UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

META PLATFORMS, INC.,
Petitioner,

v.

EIGHT KHZ, LLC,
8KHZ.

Case IPR2023-01023
Patent 10,798,509

PATENT OWNER'S OBJECTIONS TO PETITIONER'S EVIDENCE
37 C.F.R. §§42.62, and 42.64

Pursuant to 37 C.F.R. §§42.62, and 42.64, and the Federal Rules of Evidence, Patent Owner Eight kHz, LLC ("8KHZ") provides the following objections to evidence submitted by Petitioner Meta Platforms, Inc. These objections are timely served within ten (10) business days of the institution of the trial. The fact that 8KHZ has not objected below to certain pieces of evidence or certain portions of certain evidence provides no indication that 8KHZ agrees to the positions asserted therein. In addition, 8KHZ reserves the right to present further objections to this or additional evidence submitted by Meta Platforms, Inc., as allowed by the applicable rules or other authority.

I. 8KHZ'S OBJECTIONS TO EVIDENCE

Exhibit 1003 – Declaration of Dr. Gregory Welch

8KHZ objects to the declaration of Dr. Gregory Welch (the "Declarant"), Exhibit 1003, under Fed. R. Evid. 106, 401-403, 702-703, 705, and 37 C.F.R. § 42.65(a) and § 42.104(b)(5). These evidentiary failures cannot be cured because Petitioner is time-barred from filing another petition under 35 U.S.C. § 315(b). 8KHZ specifically objects to:

(1) Paragraphs 87, 623, 628, 629, 634, 655, 676, 727, 772, and 773 of Exhibit 1003 on the ground that they are irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403 and speculation under Fed. R. Evid. 702, 703, and 705;

(2) Paragraphs 150, 156, 197, 212, 242-245, 252, 265, 267, 269, 305, 313, 315, 316, 368, 39, 591, 601, 602, 603, 604, 615, 625, 662, 700, 740, 741, 749, 771, 787, and 804 of Exhibit 1003 on the grounds that the probative value of the testimony contained therein is outweighed by a danger of prejudice and confusion under Fed. R. Evid. 403 and to the extent that at least some of these paragraphs fail to include all related parts "that in fairness ought to be considered at the same time" under Fed. R. Evid. 106;

(3) Paragraphs 18-26 and 34 of Exhibit 1003 on the grounds that they contain purported expert testimony by a Declarant who is not qualified as an expert on these issues in violation of Fed. R. Evid. 702-703;

(4) Paragraphs 87, 212, 265, 269, 296, 306, 313, 315, 316, 389, 409, 469, 603, 623, 627, 628, 629, 633, 634, 649, 655, 662, 663, 676, 727, 743, 772, 790, 792, and 839 of Exhibit 1003 on the grounds that they contain "[e]xpert testimony that does not disclose the underlying facts or data on which the opinion is based" in violation of 37 C.F.R. § 42.65(a) and Fed. R. Evid. 702-703;

(5) Paragraphs 1-26, 38-73, 77-83, 143-45, 208, 225, 280, 290-91, 302, 373-74, 396-97, 404-06, 425, 472-73, 533-34, 556-57, and 564-883 of Exhibit

1003 on the grounds that they are not cited to or relied upon by the Petition (Paper 2) in violation of 37 C.F.R. § 42.104(b)(5).[1]

The fact that 8KHZ has not objected to certain paragraphs of Exhibit 1003 provides no indication that 8KHZ agrees to the positions asserted therein.

(1) *Objections to Irrelevant, Misleading, Unduly Prejudicial and Confusing Testimony*

8KHZ objects to Exhibit 1003 as unsupported and conclusory testimony that is irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403 and purported expert opinion that is pure speculation under Fed. R. Evid. 702, 703, and 705.

Specifically, and without limitation, 8KHZ objects to any such paragraph in which the Declarant speculates as to a POSITA's understanding and state of mind, including without limitation, paragraphs 87, 623, 628, 629, 634, 655, 676, 727, 772, and, 773 for relying on conclusory statements that are unsupported by factual evidence and which is pure speculation and/or unsupported by facts or data of a type

[1] For completeness, 8KHZ includes objections under categories (1)-(4) to paragraphs that are not cited in the Petition and also objected to on that basis under category (5).

reasonably relied upon by experts in the field in order to form the opinion or inferences made therein.

In paragraph 87, Declarant purely speculates, without providing any supporting evidence, that "Persons of ordinary skill would be very familiar with these principles [of tracking a user's head] and understand the same principles apply to tracking other parts of a user's body (e.g., hands and feet) and other objects."

In paragraph 623, Declarant purely speculates, without providing any supporting evidence, that "[p]ersons of ordinary skill in the art would have understood that holding a handheld controller and using it to define a boundary of "an area in the physical world" would (or would obviously) include pointing the controller to trace out the intended boundary."

In paragraph 628, Declarant purely speculates, without providing any supporting evidence, that "[p]ersons of ordinary skill in the art would have understood that holding a handheld controller and using it to define a boundary of "an area in the physical world" would (or would obviously) include pointing the controller to trace out the intended boundary."

In paragraph 629, Declarant purely speculates, without providing any supporting evidence, that "if the purpose of pointing to the SLP was to perform some action on the SLP, persons of ordinary skill in the art would have understood it is essential to have some form of dynamic visual confirmation that a user is sufficiently

pointing at (intersecting) the SLP at any given moment, lest the user be forced to repeatedly point and click (e.g., Pedrotti (Ex.1005) at 9:38) around an SLP until they are able to successfully carry out the action."

In paragraph 634, Declarant purely speculates, without providing any supporting evidence, that "[i]n a Pedrotti-Jang or Pedrotti-Jang-Begault system, persons of ordinary skill in the art would have known and been motivated to use Pedrotti's controller (PED) for selecting a sound source (SLP) and that highlighting could obviously be used to indicate this selection. A user could use the controller to select (and thus highlight) an image of a pep band in Jang's virtual basketball court associated with the pep band's sound or a conference attendee in Jang's virtual conference room. Then, the selected and highlighted sound source (e.g., the pep band or conference attended) could be moved from one location (a first SLP) to a different location in auditory space in the virtual environment (a second SLP)."

In paragraph 655, Declarant purely speculates, without providing any supporting evidence, that "[i]n order for Pedrotti's system to determine "when the user's head and/or hand approaches the boundary," the HMD's processor must be provided with information about the boundary of the selected area, and thus, Pedrotti's system could and would retrieve the size and shape of its zone from HMD memory in response to the HMD determining that the user is in the location of the zone."

In paragraph 676, Declarant purely speculates, without providing any supporting evidence, that "[p]ersons of ordinary skill in the art would have known that a user could and would be centered in a cylindrical or rectangular Pedrotti zone. First, persons of ordinary skill in the art would have known that in a 3D virtual environment, it would be advantageous for the user to be centered in the zone to both avoid leaving the zone as well as allow the user to interact with VR content in all direction. Second, persons of ordinary skill in the art would have understood that the user can walk around in the zone, including to its center."

In paragraph 727, Declarant purely speculates, without providing any supporting evidence, that "displaying virtual images at the locations of their sound sources (SLPs), and doing so automatically when users are proximate to one of them was a well-known VR effect. In a VR game, an example of this is when a user is exploring an area and travels within distance of another character so that the other character appears on the screen for additional interactions."

In paragraph 744, Declarant purely speculates, without providing any supporting evidence, that "[p]ersons of ordinary skill in the art also would have understood that the camera-based absolute position and orientation of the handheld IMU real controller device 19 (held in the user's hand) supplements the IMU information about velocities and accelerations received from the IMU real controller device."

In paragraph 772, Declarant purely speculates, without providing any supporting evidence, that "[p]ersons of ordinary skill in the art would have readily understood how to carry out the very basic steps of testing whether the position (x, y, z coordinates) of McCulloch's tracked handheld controller device (PED) is moving outside a zone, for example a zone defined by a set of connected vertices or a parametric equation for a geometric primitive (similar to Pedrotti's zone)."

In paragraph 773, Declarant purely speculates, without providing any supporting evidence, that "[p]ersons of ordinary skill in the art would have understood that such collision processing includes the very basic processing to determine whether a collision between two objects have occurred, e.g., whether the vertices of one object penetrate the surface of another object, and that this processing could also be used to determine when a tracked handheld controller device (PED) moves outside a zone."

Accordingly, such unsupported and conclusory testimony is objected to as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403 and pure speculation under Fed. R. Evid. 702, 703, and 705.

(2) Objections to Testimony Whose Probative Value is Substantially Outweighed by a Danger of Prejudice and Confusion

8KHZ objects to paragraphs 150, 156, 197, 212, 242-245, 252, 265, 267, 269, 305, 313, 315, 316, 368, 394, 591, 601, 602, 603, 604, 615, 625, 662, 700, 740, 741, 749, 771, 787, and 804 of Exhibit 1003 to the extent that the probative value of the testimony contained therein is substantially outweighed by a danger of prejudice and confusion under Fed. R. Evid. 403.

Specifically, 8KHZ objects to the misleading statement in paragraph 150 that "Pedrotti discloses as parts of its system 'a head mounted display (HMD) that … has a tracker allow[ing] a processor to track the position and orientation of the HMD' and 'physical controllers that a user may use to control certain actions or events in the virtual world.'" Declarant does not provide the full text in this quote of Pedrotti, which also includes the "physical base station" as part of the system: "A method and apparatus is disclosed for assisting a user in locating physical objects while the user is wearing a head mounted display (HMD) that covers a user's field of vision and has a tracker allows a processor to track the position and orientation of the HMD, the objects being specifically one or more physical controllers that a user may use to control certain actions or events in the virtual world and which are located on a physical base station." Pedrotti (Ex. 1005) at 4:4-11. Thus, Declarant provides an

out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

8KHZ similarly objects to the misleading characterization in paragraph 156 that "Pedrotti further discloses that the type of warning may be altered, such as 'with directional arrows indicating the direction of the boundary in relation to the user's view,' 'text or auditory warnings,' or 'an additional visual warning, that persists until the user returns to the selected area within the boundary'" but fails to consider the disclosure in Pedrotti that the type of warning is altered from a virtual fence, which is used when the user is approaching the boundary, to something else like directional arrows, text or auditory warnings, "[i]f the user's head or hands go beyond the boundary." Pedrotti (Ex. 1005) at 13:63-67. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

8KHZ similarly objects to the misleading characterization in paragraph 197 that "McCulloch also discloses creating user-defined, 3D zones for gameplay." This statement and the selected quotes from McCulloch included in paragraph 197 do not consider the disclosure of McCulloch providing that the user-defined playspace is based only on the user's field of view. *See* McCulloch (Es.. 1008) at 4:4-14 ("The

term 'display field of view' refers to the field of view of the display portion of the display device system as the display portion is what the user looks through. In other words, the display field of view approximates a user field of view as seen from a user perspective. In some embodiments, the display field of view may be mapped by a view dependent coordinate system, having orthogonal X, Y and Z axes in which a Z-axis represents a depth position from a reference point, for example a reference point on or near the display portion of the device."). The "playspace" in McCulloch is thus defined by the user's field of view: "For example, a gaming application may receive user input identifying boundaries for a playspace in which virtual objects can be positioned. For example, the user input data may be image and depth data from a capture device on the display device captured while the user is turning his head, gaze data captured while a user is gazing at boundary points and perhaps audio data captured by the microphone of the user speaking a command like 'boundary'." McCulloch (Ex. 1008) at 20:11-18.

8KHZ objects to paragraph 212, in which Declarant characterizes the sound processing techniques of Jang as "directed to help guide the user in the virtual world." This characterization of the purpose of the sound processing technique by the Declarant is unsupported by Jang, which explicitly indicates that the techniques are provided to "give a higher sense of realism," rather than helping "guide the user in the virtual world," as characterized by the Declarant. Thus, Declarant provides

an out-of-context, incomplete picture of Jang (Ex. 1006), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

In paragraphs 242-245, Declarant states "[i]n view of Jang's disclosures regarding sound areas and predetermined priorities and schemes, persons of ordinary skill in the art would have been motivated to set those predetermined priorities and schemes for 'sound areas' and 'audio sources' by assigning locations from where different audio sources will produce sound." - Declarant provides a piecemeal analysis regarding the zone including SLPs. In contrast to dividing into the zone "with the PED," Jang discloses division based on focus areas. Jang, column 9, lines 45-48. Thus, Declarant's statements are confusing and misrepresent the division disclosed in Jang.

8KHZ similarly objects to the misleading characterization in paragraph 252 that "Pedrotti further taught that this processor [, the processor that tracks the user's HMD and controllers,] may be 'in the HMD'" and similar statements in paragraph 368. In providing this testimony , Declarant fails to consider the complete context of Pedrotti's disclosure regarding the controllers located elsewhere in the system. Indeed, Pedrotti never discloses that the processor used for tracking could be in the HMD, but instead merely discloses that "*a* processor may be located in the base station, or in a separate location, or even in the HMD or one of the controllers if

desired." Pedrotti does not disclose that the tracking processor is in the HMD. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

Further, in note 7 of paragraph 252 references Pedrotti 177 (Ex. 1032), providing a similar misleading characterization that "the processor is also described as being in the HMD." This characterization is misleading for the same reasons the characterization of paragraph 252 is misleading. Indeed, Pedrotti 177 never discloses that the processor used for tracking could be in the HMD, but instead merely discloses that a processor may be located in the base station, or in a separate location, or even in the HMD or one of the controllers if desired. Pedrotti 177 does not disclose that the tracking processor is in the HMD. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti 177 (Ex. 1032), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

In paragraphs 265 and 269, Declarant provides misleading statements that a POSA would understand that holding a handheld controller and using it to define a boundary of 'an area in the physical world' would (or would obviously) include pointing the controller to trace out the intended boundary." In providing this characterization, Declarant fails to consider the context of the area definition defined

in Pedrotti, which provides a non-pointing technique for defining the area, by "having the user walk around a perimeter chosen by the user with one of the trackers to define the outer boundary of the selected area." Pedrotti, paragraph 14, lines 59-61. There is no indication in Pedrotti that pointing would or could be used. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

Further, Declarant provides a misleading statement in paragraph 267 that "highlighting …one of the multiple SLPs in the zone" also would have been obvious over Pedrotti because Pedrotti discloses that a virtual image of the boundary, i.e., its fence, "can be glowing or colored if desired to be more visible." Pedrotti (Ex.1005) at 12:66-13:11. Indeed, Pedrotti does not disclose that "its fence" is an SLP and, thus, Declarant's statement is confusing and the probative value of the testimony contained therein is substantially outweighed by a danger of prejudice and confusion under Fed. R. Evid. 403.

In paragraphs 306 and 315, Declarant states that "Pedrotti further discloses or at a minimum renders obvious displaying a 3D virtual image that shows a size and shape of a zone in response to that determination [that the user is leaving the zone]." This statement causes confusion, as the Declarant attributes actions occurring "when

the user comes within a preselected distance of the boundary" with actions occurring when leaving the zone, which is erroneous.

Declarant also provides a misleading statement in paragraph 313 that "the processor in Pedrotti's HMD tracks both the 'trackers in the physical controllers' (PEDs) and "the positions and orientation of [a] HMD tracker," i.e., the user wearing the HMD, which in turn can trigger display of a virtual fence, including when (or obviously when) the user moves outside the zone." As discussed above, Pedrotti does not disclose a tracking processor in the HMD, as stated by Declarant, but instead, merely suggests that any number of processors may be found in the system with different functions. Pedrotti, column 16, lines 20-24.

Further, in paragraph 316, Declarant misconstrues Pedrotti, by stating that the fence "is displayed in response to the WED determining that the user moved outside the zone. Pedrotti (Ex.1005) at 13:63-67." This misconstrues Pedrotti, which actually discloses that the fence is displayed in response to approaching a boundary. Pedrotti, abstract. In fact, Pedrotti teaches that the fence may be removed upon leaving the boundary. Pedrotti, column 14, lines 1-5.

Additionally, in paragraph 394, Declarant states that the system "generates a warning" when the user is leaving the zone, but this warning is different than the fence that allegedly provides the size and shape of the zone. Thus, the statement is misleading as it suggests the warning is the fence and/or some other warning that

provides a size and shape of the zone, which is not disclosed by Pedrotti. Indeed, as discussed above, Pedrotti actually discloses that the fence is displayed in response to approaching a boundary and that the fence may be removed upon leaving the boundary. Pedrotti, abstract and column 14, lines 1-5.

8KHZ also objects to the misleading characterization in paragraph 591 that "For example, if moving between Jang's virtual basketball court and Jang's virtual conference room, a "safe area" would prevent the user from tripping over a sofa or crashing into a wall in the real, physical space of the user." This statement assumes that Jang mimics movement in the real world in the virtual world, but Jang focuses on movement in the virtual environment not precisely mimicking the real world. *See* Jang, 1:57-65. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

Additionally, 8KHZ also objects to the misleading characterization in paragraph 601 that "[a] processor in Pedrotti's system 'tracks the position and orientation of [a] HMD tracker' and 'the position and orientation of one or more trackers in the physical controllers.' Pedrotti (Ex.1005) at 2:49-57. Thus, the WED 'knows where the user's head,' and thus the user him or herself, 'and hands are located.'" This statement assumes that the processor of Pedrotti is within the WED, but, instead, is regularly described as being part of a separate base station. Thus,

Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

Moreover, 8KHZ also objects to the misleading characterization in paragraph 602 that "Pedrotti also discloses, or at a minimum renders obvious, tracking 'with one or more sensors in the WED.' Pedrotti disclosed controllers with trackers, including, for example, 'light-emitting trackers' that 'provide position and orientation information' to sensors, including, for example, 'a camera mounted on [a] base station or elsewhere.' Pedrotti (Ex.1005) at 5:8-24 ('essentially any type of tracker… can be used in the present approach' including using "inertial sensors (e.g., accelerometers and/or gyroscopes)')." This statement does not suggest that the sensors would be incorporated into the WED and, instead, Pedrotti consistently refers to the sensors for tracking as being disposed in the base station. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

In addition, 8KHZ also objects to the misleading characterization in paragraph 603 that "[a]s such, persons of ordinary skill in the art would be significantly motivated to use an electro-optical approach taught by Pedrotti, i.e. to track the handheld controllers using Pedrotti's light-emitting components (e.g., LEDs) on the

controllers and one or more cameras on the HMD." This statement assumes that the location tracked by the HMD is not the relative location of the controller with respect to the HMD, as opposed to a virtual boundary. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

In addition, 8KHZ also objects to the misleading characterization in paragraph 604 that "[p]ersons of ordinary skill in the art would have further understood and appreciated that tracking a handheld controller using LEDs on a handheld controller and cameras on an HMD as taught by Pedrotti (Ex.1005) (at 5:8-24) would have relatively high accuracy, high resolution, and high speed (with low latency), which is particularly important for handheld controllers as humans can move their wrists relatively fast.." This statement again assumes that the location tracked by the HMD is not the relative location of the controller with respect to the HMD, as opposed to a virtual boundary. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

In addition, 8KHZ also objects to the misleading characterization in paragraph 611 that "[p]ersons of ordinary skill in the art would have known and understood that this processor in the HMD, i.e., the processor in Pedrotti's WED worn a user's

head, determines when the controlled held in the hand of the user is moving outside the zone, as claimed because Pedrotti's system is designed to determine where a user is inside a "safe area" for gameplay and to help the user stay in that area." This statement assumes that the processor in the WED of Pedrotti determines its location with respect to a boundary, but Pedrotti only describes a base station processor performing these tasks. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

In addition, 8KHZ also objects to the misleading characterization in paragraph 615 that "('In addition, since the hand of the user 1002 is within the preselected distance of the boundary of the selected area, the processor generates instructions to the HMD to generate the visual warning as illustrated in this embodiment, this visual warning is in the form of a grid of lines or a "virtual fence" located at the boundary, as indicated in FIG. 11 by the dashed lines 1114.'), 13:63- 67 ('If the user's head or hands go beyond the boundary as determined by the trackers, the processor can provide additional messaging or warning, such as text or auditory warnings, or an additional visual warning, that persists until the user returns to the selected area within the boundary.')." This statement assumes that the VR image or virtual fence is shown in response to the WED determining that the PED is moving outside the zone. Indeed, these portions merely indicate that the virtual fence is only depicted

when the user approaches the boundary but not after he is moving outside the boundary. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

8KHZ also objects to the misleading characterization in paragraph 625 that "Limitation 2[a]'s 'highlighting … a VR image at the SLP in the zone' also would have been obvious over Pedrotti because Pedrotti explained that a virtual image of the boundary, i.e.. its fence, 'can be glowing or colored if desired to be more visible.'" This statement assumes that the fence is highlighted when the PED is pointed at the SLP or virtual fence. Pedrotti never mentions pointing the PED with respect to an SLP. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

8KHZ also objects to the misleading characterization in paragraph 625 that "Limitation 2[a]'s 'highlighting … a VR image at the SLP in the zone' also would have been obvious over Pedrotti because Pedrotti explained that a virtual image of the boundary, i.e.. its fence, 'can be glowing or colored if desired to be more visible.'" This statement assumes that the fence is highlighted when the PED is pointed at the SLP or virtual fence. Pedrotti never mentions pointing the PED with respect to an SLP. Thus, Declarant provides an out-of-context, incomplete picture

of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

8KHZ also objects to the misleading characterization in paragraph 662 that "[b]ased on these disclosures, persons of ordinary skill in the art would have known that, as I discussed for limitations 1[a] and 5[a], when a user uses Pedrotti's handheld controller to assign (i.e., designate) SLP locations in Pedrotti's zone, a Pedrotti-Jang or Pedrotti-Jang-Begault system would (or at a minimum obviously would) display virtual images at those designated SLPs because Jang teaches that its system receives 'an input of a selected virtual reality character from the user' and 'provides the virtual reality apparatus 110 with sound sources occurring in real time according to the relative locations or situations of the character in the virtual reality environment.' Jang (Ex.1006) at 7:24-32. Thus, for instance, if a user designated a location for an announcer in Jang's virtual basketball court, an image of an announcer corresponding to the sound source of the announcer would be displayed at that location. Jang (Ex.1006) at 10:37-43, Fig. 5." This statement is unrelated to designating locations of multiple SLPs as recited in claim 5[a]. Indeed, the SLPs of Jang are pre-designated without user's designation via the PED, as provided in the context of claim 5[a]. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

8KHZ also objects to the misleading characterization in paragraph 700 that "[p]ersons of ordinary skill in the art knew that "[h]ighlighting is visually outlining or changing the color of an object." This statement is unrelated to the PED pointing at an SLP. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

8KHZ also objects to the misleading characterization in paragraph 740 that "[b]ecause McCulloch also discloses, or at a minimum renders obvious, tracking the movement of its real controller device—and specifically tracking the movement with its HMD—persons of ordinary skill would have known that McCulloch's system could and would have been used to implement Pedrotti's method to divide an area around the user into a zone for gameplay." This statement is misleading and inaccurate because McCulloch's controller can only provide orientation information and does not provide location data relative to fixed locations. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

8KHZ also objects to the misleading characterization in paragraph 741 that "[p]ersons of ordinary skill in the art would have known that determining the position and/or orientation of the handheld device, or PED held in the hand of the

user, is a step in Pedrotti's method of defining a zone for gameplay." This statement is again misleading and inaccurate because McCulloch's controller can only provide orientation information and does not provide location data relative to fixed locations. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

8KHZ also objects to the misleading characterization in paragraph 771 that "[p]ersons of ordinary skill in the art would have known that McCulloch's system would have been able to implement Pedrotti's method, especially in view of McCulloch's teaching regarding a scene mapping engine, which 'identifies the position and tracks the movement of real and virtual objects,' which can include the PED held in the hand of the user." This statement is again misleading and inaccurate because McCulloch's controller can only provide orientation information and does not provide location data relative to fixed locations. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

8KHZ also objects to the misleading characterization in paragraph 787 that "McCulloch's HMD uses a "visual effects library [with] routines for animations, highlighting, and other types of visual enhancements which may also be associated

with particular actions," such as pointing." This statement is again misleading by suggesting that McCulloch includes pointing with its actions but never mentions or described pointing. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

8KHZ also objects to the misleading characterization in paragraph 804 that "[c]onsequently, this information would have been retrieved when a user 'enter[s] or re-enter[s] the environment' (i.e., in response to determining that the user is located in the zone), to give the user a sense of the zone's boundaries. McCulloch (Ex.1008) at 15:48-, 54, 15:63-67." This statement is misleading because McCulloch only mentions a playspace that is visible to the user but the user is never in the zone. Thus, Declarant provides an out-of-context, incomplete picture of Pedrotti (Ex. 1005), and pursuant to Fed. R. Evid. 106 fails to include all related parts "that in fairness out to be considered at the same time."

(3) Objections to Purported Expert Testimony by a Declarant Who is Not Qualified as an Expert

8KHZ objects to paragraphs 18-26 and 34 of Exhibit 1003 under Federal Rules of Evidence 702-703 as the paragraphs contain purported expert testimony by

a Declarant who is not qualified as an expert by knowledge, skill, experience, training, or education to provide an expert opinion on these issues.

Specifically, 8KHZ objects to the testimony of paragraphs 18-26 and 34 containing improper opinion testimony by Declarant on legal concepts, subject matter on which Declarant is not an expert. All of these paragraphs fall under the heading of "legal understanding" in the Exhibit and include statements regarding legal concepts.

For example, in paragraph 21, Declarant provides, "I also understand that in assessing whether a claim is obvious, one must consider whether the claimed improvement is more than the predictable use of prior art elements according to their established functions. I understand that there need not be a precise teaching in the prior art directed to the specific subject matter of a claim because one can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." And in paragraph 22, Declarant states, "I understand that in an obviousness analysis, neither the motivation nor the avowed purpose of inventors controls the inquiry. Any need or problem known in the field at the time of the invention and addressed by the patent can provide a reason for combining elements…. I understand that known techniques can have obvious uses beyond their primary purposes, and that in many cases a person of ordinary skill in the art can fit the teachings of multiple pieces of prior art together." In paragraph 25, Declarant

states, "I understand that, when there is a reason to solve a problem and there are a finite number of identified, predicable solutions, a person of ordinary skill in the art has good reason to pursue the known options within his or her technical grasp. I further understand that, if this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense, which bears on whether the claim would have been obvious." And in paragraph 34, Declarant states, "[i]n my view, more education can supplement relevant experience and vice versa" when describing the nature of a POSA. Declarant himself acknowledges that he is not a lawyer (see Exhibit 1003, paragraph 17) and thus is not qualified to testify on these legal concepts.

In addition, these statements in paragraphs 18-26 and 34 are conclusory statements that are unsupported by factual evidence and which are pure speculation, and thus 8KHZ objects to these paragraphs as unsupported and conclusory testimony that is irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403 and purported expert opinion that is pure speculation under Fed. R. Evid. 702, 703, and 705.

(4) Objections to Purported Expert Testimony That Does Not Disclose the Underlying Facts or Data on Which the Opinion is Based

8KHZ further objects to Exhibit 1003 as including "[e]xpert testimony that does not disclose the underlying facts or data on which the opinion is based" in violation of 37 C.F.R. § 42.65(a) and Fed. R. Evid. 702-703, and 705.

Specifically, each of paragraphs 87, 212, 265, 269, 296, 306, 313, 315, 316, 389, 409, 469, 603, 623, 627, 628, 629, 633, 634, 649, 655, 662, 663, 676, 727, 743, 772, 790, 792, and 839 contain sentences that do not cite to any evidence or facts to support the assertions made therein, and these uncited sentences are unsupported testimony that are accordingly objected to for failing to provide the underlying facts or data on which such opinion is based, as shown in more detail in Section (1) above.

For example, in paragraph 212, Declarant states that the sound processing techniques of Jang are "directed to help guide the user in the virtual world." However, this statement does not cite any particular portions of Jang as support for this statement.

Further, sentences in paragraphs 265, 269, 296, 306, 313, 315, 316, 389, 409, 469, 603, 611, 627, 633, 649, 662, 663, 743, 790, 792, and 839 cite to references that fail to provide support for the statements and/or opinions being proffered, and this

testimony is accordingly objected to for failing to provide the underlying facts or data on which such opinion is based.

Specifically, in paragraphs 265 and 269, Declarant provides statements that a POSA would understand that holding a handheld controller and using it to define a boundary of 'an area in the physical world' would (or would obviously) include pointing the controller to trace out the intended boundary." However, none of the cited support indicates disclosure in Pedrotti that pointing would or could be used. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraphs 256 and 269.

Specifically, paragraph 296 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states that a POSA would have understood and appreciated that tracking a handheld controller using LEDs on a handheld controller and cameras on an HMD as taught by Pedrotti (Ex.1005) (at 5:8-24) would have relatively high accuracy, high resolution, and high speed (with low latency), which is particularly important for handheld controllers as humans can move their wrists relatively fast. However, neither the cited portion of Pedrotti nor any other portion of Pedrotti discloses that cameras for tracking may be located on the HMD. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 296.

In paragraphs 306, 313 and 315, Declarant states that "Pedrotti further discloses or at a minimum renders obvious displaying a 3D virtual image that shows a size and shape of a zone in response to that determination [that the user is leaving the zone]." However, none of the cited support provides such an indication. In contrast, the cited portions disclose displaying the fence "when the user comes within a preselected distance of the boundary" with separate actions occurring when leaving the zone. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraphs 306 and 315.

Moreover, in paragraph 313, Declarant states that "the processor in Pedrotti's HMD tracks both the 'trackers in the physical controllers' (PEDs) and "the positions and orientation of [a] HMD tracker," i.e., the user wearing the HMD, which in turn can trigger display of a virtual fence, including when (or obviously when) the user moves outside the zone." The cited support does not indicate a tracking processor in the HMD, but instead "multiple processors performing different functions," which may include one that is "even in the HMD." Pedrotti, column 16, lines 20-24. Further, in contrast to the statements of paragraph 313, the virtual fence is displayed "when the user comes within a preselected distance of the boundary" and "is about to move out of the selected area." As discussed above, Pedrotti does not disclose a tracking processor in the HMD or displaying a fence/grid when the user leaves a zone, as stated by Declarant, but instead, merely suggests that any number of

processors may be found in the system and that when the user gets close to a boundary, a fence/grid may be displayed. Pedrotti, column 2, lines 44-47 and column 4, lines 40-45. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 313.

Further, in paragraph 316, Declarant states that the fence "is displayed in response to the WED determining that the user moved outside the zone," citing "Pedrotti (Ex.1005) at 13:63-67." However, this citation does not support this statement. Instead the cited portion of Pedrotti actually discloses that "additional messaging or warning" other than the fence is displayed upon going "beyond the boundary" in response to approaching a boundary. Pedrotti, abstract. In contrast to Declarant's statement of paragraph 416, "the fence is displayed… when the user's head or hands are approaching the boundary." Pedrotti, column 13, lines 46-48. No support has been provided for displaying the fence in response to the user moving outside the zone. In fact, Pedrotti teaches that the fence may be removed upon leaving the boundary. Pedrotti, column 14, lines 1-5. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 316.

Further, paragraph 389 fails to provide underlying facts or data on which statements are based. Indeed, the cited portions do not disclose communications between the HMD and handheld controllers, but instead, at best, communication between the HMD and a base station or console.

Moreover, in paragraph 409, Declarant suggests, "[a]nd persons of ordinary skill in the art would have recognized that Pedrotti's 'safe area' serves the same function of McCulloch's boundaries, which are part of McCulloch's 'virtual environment rules' that 'provide fallback rules or alternative rules based on the real objects and real features mapped in the user environment' and are 'a factor in the execution of a game,'" citing "McCulloch (Ex.1008) at 20:22-25, 20:4-11." However, the cited portions do not support this statement. Indeed, the cited portions do not even mention or suggest safety or a "safe area" as suggested by Declarant. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 409.

In paragraph 469, Declarant suggests "McCulloch's HMD displays 'highlighting,' or alteration of the visual image 'when the PED … is pointed at' the SLP, or virtual object, because McCulloch's HMD is able to track the position and orientation of the handheld controller through a variety of means." However, none of the cited support discloses such "highlighting." Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 469.

Additionally, paragraph 603 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states persons of ordinary skill in the art would have understood that using light emitters

on the controllers and one or more cameras on the HMD is well matched to processing in the HMD (tracking, rendering, etc.), which would eliminate the need to transfer measurement data from of the controllers to the processor, allowing the handheld controllers to be wireless. However, the cited support provides no reasoning as to whether the HMD would be capable or find it useful to perform this processing. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 603.

In addition, paragraph 611 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states persons of ordinary skill in the art would have known and understood that this processor in the HMD, i.e., the processor in Pedrotti's WED worn a user's head, determines when the controlled held in the hand of the user is moving outside the zone, as claimed because Pedrotti's system is designed to determine where a user is inside a "safe area" for gameplay and to help the user stay in that area. However, the cited support discusses that the processor tracks the HMD but fails to convey that the processor performing these actions can be in the HMD. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 611.

In addition, paragraph 627 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states persons of ordinary skill in the art would have known and understood that Pedrotti's controllers could and would be pointed at virtual objects to select or move them "when the PED … is pointed at" an SLP as claimed because the processor in Pedrotti's HMD tracks "the position and orientation of one or more trackers in the physical controllers," and it was common for controllers (PEDs) to convey target locations to a processor. However, the cited support fails to mention pointing with respect to its trackers. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 627.

In addition, paragraph 633 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states persons of ordinary skill in the art would have understood that a sound source in virtual space (i.e., at an SLP) is one of many types of virtual objects that could and would be controlled and arranged in VR, for example, by pointing at, highlighting, selecting, and moving the sound source with its associated visual element - none of citations focus on pointing. However, the cited support fails to mention pointing

with respect to its trackers. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 633.

Further, paragraph 649 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states persons of ordinary skill in the art also would have known that such memory preferably would be in the HMD, since Pedrotti discloses that its processor is located in the HMD. However, the cited support has no suggestion that memory of HMD would store boundary data. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 649.

Moreover, paragraph 662 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states based on these disclosures, persons of ordinary skill in the art would have known that, when a user uses Pedrotti's handheld controller to assign (i.e., designate) SLP locations in Pedrotti's zone, a Pedrotti-Jang or Pedrotti-Jang-Begault system would (or at a minimum obviously would) display virtual images at those designated SLPs because Jang teaches that its system receives "an input of a selected virtual reality character from the user" and "provides the virtual reality apparatus 110 with sound sources occurring in real time according to the relative locations or situations of the

character in the virtual reality environment." Thus, for instance, if a user designated a location for an announcer in Jang's virtual basketball court, an image of an announcer corresponding to the sound source of the announcer would be displayed at that location. However, the cited support is unrelated to pointing a controller at an SLP or presenting a VR image. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 662.

Further, paragraph 663 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states persons of ordinary skill in the art would have also understood that corresponding virtual images of the arranged sound sources (e.g., a computer monitor) could and would be displayed in the virtual environment at their designated locations. Begault (Ex.1007) at 172-73 (GUI for "arranging [] various sound inputs" such that "relative location of the icons" are "commands to a multi-input, 3-D sound spatialization subsystem"), Fig. 5:12. However, the cited support is unrelated to pointing a controller at an SLP or presenting a VR image. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 663.

Moreover, paragraph 743 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states

McCulloch discloses that the HMD includes absolute position and orientation tracking of the HMD through various sensors and transceivers, which provides information that can be combined with the HMD's image and depth data for the tracking of controllers. See, e.g., McCulloch (Ex.1008) at 8:17-30 ("Inside, or mounted to temple 102, are an earphone of a set of earphones 130, an inertial sensing unit 132 including one or more inertial sensors, a location sensing unit 144 including one or more location or proximity sensors, some examples of which are a GPS transceiver, an infrared (IR) transceiver, or a radio frequency transceiver for processing RFID data. Optional electrical impulse sensing unit 128 detects commands via eye movements. In one embodiment, inertial sensing unit 132 includes as sensors a three-axis magnetometer, a three axis gyro, and a three axis accelerometer. The inertial sensors are for sensing position, orientation, and sudden accelerations of head mounted display device 2. From these movements, head position, and thus orientation of the display device, may also be determined."), Fig. 2A. However, the cited support is unrelated to absolute position and instead discusses relative position. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 743.

Additionally, paragraph 790 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states a

sound-producing virtual object, and its image, is associated with the SLP; likewise, a sound source in virtual space (e.g., the SLP) is just one kind of virtual object that a user could and would select and arrange in a virtual environment, and it would be obvious to display a VR image at the SLP to provide a visual indication of the existence of the virtual object to the user. However, the cited support is unrelated to selecting a virtual object. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 790.

Also, paragraph 792 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states McCulloch's HMD displays "highlighting," or alteration of the visual image "when the PED … is pointed at" the SLP, or virtual object, because McCulloch's HMD is able to track the position and orientation of the handheld controller through a variety of means (e.g., inertial motion unit, image and depth data), and also identify gestures such as pointing by the user. However, the cited support is unrelated to selecting or pointing to a virtual object. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 792.

Also, paragraph 839 fails to provide underlying facts or data on which statements and/or the opinion is based by citing to a reference that fails to provide support for the statement and/or opinion proffered. For example, Declarant states it

would have been obvious to use McCulloch's system that includes information regarding the location of the user—whether via the HMD worn on the user's head or the controller held in the user's hand—to implement Pedrotti's method of displaying a warning when the user leaves the zone. However, the cited support of McCulloch never describes leaving any zone. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 839.

(5) Objections to Testimony Not Cited to or Relied Upon by the Petition

8KHZ further objects to Exhibit 1003 as to the extent the testimony provided by Declarant in paragraphs 1-26, 38-73, 77-83, 143-45, 208, 225, 280, 290-91, 302, 373-74, 396-97, 404-06, 425, 472-73, 533-34, 556-57, and 564-883 is not cited to or relied upon by the Petition (Paper 2) in violation of 37 C.F.R. §42.104(b)(5). Accordingly, this testimony is also irrelevant, misleading, and confusing under Fed. R. Evid. 401-403.

Exhibit 1012 – International Patent Publication No. WO 2016/064435 ("Fei")

8KHZ objects to Exhibit 1012 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1012 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon

by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1013 – U.S. Patent No. 8,884,984

8KHZ objects to Exhibit 1013 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1013 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has

no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1014 – U.S. Patent No. 5,900,849

8KHZ objects to Exhibit 1014 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1014 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1015 – U.S. Patent Application Publication No. 2007/0173265

8KHZ objects to Exhibit 1015 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1015 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1016 – U.S. Patent No. 2,955,156

8KHZ objects to Exhibit 1016 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1016 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects

to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1017 – U.S. Patent No. 9,544,706

8KHZ objects to Exhibit 1017 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1017 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party

has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1018 – U.S. Patent No. 10,095,031

8KHZ objects to Exhibit 1018 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1018 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1019 – U.S. Patent No. 7,330,197

8KHZ objects to Exhibit 1019 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1019 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1020 – U.S. Patent No. 9,884,248

8KHZ objects to Exhibit 1020 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1020 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects

to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1021 – U.S. Patent Application Publication No. 2015/0119130

8KHZ objects to Exhibit 1021 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1021 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party

has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1022 – U.S. Provisional Patent Application No. 62/289085

8KHZ objects to Exhibit 1022 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1022 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1026 – U.S. Patent No. 10,509,466

8KHZ objects to Exhibit 1026 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1026 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1027 – U.S. Patent Application No. 13/288350

8KHZ objects to Exhibit 1027 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1027 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects

to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1029 – U.S. Patent No. 9,703,369

8KHZ objects to Exhibit 1029 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1029 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party

has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1030 – U.S. Patent No. 9,767,618

8KHZ objects to Exhibit 1030 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1030 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1031 – U.S. Patent No. 9,037,468

8KHZ objects to Exhibit 1031 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1031 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1032 – U.S. Patent No. 10,162,177

8KHZ objects to Exhibit 1032 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1032 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects

to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1033 – U.S. Patent No. 9,674,507

8KHZ objects to Exhibit 1033 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1033 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party

has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1034 – U.S. Patent No. 9,367,811

8KHZ objects to Exhibit 1034 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1034 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1035 – U.S. Patent No. 10,070,239

8KHZ objects to Exhibit 1035 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1035 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1036 – U.S. Patent Application Publication No. 2016/0124502

8KHZ objects to Exhibit 1036 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1036 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects

to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1037 – U.S. Patent No. 9,301,069

8KHZ objects to Exhibit 1037 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1037 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party

has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1038 – U.S. Patent No. 9,787,846

8KHZ objects to Exhibit 1038 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1038 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1040 – U.S. Patent No. 10,114,465

8KHZ objects to Exhibit 1040 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1040 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1041 – U.S. Patent No. 8,419,545

8KHZ objects to Exhibit 1041 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1041 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects

to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1042 – U.S. Patent Application Publication No. 2012/0183161

8KHZ objects to Exhibit 1042 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1042 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party

has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1043 – U.S. Patent Application Publication No. 2017/0115488

8KHZ objects to Exhibit 1043 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1043 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1044 – U.S. Patent No. 7,710,654

8KHZ objects to Exhibit 1044 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1044 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1046 – V.R. Algazi et al., The CIPIC HRTF Database, IEEE Workshop on Applications of Signal Processing to Audio and Acoustics 99-102 (2001)

8KHZ objects to Exhibit 1046 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1046 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1047 – ASME International, The Link Flight Trainer, A Historic Mechanical Engineering Landmark, (June 2000)

8KHZ objects to Exhibit 1047 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1047 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to

support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1048 – Mark Billinghurst et al., A Wearable Spatial Conferencing Space, IEEE (1998)

8KHZ objects to Exhibit 1048 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1048 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party

has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1049 – Mark Billinghurst et al., A Survey of Augmented Reality, 8 Foundations and Trends in Human-Computer Interactions 73-272 (2015)

8KHZ objects to Exhibit 1049 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1049 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1051 – Anil Çamci et al., Interactive Virtual Soundscapes: A Research Report, ICMC 2015, Sept. 25-Oct. 1, 2015

8KHZ objects to Exhibit 1051 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1051 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1052 – Michael Cohen, Integrating Graphic and Audio Windows, 1 Presence 468-81 (Fall 1992)

8KHZ objects to Exhibit 1052 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1052 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1053 – Michael Cohen, Throwing, Pitching and Catching Sound: Audio Windowing Models and Modes, 39 Int. J. Man – Machine Studies 269-304 (1993)

8KHZ objects to Exhibit 1053 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1053 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to

support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1054 – John David N. Dionisio et al., 3D Virtual Worlds and the Metaverse: Current Status and Future Possibilities, 45 ACM Computing Surveys, 34 (June 2013)

8KHZ objects to Exhibit 1054 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1054 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party

has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1055 – Steve DiPaola & David Collins, A 3D Virtual Environment for Social Telepresence, W. Comput. Graphics Symp., Mar. 24-27, 2002

8KHZ objects to Exhibit 1055 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1055 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1056 – Kai-Uwe Doerr et al., Evaluation of a Low-Cost 3D Sound System for Immersive Virtual Reality Training Systems, 13 IEEE Transactions on Visualization & Computer Graphics 204-12 (2007)

8KHZ objects to Exhibit 1056 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1056 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1057 – Thomas Erickson et al., Synchronous Interaction Among Hundreds: An Evaluation of a Conference in an Avatar-based Virtual Environment, CHI 2001 Session: Meetings & Interaction Spaces, May 7-12, 2011

8KHZ objects to Exhibit 1057 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1057 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1058 – Oli Welsch, Oculus Touch Is the Gold Standard in VR Control, (June 24, 2015) https://www.eurogamer.net/oculus-touch-is-the- gold-standard-in-vr-control

8KHZ objects to Exhibit 1058 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1058 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1059 – Foster, Cornell Univ. (SP2012), Lecture 25 Memory and Locality, https://www.cs.cornell.edu/courses/cs3110/2012sp/lectures/lec25-locality/lec25.html

8KHZ objects to Exhibit 1059 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1059 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1060 – Nathan Martz, Spatial Audio Comes to the Cardboard SDK, Google Developers Blog (Jan. 13, 2016), https://developers.googleblog.com/2016/01/spatial-audio-comes-to- cardboard-sdk.html

8KHZ objects to Exhibit 1060 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1060 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1061 – John L. Hennessy & David A. Patterson, Computer Architecture, A Quantitative Approach (5th ed. 2012)

8KHZ objects to Exhibit 1061 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1061 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1062 – M.P. Hollier et al., Spatial Audio Technology for Telepresence, 15 BT Tech. J. 33-41 (Oct. 1997)

8KHZ objects to Exhibit 1062 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1062 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1064 – Jiménez, TAMU Lecture 7: Caches,

https://people.engr.tamu.edu/djimenez/taco/utsa-www/cs5513- fall07/lecture7.html

(last visited Apr. 18, 2023)

8KHZ objects to Exhibit 1064 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1064 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon

by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1066 – Dean F. Kocian, A Visually-Coupled Airborne Systems Simulator (VCASS) – An Approach to Visual Simulation, Report No. AMRL- TR-77-31 (1977)

8KHZ objects to Exhibit 1066 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1066 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party

has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1067 – Julian Löhr, OpenAL-MOB With OpenFrameworks on Android

(Dec.18, 2014), https://www.julianloehr.de/tag/ndk

8KHZ objects to Exhibit 1067 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1067 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1068 – Bruce D. Lucas & Takeo Kanade, An Iterative Image Registration Technique with an Application to Stereo Vision, Proc 7th Intl Joint Conf on Artificial Intelligence (IJCAI) 674-79 (Aug. 24-28, 1981)

8KHZ objects to Exhibit 1068 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1068 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1069 – David McGrath, Huron – A Digital Audio Convolution Workstation, 5th Australian Regional Convention 1-7 (Apr. 26-28, 1995)

8KHZ objects to Exhibit 1069 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1069 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1070 – Timoni West, UX Pointers for VR Design (Nov. 10, 2015), https://medium.com/@timoni/ux-pointers-for-vr-design- dd52b718e19

8KHZ objects to Exhibit 1070 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1070 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1071 – Todd Holmdahl, BUILD 2015: A Closer Look at the Microsoft HoloLens Hardware, Microsoft Blog (Apr. 30, 2015) https://blogs.windows.com/devices/2015/04/30/build-2015-a-closer- look-at-the-microsoft-hololens-hardware/

8KHZ objects to Exhibit 1071 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1071 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects

to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1072 – Microsoft, Overview, Spatial Audio (Dec. 1, 2015)

8KHZ objects to Exhibit 1072 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1072 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party

has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1073 – NSA, Virtual Reality, DOCID: 3929132 (1992)

8KHZ objects to Exhibit 1073 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1073 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1074 – Xueni Pan et al., Virtual Character Personality Influences Participant Attitudes and Behavior – An Interview with a Virtual Human Character about Her Social Anxiety, 2 Frontiers in Robots & AI Article 1 (Feb. 2015)

8KHZ objects to Exhibit 1074 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1074 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1075 – Tony Parisi, Learning Virtual Reality: Developing Immersive Experiences and Applications for Desktop, Web and Mobile, (2016)

8KHZ objects to Exhibit 1075 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1075 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1076 – Randy Pausch et al., Disney's Aladdin: First Steps Toward Storytelling in Virtual Reality, ACM 193-205 (1996)

8KHZ objects to Exhibit 1076 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1076 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1077 – Tabitha C. Peck et al., An Evaluation of Navigational Ability Comparing Redirected Free Exploration with Distractors to Walking-in-Place and Joystick Locomotion Interfaces, Proc IEEE Virtual Real Conf. 55-62 (Mar. 19, 2011)

8KHZ objects to Exhibit 1077 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1077 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects

to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1078 – Glenn Chapman, Google Glass Available in US as of April 15, Phys.Org (Apr. 10, 2014) https://phys.org/news/2014-04-google- glass-april.html

8KHZ objects to Exhibit 1078 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1078 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is

relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1081 – Qualcomm, What's So Special About the Digital Signal Processor?, Qualcomm OnQ Blog (Dec. 5, 2013)

8KHZ objects to Exhibit 1081 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1081 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1082 – Francisco Cheng, Mobile Processors 101: Why Smartphones are Smarter with an All-In-One Processor, Qualcomm OnQ Blog (June 12, 2013)

8KHZ objects to Exhibit 1082 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1082 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1083 – RAF Museum, Flight Simulation and Synthetic Trainers, https://www.rafmuseum.org.uk/research/online-exhibitions/taking-flight/historical-periods/flight-simulation-and-synthetic-trainers/ (last visited Apr. 4, 2023)

8KHZ objects to Exhibit 1083 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1083 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1084 – VisiSonics Corp., Manual for VisiSonics' RealSpace3D Audio Unity Plugin (Nov. 17, 2015)

8KHZ objects to Exhibit 1084 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1084 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1085 – Paul James, Watch Halo Played on Microsoft HoloLens in Augmented Reality, RoadtoVR (Dec. 7, 2015), https://www.roadtovr.com/watch-halo-played-on-microsoft- hololens-in-augmented-reality/

8KHZ objects to Exhibit 1085 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1085 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1087 – Warren Robinett & Richard Holloway, The Visual Display Transformation for Virtual Reality, 4 Presence 1-23 (1995)

8KHZ objects to Exhibit 1087 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1087 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1088 – Eric E. Sabelman & Roger Lam, The Real-Life Dangers of Augmented Reality, North American, Spectrum.ieee.org (July 2015)

8KHZ objects to Exhibit 1088 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1088 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1089 – Using the Oculus Rift with Second Life, Linden Labs Blog (May 21, 2014), http://community.secondlife.com/blogs/entry/1275-using- the-oculus-rift-with-second-life/

8KHZ objects to Exhibit 1089 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1089 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon

by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1090 – Jianbo Shi and Carlo Tomasi, Good Features to Track, IEEE Conf. on Comput. Vision & Pattern Recognition (CVPR94) (June 1994)

8KHZ objects to Exhibit 1090 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1090 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party

has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1091 – M. Slater et al., Acting in Virtual Reality, ACM 103-10 (2000)

8KHZ objects to Exhibit 1091 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1091 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1092 – Characteristics of Flight Simulator Visual Systems, NASA Technical Memorandum 81278 (Irving C. Statler ed., Apr. 1981)

8KHZ objects to Exhibit 1092 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1092 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1093 – Ivan E. Sutherland, A Head-Mounted Three Dimensional Display, Fall Joint Comput. Conf. 757-64 (1968)

8KHZ objects to Exhibit 1093 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1093 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1094 – Frederic Lardinois, HoloLens Hands-On: How We Built An App For Microsoft's Augmented Reality Headset, TechCrunch (May 2015)

8KHZ objects to Exhibit 1094 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1094 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to

support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1095 – Stuart Dredge, Virtual World Second Life to Be Reincarnated, with Oculus Rift, The Guardian (June 24, 2014), https://www.theguardian.com/technology/2014/jun/24/second-life- oculus-rift-virtual-world

8KHZ objects to Exhibit 1095 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1095 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the

evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1096 – Unity Manual: Audio Spatializer SDK (2020), https://docs.unity.cn/530/Documentation/Manual/AudioSpatializerS DK.html

8KHZ objects to Exhibit 1096 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1096 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1097 – Ian Hamilton, In a Cartoon World, Holojam Shows Participants a Slice of Space-Time, Upload VR (Aug. 4, 2015) https://www.uploadvr.com/holojam-shows-participants-slice-space- time/

8KHZ objects to Exhibit 1097 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1097 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1098 – Joe Durbin, Google Cardboard Now Offers Spatial Audio, UploadVR (Jan. 15, 2016)

8KHZ objects to Exhibit 1098 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1098 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1099 – Dean Takahashi, Second Life Creator Linden Lab Starts Testing Its Virtual-Reality World: Project Sansar, Venture Beat (Aug. 18, 2015), https://venturebeat.com/games/linden-lab-starts-testing-its- virtual-reality-world-projet-sansar/

8KHZ objects to Exhibit 1099 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1099 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1100 – Dean Takahashi, Unreal Engine's Latest Innovation Is About Building Games While Inside Virtual Reality, Venture Beat (Feb. 4, 2016), https://venturebeat.com/games/epic-games-lets-you-design- your-game-inside-vr-with-new-edition-of-unreal-engine-editor

8KHZ objects to Exhibit 1100 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1100 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1101 – Dean Takahashi, Final Approach Is an HTC Vive VR Game that Turns You into a Kid Playing with Toy Airplanes, Venture Beat (Jan. 29, 2016), https://venturebeat.com/games/final-approach-is-an- htc-vive-vr-game-that-turns-you-into-a-kid-playing-with-toys

8KHZ objects to Exhibit 1101 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1101 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1102 – Dean Takahashi, Valve's Virtual Reality Apps with the HTC Vive Headset Won't Make You Seasick, Venture Beat (May 2, 2015), https://venturebeat.com/games/valves-virtual-reality-apps-with-the- htc-vive-headset-wont-make-you-seasick/

8KHZ objects to Exhibit 1102 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1102 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1103 – Greg Welch et al., High Performance Wide-Area Optical Tracking: The HiBall Tracking System, 10 Presence: Teleoperators and Virtual Environments 1-22 (Feb. 2001)

8KHZ objects to Exhibit 1103 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1103 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1104 – Elizabeth M. Wenzel et al., A Virtual Display System for Conveying Three-Dimensional Acoustic Information, Proc. Hum. Factors Soc'y – 32nd Annual Meeting (1988)

8KHZ objects to Exhibit 1104 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1104 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1105 – Elizabeth M. Wenzel et al., Development of a Three-Dimensional Auditory Display System, 20 SIGCHI Bull. 52-57 (Oct. 1988)

8KHZ objects to Exhibit 1105 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1105 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1106 – Elizabeth M. Wenzel et al., Localization with Non-Individualized Virtual Acoustic Display Cues, ACM (1991)

8KHZ objects to Exhibit 1106 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1106 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1107 – Zhiying Zhou, An Experimental Study on the Role of Software Synthesized 3D Sound in Augmented Reality Environments, 16 Interacting with Computers 989-1016 (2004)

8KHZ objects to Exhibit 1107 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1107 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon

by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1109 – Cardboard Unity (2015),

https://github.com/jkammerl/cardboard-unity/blob/master/Cardboard/Editor/CardboardAudioSourceEditor.cs

8KHZ objects to Exhibit 1109 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1109 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the

evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1110 – Aurale R. DeRuyck & Jack Kuipers, An Electromagnetic Position Sensor, Report No. AFAL-TR-73-281 (Nov. 30, 1973)

8KHZ objects to Exhibit 1110 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1110 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1111 – Dmitry N. Zotkin et al., Rendering Localized Spatial Audio in a Virtual Auditory Space, 6 IEEE Transactions on Multimedia 553-64 (Aug. 2004)

8KHZ objects to Exhibit 1111 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1111 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1112 – Ronald T. Azuma, A Survey of Augmented Reality, 6 Presence 355- 85 (1997)

8KHZ objects to Exhibit 1112 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1112 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1113 – Gary Bishop & Henry Fuchs, The Self-Tracker: A Smart Optical Sensor on Silicon, 1984 Conf. on Advanced Rsch. in VLSI 65-73 (Jan. 23, 1984)

8KHZ objects to Exhibit 1113 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1113 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1114 – Mark R. Mine, Working in a Virtual World: Interaction Techniques Used in the Chapel Hill Immersive Modeling Program, TR96-029, Univ. N.C. (August 1, 1996)

8KHZ objects to Exhibit 1114 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1114 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1116 – Mark Raymond Mine, Exploiting Proprioception in Virtual-Environment Interaction (1997) (Ph.D. dissertation, Univ. N.C.)

8KHZ objects to Exhibit 1116 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1116 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1117 – Adrienne Vincent-Phoenix, Step into the DISH – A Visit to Imagineering's Digital Immersive Showroom, MousePlanet (June 5, 2012), https://mouseplanet.com/9994/Step_into_the_DISH_a_visit_to_Imaginerrings_Digital_Immersive_Showroom

8KHZ objects to Exhibit 1117 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1117 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1118 – Ian Hamilton, How They Did It: Cars Land's Virtual Reality, Orange Cnty. Reg., June 25, 2012, https://www.ocregister.com/2012/06/25/how-they-did-it-cars-lands- virtual-reality/

8KHZ objects to Exhibit 1118 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1118 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1119 – Gregory F. Welch, Hybrid Self-Tracker: An Inertial/Optical Hybrid Three-Dimensional Tracking System (1995) (dissertation proposal, Univ. N.C.)

8KHZ objects to Exhibit 1119 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1119 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1120 – Steven M. Kaplan, Wiley Electrical and Electronics Engineering Dictionary 71, 335 (2004)

8KHZ objects to Exhibit 1120 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1120 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1122 – Amended Complaint for Patent Infringement and Demand for Jury Trial, Eight Khz, LLC v. Meta Platforms, Inc., No. 6:22-cv-00575 (W.D. Tex. Oct. 10, 2022)

8KHZ objects to Exhibit 1122 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1122 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1123 – Mark Billinghurst et al., The MagicBook – Moving Seamlessly Between Reality and Virtuality, IEEE Computer Graphics and Applications, 6-8 (2001)

8KHZ objects to Exhibit 1123 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1123 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1126 – Defendant's Opening Claim Construction Brief, Eight kHz, LLC v. Meta Platforms, Inc., No. 6:22-cv-00575 (W.D. Tex. Apr. 12, 2023), ECF No. 83

8KHZ objects to Exhibit 1126 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1126 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1127 – Plaintiff's Claim Construction Reply Brief, Eight kHz, LLC v. Meta Platforms, Inc., No. 6:22-cv-00575 (W.D. Tex. May 3, 2023), ECF No. 92

8KHZ objects to Exhibit 1127 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1127 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1128 – Declaration of Durand R. Begault, Ph.D. in Support of Plaintiff's Claim Construction Reply Brief, Eight kHz, LLC v. Meta Platforms, Inc., No. 6:22-cv-00575 (W.D. Tex. May 3, 2023), ECF No. 92-7

8KHZ objects to Exhibit 1128 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1128 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1130 – Plaintiff's Infringement Contentions, Exhibit 17, Eight Khz, LLC v. Meta Platforms, Inc., No. 6:22-cv-00575(W.D. Tex. Mar. 3, 2023)

8KHZ objects to Exhibit 1130 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1130 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1131 – U.S. Patent No. 5,173,944

8KHZ objects to Exhibit 1131 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1131 under Federal Rule of Evidence 401 as this

Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1132 – U.S. Patent No. 5,438,623

8KHZ objects to Exhibit 1132 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1132 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the

evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1134 – Mark Mine, Towards Virtual Reality for the Masses: 10 Years of Research at Disney's VR Studio, Eurographics Ass'n (2003)

8KHZ objects to Exhibit 1134 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1134 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1135 – Greg Welch & Eric Foxlin, Motion Tracking: No Silver Bullet, but a Respectable Arsenal, IEEE Computer Graphics and Applications 24-28 (2002)

8KHZ objects to Exhibit 1135 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1135 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

Exhibit 1140 – Ivan Edward Sutherland, Sketchpad, A Man-Machine Graphical Communication System (Jan. 7, 1963) (Ph.D. dissertation, Mass. Inst. Tech)

8KHZ objects to Exhibit 1140 under Fed. R. Evid. 401-403 and 37 C.F.R. § 42.104(b)(5).

8KHZ objects to Exhibit 1140 under Federal Rule of Evidence 401 as this Exhibit has no bearing on any issue in this proceeding. Furthermore, 8KHZ objects to this Exhibit under 37 C.F.R. § 42.104(b)(5) because it is not cited to or relied upon by the Petition in this proceeding, and, accordingly, it lacks relevance and fails to support a patentability challenge. Petitioner does not explain how this Exhibit is relevant to the proceeding (i.e., the Petitioner fails to provide the relevance of the evidence to the challenge raised), and the Board may exclude evidence where a party has failed to state its relevance. Further, 8KHZ objects to this Exhibit because it has no bearing on the patentability of any of the claims of the Patent.

For these reasons, 8KHZ further objects to this Exhibit as irrelevant, misleading, unduly prejudicial, and confusing under Fed. R. Evid. 401-403.

"RESERVED" Exhibits

8KHZ objects to Exhibits 1023, 1024, 1025, 1028, 1039, 1045, 1065, 1079, 1108, and 1133 under 37 C.F.R. §§42.63(c) and (e), and 42.104(b)(5), and Fed. R. Evid. 401-403.

8KHZ objects to Exhibits 1023, 1024, 1025, 1028, 1039, 1045, 1065, 1079, 1108, and 1133 (hereafter the "RESERVED Exhibits") to the extent the exhibits are not cited to or relied upon by the Petition (Paper 2) in violation of 37 C.F.R. §42.104(b)(5) (A petition challenging the claims of a patent must identify "[t]he exhibit number of the supporting evidence relied upon to support the challenge and the relevance of the evidence to the challenge raised, including identifying specific portions of the evidence that support the challenge. The Board may exclude or give no weight to the evidence where a party has failed to state its relevance or to identify specific portions of the evidence that support the challenge."). For example, the RESERVED Exhibits were not filed with the Petition and there is no discussion of the relevance of the evidence represented by the RESERVED Exhibits in the Petition. Further, Petitioner has not indicated such exhibits are not used. 37 C.F.R. §42.63(e) ("Each party must maintain an exhibit list with the exhibit number and a brief description of each exhibit. If the exhibit is not filed, the exhibit list should note that fact."). There is no brief description of the evidence represented by the RESERVED Exhibits, nor are they described as "not filed".

Any use during the trial of these unused RESERVED Exhibits and the associated evidence causes confusion in the proceedings because Petitioner's evidence would be untimely and would not be presented sequentially numbered. 37 C.F.R. §§42.63(a) ("All evidence must be in the form of an exhibit."), and 42.63(c) ("Each party's exhibits must be uniquely numbered sequentially in a range the Board specifies."). These unused RESERVED Exhibits and the associated evidence were not timely filed and served with the Petition and have no bearing on any issue in this proceeding; the evidence is therefore irrelevant, misleading, and confusing under Fed. R. Evid. 401-403. This evidentiary failure cannot be cured because Petitioner is time-barred from filing another petition under 35 U.S.C. § 315(b); any correction of this defect is untimely.

Date: January 24, 2024

Respectfully submitted,

/s/ Kevin S. Tuttle

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Attorney for Eight KHZ, LLC

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §42.6(e), the undersigned hereby certifies that the above-captioned 8KHZ's Objections to Petitioner's Evidence, were served via electronic mail, as authorized by Petitioner's Mandatory Notices, on January 24, 2024 at the following email correspondence addresses of record:

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