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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BUNGIE, INC.,
Petitioner,

v.

WORLDS INC.,
Patent Owner.

Case IPR2015-01319
Patent 8,082,501 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 claims 1–8, 10, 12, and 14–16 of U.S. Patent No. 8,082,501 B2 (Ex. 1001, "the '501 patent"). Paper 3 ("Pet."). Worlds Inc. ("Patent Owner") filed a Preliminary Response. Paper 12 ("Prelim. Resp.").

Under 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 showing that claims 1–8, 10, 12, and 14–16 of the '501 patent are unpatentable.

I. BACKGROUND

A. THE '501 PATENT

The '501 patent discloses a "client-server architecture" for a "three-dimensional graphical, multi-user, interactive virtual world system." Ex. 1001, [57], 3:6–8. In the preferred embodiment, each user chooses an avatar to "represent the user in the virtual world," *id.* at 3:25–27, and "interacts with a client system," which "is networked to a virtual world server," *id.* at 3:14–15. "[E]ach client . . . sends its current location, or changes in its current location, to the server." *Id.* at 3:40–44; *see id.* at 2:44–47. The server, in turn, sends each client "updated position information" for neighbors of the client's user. *Id.* at [57], 2:44–49, 3:40–44, 14:28–32.

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], 2:40–42, 3:30–35, 4:54–56, 7:55–57. This view shows "avatars representing the other users who are neighbors of the user." *Id.* at [57], 2:42–44.

B. ILLUSTRATIVE CLAIM

Claims 1, 12, and 14 of the '501 patent are independent claims. *Id.* at 19:20–20:65. Claim 1 is illustrative:

> 1. A method for enabling a first user to interact with other users in a virtual space, each user of the first user and the other users being associated with a three dimensional avatar representing said each user in the virtual space, the method comprising the steps of:
>
> customizing, using a processor of a client device, an avatar in response to input by the first user;

receiving, by the client device, position information associated with fewer than all of the other user avatars in an interaction room of the virtual space, from a server process, wherein the client device does not receive position information of at least some avatars that fail to satisfy a participant condition imposed on avatars displayable on a client device display of the client device;

determining, by the client device, a displayable set of the other user avatars associated with the client device display; and

displaying, on the client device display, the displayable set of the other user avatars associated with the client device display.

C. ASSERTED PRIOR ART

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

U.S. Patent No. 4,521,014 (issued June 4, 1985) (Ex. 1013, "Sitrick");

U.S. Patent No. 5,021,976 (issued June 4, 1991) (Ex. 1020, "Wexelblat");

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

U.S. Patent No. 5,777,621 (filed June 7, 1995) (issued July 7, 1998) (Ex. 1019, "Schneider");

Thomas A. Funkhouser & Carlo H. Séquin, *Adaptive Display Algorithm for Interactive Frame Rates During Visualization of Complex Virtual Environments*, *in* COMPUTER GRAPHICS PROCEEDINGS: ANNUAL CONFERENCE SERIES 247 (1993) (Ex. 1017, "Funkhouser '93"); 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 asserts the following grounds of unpatentability. Pet. 9.

Challenged Claims	Basis	Reference(s)
1–6, 12, 14, and 15	§ 103	Funkhouser and Sitrick
7 and 16	§ 103	Funkhouser, Sitrick, and Wexelblat
8 and 10	§ 103	Funkhouser, Sitrick, and Funkhouser '93
1–6, 12, 14, and 15	§ 102	Durward
7 and 16	§ 103	Durward and Wexelblat
8 and 10	§ 103	Durward and Schneider

II. ANALYSIS

A. CLAIM INTERPRETATION

We interpret claims in an unexpired patent using the "broadest reasonable construction in light of the specification of the patent in which [they] appear[]."[1] 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." *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Here, Petitioner proffers claim terms for construction. Pet. 9–12. Patent Owner responds to the asserted grounds using Petitioner's proposed constructions. Prelim. Resp. 9–10. For purposes of this Decision, we determine that none of the claim terms requires an express construction to resolve the issues currently presented by the patentability challenges. *See*

[1] The parties agree that the broadest reasonable interpretation standard applies to the '501 patent. *See id.*; Prelim. Resp. 9. 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 the '501 patent claims on which we institute *inter partes* review and if necessary to address this issue, to file Provisional Application No. 60/020,296 as an exhibit.

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").

B. OBVIOUSNESS OVER FUNKHOUSER AND SITRICK

1. *Funkhouser – Printed Publication*

Petitioner has shown sufficiently that Funkhouser qualifies as prior art under 35 U.S.C. § 102(a), because Funkhouser was a printed publication by April 12, 1995—before the earliest priority date of the '501 patent, November 13, 1995. Pet. 4–5; 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 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 ¶ 41. 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 ¶¶ 41–42. 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

¶¶ 41–42; 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 ¶ 42. 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 the challenged claims of the '501 patent, as it must have been to qualify as prior art under 35 U.S.C. § 102(a). Prelim. Resp. 15 & n.3. Patent Owner appears to take the position that the subject matter recited in the '501 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] 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. In addition, 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 recited in the challenged claims of the '501 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.

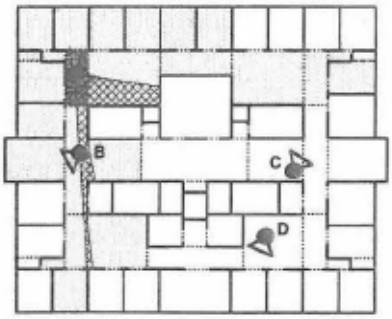

Figure 6 depicts a source cell, in a dark box, and shows, in stipple, the "[c]ell-to-cell visibility" of the source cell, i.e., the "set of cells reached by some sight-line from anywhere in the source cell."[2] *Id.* As shown in Figure 6, this cell-to-cell visibility "overestimate[s] . . . the visibility 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.*

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.

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

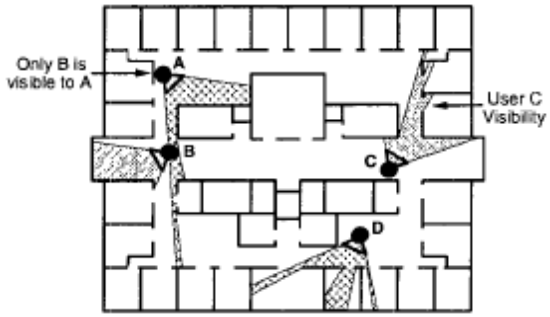

Figure 4

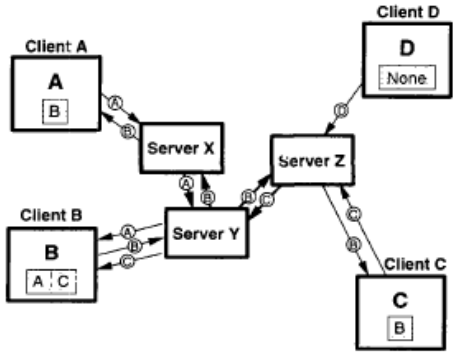

Figure 7

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. *Sitrick*

Sitrick describes a multi-player video gaming system in which each user can "create" and "select[]," by input from a video, keyboard, joy stick, or switch, "a distinguishable visual image . . . by which that user is identified." Ex. 1013, [57], 11:35–50. The user may create and select

"color, size[,] or shape" as well as imagery, such as a digitized image of the user's face, spacecraft, or race car. *Id.* at [57], 11:45–47.

4. *Claim 1*

a. "Determining" Step

Turning to claim 1 of the '501 patent, the parties dispute whether Funkhouser teaches or suggests "determining, by the client device, a displayable set of the other user avatars associated with the client device display" ("the 'determining' step")." Ex. 1001, 19:34–36. Based on our review of the record, Petitioner has shown sufficiently that Funkhouser teaches this step. *See* Pet. 20–23; Prelim. Resp. 14–24.

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. 21; Ex. 1002 ¶ 93. 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 ¶ 93; Ex. 1005, 86, Figs. 4, 6. Thus, entity C will not "actually

see" any change in position of entity B. Ex. 1002 ¶ 93. 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.[3] 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

[3] 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. 21, 23; Ex. 1002 ¶ 96; Prelim. Resp. 17–18, 22. In this Decision, we do not rely on these numbers.

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 ¶ 96.

Based on Petitioner's arguments and Dr. Zyda's testimony, we are persuaded that Petitioner has shown sufficiently that Funkhouser's client determines which entities ("other user avatars") to display, namely those entities that are within the field of view of a particular entity managed by the client, based on positional updates received from the servers, which may include the positions of entities outside the field of view of any entity managed by the client. Thus, Petitioner has shown adequately that Funkhouser teaches the client "determining" a "displayable set of the other user avatars associated with the client device display," as claim 1 requires.

On this record, we are not persuaded by Patent Owner's arguments disputing Petitioner's showing. 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. 15–16, 18–19, 22–23. 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 15–16, 22–24. 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 16–17. Patent Owner also contends that Funkhouser could "use the updated 'geometric and behavioral models' of the surrogate stored by the client, rather than the positions received from the server, to determine which entities to display. *Id.* at 24.

Patent Owner's arguments generally overlook that because this is an obviousness ground, Petitioner need not show that Funkhouser "expressly disclose[s]" the client performing the "determining" step and instead must establish only that Funkhouser teaches or suggests these actions. *Id.* at 17, 19; *see generally id.* at 14–24. Moreover, Patent Owner does not persuasively respond to or address the disclosures in Funkhouser to which Petitioner cites, particularly those referring to the clients 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. 20–23; Prelim. Resp. 14–24. 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 teaches that the client in Funkhouser determines which remote entities to display to the user.

In addition, 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. 24. Patent Owner has not addressed whether the "determining" step requires that the recited "client device" perform the determining based on the "position information" "receiv[ed]" from the "server process." Ex. 1001, 19:27–33. Having considered the language of claim 1, we are not persuaded that this is a

requirement of the claim. Even if it were, Patent Owner's assertions are unpersuasive. 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 positions received from the server.

b. "Customizing" Step

Petitioner argues the combination of Funkhouser and Sitrick teaches or suggests "customizing, using a processor of a client device, an avatar in response to input by the first user" ("the 'customizing' step") of claim 1. Ex. 1001, 19:25–26; Pet. 17. Patent Owner has not disputed this assertion.

We are persuaded that Sitrick's disclosures, outlined above, regarding a user creating and selecting a customized image, by input from a video, keyboard, joy stick, or switch, teaches "customizing . . . an avatar in response to input by the user." *See* Ex. 1013, [57], 11:35–47. In addition, Dr. Zyda testifies that Funkhouser's "client workstations" contain a processor. *See* Ex. 1002 ¶ 81 (citing Ex. 1005, 87)). Thus, Petitioner has shown sufficiently that the combination of Funkhouser and Sitrick teaches or suggests the "customizing" step.

In addition, Petitioner has proffered sufficient evidence that a person of ordinary skill in the art would have had reason to add Sitrick's customization feature to Funkhouser's system, with a reasonable expectation of success. *See* Pet. 30–31; Ex. 1002 ¶¶ 76–77. In particular, Dr. Zyda testifies that a skilled artisan would have recognized that Sitrick's customization feature is "consumer-friendly" and would have added this

feature to Funkhouser's system to "increase system functionality and user enjoyment." Ex. 1002 ¶¶ 76–77. According to Dr. Zyda, this addition to Funkhouser "would have been nothing more than a combination of known elements . . . according to known methods to yield predictable results." *Id.*

c. Remaining Limitations

On this record, we are persuaded by the Petition's argument and evidence regarding the additional limitations of claim 1, which includes a limitation-by-limitation analysis of where Funkhouser allegedly teaches or suggests each limitation. Pet. 13–24. Patent Owner has not disputed Petitioner's showing regarding these limitations. *See* Prelim. Resp. 14–24.

5. *Claims 2–6, 12, 14, and 15*

For independent claims 12 and 14, the Petition addresses similarities and differences between these claims and independent claim 1. The Petition also features a claim chart, with citations to Funkhouser and Sitrick, the Petition's analysis of claim 1, and Dr. Zyda's testimony, to support Petitioner's position that the claims would have been obvious in view of Funkhouser and Sitrick. Pet. 24–27. For dependent claims 2–6 and 15, the Petition features a limitation-by-limitation analysis addressing where Funkhouser and Sitrick allegedly teach or suggest each limitation. *Id.* at 27–30. In response, Patent Owner disputes that Funkhouser teaches the "determining" limitations of claims 12 and 14 based on the same arguments as the "determining" step of claim 1. Prelim. Resp. 14–24.

Based on our review of the Petition and its supporting evidence, we are persuaded that the Petition sufficiently supports Petitioner's position that Funkhouser and Sitrick teach or suggest each limitation of claims 2–6, 12, 14, and 15. *See* Pet. 24–30. For claims 12 and 14, Petitioner has adduced adequate evidence that Funkhouser teaches the "determining" limitations of

these claims for the reasons explained above for the corresponding "determining" step of claim 1. *See supra* § II.B.4.a.

6. *Conclusion*

Based on our review of the record and our analysis above, Petitioner has shown a reasonable likelihood that it would prevail in establishing that Funkhouser and Sitrick render obvious claims 1–6, 12, 14, and 15.

C. OBVIOUSNESS OVER FUNKHOUSER, SITRICK, AND WEXELBLAT

1. *Wexelblat*

Wexelblat discusses an artificial reality in which users may "teleport instantly from one location to another." Ex. 1020, 6:61–67. "For example, the user could move from his current location within a cyberspace to a library . . . and then teleport back to the original location." *Id.* at 7:5–10.

2. *Discussion*

Petitioner asserts that claims 7 and 16 of the '501 patent would have been obvious in view of Funkhouser, Sitrick, and Wexelblat. Pet. 32–33. Patent Owner has not contested this assertion, beyond disputing that claim 1 would have been obvious over Funkhouser and Sitrick.

Claims 7 and 16 depend from claims 1 and 14, respectively, and include limitations regarding two (or more) virtual rooms and "teleporting" an avatar from the first room to the second room. Ex. 1001, 19:61–64, 20:59–63. On this record, we are persuaded that both Funkhouser and Wexelblat teach or suggest two or more virtual rooms, and that Wexelblat teaches or suggests teleporting an avatar between rooms, as claims 7 and 16 require. In particular, Funkhouser discloses "separate regions of the virtual environment" and "partition[ing]" a virtual environment "into a spatial subdivision of cells." Ex. 1005, 87, 91 (emphasis omitted); Ex. 1002 ¶ 135;

Pet. 19. Wexelblat refers to teleporting a user from "one location to another," e.g., from a "current location" to "a library." Ex. 1020, 6:61–7:10.

We also are persuaded by Dr. Zyda's testimony that a person of ordinary skill would have incorporated Wexelblat's teleportation feature into Funkhouser's system, modified to include the customization feature of Sitrick as explained *supra* in § II.B.4.b, to allow users to navigate the virtual environment with greater ease. Ex. 1002 ¶ 138. In addition, according to Dr. Zyda, adding Wexelblat's teleportation feature to Funkhouser "would have been nothing more than the predictable use of known elements according to their established functions." *Id.*

Thus, Petitioner has shown a reasonable likelihood that it would prevail in establishing that claims 7 and 16 would have been obvious in view of Funkhouser, Sitrick, and Wexelblat.

D. OBVIOUSNESS OVER FUNKHOUSER, SITRICK, AND FUNKHOUSER '93

1. *Funkhouser '93 – Printed Publication*

Petitioner has shown adequately that Funkhouser '93 was a printed publication by August 6, 1993 and, thus, constitutes § 102(b) prior art to the '501 patent. *See* Pet. 6. Funkhouser '93 (Ex. 1017) is an article included in a collection of presentation materials (Ex. 1018, "1993 Conference Book"), compiled for a conference sponsored by the ACM and held on August 1–6, 1993. Ex. 1018, cover, 1–8, 247; Ex. 1002 ¶ 48. Dr. Zyda testifies that all conference participants, including Dr. Zyda, received a copy of the 1993 Conference Book. Ex. 1002 ¶ 48. Funkhouser '93 and the 1993 Conference Book feature a 1993 copyright date and permit copying, generally without a fee and with "a fee and/or specific permission" if for "direct commercial advantage." Ex. 1018, 2, 247; Ex. 1017, 247. The 1993 Conference Book also provides ordering information for ACM and non-ACM members.

Ex. 1018, 2. We are persuaded that this evidence sufficiently shows that an interested ordinarily skilled artisan, exercising reasonable diligence, could have obtained Funkhouser '93 by August 6, 1993—the last day of the conference. *See Mass. Inst. of Tech.*, 774 F.2d at 1109.

2. *Funkhouser '93*

Funkhouser '93 discloses an optimization algorithm that produces the "'best' image possible" within a "user-specified" target frame rate. Ex. 1017, 247, 251. The algorithm "choos[es] a set of object tuples to render each frame" by "add[ing] object tuples . . . in descending order of" value (benefit/cost) "until the maximum cost is completely claimed." *Id.* at 250–51. Figure 11 features images of a library rendered at different target frame rates, with the benefit heuristic limited to object size. *Id.* at 253–54, Fig. 11. The image rendered at the lowest target frame rate, Figure 11c, shows the "omission of books on bookshelves." *Id.*

3. *Discussion*

Claims 8 and 10 of the '501 patent depend from claim 1. Claim 8 recites the step of "monitoring an orientation of the first user avatar" and specifies that the "determining" step of claim 1 "comprises filtering the other user avatars based on at least one variable other than (1) positions of the other user avatars, and (2) orientation of the first user avatar." Ex. 1001, 19:65–20:4. Claim 10 recites that the "determining" step "comprises filtering the other user avatars based on a limit of the other user avatars that may be displayed on the client device display, the limit being set at the client device." *Id.* at 20:8–12. Petitioner asserts that a person of ordinary skill would have had reason to combine Funkhouser, Sitrick, and Funkhouser '93, and that the combination of these references teaches or suggests each limitation of claims 8 and 10. Pet. 33–39; Ex. 1002 ¶¶ 142–52.

In response, Patent Owner argues that the cost-benefit heuristics in Funkhouser '93's optimization algorithm, including the "object size" benefit heuristic used to generate Figure 11c, "do not include a 'maximum number' of objects or a comparison of the number of objects to be displayed relative to a maximum number." Prelim. Resp. 34 (emphasis omitted). Claims 8 and 10, however, do not recite a "maximum number" or any comparison to a maximum number, as Patent Owner's argument appears to assume.

On this record, we agree with Petitioner that Funkhouser's disclosures regarding clients sending update messages that include their "position and/or orientation" teach or suggest "monitoring an orientation of the first user avatar," as recited in claim 8. *See* Pet. 33, 27; Ex. 1005, 89; *see also id.* at 87, 209. We also are persuaded that the "user-specified" target frame rate in Funkhouser '93 teaches or suggests a variable other than position and orientation that is used to filter objects for display, as claim 8 requires, given that the specified target frame rate may result in "omission" of objects from a display, because objects are selected to render the best possible image within the target frame rate. Ex. 1005, 247, 251, 253, Fig. 11; *see* Ex. 1002 ¶ 154. For the same reasons, we likewise are persuaded that this "user-specified target frame time" in Funkhouser '93 results in a limit, set at the client, on the objects that may be displayed, as recited by claim 10. Ex. 1005, 247, 253, Fig. 11; *see* Ex. 1002 ¶ 156.

In addition, on the record before us, we are persuaded that a person of ordinary skill would have had reason to combine the teachings of Funkhouser '93 with Funkhouser, modified to include Sitrick's customization feature as discussed *supra* in § II.B.4.b, with a reasonable expectation of success. Pet. 36–39; Ex. 1002 ¶ 151; *see id.* ¶¶ 146–52. Dr. Zyda explains that Funkhouser and Funkhouser '93 were written by the

same author, a well-known researcher in the field of virtual reality and graphical displays, and teach "complementary" ways to minimize data processing and the burden on a computer displaying a virtual environment. Ex. 1002 ¶¶ 147–50. In the combined system, the client would determine which objects to display based on the orientation of the object, as taught in Funkhouser, and the client's performance capabilities and the target frame rate, as taught in Funkhouser '93. *Id.* ¶ 146.

Accordingly, Petitioner has shown a reasonable likelihood it would prevail in establishing that claims 8 and 10 of the '501 patent would have been obvious over Funkhouser, Sitrick, and Funkhouser '93.

E. ANTICIPATION BY DURWARD

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.

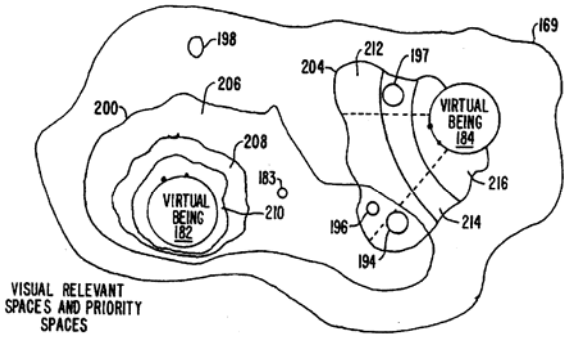

FIG. 5.

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. *Claim 1*

a. "Determining" Step

Turning to claim 1 of the '501 patent, the parties dispute whether Durward discloses the "determining" step of claim 1. Pet. 45–47; Prelim. Resp. 25–32. Based on our review of the arguments and evidence of record, we are persuaded by Petitioner's showing that Durward discloses the step.

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. 45–46. 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. 46; *see* Ex. 1002 ¶¶ 185–87; 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 ¶ 186.

Based on Petitioner's arguments and Dr. Zyda's testimony, we are persuaded that Petitioner has shown sufficiently that Durward's user determines which other virtual beings ("other user avatars") to display, namely those virtual beings that are within the field of view of its virtual being, based on the positional data received from central control unit 14, which may include the positions of more or less virtual beings than those

within its field of view. Thus, Petitioner has made an adequate showing that Durward discloses the client "determining" a "displayable set of the other user avatars associated with the client device display," as claim 1 requires.

On this record, we do not agree with Patent Owner's arguments to the contrary. Patent Owner contends Petitioner's assertions "sound[] of inherency, but fail[] to meet the" requisite showing that the "determining" step "must necessarily be present in Durward." Prelim. Resp. 26–27 (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 27–31 (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 29 (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 26, 28–29 (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. 31.

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 the "displayable set" of other virtual beings.

b. Undisputed Limitations

Patent Owner does not contest Petitioner's showing for the remaining limitations of claim 1. Having reviewed the Petition's analysis of each limitation, we are persuaded by Petitioner's showing. Pet. 39–47.

3. *Claims 2–6, 12, 14, and 15*

For independent claims 12 and 14, the Petition addresses similarities and differences between the claims and independent claim 1. The Petition

also features a claim chart with citations to Durward, the Petition's analysis of claim 1, and Dr. Zyda's testimony, to support Petitioner's position that Durward is anticipatory. *Id.* at 47–50. For dependent claims 2–6 and 15, the Petition addresses where Durward allegedly discloses each limitation. *Id.* at 50–52. Patent Owner responds by arguing that Durward fails to disclose the "determining" limitations of independent claims 12 and 14 "for the[] same reasons" that Durward fails to disclose claim 1's "determining" step. Prelim. Resp. 31–32.

Based on our review of the Petition, we are persuaded that the evidence sufficiently supports Petitioner's position that Funkhouser discloses each limitation of claims 2–6, 12, 14, and 15. *See* Pet. 47–52. Petitioner has adduced adequate evidence that Durward discloses the "determining" limitations of claims 12 and 14 for the reasons we explain above for the "determining" step of claim 1. *See supra* § II.E.2.a.

4. *Conclusion*

Based on our review of the record and our analysis above, Petitioner has shown a reasonable likelihood that it would prevail in establishing that Durward anticipates claims 1–6, 12, 14, and 15 of the '501 patent.

F. OBVIOUSNESS OVER DURWARD AND WEXELBLAT

Petitioner asserts that claims 7 and 16 would have been obvious over Durward and Wexelblat. Pet. 52–54. As explained *supra* in § II.C.2, claims 7 and 16 depend from claims 1 and 14, respectively, and include limitations regarding two (or more) virtual rooms and "teleporting" an avatar from the first room to the second room. Ex. 1001, 19:61–64, 20:59–63.

On this record, we are persuaded that Wexelblat teaches or suggests two or more virtual rooms and teleporting an avatar between rooms, as explained *supra* in § II.C.2. We also are persuaded that Durward's

disclosure regarding "multiple virtual spaces" and a user "specify[ing] which virtual space they intend to interact with," teaches or suggests two or more virtual rooms. Ex. 1008, 4:30–42; Ex. 1002 ¶ 243; Pet. 43.

At this stage of the proceeding, we credit Dr. Zyda's testimony that a person of ordinary skill would have incorporated Wexelblat's teleportation feature into Durward's system to allow users to navigate the virtual environment with greater ease. Ex. 1002 ¶ 246. According to Dr. Zyda, this "would have been nothing more than the predictable use of known elements according to their established functions." *Id.*

Patent Owner argues that Petitioner's proposed combination of Durward and Wexelblat "lacks any logical explanation," because it involves having users switch between Durward's "multiple virtual spaces," which correspond to different applications (i.e., computer aided design ("CAD"), gaming virtual space, task virtual space, etc.) with different functions and activities. Prelim. Resp. 36–37; Ex. 1020, Fig. 3, 4:30–42. On the present record, we are not persuaded by Patent Owner's argument.

First, Durward does not preclude virtual spaces with the same or similar functions and activities. Ex. 1020, 4:30–42. Specifically, Durward states "[d]atabase 104 *may* contain" a CAD virtual space, a gaming virtual space, "a task virtual space . . . and *other virtual spaces*." *Id.* at 4:32–37 (emphases added). This permissive language allows for other virtual spaces that could have the same or similar functions and activities. Second, Patent Owner's argument focuses on Durward, yet we are persuaded, as noted above, that Wexelblat teaches or suggests different rooms and teleportation.

In addition, Patent Owner argues that combining Wexelblat's teleportation feature with Durward would "frustrate the entire purpose of Durward." Prelim. Resp. 38. According to Patent Owner, incorporating

teleportation "would require Durward's users to receive" positional data for all possible teleportation locations—not just the user's visual relevant space—thereby drastically increasing the data transmitted to the users. *Id.*

On this record, we disagree. Durward expressly contemplates a virtual being moving to different parts of the virtual space and changing perspective, e.g., turning its head, which could change the user's visual relevant space and, therefore, require receipt of new positional data. *See, e.g.*, Ex. 1008, 5:15–18 ("[T]he visual relevant space may move about the virtual space as the perspective or position of the virtual being changes."); *id.* at 5:37–40 ("Since many virtual objects are designed to move about the virtual space, they may cross into different priority spaces over time and be processed accordingly."); *id.* at 7:29–34 (discussing virtual being "running, kicking, catching virtual balls," etc.). Under Patent Owner's logic, any such movements causing a sudden change in a user's visual relevant space would frustrate Durward's purpose. At this stage of the proceeding, we are persuaded that upon teleportation, Durward's central control unit 14 could communicate data to the user, which the user could use to display the environment, thereby avoiding the negative consequences Patent Owner alleges would result from adding teleportation to Durward.

Accordingly, Petitioner has shown a reasonable likelihood that it would prevail in establishing that claims 7 and 16 would have been obvious in view of Durward and Wexelblat.

G. OBVIOUSNESS OVER DURWARD AND SCHNEIDER

1. *Schneider*

Schneider discusses the "trade-off between rendering quality and rendering speed" in graphics rendering. Ex. 1019, [57]. Schneider refers to programs that provide "users with control" over parameters that impact this

"speed/quality trade-off." *Id.* at 5:27–31. For example, Schneider explains that "by culling objects from the scene before rendering," "a user can hasten the rendering process at the expense of quality." *Id.* at 5:31–35.

2. *Discussion*

To support its argument that the combination of Durward and Schneider renders claims 8 and 10 obvious, Petitioner argues that "[i]t would have been obvious to one of ordinary skill to apply" Schneider's teaching of culling objects to Durward's system and that this combination teaches or suggests each limitation of claims 8 and 10. Pet. 54–58. Patent Owner counters that neither Schneider nor the combination of Durward and Schneider "disclose[s] any consideration of a 'limit of the other user avatars that may be displayed' or a comparison of the displayable number to the limit of avatars that may be displayed." Prelim. Resp. 35–36.

We first note that neither claim 8 nor claim 10 of the '501 patent recites any "comparison of the displayable number to the limit of avatars that may be displayed" and, thus, Patent Owner's argument on this point appears to be misplaced. Moreover, at this stage of the proceeding, we are persuaded that Schneider teaches or suggests a variable other than position and orientation that is used to filter objects to determine a displayable set, as claim 8 requires, and a limit, set at the client, "of the other user avatars that may be displayed," as claim 10 requires. *See* Ex. 1002 ¶¶ 264, 271. Specifically, Schneider discusses a user "culling objects from the scene before rendering" or in other words, selecting objects not to display, thereby limiting the objects to display. Ex. 1018, 5:31–35; Ex. 1002 ¶ 254. In addition, we are persuaded that Durward's disclosures relating to the user's head position sensor 53 "sens[ing] the position and/or orientation" of the user teach or suggest the additional limitation of claim 8, "monitoring an

orientation of the first user avatar." *See* Pet. 50, 54; Ex. 1008, 2:66–3:1, 3:15–20, 2:32–35.

Petitioner also has proffered adequate evidence to support the proposed combination of Durward and Schneider. Pet. 56–58. Dr. Zyda testifies that an ordinary artisan would have integrated Schneider's culling techniques into Durward "to improve rendering speed" and "to reduce the burden on the computer displaying the virtual environment." Ex. 1002 ¶¶ 256–59. According to Dr. Zyda, Schneider's culling techniques are "applicable to rendering systems generally" and their incorporation into Durward would have been "routine," "expected," and "nothing more than a combination of known elements according to known methods, yielding predictable results." *Id.* ¶ 257.

For the reasons given, Petitioner has shown a reasonable likelihood it would prevail in establishing that claims 8 and 10 of the '501 patent would have been obvious over Durward and Schneider.

H. SECTION 325(D) – DISCRETION TO DECLINE TO INSTITUTE

Patent Owner urges us to decline to institute, under 35 U.S.C. § 325(d), because the "same or substantially the same prior art or arguments" were presented during examination of the '501 patent. Prelim. Resp. 13–14 (emphasis omitted). Petitioner explains that Funkhouser, Durward, and another asserted prior art reference were listed in Information Disclosure Statement ("IDS") forms. *See* Pet. 3; Ex. 1004, 231, 252.

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 citations to the asserted prior art references in IDS forms during prosecution

of the ’501 patent, we decline to exercise our discretion to decline to institute *inter partes* review. *See* 37 C.F.R. § 42.108(a).

I. 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. 39–48.

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 ’501 patent in the U.S. District Court for the District of Massachusetts in the 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. 44.

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. 40. 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 44. 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 the [*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 46.

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. 41–42, 44, 45–46. 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. 41–42.

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 '501 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 "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. 45–46. 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. 42–43, 45. 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. 42; *see id.* at 45. 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. 40, 46. 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. ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–8, 10, 12, and 14–16 of the '501 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:

Claims 1–6, 12, 14, and 15 under 35 U.S.C. § 103 as obvious over Funkhouser and Sitrick;

Claims 7 and 16 under 35 U.S.C. § 103 as obvious over Funkhouser, Sitrick, and Wexelblat;

Claims 8 and 10 under 35 U.S.C. § 103 as obvious over Funkhouser, Sitrick, and Funkhouser '93;

Claims 1–6, 12, 14, and 15 under 35 U.S.C. § 102 as anticipated by Durward;

Claims 7 and 16 under 35 U.S.C. § 103 as obvious over Durward and Wexelblat; and

Claims 8 and 10 under 35 U.S.C. § 103 as obvious over Durward and Schneider.

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