach" embodiment renders the Challenged Claims obvious. Pet., 26-27. Petitioner concedes that the haptic effect disclosed in the "rate of approach" embodiment in paragraph [0041] is based solely on the proximity signal. However, Petitioner argues that a POSA would have understood that this embodiment could be modified to produce the haptic effect only upon touch.

Petitioner's argument is illogical. The sole purpose of the haptic effect disclosed in paragraph [0041] is to convey information about the rate of approach of the user's finger. EX2001, ¶91.

In an embodiment, haptic selection may also be based on sensor measurements. For example, haptic effect types may be selected based on the rate of approach of the user's finger as it moves toward a touch screen—a first haptic effect may be selected in response to a relatively "fast" velocity and a second haptic effect may be selected in response to a relatively "slow" velocity.

EX1006, ¶[0041].

But the purpose of the haptic effect disclosed in this embodiment is to convey information *before* the user touches the menu icon. EX2001, ¶91. Waiting to convey that information until after they have touched the menu icon makes no sense.

The combination also does not make sense as a matter of law. Petitioner applies impermissible hindsight bias to argue that the missing limitation from the Challenged Claims would have been obvious to add to the Pratt disclosure. But Petitioner never explains why that would be the case. Petitioner is using the claim limitation—which it concedes is not disclosed by Pratt—as a reason to combine the disclosure of Pratt with the advantages of the '738 Patent. Also, Petitioner's support for the "combination" comes entirely from the Welch declaration and not the Pratt reference itself. Dr. Welch's declaration is duplicative of the Petition in this regard. *Compare* Pet., at 26-27 with Ex. 1004 at ¶¶148-149. This circular citation, without any actual factual basis, lends no weight to Petitioner's assertion that a POSA would have been motivated to modify Pratt to generate a haptic effect based on both the proximity and touch input signals. *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1366 (Fed. Cir. 2016) (reversing finding of obviousness where PTAB relied on "conclusory statements and unspecific expert testimony"); *In re. Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) ("[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations."). Thus, Petitioner has failed to show that a POSA would have a reason to modify Pratt in this way.

**B. Pratt in View of Ku Does Not Render Obvious the
Challenged Claims 1-6, 14-16, and 19 of the '738 Patent**

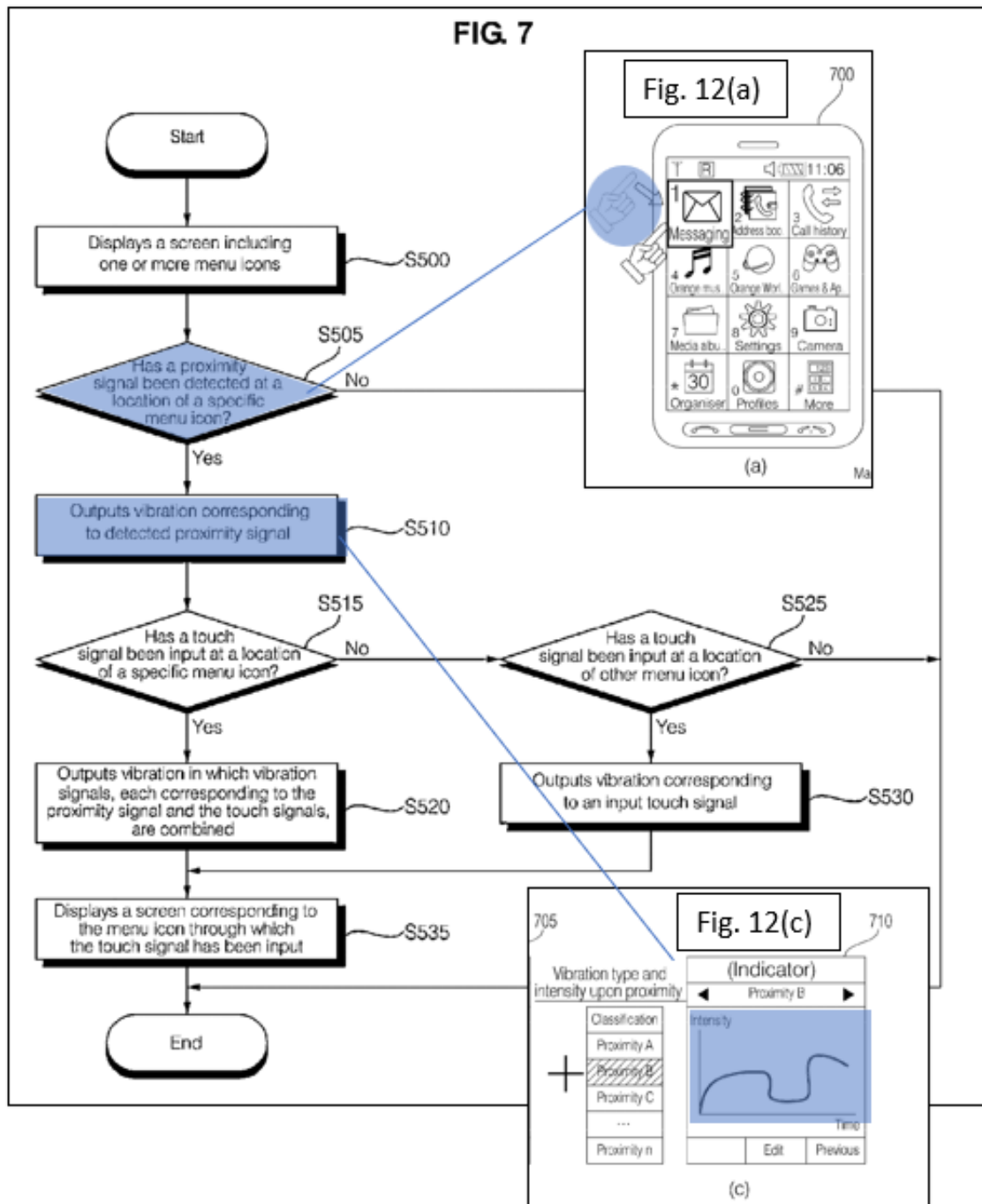
The Board's decision on appeal emphasized that to anticipate the claims, a single haptic effect must be generated based on *both* the proximity and touch signals. EX1002, 1090-91. As detailed above, Pratt does not disclose a single haptic effect based on proximity and touch signals. Instead, Pratt discloses separate haptic effects which in some cases may occur sequentially. Ku is no different in that it discloses two separate haptic effects—one based on the proximity signal and one based on the touch signal—that occur sequentially and in some cases overlap in time. Therefore, the combination of Pratt and Ku still does not disclose the claimed invention because neither reference discloses a single haptic effect based in part on both proximity and touch signals.

1. Overview of Ku (EX1008)

US 8,531,319 ("Ku") is the patent that issued from the Ku Application; the same Ku Application that was considered by the Examiner during prosecution. EX1008, (65). As a result, the disclosures are substantively identical. Like the Ku Application, Ku discloses generating certain haptic effects based on proximity and certain haptic effects based on touch. EX2001, ¶92. The stated goal of Ku is to distinguish between different types of proximity signals and touch signals. EX1008, 1:32-34 ("Accordingly, systems and methods are needed to easily distinguish

between different types of touch signals and proximity signals that are detected by a mobile terminal.”). That is central to Ku, namely having a unique haptic effect for each input sensor signal, whether that is proximity or touch, to distinguish between them. EX1008, 1:61-2:5.

As Petitioner agreed, “If Ku detects the proximity of a user’s finger to the location of a particular icon (step S505), Ku’s processor causes a vibration signal (step S510).” Pet., 43 citing EX1008, 11:54-64. Thus, if a user’s finger hovers over menu item 1, S510 is the output of a vibration signal based entirely on proximity to menu item 1. EX2001, ¶93.



EX1008, Fig. 7 (overlaid with Figures 12(a) and 12(c)).

It is the same vibration signal irrespective of whether the user's finger touches the screen. EX2001, ¶94.

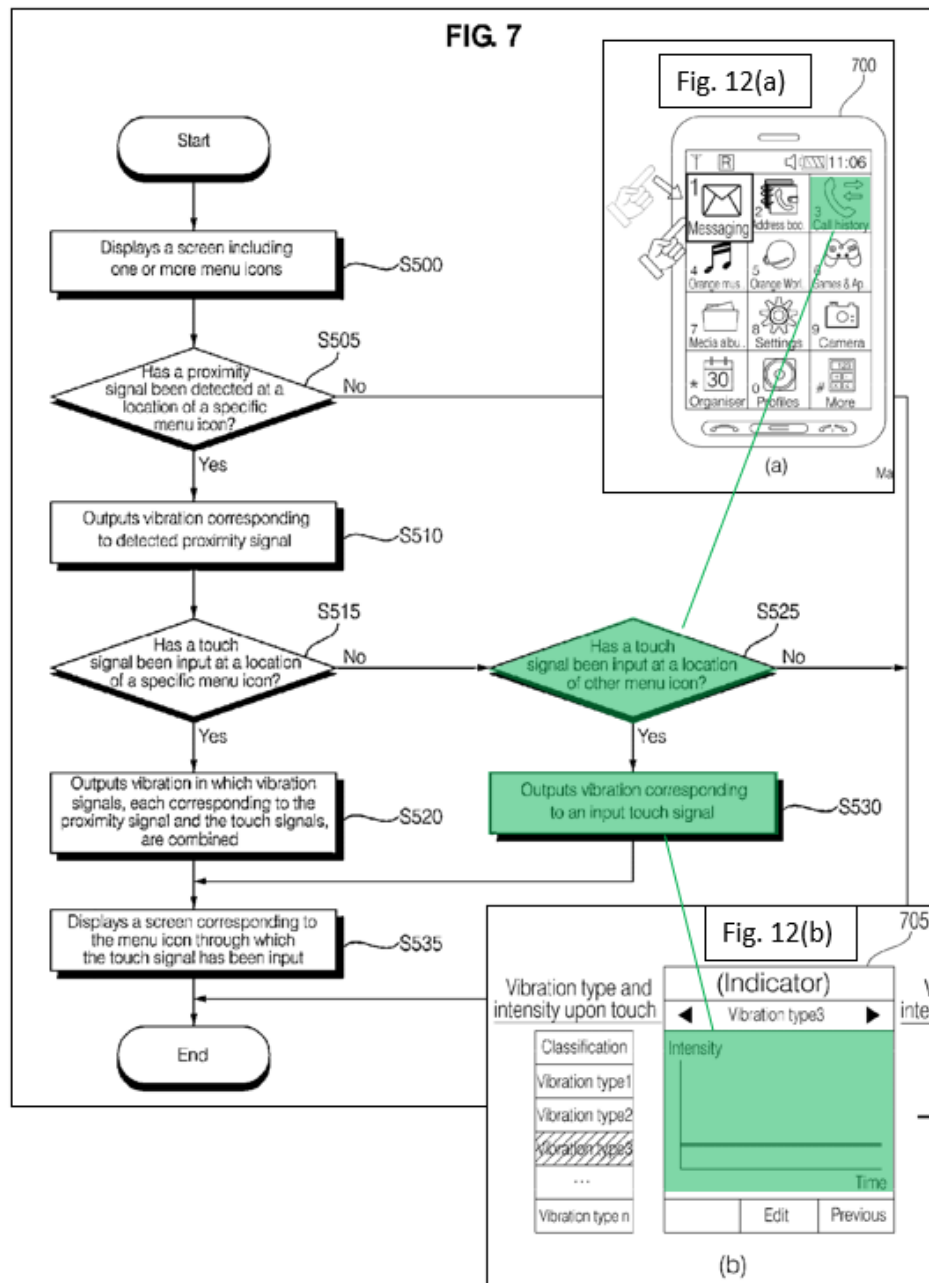
Next, the controller 180 determines whether a proximity signal has been detected at the location of a specific one of the one or more menu icons through the proximity sensor 141 (S505). ... [I]f, as a result of the determination in S505, the proximity signal has been detected at the location of a specific menu icon, the controller 180 outputs a vibration signal, corresponding to the detected proximity signal, through the haptic module 157 (S510). Here, a single vibration signal corresponding to the detected proximity signal is output as vibration.

EX1008, 11:54-66.

Another signal that generates a haptic effect is a touch signal. EX2001, ¶95. The haptic effect generated by the touch signal is the same whether the user touches the menu icon they were hovering over, or whether the user touches a different menu icon. *Id.*; EX1008, Fig. 7. If it is a ***different*** menu icon, for example menu item 3, a haptic effect is generated based solely on the touch signal:

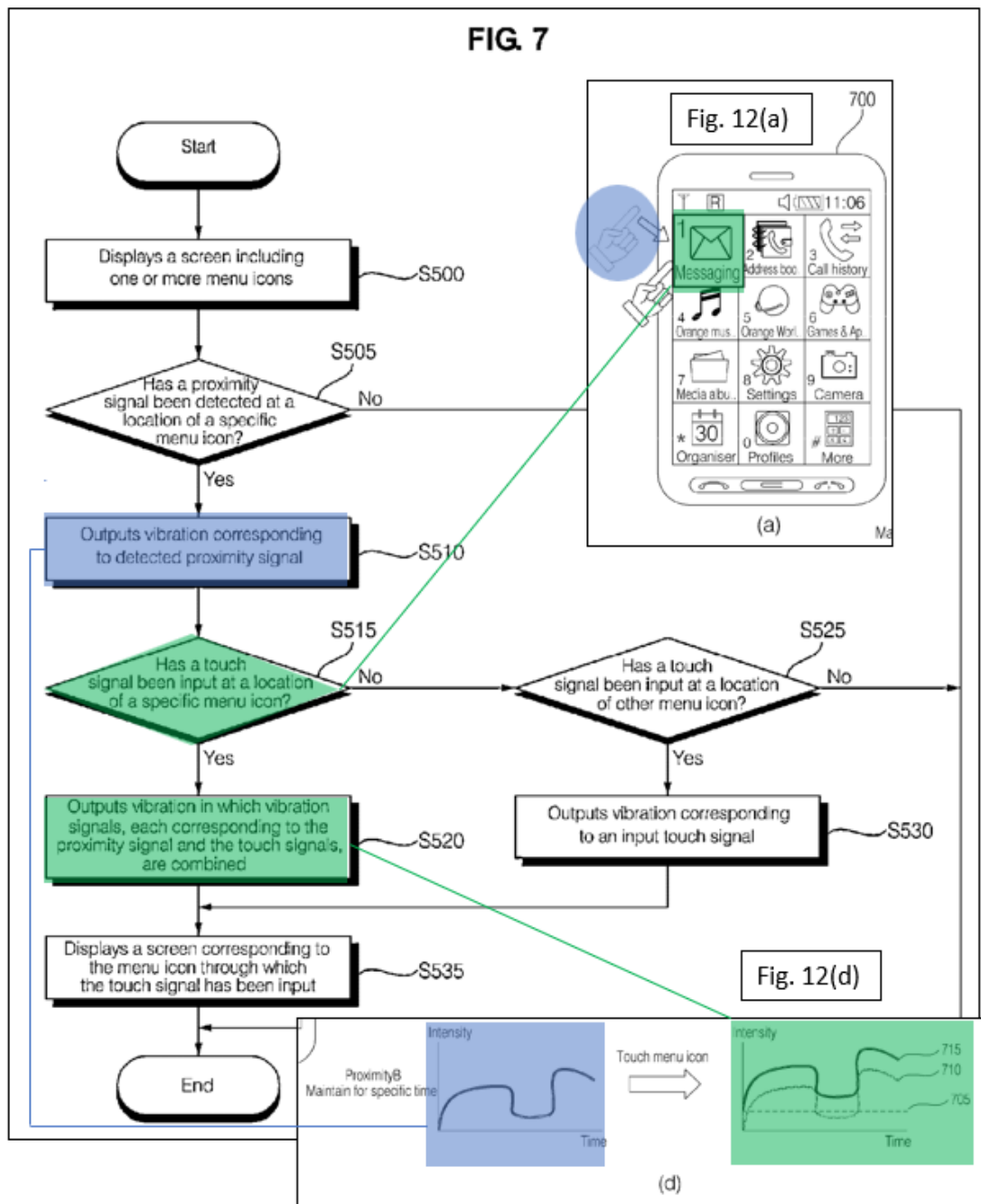
If, as a result of the determination in S515, the touch signal has not been input through the specific menu icon, the controller 180 determines whether the touch signal has been input through a menu icon different from the specific menu icon (S525). ... [I]f, as a result of the determination in step S525, the touch signal has been input through the different menu icon, the controller 180 outputs a vibration signal, corresponding to the input touch signal, through the haptic module 157 (S530).

EX1008, 12:4-15. *See also* Figs. 7 & 12(b); EX2001, ¶96. The logical inference is that when the user touches menu icon 3 after hovering over menu icon 1, the proximity haptic effect ends and the touch haptic effect begins. *Id.* The result is that you have two sequential haptic effects that do not overlap. *Id.*



EX1008, Fig. 7 (overlaid with Figures 12(a) and 12(b)).

If the user touches the *same* menu icon as the user was hovering over, for example menu item 1, the haptic effect is generated based solely on the touch signal. EX1008, Figs. 7 & 12(d); EX2001, ¶97. In this scenario the proximity haptic effect is generated *first*, and the touch haptic effect is generated *second*. When the two haptic effects overlap in time, the haptic effects are summed, which maintains the distinction between the two separate effects. EX1008, Fig. 12(d), 16:22-27; EX2001, ¶97.

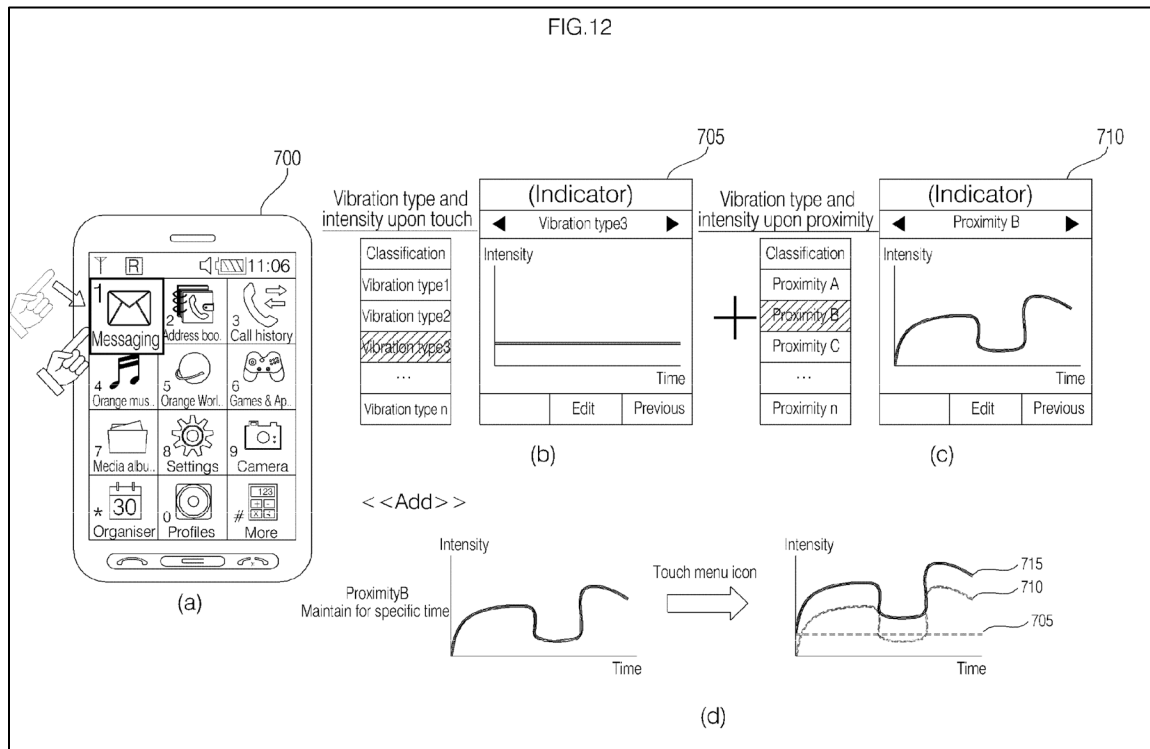


EX1008, Fig. 7 (overlaid with Figures 12(a) and 12(d)).

The distinct haptic effects begin at different times. They can be summed or subtracted but they are nevertheless separate haptic effects as shown in Figure 12.

EX1008, 16:16-21; EX2001, ¶98. This is underscored by the fact that they have

separate numerals. EX2001, ¶99. In Figure 12, 705 is the “vibration type and intensity upon touch,” and 710 is the “vibration type and intensity upon proximity.”



EX1008, Fig. 12

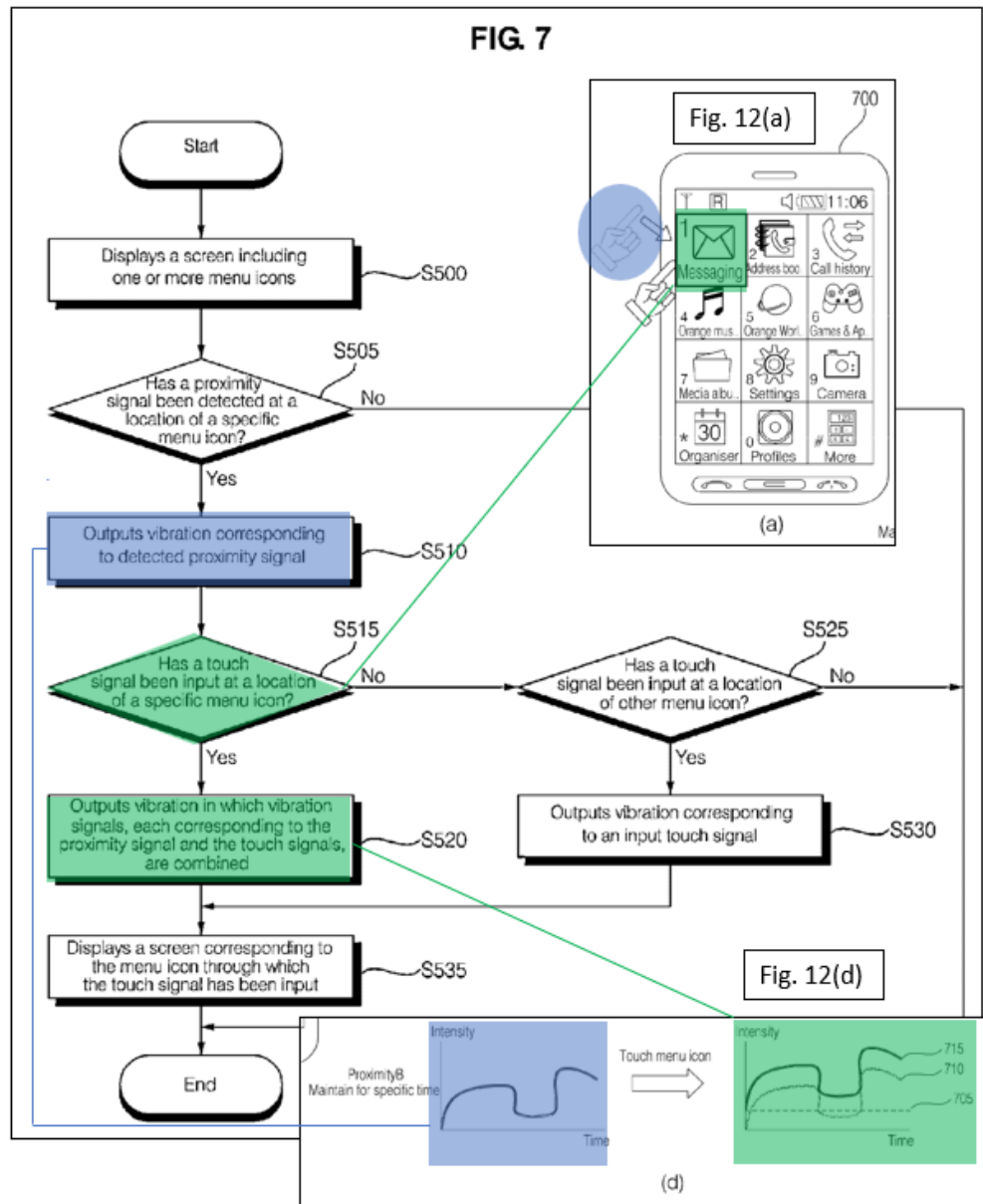
2. The Pratt-Ku combination fails to disclose the claimed “haptic output signal”

Not only does Petitioner fail to set forth a sufficient motivation to combine Pratt and Ku as detailed below in § VII.B.3, the proposed combination also fails to disclose the key limitation of the Challenged Claims, namely a haptic output signal based at least in part on a proximity signal and a touch signal. Ku discloses two separate haptic effects, each based on individual sensor signals. EX2001, ¶100.

As detailed above, the first haptic effect disclosed by Ku in Figures 7 and 12 is the proximity haptic effect. EX2001, ¶104. This effect begins if a user hovers over a menu icon for a period of time. *Id.*; EX1008, 11:54-66, Fig. 7. The second haptic effect disclosed by Ku is the touch haptic effect. EX2001, ¶104. This begins some time after the first effect if the user touches that same menu icon, for example menu item 1. *Id.* The proximity haptic effect is generated *first*, and the touch haptic effect is generated *second*. Since the proximity effect does not stop, eventually the haptic effects will overlap in time at which point they are summed together. *Id.* “The controller 180 may combine one or more vibration signals through addition and subtraction.” EX1008, 11:39-40; *see also* EX1008, 16:16-21. Nevertheless, they are separate haptic effects that occur sequentially. EX2001, ¶104. Like the disclosure of sequential and separate haptic effects in Choe, this is underscored by the fact that they have separate numerals. EX2001, ¶105. In Figure 12, 705 is the “vibration type and intensity upon touch”, and 710 is the “vibration type and intensity upon proximity.” *Id.*

Indeed, Petitioner recognizes this when it characterizes the haptic effects: “Vibration 715 is the sum of *two different vibrations signals*—one (710) “set with respect to the proximity signal” and the other (705) “set with respect to the touch signal.” Pet., 45 (emphasis added). But Petitioner argues that this summation of the

two separate vibration signals is sufficient to meet the claimed limitation requiring a singular haptic output signal based on both proximity *and* touch sensor signals. *Id.*



EX1008, Fig. 7 (overlaid with Figures 12(a) and 12(d)).

As the Board already held, however, prior art disclosure that *haptic signals* may be combined is insufficient to show that this claim limitation is met. EX1002,

1091; EX2001, ¶106. On the other hand, Petitioner argues that combining separate vibration signals (even if they are each based only on a proximity signal *or* a touch signal) is sufficient to satisfy the claimed limitation because the '738 Patent “merely states without explanation that haptic effects associated with proximity and touch signals can be ‘combined.’” Pet., 46 (citing EX1001, 11:35-37). The example, Petitioner refers to, however, is related to a use case involving the push of a “virtual button.” The full quote from column 11 (see below) makes clear that the *single* haptic effect is determined based on *both sensor signals*—not a combination of *two* separately determined *haptic effects* each based on *separate single sensor signals*. The passage below merely describes a possible approach for determining the haptic effect based on a touch signal and a subsequent proximity signal, e.g., by modifying the previously defined touch-based haptic effect or by combining with some other haptic effect, in response to the application of the subsequent proximity signal:

The method 500 continues at step 508 when the processor 102 determines *a haptic effect based at least in part on the touch sensor signal and on the proximity signal*. For instance, the processor 102 may be configured to output *a particular haptic effect associated with a particular control* on a user interface element displayed on the touch sensitive surface 116. *Such a haptic effect may further be modified or combined* with another haptic effect *based on the proximity sensor signal*. In some embodiments, the haptic effect can include one or more haptic

effects. For example, the haptic effect can include a haptic effect meant to confirm “pushing” on a virtual button.

EX1001, 11:29-40 (emphasis added).

In other words, this disclosure describes some of the logic behind determining the haptic effect by, for example, haptic effect determination module 126. *See, e.g.*, EX1001, 7:57-8:13 (haptic module 126 may comprise code that selects haptic effects to output using algorithms or lookup tables and may determine a haptic effect based at least in part on sensor signals received from the touch sensor and/or proximity sensor). Specifically, a given user interface control on a touch-sensitive surface may have a haptic effect associated with it (when touched). When a subsequent proximity signal is further applied, this haptic effect “*may* be modified or combined with another haptic effect” to result in the final haptic effect—again based on *both* the subsequent proximity signal and an existing touch signal. That is, this disclosure in the '738 Patent merely teaches that the claimed single haptic effect, based on both the touch and proximity sensor signals, *may* be a modification of the touch haptic effect or a combination with some *other* haptic effect. As this embodiment is depicted in Figure 5, the haptic output signal is determined by first basing the haptic effect on both proximity and touch inputs as part of the determination module 126's modification process discussed above, before finally generating the haptic output signal. EX1001, 11:29-40, Fig. 5. This disclosure does *not* state that the touch signal-

based haptic effect output signal is simply combined or summed with a proximity-based haptic effect output signal to generate a final haptic output signal.

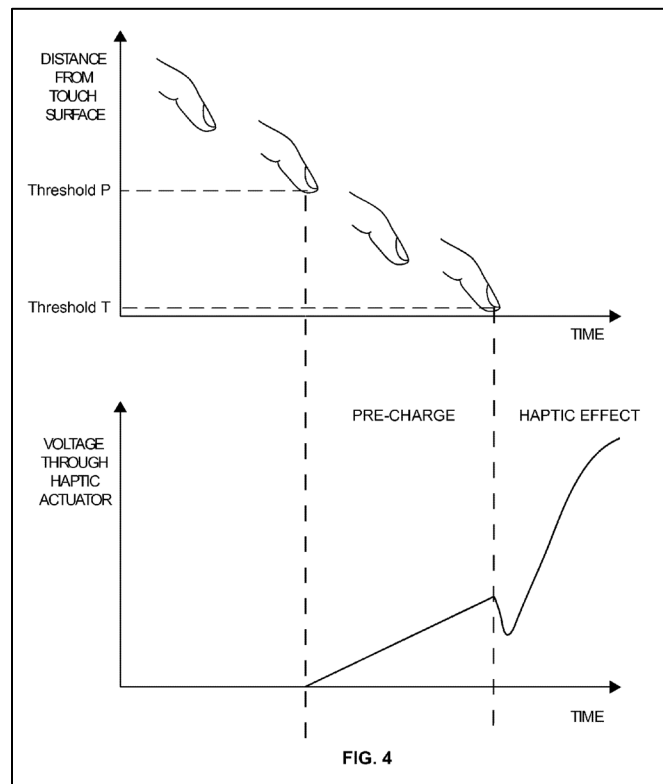
Furthermore, due to the sequential nature of Ku generating separate vibration signals, the vibration signal it outputs is, at best, based on the combination of *vibration* signals—not the claimed *sensor* signals. EX2001, ¶¶104-110. Again, Ku merely teaches what happens when the *vibration* signals overlap—not the *sensor* signals, due to the continuing nature of the proximity *haptic effect*. *Id.*, ¶97. Indeed, by the time a subsequent touch signal is sensed and a corresponding vibration signal is generated, the previously sensed proximity signal need no longer exist. In this case, there would no longer be a proximity sensor signal on which to base the claimed “haptic output signal.” Accordingly, Ku does not teach a haptic effect based on both the proximity and touch signals as required by the claims. *Id.*, ¶¶104-110. Rather, Ku teaches two separate effects based on approaching and subsequently touching the screen, with further details on how to *distinguish* between these two *haptic effects* when they overlap. *Id.*

In contrast, the '738 Patent is agnostic as to when the proximity and touch signals occur, as the claimed haptic output signal needs to be based on *both*. Indeed, the embodiment above describes a touch signal that is first sensed at step 506, and then concurrently or subsequently a proximity signal is sensed, resulting in the determination of a haptic effect that is based on *both* sensor signals. EX1001, Fig.

5, 11:26-40. The fact that this haptic effect *may* be based on modifications or combinations of other haptic effects does not negate the requirement that the resulting haptic effect must be based on both the proximity and the touch *signals*—not just the combination of *haptic effects*, as taught by Ku.

3. A POSA would not have been motivated to combine Pratt and Ku

Petitioner asserts that it would have been obvious to combine the “pre-charging” embodiment disclosed in Pratt (EX1006, ¶[0038]) with the haptic effects generation disclosed in Ku’s Figure 7 or 12. Pet., 46. The “pre-charging” embodiment disclosed in Pratt is directed to the goal of reducing latency between the time a user touches the screen and the time they experience the haptic effect. “[L]atency may be improved by pre-charging the haptics actuator 130 based on detected proximity events such as location and/or rate of approach (i.e., velocity and/or acceleration). Therefore, a haptic effect may [sic] generated faster upon an actual touch detected because of the pre-charged actuator.” EX1006, ¶[0016].



EX1006, Fig. 4

Petitioner argues that it would have been obvious to combine this embodiment with Ku, in particular Ku's disclosure of "distinguishing between different types of touch signals and proximity signals." Pet., 47. On its face, the combination does not make sense. EX2001, ¶¶101-102. The pre-charging embodiment is designed to reduce latency. Nothing about Ku's disclosure (even accepting Petitioner's characterization of Ku) relates to reducing latency. *Id.* Petitioner simply creates a combination out of whole cloth claiming that it would be advantageous to have the latency-reducing effects of Pratt along with Ku's ability to distinguish between types of proximity or touch signals. Pet., 47-50. Indeed, when Petitioner describes the

resulting combination, it has nothing to do with reducing latency: “POSAs would have recognized such an alert as desirable to indicate to users whether they touched the icon they intended to touch.” Pet., 50; EX2001, ¶¶101-102.

Moreover, Petitioner does not identify any deficiency in Pratt that would lead a POSA to look outside the reference to combine with other disclosures.

C. Ku Does Not Render Obvious the Challenged Claims 1-5, 14-16, and 19 of the '738 Patent

As detailed above, Ku does not disclose a single haptic output signal based at least in part on both a proximity signal and a touch signal. *See supra* VII.B.2. Instead, Ku discloses two separate haptic output signals each based solely on proximity or touch but not both. The resulting haptic effects occur sequentially and where the user hovers over and then touches the same menu icon the haptic effects can overlap in time. That is the “combination” referred to in Ku (Pet., 56), namely two separate haptic effects, each based on a proximity input and a touch input, respectively, occur at the same time where the two haptic effects are summed together. For this reason, Petitioner is incorrect that Ku is fundamentally different from Choe. Pet., 59. As Petitioner agrees, Choe disclosed outputting haptic effects sequentially and that is the same as the disclosure in Ku. The only difference is that in Ku there are circumstances in which two haptic effects occur at the same time and the vibration

signals are summed. That is not the same as a single haptic output based in part on both of two separate sensor inputs—proximity and touch.

In addressing claim limitation 1F Petitioner refers to “a command signal causing vibration 715.” Pet., 66. However, there is no such command signal disclosed in Ku. Instead, two separate command signals are output, causing two separate haptic effects.

A vibration signal set with respect to the touch signal is a vibration signal 705 with respect to vibration type3, as shown in (b) of FIG. 12, and a vibration signal set with respect to the proximity signal is a vibration signal 710 with respect to proximity B, as shown in (c) of FIG. 12.

Accordingly, in the case in which, after the proximity signal is maintained for a specific period of time, a menu icon is touched, vibration 715 in which *the vibration signal 705* with respect to the vibration type3 *and the vibration signal 710* with respect to the proximity B *have been added* is output, as shown in (d) of FIG. 12.

EX1008, 16:17-27.

Thus, Ku is not substantively different from Choe and does not anticipate the '738 Patent for the same reasons, namely that two sequential haptic effects are not the same as a single haptic output signal based at least in part on two separate sensor

input signals—proximity and touch. *See* EX1002, 1090 (the Board describing Choe as disclosing separate haptic effect signals, each based on a proximity signal and a touch signal, respectively).

D. Ku in view of Jiang does not render obvious the Challenged Claims 1-6, 14-16, and 19 of the '738 Patent

Ku in view of Jiang fails to disclose all the claimed elements for the same reason that Ku fails as explained above. The key limitation that is missing from Ku's disclosure is 1F, specifically the limitation in which the haptic output signal is based at least in part on both the proximity and touch signals. Petitioner concedes Jiang does not disclose this limitation:

Ku-Jiang includes elements [1D], [1E], [1F], and [1G] for the same reasons detailed in § VII.C concerning Ku. *The only difference between Ku and Ku-Jiang is Jiang's EMP sensor, which doubles as both sensors and the haptic output device (in place of Ku's "haptic module").*

Pet., 81 (emphasis added). Thus, neither Ku nor Jiang discloses the claimed limitation, and therefore the combination of Ku and Jiang also fails to disclose this claimed limitation. EX2001, ¶111.

Furthermore, a POSA would not have been motivated to combine Ku and Jiang. *Id.*, ¶¶112-113. Jiang discloses an EMP-based sensor. Pet., 77; EX1010, ¶[0002]. The disclosure of Jiang is primarily concerned with this EMP sensor: "The

present invention provides electromechanical polymer-based (EMP-based) sensors and actuators.” EX1010, ¶[0023].

Jiang simply discloses that if the screen is touched, then a haptic effect may be generated. “When mobile device 801 senses that a key on the keypad is touched, as sensed by the sensor portion of the corresponding key (e.g., 802-1), the actuator portion of that key is activated to provide a haptic response.” EX1010, ¶[0035]. What Jiang does not disclose is a haptic output signal based at least in part on a proximity signal and a touch signal. In fact, the reason that Petitioner proposes for combining the Ku and Jiang references does not relate to the use of both proximity and touch signals and instead would be to “implement localized haptics feedback in Ku’s mobile terminal such that instead of vibrating the entire device, the tactile feedback may be concentrated to a localized zone under the user finger.” Pet., 79 (cleaned up). Thus, the Ku-Jiang combination does not address the key disclosure that is missing from Ku. EX2001, ¶113.

VIII. INSTITUTION SHOULD BE DENIED UNDER 35 U.S.C. § 314(a)

As explained above, Petitioner fails to set forth evidence establishing a reasonable likelihood that it will prevail, much less that such evidence is “compelling” under the Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation, PTO Director’s Memorandum (June 21, 2022) (“Interim Guidance”). As Director Vidal clarified,

“the compelling merits standard is a higher standard than the standard for institution set by statute,” and is met “if it is **highly likely** that the petitioner would prevail with respect to at least one challenged claim.” *CommScope Technologies LLC, v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23, 3-4 (Feb. 27, 2023) (emphasis added). Moreover, a compelling merits inquiry is not a substitute for a full *Fintiv* analysis. *Id.*, 4.

The merits of the Petition are not compelling. As discussed above, Grounds 1-4 suffer from several deficiencies fatal to the merits, including, for example, Petitioner's failure to show that Pratt or Ku disclose the haptic output signal based at least in part on a proximity signal and a touch signal.

In addition, under the Interim Guidance, a petition should not ordinarily be denied in accordance with the *Fintiv* factors where Petitioner has offered a *Sotera* stipulation “that if the IPR is instituted, the Petitioner will not pursue in the District Court Litigation any ground raised or that could have been reasonably raised in an IPR for the challenged patent.” The inverse is also true: if, as here, the Petitioner has not offered a *Sotera* stipulation, then the Board should exercise its discretion and deny institution on the basis that “Petitioner has not submitted a *Sotera*-type stipulation that would make discretionary denial inappropriate.” *Zhuhai Cosmx Battery Co., Ltd. v. Ningde Amperex Technology Limited*, IPR2023-00587, Paper 12 at 15, 27 (Sept. 22, 2023) (discretionarily denying institution where Petitioner

stipulated not to re-raise same grounds in district court as in IPR but where stipulation “does not extend to any ground ‘that could have been reasonably raised,’ pursuant to *Sotera*.”)

Petitioner has not offered a *Sotera* stipulation—or even a weaker commitment not to assert duplicative grounds in the District Court proceeding—and thus the sound logic recognized in *Zhuhai* applies with even more force here. The Board should find that Petitioner’s decision not to offer a *Sotera* stipulation neutralizes the effects of the pre-institution stay entered by the District Court, and merits denial under a holistic analysis of the *Fintiv* factors due to the duplication of the invalidity grounds asserted in the parallel District Court proceedings. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (Mar. 20, 2020) (precedential), 2-3; *see also Cisco Sys., Inc. v. Oyster Optics, LLC*, IPR2021-00238, Paper 10 (PTAB Jun. 1, 2021) (Panel exercising discretion to deny institution after holistic analysis of *Fintiv* factors).

A. Whether the Court Granted a Stay or Evidence Exists That One May Be Granted if a Proceeding Is Instituted

The first *Fintiv* factor addresses the likelihood of a stay if this proceeding is instituted. Patent Owner recognizes that a stay of District Court proceedings, when coupled with a *Sotera* stipulation, can make discretionary denial under *Fintiv* inappropriate. But here, Petitioner has not offered a *Sotera* stipulation, and there is no reason to conclude that the District Court’s stay reflects any analysis regarding

the merits of Petitioners' invalidity defense. As such, the Board should not weigh the pre-institution stay against using its discretion to deny institution.

Here, the District Court in the Western District of Washington instituted a stay of proceedings despite the fact that (a) no institution decisions have been made on any of the seven patents asserted in the District Court litigation; (b) Petitioner did not offer a *Sotera* stipulation; (c) Petitioner has not asked the Board to construe any terms; and (d) contrary to Petitioner's insistence, in seeking the stay, that the mere filing of its IPR petitions will inevitably simplify the District Court case, only 29 of the 463 patent claims owned by Immersion that have been subject to IPR proceedings have been canceled, and in each of those cases the challenging party ultimately took a license to Immersion's patents.⁴ Because the District Court entered the stay (a) before the Board has made any institution decisions and (b) before the District Court had the opportunity to consider the merits of Petitioner's invalidity positions, and further (c) the District Court's order entering the stay contains no analysis of the merits of Petitioner's invalidity positions, there is no reason for the Board to infer that the District Court's entry of the stay reflects its assessment of the

⁴<https://www.businesswire.com/news/home/20180129005190/en/Immersion-Reaches-Global-Settlement-With-Apple>.

merits of Petitioner's invalidity positions. EX2004. The Board should thus give the stay little weight in its *Fintiv* analysis because if the Board denies institution and the stay is lifted, the litigation can resume status quo ante.

B. Proximity of the Court's Trial Date to the Board's Projected Deadline for a Final Written Decision

In the parallel Western District of Washington litigation, before the Court stayed the case the District Court set trial for June 2025 (EX2005, 1), approximately 3 months before the expected Final Written Decision date in September 2025 if the Board institutes proceedings. If the Board denies institution and the matter proceeds with an approximate delay of 3.5 to 4 months from the previous schedule, the District Court action will head to trial on or about December 2025. Moreover, the District Court can hear not only Petitioner's invalidity defense but can resolve infringement and damages. Especially in light of Petitioner's failure to offer a *Sotera* stipulation, it is more efficient to allow this matter to proceed in District Court.

C. Investment in the Parallel Proceeding by the Court and the Parties

The third *Fintiv* factor addresses investment into the parallel proceeding. Here, the parties have already invested time and effort in the District Court such that Institution would be inefficient. The parties served invalidity and infringement contentions over six months and two months ago respectively (EX2005, 1-2; EX2006), and were in the midst of claim construction briefing when the Court stayed

the case (EX2005, 2). Fact discovery in the parallel litigation was underway and could efficiently be resumed if the stay is lifted. EX2005.

Petitioner has already served nearly 2000 pages of invalidity contentions including the same Pratt, Ku, and Jiang references that are asserted in this IPR, as well as similar references with cumulative subject matter. EX2006, 6-8. As a result of this overlap, and the absence of a *Sotera* stipulation, there will be no inefficiencies that result from resuming proceedings in front of the District Court.

D. Overlap Between the Issues Raised in the Petition and the Parallel Proceeding

The fourth *Fintiv* factor, which addresses the overlap between the issues raised in the Petition and the parallel proceeding, should also weigh in favor of denial. In the parallel litigation, Petitioner has attacked the validity of the challenged claims in view of the same prior art addressed here. EX2006, 6-8.

By failing to offer a *Sotera* stipulation, Petitioner has not even indicated that it would reduce its invalidity assertions based on the outcome of the Board's institution decision. Petitioner is seeking two bites at the apple. This violates the fundamental tenet of IPRs, which is that a litigant cannot hedge its bets on the forum in which to pursue invalidity until it can better weigh its chances, but instead should make a decision regarding where it wishes to litigate invalidity and honor that

decision. 77 Fed. Reg. 48680-01 (Aug. 14, 2012) (IPRs are intended “to create a timely, cost-effective **alternative** to litigation”) (emphasis added).

E. Whether the Petitioner and the Defendant in the Parallel Proceeding are the Same Party

The fifth *Fintiv* factors addresses whether the Petitioner and the defendant in the parallel proceeding are the same party. Petitioner admits that it is the defendant in the parallel litigation. Pet., 84. This factor weighs in favor of denial. *Cisco Sys., Inc. v. Oyster Optics, LLC*, IPR2021-00238, Paper 10, 16-17.

F. Other Circumstances That Impact the Board's Exercise of Discretion, Including the Merits

Finally, the sixth *Fintiv* factor addresses other circumstances that impact the Board's discretion. Patent Owner raises substantive reasons why the Petition should be denied on the merits. These reasons are also relevant to discretionary denial.

IX. CONCLUSION

Petitioner has not established a reasonable likelihood that it will prevail on Grounds 1-4 to establish unpatentability of the challenged claims of the '738 Patent, and therefore the Board should decline to institute *inter partes* review.

Patent Owner's Preliminary Response
IPR2024-00582 (U.S. Patent No. 11,175,738)

Respectfully Submitted,

Dated: June 27, 2024

/ David D. Schumann /

David D. Schumann (Reg. No. 53,569)

Moses Xie (Reg. No. 74,491)

Folio Law Group PLLC

1200 Westlake Ave. N., Suite 809

Seattle, WA 98109

Tel: (206) 206 880-1802

Email: david.schumann@foliolaw.com

moses.xie@foliolaw.com

(Case No. IPR2024-00582)

Attorneys for Patent Owner

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

Under the provisions of 37 C.F.R. § 42.24(d), the undersigned hereby certifies that the word count for all portions of the foregoing Patent Owner's Preliminary Response totals 12,537 words per Microsoft Word, which complies with the requirement of 14,000 words allowed under 37 C.F.R. § 42.24(d).

Dated: June 27, 2024

/ David D. Schumann /
David D. Schumann (Reg. No. 53,569)
Folio Law Group PLLC
1200 Westlake Ave. N., Suite 809
Seattle, WA 98109
Tel: (206) 206 880-1802
Email: david.schumann@foliolaw.com

(Case No. IPR2024-00582)

Attorneys for Patent Owner

CERTIFICATE OF SERVICE

As authorized by Patent Owner's Mandatory Notice, I hereby certify that on June 27, 2024, a copy of this document has been served in its entirety by electronic mail on Petitioner's lead and backup counsel.

Dated: June 27, 2024

/ David D. Schumann /
David D. Schumann (Reg. No. 53,569)
Folio Law Group PLLC
1200 Westlake Ave. N., Suite 809
Seattle, WA 98109
Tel: (206) 206 880-1802
Email: david.schumann@foliolaw.com

(Case No. IPR2024-00582)

Attorneys for Patent Owner