

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

META PLATFORMS, INC.,
Petitioner,

v.

EIGHT KHZ, LLC,
Patent Owner.

Case IPR2023-01020
Patent 10,448,184

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. Agnieszka Roginska

8KHZ objects to the declaration of Dr. Agnieszka Roginska (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 30, 111-115, 166, 173, 181, 182, 191, 195, 198, 200, 214, 216, 279, 318, 338, 343, 348, 362, 374, 379, 381, 386, 392, 394, and 395 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 85, 89, 90, 126, 167, 170, 173-175, 178, 181-183, 198-200, 213, 216, 251, 257, 317, 330, 340, 357, and 360 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 14-24 and 35 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 30, 111-115, 126, 166, 173, 181, 182, 191, 195, 198, 200, 214, 216, 279, 317, 318, 338, 343, 348, 362, 374, 379, 381, 386, 392, 394, and 395 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 1-33, 37-40, 66-69, 91-95, 162-70, 186-87, 194, 202-05, 269, 271-72, 278-83, 294-97, 309-13, 330, 340, 351, and 372-74 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 30, 111-115, 126, 166, 173, 181, 182, 191, 195, 198, 200, 214, 216, 279, 318, 338, 343, 348, 362, 374, 379, 381, 386, 392, 394, and 395 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 30, Declarant purely speculates, without providing any supporting evidence, that “none of these [examples of events from the ‘179 specification] is the claimed ‘warning the user that the user is leaving the 3D virtual environment.’”

In paragraph 111, Declarant purely speculates, without providing any supporting evidence, “A POSA would have combined Clement and Osman with Sauk to provide additional teachings regarding binaural sound, including signaling the importance of things or events to provide flexibility and additional options for different conditions, that enhance the system's ability to alert or warn the user when the user approaches the boundary or when transitioning from a virtual environment to the real world.”

In paragraph 112, Declarant purely speculates, without providing any supporting evidence, “[a] POSA would understand that because users are able to perceive changes in audio dimension, incorporating a change in audio dimension to the binaural audio warning of Clement and Osman would enhance the user's ability of the user to perceive the warning. A POSA would have been motivated to make this change in order to enhance the effectiveness of the warning to ensure that the warning would be heeded by the user.”

In paragraph 113, Declarant purely speculates, without providing any supporting evidence, “a POSA would have been further motivated to provide more effective auditory displays that serve as audible warnings, as described in Sauk, for the safety of the user and to prevent injury to the user.”

In paragraph 114, Declarant purely speculates, without providing any supporting evidence, “A POSA would have implemented Sauk’s binaural audio warning in the Osman binaural audio system, as both devices perform head and position tracking as well as HRTF processing, in analogous ways to localize sound.”

In paragraph 115, Declarant purely speculates, without providing any supporting evidence, “In addition, Sauk is directed to the same field of endeavor as Clement and Osman: VR environments.

Also in paragraph 115, Declarant purely speculates, without providing any supporting evidence, “Both Clement and Osman describe providing spatial information about the environment with audio signals in these VR environments, and as described above, a POSA would look to Sauk when enhancing these audio signals as Sauk describes ‘innovative applications for actually putting such binaural audio information to practical use.’”

In paragraph 166, Declarant purely speculates, without providing any supporting evidence, “[a] POSA would have understood that the transition of Clement is lowering of the volume of the binaural sound, and this would warn the

user that the user is leaving the virtual environment. In particular, this transition would have reduced the user's sense of immersion and presence in the environment and thus alert the user that the user is leaving the virtual environment.”

In paragraph 173, Declarant purely speculates, without providing any supporting evidence, “[w]hen localization cues are removed, the binaural sound is degraded.”

In paragraph 181, Declarant purely speculates, without providing any supporting evidence, “[b]ecause binaural and stereo sound differ through the inclusion of ITDs in binaural sound (and not in stereo sound), one way a POSA would switch sound from binaural to stereo is through removing or degrading ITDs in the binaural sound. And because binaural and mono sound differ through of the inclusion of ITDs and ILDs in binaural sound (and not in mono sound), and one way a POSA would switch sound from binaural to mono is through removing or degrading ITDs and ILDs, along with other localization cues in the binaural sound.”

In paragraph 182, Declarant purely speculates, without providing any supporting evidence, “[a] POSA would understand that the phase difference between channels represents the time delay between the channels. And in the context of spatial audio, a POSA would further understand that the specific time delay between channels is known to be the ITD, and producing single channel sound is producing monophonic sound.”

In paragraph 191, Declarant purely speculates, without providing any supporting evidence, that a POSA would understand that there is no relevant distinction between displaying “with” the WED as recited in Element 14[b] and displaying “by” the WED as recited Element 7[b].

In paragraph 195, Declarant purely speculates, without providing any supporting evidence, “Clement with Osman and Sauk teaches or renders obvious ‘displaying, by the WED, the virtual image while the user plays a game that includes a character as the virtual image; and switching a voice of the character from the binaural sound to stereo sound when the character vanishes from the environment during the game.’”

In paragraph 198, Declarant purely speculates, without providing any supporting evidence, “[a] POSA would have been motivated to combine switching from binaural to stereophonic sound as described in Sauk with changing sound processing when the face of the user is directed away from the virtual character because doing so would conserve processing resources, indicate a change in relevance, and direct the user’s attention to sounds that the user is facing.”

In paragraph 200, Declarant purely speculates, without providing any supporting evidence, “a POSA would have been motivated to switch binaural sound to stereo to ensure that the sound from different sources remained intelligible to users

as they leave the environment. Switching to monophonic would also have been obvious, but may be less preferable than switching to stereo in some situations.”

In paragraph 214, Declarant purely speculates, without providing any supporting evidence, “[a] POSA would have been motivated to combine switching from binaural to stereophonic sound as described in Sauk with changing sound processing when the face of the user is directed away from the virtual object because doing so would conserve processing resources, indicate a change in relevance, and direct the user’s attention to sounds that the user is facing.”

In paragraph 216, Declarant purely speculates, without providing any supporting evidence, “[a]nd POSAs would have understood that lower priority sounds may be switched to stereo and that POSAs would have been motivated to do so.”

In paragraph 279, Declarant purely speculates, without providing any supporting evidence, “A POSA would understand that there is no relevant distinction between displaying ‘with’ the WED as recited in Element 14[b] and displaying ‘by’ the WED as recited Element 7[b]. Similarly, Element 7[c]’s recitation of localizing ‘to the empty space and to the virtual image’ (instead of ‘in empty space from the virtual image’) does not change the analysis.”

In paragraph 318, Declarant purely speculates, without providing any supporting evidence, “Further, a POSA would understand that there is no meaningful

difference between ‘binaural sound that localizes from the virtual image and that is being provided to the user’ and ‘binaural sound that localizes to the user at the virtual image.’”

In paragraph 338, Declarant purely speculates, without providing any supporting evidence, “A POSA would understand that there is no relevant distinction between the character vanishing and the character no longer being displayed by the WED.”

In paragraph 343, Declarant purely speculates, without providing any supporting evidence, “[f]urther a POSA would understand that there is no meaningful difference between ‘binaural sound that *is provided* to the user and that externally localizes in empty space *to* the virtual image in the 3D virtual environment’ and ‘binaural sound that *plays* to the user and that externally localizes in empty space *at* the virtual image in the 3D virtual environment.’”

In paragraph 348, Declarant purely speculates, without providing any supporting evidence, “A POSA would understand that there is no relevant distinction between a virtual room and a virtual area.”

In paragraph 362, Declarant purely speculates, without providing any supporting evidence, “a POSA would understand that there is no meaningful difference between ‘binaural sound that localizes from the virtual image and that is

being provided to the user’ and ‘binaural sound that localizes to the user at the virtual image.’”

In paragraph 374, Declarant purely speculates, without providing any supporting evidence, “there is no relevant distinction between displaying ‘with’ the WED as recited in Element 14[b] and displaying ‘by’ the WED as recited Element 7[b] or between ‘binaural sound that plays to the user and that externally localizes at the virtual image in the environment’ in Element 7[c] compared to ‘binaural sound that externally localizes to the user at the virtual image in the environment’ in Element 14[c].”

In paragraph 379, Declarant purely speculates, without providing any supporting evidence, “A POSA would understand that there is no relevant distinction between the character vanishing and the character no longer being displayed by the WED.”

In paragraph 381, Declarant purely speculates, without providing any supporting evidence, “A POSA would understand that there is no relevant distinction between a switch and a button.”

In paragraph 386, Declarant purely speculates, without providing any supporting evidence, “[f]urther a POSA would understand that there is no meaningful difference between ‘binaural sound that *is provided* to the user and that externally localizes in empty space *to* the virtual image in the 3D virtual

environment’ and ‘binaural sound that *plays* to the user and that externally localizes in empty space *at* the virtual image in the 3D virtual environment.’”

In paragraph 392, Declarant purely speculates, without providing any supporting evidence, “A POSA would understand that there is no relevant distinction between a virtual room and a virtual area.”

In paragraph 394, Declarant purely speculates, without providing any supporting evidence, “a POSA would have understood that a button could and would be replaced with a switch...”

In paragraph 395, Declarant purely speculates, without providing any supporting evidence, “A POSA would understand that for the same reasons Clement with Osman and Sauk renders obvious switching ‘sounds,’ the combination also renders obvious switching the ‘sound.’”

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 85, 89, 90, 126, 167, 170, 173-175, 178, 181-183, 198-200, 213, 216, 251, 257, 317, 330, 340, 357, and 360 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 note 4 of paragraph 85 that “Lyren does not describe the claimed subject matter of the ‘179 Patent because it lacks any disclosure of the claimed detecting/sensing of the user leaving the environment or the claimed alerting/warning the user when that happens.” In providing this testimony, Declarant fails to consider Lyren’s disclosure of “a method to determine a location of a person and to take an action when the person moves into a restricted area in accordance with an example embodiment” where “restricted areas include... an area in which it is dangerous to localize sound” and an example of such location is a “construction zone or other inherently dangerous or hazardous area” and event triggers may be based upon “position or movement or orientation of a person or head of the person,” “distance from the person to an object (such as distance from the person to a wall or an obstruction),” “safety,” and proximity to or being at a restricted area.” Ex. 1008, paragraphs 8, 65, 118, and 123. Thus, Declarant provides an out-of-context, incomplete picture of Lyren (Ex. 1008), 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 89 that “Lyren lacks any disclosure of the claimed detecting/sensing of the user leaving

the environment or the claimed alerting/warning the user when that happens.” In providing this testimony, Declarant fails to consider Lyren’s disclosure of “a method to determine a location of a person and to take an action when the person moves into a restricted area in accordance with an example embodiment” where “restricted areas include... an area in which it is dangerous to localize sound” and an example of such location is a “construction zone or other inherently dangerous or hazardous area” and event triggers may be based upon “position or movement or orientation of a person or head of the person,” “distance from the person to an object (such as distance from the person to a wall or an obstruction),” “safety,” and proximity to or being at a restricted area.” Ex. 1008, paragraphs 8, 65, 118, and 123. Thus, Declarant provides an out-of-context, incomplete picture of Lyren (Ex. 1008), 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, 8KHZ objects to the misleading characterization in paragraph 90 that “U.S. Patent No. 10,416,837 (‘Reif’) contains that disclosure that is missing from Lyren.” As provided above, Declarant mischaracterizes the disclosure of Lyren and thus mischaracterizes what is “missing” from Lyren. Thus, Declarant provides an out-of-context, incomplete picture of Lyren (Ex. 1008), 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, 8KHZ objects to the misleading characterization in paragraph 126 that “a POSA would have stored the HRTFs in the HMD’s memory to reduce latency, facilitate signal processing, and enhance the user experience. Storing HRTFs in memory of the HMD would avoid the need to connect.” In providing this testimony, Declarant fails to explain how the active FIR filter coefficients used for executing a coefficient update and filtering asynchronously reduces the need to connect to a remote device or how the coefficient update or filtering is related to storing HRTFs in the HMD’s memory to reduce latency, facilitate signal processing, or enhance a user’s experience. Thus, Declarant provides an out-of-context, incomplete picture of Fohl (Ex. 1047), 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 objects to the misleading characterization in paragraph 167 that “a POSA would have also looked to Sauk, which likewise teaches that “[t]he decibel level of the 1-D, 2-D or 3-D audio can be adjusted to whatever the listener desires for that dimension.”” In providing this testimony, Declarant mischaracterizes the decibel level adjustments for various types of audio in Sauk as means for warning a user. Indeed, the cited portion of Sauk merely indicates that the user can specify the decibel level for various types of audio that may be provided. Thus, Declarant provides an out-of-context, incomplete picture of Sauk (Ex. 1007), 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 objects to the misleading characterization in paragraph 170 that “Clement teaches that ‘the tracking device 310 may not just track the physical position and movement of the user A in the space 300, but may also detect when the user A is within a predetermined distance, or threshold, of a boundary or edge of the tracking area 320’ where ‘the system may issue a warning or indicator, and/or may automatically initiate a fluid or graceful transition out of the virtual world’ when the user approaches the boundary (ex. at position 4 of Fig. 3B).” In providing this testimony, Declarant mischaracterizes the tracking device 310 as being equivalent to a wearable electronic device (WED), as recited in claim 14[d]. Indeed, the cited portion of Clement merely indicates that the tracking device 310, which is not a wearable electronic device, detects the user’s position and proximity to a tracking area 320. Thus, Declarant provides an out-of-context, incomplete picture of Clement (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.”

Also, 8KHZ objects to the misleading characterization in paragraph 173 that “Sauk teaches that “less relevant audio” would have been ‘change[d]’ from binaural to ‘a monophonic (1-D) or stereophonic (2-D) dimension.’” In providing this testimony, Declarant mischaracterizes the sounds provided by Sauk in an

environment that the user is leaving corresponds to “less relevant audio.” Indeed, Sauk later details adding audible warnings as 3-D binaural sounds to warn the user of hazards in column 12, lines 33-51. Thus, Declarant provides an out-of-context, incomplete picture of Sauk (Ex. 1007), 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, 8KHZ objects to the misleading characterization in paragraph 174 that “[a] POSA understood that the localization cues for binaural audio were removed by altering the filters used in the filtering process of binaural audio, and/or by altering the binaurally processed audio to reduce or eliminate the perception of spatial sound by removing the interaural (ITD and ILD) cues.” In providing this testimony, Declarant mischaracterizes the altering of binaural sounds described in Sauk as being related to alerting a user that he is leaving an environment. Indeed, Sauk later details adding audible warnings as 3-D binaural sounds to warn the user of hazards within his environment and never mentions altering binaural sounds with respect to leaving an environment. Thus, Declarant provides an out-of-context, incomplete picture of Sauk (Ex. 1007), 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 objects to the misleading characterization in paragraph 175 that “[o]ne way to inform the user of the immediacy or relevance of the transition is to provide an additional audible indication, such as degrading the ‘binaural [audio]

to monophonic or stereophonic audio [to] signif[y] a different level of relevancy.”

In providing this testimony, Declarant mischaracterizes Sauk as describing “degrading” binaural sound. Indeed, the cited portions of Sauk merely mention changing from binaural to monophonic or stereophonic without mention of any degradation to the binaural audio. Thus, Declarant provides an out-of-context, incomplete picture of Sauk (Ex. 1007), 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 objects to the misleading characterization in paragraph 178 that “Sauk describes switching from binaural audio to monophonic or stereo would have been used to ‘signify a different level of relevancy or importance for such audio.’” In providing this testimony, Declarant mischaracterizes Sauk as describing “altering, by the DSP, processing of the binaural sound.” Indeed, the cited portions of Sauk merely mention switching types of sound without reference to an alteration of processing of the binaural audio. Thus, Declarant provides an out-of-context, incomplete picture of Sauk (Ex. 1007), and pursuant to Fed. R. Evid. 106 fails to include all related parts “that in fairness out to be considered at the same time.”

Also, 8KHZ objects to the misleading characterization in paragraph 181 that “a POSA would have understood that switching sound from binaural to stereophonic (or monophonic) sound, as described in Sauk, such that the user perceives less

external localization, would be performed by removing or degrading audio cues (including ITDs, ILDs and HRFTs) in the binaural sound.” Indeed, the cited portions of Sauk are unrelated to providing an alert or leaving an environment. Thus, Declarant provides an out-of-context, incomplete picture of Sauk (Ex. 1007), 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 objects to the misleading characterization in paragraph 182 that “Ojala (Ex. 1010) describes methods for removing the ‘phase difference’ between channels of multi-channel audio to create a single channel of audio.” Indeed, the cited portions of Ojala fail to describe how removing a ‘phase difference’ between channels is used to alter processing of altering processing of binaural sound to alert a user that he is leaving an environment. Thus, Declarant provides an out-of-context, incomplete picture of Ojala (Ex. 1010), 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, 8KHZ objects to the misleading characterization in paragraph 183 that “Korean Patent No. KR20110022252A (Ex. 1035, Moon) similarly describes removing phase differences in multichannel sound and that doing so will generate a ‘mono audio signal.’” Indeed, the cited portions of Moon fail to describe how removing a “phase difference” between channels is used to alter processing of

binaural sound to alert a user that he is leaving an environment. Thus, Declarant provides an out-of-context, incomplete picture of Moon (Ex. 1035), 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, 8KHZ objects to the misleading characterization in paragraph 198 that “Sauk teaches that lower priority sounds may be switched from binaural to stereophonic sound.” Indeed, the cited portions of Sauk never mention that lower priority sounds correspond to leaving an environment or alerting a user that he is leaving an environment. In contrast, Sauk describes adding binaural sound to notify a user of a hazard. Thus, Declarant provides an out-of-context, incomplete picture of Sauk (Ex. 1007), and pursuant to Fed. R. Evid. 106 fails to include all related parts “that in fairness out to be considered at the same time.”

Also, 8KHZ objects to the misleading characterization in paragraph 199 that “a POSA would understand that in the case of a large number of sounds in the environment, there would be computational savings if only the specific sound sources within the view of the user (and not those outside the view the display or that the user is not facing) were processed to provide binaural sound.” Indeed, the cited portions of Nair never mention that computational savings would be related to switching a voice of a character to stereo when the character vanishes from an environment. Indeed, the spatial location of the character may be relevant to a user

in a virtual environment. Thus, Declarant provides an out-of-context, incomplete picture of Nair (Ex. 1033), 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, 8KHZ objects to the misleading characterization in paragraph 200 that “switching to a monophonic presentation of multiple sound sources would result in a collapse of the audio to the center of the listener’s head, resulting in a sound cacophony—the so-called ‘cocktail party effect’ which POSAs often would have avoided when the user is or may be in a virtual environment with many different.” Indeed, the cited portions of Cherry or Grownney never mention that avoiding a “cocktail party effect” would be relevant to switching a voice of a character to stereo when the character vanishes from an environment. Indeed, the spatial location of the character may be relevant to a user in a virtual environment. Thus, Declarant provides an out-of-context, incomplete picture of Cherry (Ex. 1043) and Grownney (Ex. 1049), 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 objects to the misleading characterization in paragraph 213 that “a POSA would have understood that sound processing would have been changed when the user is not facing the virtual image, and that sound emanating from a virtual image has lower priority or relevance when the user’s face is directed away from the image as compared with sounds the user is facing.” Indeed, the cited

portions of Osman never mention prioritizing sound from a virtual image lower when a user's face is directed away from image. Thus, Declarant provides an out-of-context, incomplete picture of Osman (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."

Moreover, 8KHZ objects to the misleading characterization in paragraph 216 that "a POSA understood that when a virtual image vanishes from the 3D virtual environment, such as when the virtual object is no longer within the visual field of the user, the virtual object is of lower priority." Indeed, the cited portions of Osman never mention prioritizing sound from a virtual image lower when a user's face is directed away from image. Thus, Declarant provides an out-of-context, incomplete picture of Osman (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."

Further, 8KHZ objects to the misleading characterization in paragraph 251 that "Lyren does not teach leaving the environment as a specific event that would warrant alerting or warning the user." In providing this testimony, Declarant fails to consider Lyren's disclosure of "a method to determine a location of a person and to take an action when the person moves into a restricted area in accordance with an example embodiment" where "restricted areas include... an area in which it is dangerous to localize sound" and an example of such location is a "construction zone

or other inherently dangerous or hazardous area” and event triggers may be based upon “position or movement or orientation of a person or head of the person,” “distance from the person to an object (such as distance from the person to a wall or an obstruction),” “safety,” and proximity to or being at a restricted area.” Ex. 1008, paragraphs 8, 65, 118, and 123. Thus, Declarant provides an out-of-context, incomplete picture of Lyren (Ex. 1008), 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, 8KHZ objects to the misleading characterization in paragraph 257 that “Reif further teaches that the HMD may include both the VR system and the input component,” based upon Reif disclosing “In some embodiments, the HMD 150 can be included as a part of the VR system 300.” The cited portion of Reif does not disclose that “the HMD may include both the VR system and the input component,” but instead that the “VR system 300” may include the HMD 150, as indicated by the quoted portion of paragraph 15 of Reif provided in paragraph 257. Thus, Declarant provides an out-of-context, incomplete picture of Reif (Ex. 1009), 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, 8KHZ objects to the misleading characterization in paragraph 317 that “Element 14[d] in the ’184 Patent is the same as Element 14[e] in the ’179 Patent, except that it recites “altering processing of the binaural sound by the DSP

and reducing a volume of the binaural sound that localizes to the user at the virtual image” rather than merely “reducing the volume of the binaural sound that localizes from the virtual image and that is being provided to the user” as in the ’179 Patent.” In providing this testimony, Declarant disregards differences in the claim language of these claims. Specifically, claim 14[d] in the ’184 Patent recites, “alerting the user that the user is leaving the virtual image in the environment,” while claim 14[e] in the ’179 Patent recites, “alerting the user that the user is leaving the environment.” Thus, the Declarant’s characterization of these claims is misleading. Thus, Declarant provides an out-of-context, incomplete picture of the ’184 Patent (Ex. 1001), 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, 8KHZ objects to the misleading characterization in paragraph 330 that claims 7 and 14 of the ’184 Patent are generally similar except that claim 7 “alerts the user by ‘altering processing of the sound by the DSP to degrade a spatial cue and to lower a volume of the sound playing to the user.’” In providing this testimony, Declarant misconstrues the differences between these claims, failing to acknowledge the “alerting the user that the user is leaving the environment” recitation of claim 1 as contrasted to “alerting the user that the user is leaving the environment” recited by claim 14. Thus, Declarant provides an out-of-context, incomplete picture of the ’184 Patent (Ex. 1001) 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, 8KHZ objects to the misleading characterization in paragraph 340 that claims 1 and 14 are generally similar except for alerting the user in a different manner. In providing this testimony, Declarant misconstrues the differences between these claims, failing to acknowledge the “warning the user that the user is leaving the 3D virtual environment” recitation of claim 1 as contrasted to “alerting the user that the user is leaving the environment” recited by claim 14. Thus, Declarant provides an out-of-context, incomplete picture of the ‘184 Patent (Ex. 1001) 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, 8KHZ objects to the misleading characterization in paragraph 357 that “Elements 14[pre] to 14[c] of the ’184 Patent are substantively identical to the corresponding elements in the ’179 Patent. The only difference is that Element 14[c] of the ’179 Patent recites that the binaural sound “localizes in empty space from the virtual image,” where the ’184 Patent recites that sound “localizes to the user at the virtual image.” In providing this testimony, Declarant misconstrues the differences between these claims, failing to acknowledge that Element 14[a] of the ’179 Patent recites storing HRTFs “in memory” while Element 14[a] of the ’184 Patent does not include the “in memory” recitation. Thus, Declarant provides an out-of-context,

incomplete picture of the '184 Patent (Ex. 1001) 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, 8KHZ objects to the misleading characterization in paragraph 360 that “Element 14[d] of the '184 Patent is nearly the same as Element 14[e] of the '179 Patent. Rather than merely reducing the sound to alert the user, however, the '184 Patent also recites “altering the processing of the binaural sound by the DSP.” In providing this testimony, Declarant misconstrues the differences between these claims, failing to acknowledge that Element 14[e] of the '179 Patent recites “alerting the user that the user is leaving the environment,” while Element 14[d] of the '184 Patent recites, “alerting the user that the user is leaving the virtual image in the environment.” Thus, Declarant provides an out-of-context, incomplete picture of the '184 Patent (Ex. 1001) 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 14-24 and 35 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 14-24 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 18, Declarant provides, “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 POSA would employ.” And in paragraph 22, Declarant states, “I understand that, when there is a reason to solve a problem and there are a finite number of identified, predictable solutions, a POSA has good reason to pursue the known options within his or her technical group” and at paragraph 23, states, “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.” In paragraph 35, Declarant states that “[a]dditional education can compensate for less experience and vice-versa” when describing the nature of a POSA. Declarant herself acknowledges that she is not a lawyer (see Exhibit 1003, paragraph 14) and thus is not qualified to testify on these legal concepts.

In addition, these statements in paragraphs 14-24 and 35 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 30, 111-115, 126, 166, 173, 181, 182, 191, 195, 198, 200, 214, 216, 279, 317, 318, 338, 343, 348, 362, 374, 379, 381, 386, 392, 394, and 395 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.

Further, sentences in paragraphs 126, 166, 317, and 348 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, paragraph 126 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 stored HRTFs in the HMD's memory to reduce latency but the cited portion of Fohl does not detail the latency benefits of using the HMD's memory with HRTFs. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 126.

Moreover, paragraph 166 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 stored HRTFs in the HMD's memory to reduce latency but the cited portion of Fohl does not detail the latency benefits of using the HMD's memory with HRTFs. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 166.

Paragraph 317 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 cites the same reasons discussed for Elements 14[d]-[e] and Claim 16 in Ground 1 of the '179

Patent as support for Declarant's statements regarding obviousness of Element 14[d] in the '184 Patent, but the cited portion does not discuss "alerting the user that the user is leaving the virtual image in the environment," as claim 14 of the 179 Patent does not include this recitation. Thus, Declarant's cited support provides no support for the obviousness assertion made in paragraph 317.

Further, paragraph 348 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 cites "the same reasons as described for Claim 3 of Ground 1 for the '179 Patent" as support for Declarant's statements regarding Clement and Osman teaching the features of Claim 3 of the '184 Patent, relying on an unsupported statement that "there is no relevant distinction between a virtual room and a virtual area." However, the statement "there is no relevant distinction between a virtual room and a virtual area" does not support a position that "a virtual room" has no relevant distinction to a "virtual area where the virtual image is located." Further, no evidence in the discussion of Claim 3 of Ground 1 of the '179 Patent discusses a warning that the user is leaving a "virtual area where the virtual image is located." Thus, the cited evidence does not support Declarant's assertion.

(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 1-33, 37-40, 66-69, 91-95, 162-70, 186-87, 194, 202-05, 269, 271-72, 278-83, 294-97, 309-13, 330, 340, 351, and 372-74 is not cited to or relied upon by the Petition 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 1010 – U.S. Patent Application Publication No. 2011/0206209

8KHZ objects to Exhibit 1010 under Fed. R. Evid. 401-403 and 37 C.F.R. §42.104(b)(5).

8KHZ objects to Exhibit 1010 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 1011 – U.S. Patent No. 1,624,486

8KHZ objects to Exhibit 1011 under Fed. R. Evid. 401-403 and 37 C.F.R. §42.104(b)(5).

8KHZ objects to Exhibit 1011 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 1012 – U.S. Patent No. 1,855,149

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. 7,330,197

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. 7,710,654

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 1023 – U.S. Patent No. 9,767,618

8KHZ objects to Exhibit 1023 under Fed. R. Evid. 401-403 and 37 C.F.R. §42.104(b)(5).

8KHZ objects to Exhibit 1023 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 1025 – U.S. Patent No. 10,070,239

8KHZ objects to Exhibit 1025 under Fed. R. Evid. 401-403 and 37 C.F.R. §42.104(b)(5).

8KHZ objects to Exhibit 1025 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. 10,509,466

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 Application Publication No. 2012/0183161

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 Application Publication No. 2016/0124502

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 1035 – Korean Patent Application Publication No. KR 10-2011-0022252,
including English Translation and Certification*

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 – Christph Anthes et al, State of the Art of Virtual Reality Technology, 2016 IEEE Aerospace Conf. 1-19 (Mar. 2016)

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. To the extent this Exhibit is relied upon by Declarant, the copyright date on this Exhibit is 2016, after the critical date of the '179 and '184 Patents, and accordingly the Exhibit lacks relevance and fails to support a patentability challenge.

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

Exhibit 1037 – Average Cost of RAM per Gigabyte Chart, HumanProgress

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.

To the extent this Exhibit is relied upon by Declarant, 8KHZ objects under Fed. R. Evid. 901 as there has not been a sufficient foundation laid for the admission of the Exhibit. The Petitioner has not submitted required witness testimony or evidence to demonstrate that this document is authentic. This evidentiary failure cannot be cured because Petitioner is time-barred from filing another Petition under 35 U.S.C. §315(b).

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

*Exhibit 1038 – Durand R. Begault, 3-D Sound for Virtual Reality and Multimedia
(NASA/TM-2000-209606) (Aug. 2020)*

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. The Exhibit has a copyright date of 2000, after the critical date of the ‘179 and ‘184 Patents, and accordingly the Exhibit lacks relevance and fails to support a patentability challenge.

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

Exhibit 1039 – Tom Emrich, Virtual Reality North: A Look at the Major VR Players in Canada, betakit.com (July 15, 2015), betakit.com/virtual-reality-north-a-look-at-the-major-vr-players-in-canada/

8KHZ objects to Exhibit 1039 under Fed. R. Evid. 401-403 and 37 C.F.R. §42.104(b)(5).

8KHZ objects to Exhibit 1039 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 – Braxton Boren, History of 3D Sound

(Am. Univ., Wash. D.C. 2018)

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. To the extent this Exhibit is relied upon by Declarant, the copyright date on this Exhibit is 2018, after the critical date of the ‘179 and ‘184 Patents, and accordingly the Exhibit lacks relevance and fails to support a patentability challenge.

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

Exhibit 1041 – Douglas S. Brungart et al., The Interaction Between Head- Tracker Latency, Source Duration, and Response Time in the Localization of Virtual Sound

Sources, Proc. ICAD 04- 10th Meeting Int’l Conf. Auditory Display 1-7

(July 6-9, 2004)

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 – Douglas S. Brungart et al, The Detectability of Headtracker

Latency in Virtual Audio Displays, Proc. ICAD 05-11th Meeting Int’l Conf.

Auditory Display 37-42 (July 6-9, 2005)

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 – E. Colin Cherry, Some Experiments on the Recognition of

Speech, with One and with Two Ears, 25 J. ACOUSTICAL SOC'Y AM. 975

(1953)

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 – Christof Faller, Coding of Spatial Audio Compatible with Different Playback Formats, AES 117th Convention 1-12 (Oct. 28-31, 2004)

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 1045 – Mohammad Dashti et al., Traffic Management: A Holistic

Approach to Memory Placement on NUMA Systems, ASPLOS 1- 13

(Mar. 16-20, 2013)

8KHZ objects to Exhibit 1045 under Fed. R. Evid. 401-403 and 37 C.F.R. §42.104(b)(5).

8KHZ objects to Exhibit 1045 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 – S.S. Fisher et al., Virtual Interface Environment Workstations, 32

Proc. Hum. Factors Soc’y 32nd Ann. Meeting–1988 91-95 (Feb. 1988)

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 1049 – Eric Growney & Agnieszka Roginska, Effect of Spatial Audio Processing on Attention Redirection and Speech Intelligibility in Multi-Talker Communication, AES 152nd Convention 1-10 (May 2022)

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. To the extent this Exhibit is relied upon by Declarant, the copyright date on this Exhibit is 2022, after

the critical date of the '179 and '184 Patents, and accordingly the Exhibit lacks relevance and fails to support a patentability challenge.

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

Exhibit 1050 – Maxim Liadov, A New Generation of Xtreme Fidelity Processors and Sound Cards, iXBT Labs (Aug. 22, 2005)

8KHZ objects to Exhibit 1050 under Fed. R. Evid. 401-403 and 37 C.F.R. §42.104(b)(5).

8KHZ objects to Exhibit 1050 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 – Christoph Lameter, Local and Remote Memory: Memory in a
Linux/NUMA System, SGI (June 20, 2006)*

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 1054 – Matteo Marucci et al., The Impact of Multisensory Integration and Perceptual Load in Virtual Reality Settings on Performance, Workload and Presence, 11 NATURE SCI. REPS. 1 (2021)

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. To the extent this Exhibit is relied upon by Declarant, the copyright date on this Exhibit is 2021, after the critical date of the '179 and '184 Patents, and accordingly the Exhibit lacks relevance and fails to support a patentability challenge.

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

Exhibit 1055 – Joel D. Miller et al., Latency Measurements of a Real-Time Virtual Acoustic Environment Rendering System, Proc. 2003 Int’l Conf. Auditory Display 111-114 (July 6-9, 2003)

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 – 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 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 – Masayuki Morimoto & Yoichi Ando, On the Simulation of Sound

Localization, (E) 1 J. ACOUSTIC SOC'Y JAPAN 167 (1980)

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 1059 – Stephan Paul, Binaural Recording Technology: A Historical Review and Possible Future Developments, 95 ACTA ACUSTICA UNITED WITH ACUSTICA 767 (2009)

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 – Ben Kuchera, Google Cardboard Adds ‘Inexpensive’ Spatial

Audio to its SDK, POLYGON (Jan. 13 2016, 12:00pm PST)

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. The Exhibit has a copyright date of 2016, after the critical date of the ‘179 and ‘184 Patents, and accordingly the Exhibit lacks relevance and fails to support a patentability challenge.

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

Exhibit 1062 – Mel Slater & Martin Usoh, Presence in Immersive Virtual

Environments, IEEE Virtual Reality Ann. Int'l Symp. 90-96 (Sept. 18-22, 1993)

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 – Paul James, Sulon Cortex ‘Augmented Virtual Reality’ Headset,
Interview with Don Henderson, ROAD TO VR (Feb. 5, 2015)*

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 1073 – Qualcomm, What’s So Special About the Digital Signal Processor?,

QUALCOMM ONQ BLOG (Dec. 5, 2013)

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 – Frederic L. Wightman & Doris J. Kistler, Headphone Simulation of Free-Field Listening. II: Psychophysical Validation, 85 J. ACOUSTIC SOC'Y AM.

868 (1989)

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 1077 – Gr. Brit. Provisional Patent Specification No. 394,325

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 – Linley Gwennap, Qualcomm Extends Hexagon DSP,

MICROPROCESSOR REP. 1-4 (Aug. 26, 2013)

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 1079 – Stanley P. Lipshitz, Stereo Microphone Techniques.....Are the Purists Wrong? 34 J. AUDIO ENG'G SOC'Y 716 (1986)

8KHZ objects to Exhibit 1079 under Fed. R. Evid. 401-403 and 37 C.F.R. §42.104(b)(5).

8KHZ objects to Exhibit 1079 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 – U.S. Patent No. 9,787,846

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 1088 – Oculus Connect 5 Keynote Day 01 video clip transcriptions

(May 16, 2023)

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 any paper 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.

8KHZ also objects to this Exhibit under Fed. R. Evid. 901 as there has not been a sufficient foundation laid for the admission of the Exhibit. The Petitioner has not submitted required witness testimony or evidence to demonstrate that this document is authentic. This evidentiary failure cannot be cured because Petitioner is time-barred from filing another Petition under 35 U.S.C. §315(b).

Exhibit 1089 – Defendants’ 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 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 any paper 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 1022, 1024, 1026, 1058, 1070 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 1022, 1024, 1026, 1058, 1070 (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: December 20, 2023

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 Patent Owner's Objections to Petitioner's Evidence, were served via electronic mail, as authorized by Petitioner's Mandatory Notices, on June 8, 2023 at the following email correspondence addresses of record:

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