Paper No. 13 Entered: November 30, 2015

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BUNGIE, INC., Petitioner,

v.

WORLDS INC., Patent Owner.

Case IPR2015-01264 Patent 7,945,856 B2

Before KARL D. EASTHOM, KERRY BEGLEY, and JASON J. CHUNG, *Administrative Patent Judges*.

BEGLEY, Administrative Patent Judge.

DECISION Institution of *Inter Partes* Review 37 C.F.R. § 42.108

Bungie, Inc. ("Petitioner") filed a Petition requesting *inter partes* review of claim 1 of U.S. Patent No. 7,945,856 B2 (Ex. 1001, "the '856 patent"). Paper 3 ("Pet."). Worlds Inc. ("Patent Owner") filed a Preliminary Response to the Petition. Paper 12 ("Prelim. Resp.").

Pursuant to 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless "the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Having considered the Petition and the Preliminary Response, we conclude that there is a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of claim 1 of the '856 patent.

I. BACKGROUND

A. THE '856 PATENT

The '856 patent discloses a "client-server architecture" for a "three-dimensional graphical, multi-user, interactive virtual world system." Ex. 1001, [57], 3:1–3. In the preferred embodiment, each user chooses an avatar to "represent the user in the virtual world," *id.* at 3:20–22, and "interacts with a client system," which "is networked to a virtual world server," *id.* at 3:9–10. "[E]ach client . . . sends its current location, or changes in its current location, to the server." *Id.* at 3:36–39; *see id.* at 2:40–43. The server, in turn, sends each client "updated position information" for neighbors of the client's user. *Id.* at [57], 2:40–43, 3:36–39, 14:27–34.

The client executes a process to render a "view" of the virtual world "from the perspective of the avatar for that . . . user." *Id.* at [57], 2:35–37, 3:25–28, 4:50–51, 7:50–52. This view shows "avatars representing the other users who are neighbors of the user." *Id.* at [57], 2:33–38.

B. CHALLENGED CLAIM

Claim 1 of the '856 patent—the only challenged claim—is reproduced below.

- 1. A method for enabling a first user to interact with second users in a virtual space, wherein the first user is associated with at first avatar and a first client process, the first client process being configured for communication with a server process, and each second user is associated with a different second avatar and a second client process configured for communication with the server process, at least one second client process per second user, the method comprising:
 - (a) receiving by the first client process from the server process received positions of selected second avatars; and
 - (b) determining, from the received positions, a set of the second avatars that are to be displayed to the first user; wherein the first client process receives positions of fewer than all of the second avatars.

Id. at 21:7–22.

C. ASSERTED PRIOR ART

The Petition relies upon the following references, as well as the supporting Declaration of Michael Zyda, D.Sc. (Ex. 1002):

U.S. Patent No. 5,659,691 (filed Sept. 23, 1993) (issued Aug. 19, 1997) (Ex. 1008, "Durward"); and

Thomas A. Funkhouser, *RING: A Client-Server System for Multi-User Virtual Environments*, in 1995 SYMPOSIUM ON INTERACTIVE 3D GRAPHICS 85 (1995) (Ex. 1005, "Funkhouser").

D. ASSERTED GROUNDS OF UNPATENTABILITY

Petitioner challenges claim 1 with two asserted grounds under 35 U.S.C. § 102—anticipation by Funkhouser and by Durward. Pet. 10.

II. ANALYSIS

A. CLAIM INTERPRETATION

The Board interprets claims in an unexpired patent using the "broadest reasonable construction in light of the specification of the patent in which

[they] appear[]." 37 C.F.R. § 42.100(b); see In re Cuozzo Speed Techs., LLC, 793 F.3d 1268, 1275–79 (Fed. Cir. 2015). Under this standard, we presume a claim term carries its "ordinary and customary meaning," which is "the meaning that the term would have to a person of ordinary skill in the art in question" at the time of the invention. In re Translogic Tech., Inc., 504 F.3d 1249, 1257 (Fed. Cir. 2007) (citation and quotations omitted).

Here, Petitioner proffers claim terms for construction. Pet. 11–14. Patent Owner responds to the asserted grounds of unpatentability using Petitioner's proposed constructions. Prelim. Resp. 8. For purposes of this Decision, we determine that only one aspect of the scope of "determining, from the received positions, a set of the second avatars that are to be displayed to the first user" ("the 'determining' step") of claim 1 requires an express construction. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that only claim terms that "are in controversy" need to be construed and "only to the extent necessary to resolve the controversy").

Petitioner represents that "[c]laim 1 requires that the claimed 'client process' associated with a first user performs the step of 'determining'" and

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¹ The parties agree that the broadest reasonable interpretation standard applies to the '856 patent. *See id.*; Prelim. Resp. 7. Based on our review of the patent, however, the patent may have expired recently or may be expiring shortly. *See* Ex. 1001, [60], [63]. For expired patents, we apply the claim construction standard in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). Our analysis in this Decision is not impacted by whether we apply the broadest reasonable interpretation or the *Phillips* standard. We, however, expect the parties to address, with particularity, in their future briefing the expiration date of claim 1 of the '856 patent and if necessary to address this issue, to file Provisional Application No. 60/020,296 as an exhibit.

argues its asserted grounds of unpatentability assuming this requirement. Pet. 11 (emphases added); *see id.* at 21–25, 33–35. Patent Owner responds to the asserted grounds under Petitioner's interpretation—but "[w]ithout conceding that Petitioner's interpretation is strictly required according to the express language of [the] claim." Prelim. Resp. 12. Patent Owner disputes that the client in each of the asserted prior art references performs the "determining" step. *Id.* at 13–30. Yet neither Petitioner nor Patent Owner analyzes whether claim 1 requires that the "determining" step be performed by the "first client process." We address this issue below.

On its face, the language of the "determining" step—"determining, from the received positions, a set of the second avatars that are to be displayed to the first user"—does not identify or specify the performing entity. Ex. 1001, 21:18–20. That the "determining" must be "from the received positions" does not identify or specify the performing entity. Rather, based on the claim language, at least the "first client process" and the "server process" have access to the "received positions," because the "first client process" "receiv[es]" the "received positions" "from the server process." *Id.* at 21:15–22. Therefore, the claim language supports an interpretation that permits the "first client process," the "server process," or both to perform the "determining" step.

In contrast, the other step of the method recited in claim 1 explicitly identifies the performing entity. Specifically, the step of "receiving *by the first client process from the server process* received positions of selected second avatars," expressly recites that the "first client process" performs the receiving, and that the receiving is "from the server process." *Id.* at 21:15–18 (emphasis added).

In addition, patents related to the '856 patent feature independent claims that recite a "determining" limitation similar to the "determining" step in claim 1 of the '856 patent. These patents include U.S. Patent Nos. 7,181,690 B1 ("the '690 patent"), 7,493,558 B2 ("the '558 patent"), and 8,082,501 B2 ("the '501 patent"), which, together with the '856 patent, are continuations of U.S. Application No. 08/747,420 that share a common specification. In contrast with claim 1 of the '856 patent, each of these claims expressly recites that the client ("client process" or "client device") determines the avatars to be displayed. '690 patent, [63], 19:38–42, 20:17– 19, 20:47–49, 21:1–5, 21:12–19, 22:11–13, 22:40–42; '558 patent, [63], 22:11–13, 22:40–42; '501 patent, [63], 19:34–36, 20:14–30, 20:47–49. For example, claim 4 of the '558 patent recites: "determining, from the positions received in step (C), by said each client process, avatars that are to be displayed to the user associated with said each client process." '558 patent, 22:11–13 (emphasis added). Similarly, claim 6 of the '690 patent requires: "determining, from the positions transmitted in step (c), by each client process, a set of the avatars that are to be displayed." '690 patent, 20:17–19 (emphasis added). Accordingly, the doctrine of claim differentiation—which creates a presumption that "two independent claims have different scope when different words or phrases are used in those claims"—supports an interpretation of the "determining" step of claim 1 of the '856 patent that does not require the "first client process" to perform the step. Seachange Int'l, Inc. v. C-COR, Inc., 413 F.3d 1361, 1368–69 (Fed. Cir. 2005) (citations omitted); see also InterDigital Commc'ns, Inc. v. U.S. Int'l Trade Comm'n, 601 Fed. App'x 972, 978–79 (Fed. Cir. 2015)

(recognizing that in the context of related patents, rather than the same patent, the force of the claim differentiation doctrine is diminished).

Moreover, the written description of the '856 patent also supports interpreting the "determining" step such that the step can be performed at the "first client process," the "server process," or both. The written description discloses a virtual system in which server 61 sets and maintains variable N, which specifies "the maximum number of other avatars [user] A will see." Ex. 1001, 5:37–38, 13:18–19. Client 60 also "maintains a variable, N', . . . which indicates the maximum number of avatars client 60 wants to see and/or hear." *Id.* at 5:38–41.

The written description refers to N' being less than N—but uses non-limiting language, such as "might be," "[i]f," and "[w]here," to describe this situation. *Id.* at 5:37–39, 5:57–58, 6:6–8. Specifically, the written description states that "N' . . . *might be* less than N," *id.* at 5:38–41 (emphasis added), and that "[i]f server 61 sets a very high value for N, then the limit set by client 60 is the only controlling factor," *id.* at 5:57–58 (emphasis added). In addition, the written description explains that "[w]here N' is less than N, the client also uses position data to select N' avatars from the N avatars provided by the server." *Id.* at 6:6–8 (emphasis added). In other words, where N' is less than N, the client must determine which N' avatars to display from the larger number of avatars, N, sent by the server.

These non-limiting references to N' being less than N do not exclude the possibility that N', set by the client, could be equal to or greater than N, set by the server. *See* Ex. 2006, 12 ("The specification allows for the possibility that the number N' set by the client might be less than N or

greater than N."). Where N' is equal to or greater than N, the server—which "maintains a list of the N nearest neighboring remote avatars" to each avatar and sends the client this list, as well as "changes in the N closest remote avatars and their locations"—would send the client positions of a number of avatars that is equal to or less than the maximum number of avatars the client wants to see. Ex. 1001, 14:27–34; *see id.* at 5:45–47, 6:7–8, 8:66–9:1, 13:20–23. In these circumstances, the server could be considered to perform or co-perform the act of determining which avatars to display to the user.

Accordingly, on this record, we determine that the "determining" step need not be performed by the "first client process." Instead, the step is broad enough to encompass the "determining" being performed by at least the "first client process," the "server process," or both.

B. ANTICIPATION BY FUNKHOUSER

We turn to Petitioner's assertion that Funkhouser anticipates claim 1.

1. Printed Publication

Petitioner has made a sufficient showing that Funkhouser qualifies as prior art under 35 U.S.C. § 102(a),² because Funkhouser was a printed publication by April 12, 1995—before the earliest priority date of the '856 patent, November 13, 1995. Pet. 6–7; Ex. 1001, [60]. In determining whether a reference is a "printed publication," "the key inquiry is whether or not [the] reference has been made 'publicly accessible." *In re Klopfenstein*, 380 F.3d 1345, 1348 (Fed. Cir. 2004). A reference is "publicly accessible" if the reference "has been disseminated or otherwise made available to the

² The Leahy Smith America Invents Act ("AIA"), Pub. L. No. 112–29 (2011), revised 35 U.S.C. § 102, effective March 16, 2013. Because the '856 patent has an effective filing date before March 16, 2013, our references to § 102 are to its pre-AIA version.

extent that persons interested and ordinarily skilled in the subject matter . . . exercising reasonable diligence, can locate it and recognize and comprehend therefrom the essentials of the claimed invention without need of further research or experimentation." *Bruckelmyer v. Ground Heaters, Inc.*, 445 F.3d 1374, 1378 (Fed. Cir. 2006) (citations omitted).

Funkhouser (Ex. 1005) is an article that appears in a collection of articles, titled 1995 Symposium on Interactive 3D Graphics (Ex. 1006) ("1995 Symposium Book"). Ex. 1005; Ex. 1006, cover, 1–3, 85; Ex. 1002 ¶ 40. The 1995 Symposium Book was compiled for a symposium sponsored by the Association for Computing Machinery ("ACM"), held on April 9–12, 1995 ("1995 Symposium"). Ex. 1006, cover, 1–3, 85; Ex. 1002 ¶¶ 40–41. Dr. Zyda—who was the chairperson of the 1995 Symposium—testifies that the symposium gathered "many of the top researchers in the fields of virtual reality systems, computer graphics, and real-time interactive 3D." Ex. 1002 ¶¶ 40–41; Ex. 1006, cover. According to Dr. Zyda, "[o]ver 250 participants attended the 1995 [S]ymposium and each was provided with a copy of the 1995 [Symposium Book]." Ex. 1002 ¶ 41. In addition, Dr. Zyda testifies that copies of the book were available from the ACM. *Id.*; see Ex. 1006, copyright page ("A limited number of copies are available at the ACM member discount."). The 1995 Symposium Book and Funkhouser feature a 1995 copyright date and permit copying, generally without a fee and with "a fee and/or specific permission" if for "direct commercial advantage." Ex. 1006, copyright page, 85; Ex. 1005, 85.

In light of this evidence of Funkhouser's distribution and accessibility, Petitioner has proffered adequate evidence that an interested ordinarily skilled artisan, "exercising reasonable diligence," could have obtained Funkhouser no later than April 12, 1995—the last day of the 1995 Symposium. *See Mass. Inst. of Tech. v. Ab Fortia*, 774 F.2d 1104, 1109 (Fed. Cir. 1985) (holding paper to be a prior art printed publication where the paper was "disseminated without restriction to at least six persons" and "between 50 and 500" ordinary artisans were "informed of its contents by [an] oral presentation" before the critical date).

Patent Owner "denies that Funkhouser was published" before the date of invention of claim 1 of the '856 patent, as it must have been to qualify as prior art under 35 U.S.C. § 102(a). Prelim. Resp. 14 & n.3. Patent Owner appears to take the position that the subject matter recited in the '856 patent claims was conceived and reduced to practice before Funkhouser was published, arguing that by April 12, 1995, its Worlds Chat "was released to the public and [was] already drawing . . . attention," with a supporting citation to two articles. *Id.* (citing Ex. 2008, 2009). These articles, however, were published in May 1995 and June 1995—after April 12, 1995. Ex. 2008; Ex. 2009, 3. Moreover, Patent Owner fails to make any showing regarding how these articles or Worlds Chat connect to the claim language. Thus, on the present record, there is insufficient evidence that the subject matter of claim 1 of the '856 patent was invented before April 12, 1995.

2. Funkhouser

Funkhouser discloses a system, with a "client-server design," that "supports real-time visual interaction between a large number of users in a shared 3D virtual environment." Ex. 1005, 85. In the system, each user is represented "by an entity," and each entity is managed by a client workstation. *Id.* at 85, 87. Servers manage the communication between clients. *Id.* at 87. Specifically, "[c]lients do not send messages directly to

other clients, but instead send [messages] to servers[,] which forward them to other client and server workstations." *Id*.

"The key feature of [Funkhouser's] system" is its "[s]erver-based message culling," which is based on "precomputed" "[c]ell-to-cell visibility." *Id.* at 85, 87. Before the simulation, the virtual environment "is partitioned into a spatial subdivision of cells" and "[a] visibility precomputation is performed in which the set of cells potentially visible to each cell is determined." *Id.* at 87 (emphasis omitted). Figure 6 of Funkhouser is reproduced below.

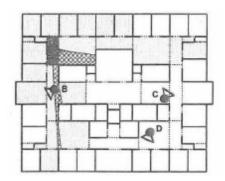


Figure 6 depicts a source cell, in a dark box, and shows, in stipple, the "[c]ell-to-cell visibility" of the source cell, i.e., the "set of cells reached by some sight-line from anywhere in the source cell." *Id.* As shown in Figure 6, this cell-to-cell visibility "overestimate[s] . . . the visibility of any entity resident in the source cell." *Id.*

Then, during the simulation, servers use the precomputed cell-to-cell visibility to process update messages, using "cell visibility 'look-ups," "rather than more exact real-time entity visibility computations." *Id.* The servers "forward" update messages "only to servers and clients containing entities inside some cell visible to the one containing the updated entity." *Id.*

³ We have reproduced Figure 6 from Exhibit 1006, the 1995 Symposium Book. In Exhibit 1005, Funkhouser, the stipple is not visible.

Clients, in turn, use the update messages to maintain and update surrogates for "remote entities visible to at least one entity local to the client." *Id.* at 87–88; *see id.* at 92, 209. "Surrogates contain (often simplified) representations for the entity's geometry and behavior." *Id.* at 87. "When a client receives an update message for an entity managed by another client, it updates the geometric and behavioral models for the entity's local surrogate." *Id.* Between update messages, each client simulates the behavior of its surrogates. *Id.*

In addition, "[c]lients execute the programs necessary to generate behavior for their entities" and "[t]hey may . . . include viewing capabilities in which the virtual environment is displayed on the client workstation screen from the point of view of one or more of its entities." *Id.*; *see id.* at 85, 209.

Figures 4 and 7 of Funkhouser are reproduced below.

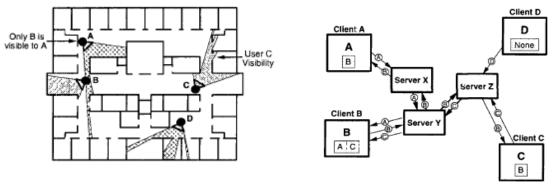


Figure 4 Figure 7

Figure 4 shows the visual interactions of entities A, B, C, and D in a virtual environment. *Id.* at 86, Fig. 4. Figure 7 depicts clients A, B, C, and D for these entities, as arranged in Figure 4, with arrows to show the "flow of update messages" and "small squares" to depict surrogates of these clients. *Id.* at 87, Fig. 7. As Figure 4 depicts, "only one visual interaction is possible – entity A can see entity B." *Id.* at 86. Figure 7 shows that the forwarding

of update messages to clients is not limited by the visibility of the entities managed by the clients. *See id.* at 86–88, Figs. 4, 7. As shown in Figure 7, "[i]f entity A is modified," the servers forward the update message to client B; "[i]f entity B is modified," the servers forward the update message to clients A and C; "[i]f entity C is modified," the servers forward the update message to client B; and "[i]f entity D is modified," server Z does not forward the message to any other server or client "because no other entity can potentially see entity D." *Id.* at 88, Fig. 7 (emphases omitted).

3. Discussion

a. "Determining" Step

Petitioner and Patent Owner dispute whether Funkhouser discloses the "determining" step of claim 1 of the '856 patent. *See* Pet. 21–25; Prelim. Resp. 13–22. As an initial matter, we note that Patent Owner contests only whether the client workstations in Funkhouser perform this step. *See* Prelim. Resp. 13–22. Accordingly, under our interpretation of the "determining" step in § II.A of this Decision—wherein the step may be performed by the recited "first client process," the "server process," or both—there is no dispute, at this stage of the proceeding, that Funkhouser discloses the limitation.

Under our construction of the "determining" step, we are persuaded by Petitioner's showing that Funkhouser discloses the limitation. In addition, even if the "determining" step of claim 1 is narrower than our construction and must be performed by the recited "first client process"—as both parties assume in their briefing—Petitioner has made a sufficient showing that Funkhouser discloses the limitation, i.e., that Funkhouser's

client determines which avatars to display to the user. *See* Pet. 21–25; Prelim. Resp. 13–22.

As Petitioner points out, in Funkhouser's "[s]erver-based message culling," servers cull update messages based on precomputed "[c]ell-to-cell visibility," which determines the "set of cells potentially visible to each cell." Ex. 1005, 87 (emphases added). Thus, servers forward an update message, received from another client, to a client if that client contains an entity "inside some cell visible to the [cell] containing the updated entity." Id. (emphasis added). Because this culling is based on pre-computed visibility of the cell in which the entity resides—rather than more "exact real-time entity visibility computations"—it "conservatively over-estimate[s]" the "visibility of any entity resident in the . . . cell." Id. (emphases added).

As a result, as Petitioner argues and Dr. Zyda testifies, the servers may send update messages to clients for more entities than are "presently" visible to, and "within the . . . field of view" of, any entity managed by the client. Pet. 23; Ex. 1002 ¶ 78. For example, entity B in Figures 4 and 6 is not visible to entity C, because entity C is facing away from entity B. Ex. 1002 ¶ 78; Ex. 1005, 86, Figs. 4, 6. Thus, entity C will not "actually see" any change in position of entity B. Ex. 1002 ¶ 78. Nonetheless, when "entity B is modified," the server "forward[s]" an "update message" to client C, because entity C is in a *cell* "potentially visible" to the *cell* where entity B is located. Ex. 1005, 87–88, Fig. 7 (emphasis omitted).

The client—after receiving update messages that may relate to entities outside the field of view of any entity it manages—processes the messages for remote entities visible to any of the client's entities and executes

programs to display the environment from a particular entity's point of view. Each client "maintain[s] surrogates" for "remote entities visible to at least one entity local to the client," id. at 88, and uses the messages it receives to "update[] the geometric and behavioral models for the entity's local surrogate," id. at 87; see id. at 209. Funkhouser explains that its clients "execute . . . programs necessary to generate behavior for their entities" and that "[t]hey . . . may include viewing capabilities in which the virtual environment is displayed on the client workstation screen from the point of view of one or more of its entities." *Id.* at 87; see id. at 85 ("[U]sers run an interactive interface program . . . [that] simulates the experience of immersion in a virtual environment by rendering images of the environment as perceived from the user's . . . viewpoint."). Funkhouser also includes Plate II, which shows an "environment rendered from [the] viewpoint of one entity," omitting many other entities in the environment.⁴ Ex. 1005, 209. Dr. Zyda testifies that "after receiving the filtered positional updates from the server, the client performs its own calculations, including updating the surrogates of the remote entities, in order to determine which of the remote entities to display within the client's field of view." Ex. 1002 ¶ 81.

Based on these disclosures of Funkhouser and Dr. Zyda's supporting testimony, Petitioner has shown sufficiently that in Funkhouser, the client performs the "determining" step. At this stage of the proceeding, we are not persuaded by Patent Owner's arguments to the contrary.

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We agree with Patent Owner that the Petition and Dr. Zyda's testimony lack persuasive support regarding the precise number of remote entities for which the entity from whose viewpoint Plate II depicts the environment receives updates. *See* Pet. 8, 25; Ex. 1002 ¶ 81; Prelim. Resp. 16–17, 20. In this Decision, we do not rely on these numbers.

Patent Owner asserts that Petitioner relies on an inherency theory because Funkhouser "fails to expressly disclose" "client-side determining," including how or whether the client workstation determines which entities to display on the workstation. Prelim. Resp. 13, 20–21. Patent Owner argues that this theory is deficient because Petitioner has not shown that Funkhouser necessarily discloses the client performing the "determining" step. *Id.* at 13–16, 20–21. Moreover, Patent Owner disputes Petitioner's arguments relying on Funkhouser's update messages to support the client performing the "determining" step, asserting that Funkhouser "does not disclose a client using an 'update message' for anything other than updating the 'geometric and behavioral models for the entity's local surrogate.'" *Id.* at 14–15. Patent Owner also contends that "Funkhouser may use the updated 'geometric and behavioral models' of the surrogate stored by the client, rather than any 'received positions'"—as required by claim 1 of the '856 patent—to determine which entities to display. *Id.* at 22.

Patent Owner does not persuasively respond to or address the disclosures in Funkhouser to which Petitioner cites, particularly those referring to the client executing programs and including viewing capabilities to display the environment from an entity's point of view: "[c]lients execute the programs necessary to generate behavior for their entities" and "[t]hey . . . may include viewing capabilities in which the virtual environment is displayed on the client workstation screen from the point of view of one or more of its entities." Ex. 1005, 87; *see id.* at 85; Pet. 22–24; Prelim. Resp. 13–22. As outlined above, we are persuaded that this discussion in Funkhouser—combined with Funkhouser's disclosures that the servers send positional update messages to clients based on an "overestimate" of the

visibility of the clients' entities and that the clients process the messages to maintain and update their surrogates of remote entities—sufficiently discloses that the client in Funkhouser determines which remote entities to display to the user.

Moreover, we are not persuaded by Patent Owner's speculation that Funkhouser could use "the updated 'geometric and behavioral models' of the surrogate stored by the client, rather than any 'received positions'" to determine entities to display. Prelim. Resp. 22. In Funkhouser, the update messages, which the server forwards to clients, include positional updates. *See* Ex. 1005, 87, 89. The clients use these messages to "update[] the geometric and behavioral models" for the surrogates they maintain. *Id.* at 87. Thus, even if Funkhouser's clients use these models to determine which entities to display, as Patent Owner posits, this determining still would be "from the received positions" received from the server, as the claim requires.

b. Undisputed Limitations

On the record before us, Petitioner has made a sufficient showing that Funkhouser discloses the remaining limitations of claim 1 of the '856 patent, which Patent Owner does not contest. *See* Pet. 14–26; Prelim. Resp. 13–22. In particular, Petitioner has made an adequate showing regarding "receiving by the first client process from the server process received positions of selected second avatars" and "wherein the first client process receives positions of fewer than all of the second avatars," as recited in claim 1. As Petitioner points out, Funkhouser's clients send messages, including positional information, to servers, "which forward them to other client and server workstations." Ex. 1005, 87, 89. Further, Funkhouser implements

server-based message culling such that the servers do not send the positional updates to all clients, but only to clients "with entities that can potentially perceive" "the effects of the update." *Id.* at 85, 87. For example, in Figures 4 and 7, there are four clients A, B, C, and D yet client A only receives updates on entity B; client B only receives updates on entities A and C; and client C only receives updates on entity B. *Id.* at 87–88, Figs. 4, 7.

4. Conclusion

Based on our review of the parties' arguments and evidence and our analysis above, Petitioner has shown a reasonable likelihood that it would prevail in showing that Funkhouser anticipates claim 1 of the '856 patent.

C. ANTICIPATION BY DURWARD

Petitioner also argues Durward anticipates claim 1 of the '856 patent.

1. Durward

Durward describes a virtual reality network in which "multiple users . . . may communicate" with the network and "participate in a virtual reality experience." Ex. 1008, 1:6–11, 1:45–51. The disclosed network includes central control unit 14, with processor 100, for communicating with a plurality of users. *Id.* at 2:50–52, 3:58–60.

Each user "[t]ypically" is equipped with computer 42 and head-mounted display 46. *Id.* at 2:66–67. The user communicates its "positional data to computer 42 which, in turn, communicates the data to central control unit 14." *Id.* at 3:15–26. Central control unit 14 uses this data "to define a virtual being within the virtual space" for the user. *Id.* at 3:27–29.

In the preferred embodiment, "each user's computer has a copy of the entire virtual space (e.g., background, objects and primitives)." *Id.* at 4:19–21; *see id.* at 6:55–57. Central control unit 14 communicates "only position,

motion, control, and sound data" to the users. *Id.* at 3:58–63, 4:12–23. "After initial position, motion, control[,] and sound data is communicated to the users, only changes in th[is] . . . data is communicated." *Id.* at 4:23–26.

This updated data allow "the user's computer [to] update the images viewed and sounds heard." *Id.* at 6:60–62. The user's "head[-]mounted display 46," in turn, "displays the portion of the virtual space viewed from the perspective of the virtual being defined for [the] user [] together with all other defined virtual beings and objects within its field of vision." *Id.* at 3:50–54; *see id.* at [57], 1:57–59.

"[E]ach virtual being, and hence each user, is assigned a visual relevant space" *Id.* at 4:50–54. "[V]isual relevant spaces determine which state changes are communicated to (or perceivable by) the users." *Id.* at 4:54–56. Figure 5 is reproduced below.

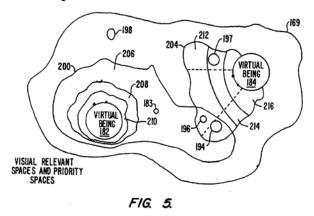


Figure 5 depicts virtual space 169, with virtual beings 182, 183, and 184. *Id.* at 4:43–45, 4:59–61. Virtual being 182 is assigned visual relevant space 200; virtual being 184 is assigned visual relevant space 204. *Id.* at 4:61–63.

As shown in Figure 5 for virtual being 182, "[t]he visual relevant space may be fixed." *Id.* at 5:12–13. "Alternatively," as depicted for virtual being 184, "the user's visual relevant space may be defined by the field of view of the virtual being and areas in close proximity to it," such that "the

visual relevant space may move about the virtual space as the perspective or position of the virtual being changes." *Id.* at 5:13–18.

In the preferred embodiment, in which only position, motion, control, and sound data are communicated to the user, "elements outside of a visual relevant space may be visible to the user, but any real-time or program controlled position/motion associated with the element is not processed for that user." *Id.* at 5:5–12. As a result, "the element appears stationary in a fixed position, or . . . moves in accordance with a fixed script." *Id.*

2. Discussion

a. "Determining" Step

Petitioner and Patent Owner dispute whether Durward discloses the "determining" step of claim 1 of the '856 patent. *See* Pet. 33–35; Prelim. Resp. 22–29. Like the asserted ground of anticipation by Funkhouser, Patent Owner's dispute that Durward discloses this limitation rests on an argument that Petitioner has not demonstrated that the *client* in Durward performs the recited "determining." *See* Prelim. Resp. 22–29. Therefore, under our interpretation of the "determining" step in § II.A of this Decision—wherein the step may be performed by the recited "first client process," the "server process," or both—there is no dispute, on the record before us, that Durward discloses the limitation.

Based on our review of the arguments and evidence of record,
Petitioner has shown sufficiently that Durward discloses the "determining"
step under our construction. Moreover, even if claim 1 requires that the
"determining" step be performed by the "first client process," as the parties'
arguments in the Petition and Preliminary Response assume, we are
persuaded that Petitioner has put forward evidence that sufficiently

demonstrates that Durward discloses the step under this narrower interpretation.

As Petitioner argues, in Durward's preferred embodiment, "each user's computer has a copy of the entire virtual space." Ex. 1008, 4:19–21; see id. at 6:55–57 ("[I]n the preferred embodiment, each user has a copy of the selected virtual space in his or her computer."); Pet. 34. Central control unit 14 ("server process") sends the user updated positional data based on the assigned visual relevant space of the user's virtual being ("avatar"). Ex. 1008, 3:58–63, 4:12–26, 4:50–56.

As Petitioner argues and Dr. Zyda testifies, the visual relevant space "may be broader than the client's field of view," as exemplified by visual relevant space 204 for virtual being 184 in Figure 5. Pet. 34; see Ex. 1002 ¶ 105; Ex. 1008, 4:57–59, 5:13–18, Fig. 5. Durward explains that, as shown by virtual being 184, "the user's visual relevant space may be defined by the field of view of the virtual being and areas in close proximity to it." Ex. 1008, 5:13–18 (emphases added). In addition, the visual relevant space may be narrower than the client's field of view. As Durward states, "elements outside of a visual relevant space may be visible to the user, but" because updated positional data for those elements are not transmitted to the user, "any real-time or program controlled position/motion associated with the element is not processed for that user." Id. at 5:5–12. As a result, "the element [either] appears stationary in a fixed position, or . . . moves in accordance with a fixed script." Id.

Regardless of the scope of the assigned visual relevant space and, thus, the positional updates received by the user, the user's head-mounted display shows only the virtual beings and objects within the user's field of view. As Durward explains, "the user's computer" uses the updated positional data received from central control unit 14 to "update the images viewed." *Id.* at 6:60–62. Further, Durward discloses that the user's "head[-]mounted display 46 displays the portion of the virtual space viewed from the perspective of the virtual being defined for [the] user [] together with all other defined virtual beings and objects within its field of vision." *Id.* at 3:50–54; *see id.* at [57], 1:57–59 ("[T]he user's computer may display a portion of a selected virtual space on the user's head mounted display."). Dr. Zyda testifies that "[u]pon receipt of the position information from" central control unit 14 ("server process"), "the client determines a set of other users' avatars to be displayed to the first user, by identifying which of the received positions fall within the user's field of view." Ex. 1002 ¶ 106.

Based on Petitioner's arguments and Dr. Zyda's testimony regarding these disclosures of Durward, we are persuaded that Petitioner has made a sufficient showing that Durward's user determines which virtual beings ("avatars") to display from the positional data received from central control unit 14 ("server process"), which may include the positions of more or less virtual beings than those within the user's field of view. In other words, Petitioner has adduced adequate evidence that Durward performs the "determining" step of claim 1 of the '856 patent, and that this determining is performed by the recited "first client process"—thereby disclosing the limitation under our construction as well as the narrower construction assumed by the parties.

On this record, we do not agree with Patent Owner's arguments to the contrary. As with the asserted ground of anticipation by Funkhouser, Patent Owner contends that Petitioner's assertions "sound[] of inherency, but fail[]

to meet the" requisite showing that the clients in Durward "must necessarily" perform the "determining" step. Prelim. Resp. 24 (emphasis omitted). Patent Owner argues Petitioner "misinterpret[s]" and "fails to consider" the activity of Durward's central control unit 14, which "receive[s] and monitor[s]" "the orientation and field of view" of the virtual beings. Id. at 24–25, 29 (quoting Ex. 1008, 3:16–20, 4:2–4, 6:53–55). In column 8, lines 51–55, for example, Durward explains that central control unit 14 uses such information to "determine[]" "locations of the other users and their defined virtual objects within and without the relevant and priority spaces," which then are "used to ascertain which position, motion and sound data is transmitted to which user." *Id.* at 27 (quoting Ex. 1008, 8:51–55). Patent Owner also cites column 7, lines 8-15 of Durward, which explain that as a user moves, central control unit 14 "update[s] the position (and hence the field of view) of the corresponding virtual being" and "communicate[s] the graphical data for the updated field of view to the user." *Id.* at 24, 26–27 (quoting Ex. 1008, 7:8–15). In addition, Patent Owner cites claim 4 of Durward, which recites that "each user's visual relevant space is defined by a portion of the virtual space viewed from the perspective of that user's virtual being." Ex. 1008, 9:64–67; Prelim. Resp. 28–29.

We are not persuaded that the passages of Durward to which Patent Owner directs our attention undermine Petitioner's position. First, Patent Owner has not addressed sufficiently whether the passages and claim it cites relate to the embodiment on which Petitioner's argument relies. *See*, *e.g.*, Ex. 1008, 7:3 (referring to "another embodiment of the invention").

Second, as explained above, Petitioner's argument recognizes that in Durward, the visual relevant space—which determines what positional data

are communicated to the user—need not be fixed and can correspond to the field of view of the virtual being. See id. at 4:50–56, 5:13–18 ("[T]he user's visual relevant space may be defined by the field of view of the virtual being and areas in close proximity to it . . . in which case the visual relevant space may move about the virtual space as the perspective or position of the virtual being changes.") (emphasis added). Thus, Durward's disclosures that central control unit 14 monitors and tracks virtual beings' locations and orientations to determine which updated positional data to transmit to each user is consistent with, and does not undermine, Petitioner's position.

Third, Durward's disclosure regarding situations where central control unit 14 communicates only the "graphical data for the updated field of view," as referenced in column 7, lines 3–18, does not address situations where the visual relevant space, and thus the positional data communicated to the user, is wider or narrower than the virtual being's field of view. As we explain above, we are persuaded that at least in these situations, Durward's client determines which virtual beings to display to the user.

b. Undisputed Limitations

In addition, the Petition makes a sufficient showing that Durward discloses the remaining limitations of claim 1 of the '856 patent, which Patent Owner has not disputed. *See* Pet. 26–36; Prelim. Resp. 22–29. Specifically, we are persuaded by Petitioner's showing that Durward discloses "receiving by the first client process from the server process received positions of selected second avatars" and "wherein the first client process receives positions of fewer than all of the second avatars," as recited in claim 1. In Durward, each user communicates its "positional data" to central control unit 14, Ex. 1008, 3:15–26; *see id.* at 2:5–9, and central

control unit 14 communicates changes in "position, motion, control, and sound data" to the users based on their assigned visual relevant space. *Id.* at 3:58–63, 4:12–26, 4:50–56; *see id.* at 5:55–62. Moreover, as explained by Durward and Dr. Zyda, users do not receive updates on virtual beings outside their visual relevant space, because the visual relevant space "determine[s] which state changes are communicated to" users. *See id.* at 4:50–56; Ex. 1002 ¶¶ 101–02. For example, in Figure 5, virtual being 184 does not receive a positional update on virtual being 183, because virtual being 183 is not within visual relevant space 204 of virtual being 184. *See* Ex. 1008, 4:43–45, 4:61–63, 5:2–3, Fig. 5; Ex. 1002 ¶ 102.

3. Conclusion

Based on our review of the Petition and Preliminary Response as well as our analysis above, Petitioner has shown a reasonable likelihood that it would prevail in establishing that Durward anticipates claim 1.

D. Section 325(d) – Discretion to Decline to Institute

Patent Owner urges us to decline to institute the Petition, under 35 U.S.C. § 325(d), because the "same or substantially the same prior art or arguments" were presented during examination of the '856 patent. Prelim. Resp. 11–12 (emphasis omitted). Petitioner explains that Funkhouser and Durward were listed in an Information Disclosure Statement ("IDS"). Pet. 4; Ex. 1004, 242, 246.

Section 325(d) provides: "[i]n determining whether to institute . . . a proceeding . . ., the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office." Having considered the parties' arguments and the citations to Funkhouser and Durward in an IDS

during prosecution, we decline to exercise our discretion to decline to institute *inter partes* review. *See* 37 C.F.R. § 42.108(a).

E. REAL PARTY IN INTEREST

Patent Owner argues Activision Publishing, Inc. ("Activision") is an unnamed real party in interest. Thus, according to Patent Owner, the Petition fails to comply with 35 U.S.C. § 312(a)(2) and institution of review is barred under 35 U.S.C. § 315(b). Prelim. Resp. 30–39.

1. Factual Background

Petitioner and Activision entered into a Software Publishing and Development Agreement ("the Agreement"), effective April 16, 2010. Ex. 2002, 1. Under the Agreement, Petitioner "agreed to develop" a series of software products with the title Destiny ("the Destiny Products" or "the Products"), "to be exclusively published and distributed by Activision." *Id.*

In 2012, Patent Owner filed and served a complaint against Activision alleging infringement of the '856 patent in the U.S. District Court for the District of Massachusetts ("Activision Case"). Ex. 2007; Ex. 2003. The complaint alleges infringement by various products—but not any Destiny Products. *See* Ex. 2007.

In a letter dated November 13, 2014 ("the Letter"), Patent Owner informed Activision that Patent Owner "intend[s] to add . . . Destiny" to the Activision Case. Ex. 2004, 1. Patent Owner, however, has not added any of the Destiny Products as an accused product in the case. Ex. 2001, 16:9–10; Prelim. Resp. 35.

2. Discussion

Courts traditionally have invoked the term real party in interest to describe a relationship sufficient to justify applying conventional principles

of estoppel and preclusion to non-parties. Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,759–60 (Aug. 14, 2012) ("Practice Guide"). The factors courts consider in analyzing these issues inform our analysis. *Id.*

In *Taylor v. Sturgell*, the Supreme Court reaffirmed the "fundamental nature" of the rule that a non-party is not estopped, precluded, or otherwise bound by litigation. 553 U.S. 880, 893, 898 (2008). The Court explained that this rule is subject to six categories of exceptions that "apply in limited circumstances," namely where: (1) the non-party "agrees to be bound"; (2) a "pre-existing substantive legal relationship[]" with the named party justifies binding the non-party; (3) the non-party, "in certain limited circumstances," is "adequately represented" by a party with the same interests; (4) the non-party "assume[d] control" over the proceeding; (5) the non-party is bound by a prior decision and is attempting to rehear the matter through a proxy; and (6) a "special statutory scheme . . . expressly foreclos[es] successive" hearing by non-parties. *Id.* at 892–98 (citations and quotations omitted).

Here, Patent Owner argues that Activision is a real party in interest because the second and fourth categories in *Taylor*—a "pre-existing substantive legal relationship[]" and control—are satisfied. Prelim.

Resp. 30. Patent Owner argues that the Letter, indicating an intent to add a Destiny Product as an accused product in the Activision Case, "triggered [Petitioner]'s duties under the Agreement." *Id.* at 34. Moreover, according to Patent Owner, "[b]y the express terms of the Agreement, Activision had at minimum an opportunity to control this [*inter partes* review] through its contractual right to review and approve [Petitioner]'s legal reviews underlying this [*inter partes* review], its participation in the meetings of

[Petitioner]'s Board of Directors, and its funding of th[is *inter partes* review] indirectly through payment of Development Advances." *Id.* at 36–37.

We disagree. Even assuming that Petitioner's obligations under the Agreement were triggered by Patent Owner's mere representation to Activision of an intent to accuse a Destiny Product in the Activision Case, Patent Owner has not shown that Activision has an opportunity to control this *inter partes* review. Instead, we agree with Petitioner that Patent Owner's arguments are based on unreasonable assumptions and interpretations of various sections of the Agreement. *See* Paper 10.

The concept of control generally means that "the non[-]party has the actual measure of control or opportunity to control that might reasonably be expected between two formal coparties" in a proceeding. Practice Guide, at 48,759 (citation omitted). In other words, the non-party "had the opportunity to present proofs and argument," *Taylor*, 553 U.S. at 895 (citation omitted), or "to direct or control the content" of the filing, *In re Guan Inter Partes* Reexamination Proceeding, Control No. 95/001,045, Decision Vacating Filing Date, at 8 (Aug. 25, 2008).

Patent Owner fails to show that Activision satisfies these standards. First, Patent Owner argues that Activision has at least the opportunity to control this proceeding based on Petitioner's obligation to conduct legal reviews, with Activision's review and approval, under § 7A.15(j) of the Agreement. Prelim. Resp. 32, 34, 36. Section 7A.15(j) states that Petitioner—"subject to prior review and approval of Activision"—must manage and is responsible for "[c]onducting *legal reviews of the Products* to ensure that all Intellectual Property and other rights are fully cleared for use." Ex. 2002, 10 (emphasis added). According to Patent Owner,

Petitioner's obligation to conduct legal reviews is pursuant to its warranty of non-infringement in § 14.1.2. *Id.* at 19; Prelim. Resp. 32.

We, however, agree with Petitioner that Patent Owner's argument is misplaced "because it is premised on a faulty assumption," namely that this proceeding constitutes a "legal review[] of the Products" under § 7A.15(j). Paper 10, 6 (emphasis omitted). The only subject of this proceeding is the '856 patent; this proceeding does not involve any product. *Id.* Thus, Patent Owner has not shown that this proceeding falls within the scope of a "legal review[] of the Products" under § 7A.15(j), such that the Agreement would give Activision a right of review and approval related to this proceeding.

Second, Patent Owner asserts Petitioner has "at minimum the opportunity to control th[is]...proceeding[]" as a result of Activision's "contractual oversights of [Petitioner]'s management" pursuant to §§ 18.1 and 18.2 of the Agreement. Prelim. Resp. 36. Section 18.1 gives Activision "a right of approval, which ... may be withheld in Activision's sole discretion, over any 'Change in Control' of [Petitioner]," which is defined as "a merger or consolidation ... with another company, sale or transfer of any ... significant and/or material assets, or a transaction or series of related transactions resulting in the transfer of fifty percent (50%) or more of the equity ownership." Ex. 2002, 24. Under § 18.2, Activision has "the right to designate one person to attend and participate as a non-voting observer in all meetings of the Board of Directors of [Petitioner]." *Id*.

Neither of these provisions shows that Activision has an opportunity to control this proceeding. Regarding § 18.1, Patent Owner fails to show any relationship between Activision's right of approval of a "Change in Control" of Petitioner, such as a merger or transfer of majority ownership,

and the control of this proceeding. See Aruze Gaming Macau, Ltd. v. MGT Gaming, Inc., Case IPR2014-01288, slip op. at 11 (PTAB Feb. 20, 2015) (Paper 13) ("[Real party in interest] is the relationship between a party and a proceeding[,]...not...the relationship between parties," and, thus, the inquiry "focus[es] . . . on the degree of control the nonparty could exert over the *inter partes* review, not the petitioner."). Similarly, even if Activision invoked its "right to designate one . . . non-voting observer" in Petitioner's Board of Director meetings, pursuant to § 18.2, one person's attendance at meetings, without any voting rights, fails to rise to an opportunity to control this proceeding. Ex. 2002, 24 (emphasis added). The limited involvement in Petitioner's management that these provisions afford Activision falls far from any opportunity to control this proceeding that "might reasonably be expected between two formal coparties," Practice Guide, at 48,759, such as "the opportunity to present proofs and argument," *Taylor*, 553 U.S. at 895 (citation omitted), or "to direct or control the content" of the filing, *In re* Guan, No. 95/001,045, at 8 (Aug. 25, 2008).

Third, Patent Owner points to § 10.1 and § 14.1.4 of the Agreement as evidence that Activision is funding this proceeding. Prelim. Resp. 33, 35–36. Under § 10.1, Activision must "pay development advances ('Development Advances') to [Petitioner] for the development of each of the Products," which "shall fully fund [Petitioner]'s operations directly related to the development of the Products (including overhead costs associated therewith, but excluding any built-in profit margin)." Ex. 2002, 14–15. Section 14.1.4 specifies that the Development Advances "shall be utilized by [Petitioner] *solely* to fund the costs of creation and development of the Products and otherwise cover day-to-day overhead and operational expenses

that are reasonably necessary and related to the creation and development of the Products (e.g., office lease, computers[,] employee salaries, etc.), but excluding any built-in profit margin." *Id.* at 20 (emphasis added).

Patent Owner argues that the operations and operational expenses in § 10.1 and § 14.1.4 "include the funding of the legal reviews required under [§] 7A.15(j), which were intended by [Petitioner] and Activision to come from the Development Advances paid by Activision for development of the Destiny [P]roducts." Prelim. Resp. 33; see id. at 35–36. In other words, Patent Owner argues that the "legal reviews of the Products" in § 7A.15(j) is a permissible use of the Development Advances. As we explain above, Patent Owner has not demonstrated that this proceeding constitutes a "legal review[] of the Products" under § 7A.15. Therefore, even if Patent Owner were to show that the Agreement allows Petitioner to use Development Advances for such "legal reviews of the Products," this would not establish that the Agreement allows Petitioner to use Development Advances to fund this proceeding. Moreover, Patent Owner also has not shown that "legal reviews of the Products" under § 7A.15(j) or this proceeding fall within the categories of permissible uses of Development Advances: (1) "creation and development of the Products" and (2) "day-to-day overhead and operational expenses that are reasonably necessary and related to the creation and development of the Products." Ex. 2002, 20 (emphases added). Notably, the examples of "overhead and operational expenses" included § 14.1.4— "office lease, computers[,] employee salaries"—are disparate from the "legal reviews" required by § 7A.15(j) and from the filing of this Petition.

Accordingly, Patent Owner has not demonstrated that the Agreement gives Activision any opportunity to control this proceeding. In addition, we

note that Petitioner has expressly denied any control or funding of this proceeding by Activision. Paper 10, 1–2, 8. Petitioner represents to the Board that "[Petitioner] is solely responsible for the cost and control of the [inter partes review] against [Patent Owner]'s patents," and "[n]othing in the . . . Agreement allows any party other than [Petitioner] to control th[is] . . . proceeding[]." *Id.* at 1–2. Similarly, Petitioner states that "Activision's payment of [D]evelopment [A]dvances to [Petitioner] funded the development of the [Destiny Products], not these [inter partes reviews]." *Id.* at 8. On this record, we accept Petitioner's express representations that Activision is not controlling or funding this proceeding.

Moreover, Patent Owner has not shown that the second category outlined by the Supreme Court in *Taylor*—a pre-existing substantive legal relationship—justifies finding Activision to be a real party in interest.

Prelim. Resp. 30–31, 37. Not all pre-existing relationships are sufficient to satisfy this category. The *Taylor* Court provided a non-exclusive list of "[q]ualifying relationships," namely "preceding and succeeding owners of property, bailee and bailor, and assignee and assignor." 553 U.S. at 894.

Patent Owner has not shown that the relationship between Petitioner and Activision meets any of these examples. In addition, beyond stating that Petitioner and Activision had a preexisting relationship, Patent Owner has not made any arguments regarding this relationship distinct from its arguments addressed above regarding control. For the reasons explained above, we likewise are not persuaded that the relationship between Petitioner and Activision, resulting from the Agreement, is sufficient to justify finding Activision to be a real party in interest in this proceeding.

In conclusion, Patent Owner has not demonstrated that Activision is an unnamed real party in interest in this proceeding. Accordingly, Patent Owner has not established that the Petition violates 35 U.S.C. § 312(a)(2) or that institution of review is barred under 35 U.S.C. § 315(b).

III. CONCLUSION

For the reasons given, we determine that the information in the Petition establishes a reasonable likelihood that Petitioner would prevail in showing that claim 1 of the '856 patent is unpatentable.

Any discussion of facts in this Decision is made only for the purpose of institution of *inter partes* review. The Board's final determination will be based on the record as fully developed during trial.

IV. ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claim 1 of the '856 patent is instituted, commencing on the entry date of this Decision;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; and FURTHER ORDERED that the trial is limited to the following grounds of unpatentability:

Claim 1 under 35 U.S.C. § 102 as anticipated by Funkhouser; and Claim 1 under 35 U.S.C. § 102 as anticipated by Durward.

IPR2015-01264 Patent 7,945,856 B2

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