

Filed on behalf of Intellectual Pixels Limited

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SONY INTERACTIVE ENTERTAINMENT LLC,
Petitioner,

v.

INTELLECTUAL PIXELS LIMITED,
Patent Owner.

Case No. IPR2021-00237
U.S. Patent No. 10,681,109

**PATENT OWNER'S RESPONSE TO
PETITION FOR *INTER PARTES* REVIEW**

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Exhibit No.	Description
2001	Disclaimer of Claims 13-18 of U.S. Patent No. 10,681,109
2002	Excerpt from IEEE 1000: The Authoritative Dictionary of IEEE Standards Terms (“IEEE Dictionary”) (7th ed. 2000)
2003	Excerpt from Microsoft Computer Dictionary (5th ed. 2002)
2004	File History of U.S. Patent No. 10,681,109
2005	U.S. Patent No. 6,929,549 (“Yamada”)
2006	U.S. Patent No. 6,266,930
2007	Excerpts from Shelly, Cashman, and Vermaat, Discovering Computers: Fundamentals (4th ed. 2008)
2008	Frameless Rendering: Double Buffering Considered Harmful (1994)
2009	Declaration of Dr. John Hart in Support of Patent Owner Response
2010	Transcript of Deposition of Dr. Henry Fuchs (Aug. 17, 2021)
2011	Excerpt from Random House Webster’s College Dictionary (1997)
2012	McVeigh et al., “A Software-Based Real-Time MPEG-2 Video Encoder,” IEEE Transactions on Circuits and Systems for Video Technology 10(7), Oct. 2000, pp. 1178-1184
2013	H.261 Standard, available at https://www.itu.int/rec/dologin_pub.asp?lang=e&id=T-REC-H.261-198811-S!!PDF-E&type=items
2014	Fuchs, Henry, “Beyond the Desktop Metaphor: Toward More Effective Display, Interaction, and Telecollaboration in the Office of the Future via a Multitude of Sensors and Displays,” Proc. International Conference on Advanced Multimedia Content Processing, Nov. 9, 1998, pp. 30-43
2015	MPEG 2 Video standard, available at https://mpeg.chiariglione.org/standards/mpeg-2/video

Exhibit No.	Description
2016	ITU-T Recommendation H.262, available at https://www.itu.int/rec/T-REC-H.262-199507-S/en

Pursuant to 37 C.F.R. § 42.120, Patent Owner Intellectual Pixels Limited (“IPL”) hereby submits its Patent Owner Response to the Sony Interactive Entertainment LLC (“Sony”) Petition seeking *inter partes* review of U.S. Patent No. 10,681,109 (“’109 Patent”).

I. INTRODUCTION

Inventors Osman Kent, David Baldwin, and Nicholas Murphy pioneered computer graphics technology. They worked together at a company called 3DLabs, a 1994 spin-off from Dupont Pixel that went public on NASDAQ two years later. When the inventors conceived of the ’109 Patent inventions in 1999, computer graphics were relatively primitive and computing power limited. Personal computers then were typically a tower and a bulky, low-resolution computer monitor occupying much of a desk.



3DLabs was the industry leader in bringing 3D computer graphics to PCs. 3DLabs coined the term graphics processing unit (GPU) ironically in a presentation to Sony in October 1995. In 1994, 3DLabs launched the Glint 300SX, the first single-chip, 3D graphics device capable of supporting high-end CAD applications. In contrast to conventional VGA chips of the era with 50,000 transistors, the Glint

300SX packed in one million transistors churning 2.5 Giga operations per second. 3DLabs continued to lead the industry with many other successful graphics chips and devices, including the first single-chip graphics geometry processor for rendering transforms and lighting on PCs (Glint Gamma) and the first low-cost OpenGL accelerator chip (Permedia). Its products won numerous awards, including “Editor’s Choice-Best Products of 1997” by 3D Design Magazine and several “Best of Show” awards at the Comdex trade show. 3DLabs’ revolutionary technology caused the larger industry players like HP, IBM, SGI, and SUN to switch to single-chip graphics solutions. 3DLabs’ innovative graphics processors were integrated into PCs sold by leading manufacturers of the time, including Acer, Asus, Compaq, Dell, Fujitsu, Gateway 2000, Micron, Micro-Labs, and NEC.

The invention of the ’109 Patent advanced graphics processing technology yet again. Conventional computer graphics typically required hardware located at the client, which added both expense and the hassle of continually upgrading graphics hardware. EX1001 (’109 Patent), 3:4-14. The inventors foresaw offloading graphics processing to a server, making realistic 3D graphics technology available to mobile devices like personal digital assistants and mobile phones. *Id.*, 3:26-30. This technology provides the foundation for modern graphics processing used today. The 3DLabs founders own the ’109 Patent through their current company, Patent Owner IPL.

Petitioner has failed to meet its burden of proving that any of Challenged Claims 1-12¹ would have been obvious in view of Petitioner's three Grounds: (1) Wiltshire in view of Saha (claims 1 and 3-12), (2) Wiltshire in view of Saha and Chen (claim 2), and (3) Wiltshire in view of Saha and PC Magazine (claims 6, 11, and 12). Petitioner's proposed combinations do not teach or suggest every limitation of the Challenged Claims.

First, each of Grounds I-III rely on Wiltshire to meet the requirement of independent claims 1 and 8 of "compressing the at least one updated image." But Wiltshire did not disclose compressing *updated* images. Claims 1 and 8 each require "generating at least one updated image," "compressing the at least one updated image," and then "transmitting the compressed updated image." Wiltshire's disclosure of transmitting "a compressed video MPEG stream" does not disclose or suggest compressing updated images after they are generated.

Second, the art asserted by Petitioner shares the same deficiencies as the art that was overcome during the original prosecution of the '109 Patent. Each of Grounds I-III rely on obviousness over the combination of Wiltshire and Saha.

¹ Claims 13-18 have been disclaimed and thus are no longer subject to an IPR challenge. EX2001. Claims 1-12 remain in force and are referred to herein as the "Challenged Claims."

Wiltshire did not teach or suggest sending the claimed “frame” required by all Challenged Claims. Nor does Petitioner present any evidence that one of skill would have modified Wiltshire to use frames. Petitioner’s assertion in all grounds that the combination of Wiltshire and Saha teach or suggest the claimed “frame,” based solely on MPEG terminology, rehashes the examiner’s arguments about the Yamada reference previously considered and overcome during prosecution. Because the combination of Wiltshire and Saha lack the claimed “frame,” Petitioner cannot prevail on any Challenged Claim.

Third, in the Institution Decision, the Board correctly determined that Petitioner has not shown that the combination of Wiltshire and Saha in Ground I disclosed the “mobile device” of claims 6, 11, and 12. Wiltshire’s commercial gambling system lacks any disclosure of a mobile device, and the Petition does not argue Saha taught it. For this additional reason, Petitioner cannot prevail on its Ground I challenge to claims 6, 11, and 12.

Fourth, Petitioner’s challenge to claims 6, 11, and 12 in Ground III based on Wiltshire, Saha, plus *PC Magazine* should also be rejected. Adding on *PC Magazine* to the combination of Wiltshire and Saha still fails to teach the claimed “mobile device.” Petitioner’s contention that an iBook laptop mentioned in *PC Magazine* supplies the “mobile device” fails because the claimed “mobile device” is a handheld device, not a laptop. Additionally, Petitioner has not established that a person of

ordinary skill would have combined Wiltshire and *PC Magazine* by substituting an iBook for the gambling device in Wiltshire's commercial system. Ground III fails for each of these additional reasons.

Finally, the Board should reject Petitioner's Ground II challenge to claim 2 based on the asserted combination of Wiltshire, Saha, and Chen. Petitioner relies on improper hindsight to argue that the residential asymmetrical DSL (ADSL) taught by Chen teaches the limitation "a first bandwidth for transmitting the user input data between the client device and the server and a second bandwidth for transmitting the compressed updated image from the server to the client device are asymmetric." But the Petition lacks any reason why a person of ordinary skill would look to Chen's residential ADSL to replace the Internet connection in Wiltshire's commercial casino gambling system. Moreover, Chen's ADSL could supply at most one video stream, which would be certain to fail in a commercial gambling establishment using at least tens of gambling machines. Without any motivation to combine Chen with Petitioner's combination of Wiltshire and Saha and with failure a certainty, Ground II must fail.

II. BACKGROUND

A. Overview Of The '109 Patent

The '109 Patent discloses a networked system in which one or more client computers are in communication with a remote visual server that receives image-

modifying data from a client computer, generates a modified image based on the image-modifying data, and transmits the modified image as compressed data to the client. EX1001, Abstract; EX2009, ¶35. The system is configured to allow a client to use the server's resources to execute an application—such as a video game—and for the server to generate complex graphical images. *Id.*, 3:41-48, 4:66-5:2; EX2009, ¶35. As a result, the client does not need to execute or even possess a copy of the application locally. Further, the client does not need to perform the processing required to produce the complex images.

The client computer includes an input device through which input signals are generated to control a user's interaction with the image currently displayed at the client. EX1001, 3:58-61, 4:17-21. The client collects the input control signals and transmits them to the server over a network, which receives those input signals and passes them to the application to modify the existing state of the game. *Id.*, 3:51-57, 4:17-32, 6:38-43. The server generates a modified or updated image and transmits that image as compressed data back to the client. *Id.*, 3:54-57. In one embodiment, the step of transmitting the updated image from the server comprises transmitting the updated image as a compressed frame. *Id.*, 4:48-52, 6:64-66, 8:42-47. The client computer decompresses the image data and displays the image frame. *Id.*, 3:67-4:3. This process is repeated many times per second, such that the user at the client can

play a 3D video game, for example, in real-time according to the target frame rate of the system. *Id.*, 6:23-28, 6:63-7:7; EX2009, ¶36.

B. Prosecution History Of The '109 Patent

The application for the '109 Patent was filed on June 29, 2017 claiming priority through various intermediate applications to U.S. Provisional Application No. 60/263,854, filed on January 24, 2001. EX1001, 2. The '109 Patent underwent two rounds of prosecution. In the second round, the examiner rejected pending claims 21, 23-33, 35, and 36 as being anticipated by U.S. Patent No. 6,929,549 (“Yamada”). EX2004, 289. The examiner asserted that Yamada disclosed the limitations of pending claim 21, now claim 1. *Id.* The examiner cited Yamada’s disclosure that “[t]he MPEG decoder 52 decompresses image data such as a background image and a character image used in the game supplied from the [Set Top Box] 6 via the wireless communication.” EX2005, 19:33-35. In response, the applicant argued, *inter alia*, that Yamada did not teach or suggest a “frame” much less transmitting an updated image as a compressed frame. EX2004, 273. The examiner found the applicant’s arguments persuasive and withdrew the rejection. *Id.*, 235. A notice of allowance issued shortly thereafter. *Id.*, 7.

C. U.S. Patent No. 6,409,602 (“Wiltshire”)

Petitioner’s primary reference, Wiltshire, disclosed a “computer gaming system and method of operation thereof.” EX1004, Abstract. By “gaming,”

Wiltshire generally meant “gambling and casino game facsimiles.” *Id.*, 1:26-28; *see also id.*, 12:10-13 (describing games as including “any casino game or other non-casino games where players play against each other for money with the house taking a percentage of the stake for providing the game”). In the computer gaming system of Wiltshire, gaming programs were executed “on a server/host computer connected to a plurality of client/terminal computers via communication pathways.” *Id.*, Abstract. The client computers typically included “a display device, a wager or bet-acceptor, and controls such as buttons, keyboards, levers or the like” (*id.*, 1:15-18) as shown in Figure 1D reproduced below:

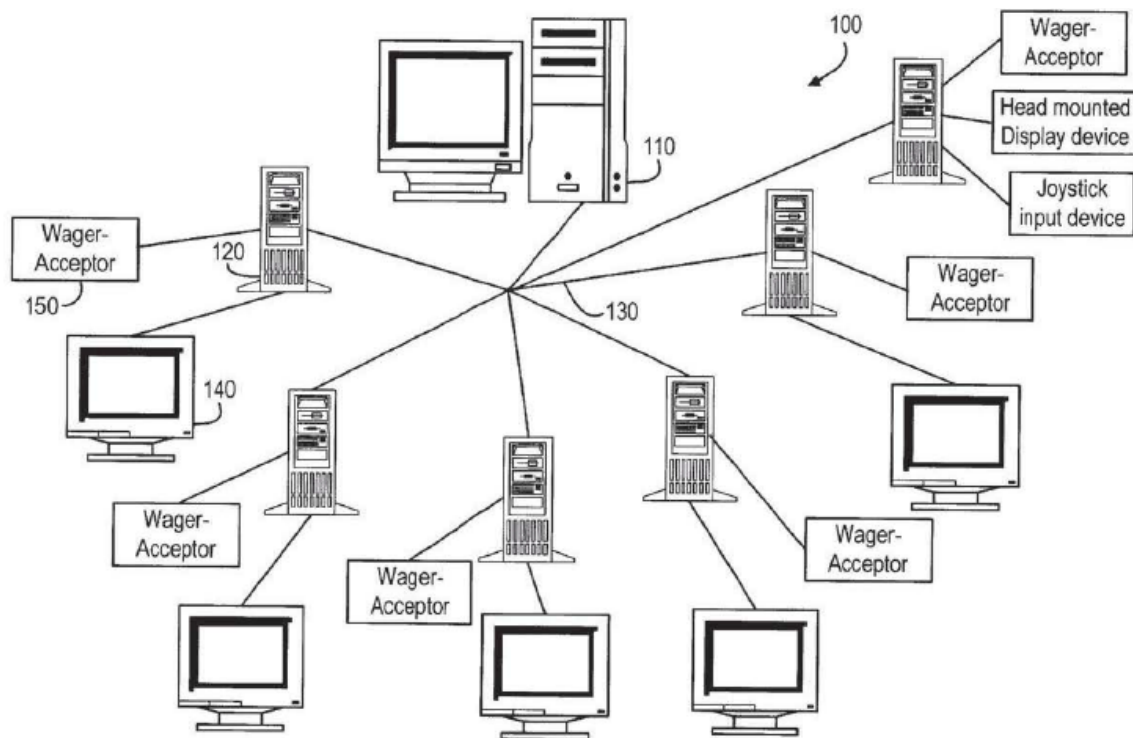


Fig. 1D

EX1004, Fig. 1D.

Wiltshire disclosed that an image generated by a gaming program, located on the server, was transmitted to the client over a network. *Id.*, 7:18-22. Wiltshire provided that the image “may include any type of graphical information including a bitmap, a JPEG file, a TIFF file or even an encoded audio/video stream such as a compressed video MPEG stream.” *Id.*, 7:15-18. Wiltshire did not disclose that any “compressed video MPEG stream” originated from an updated image nor did Wiltshire disclose an updated image that was a frame.

D. U.S. Patent No. 6,404,817 (“Saha”)

Saha, which issued from the U.S. Patent Office on June 11, 2002, is titled, “MPEG video decoder having robust error detection and concealment.” In its description of the related art, Saha described “[t]he compression standard referred to as MPEG (Moving Pictures Experts Group) compression” as “a set of methods for compression and decompression of full motion video images” which uses certain “interframe and intraframe compression techniques.” EX1005, 1:64-2:1.

E. The Development And Standardization Of Asymmetrical Digital Subscriber Line, IEEE Communications Magazine (“Chen”)

Chen described the development of asymmetrical digital subscriber line (ADSL) technology for residential applications. The article specifically described an early proposal for ADSL “having the traditional duplex POTS channels, occupying the frequency band between 300 Hz to 4 kHz, an upstream control channel of 16-64 kb/s, occupying the frequency band between 10 kHz to 50 kHz,

and a downstream channel of 1.544 Mb/s, occupying the frequency band between 100 and 500 kHz.” EX1006, 5.²

F. PC Magazine, Vol. 18, No. 16 (“PC Magazine”)

PC Magazine disclosed advertisements for various computers, including the Apple iBook. EX1007, 10.

III. LEVEL OF ORDINARY SKILL IN THE ART

The parties agree that a person of ordinary skill in the art at the time of the alleged invention would have had at least (1) an undergraduate degree in computer science, electrical engineering, or an equivalent subject, together with two years of post-graduate experience in computer graphics; or (2) a master’s degree in computer science, electrical engineering, or equivalent subject, together with one year of post-graduate experience in computer graphics. Petition (“Pet.”), 14; EX1002, ¶23; EX2009, ¶¶24-25.

IV. CLAIM CONSTRUCTION

For purposes of this IPR proceeding, the following, as well as other, claim terms of the ’109 Patent have been construed using the ordinary and customary meanings they would have had to one of ordinary skill in the art at the time of the

² All references to sequentially-paginated exhibits are to the page numbers added for purposes of this IPR.

invention, having taken into consideration the language of the claims, the specification, and the prosecution history of record. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-17 (Fed. Cir. 2005) (en banc); *see also* 37 C.F.R. § 42.100(b).

A. “frame”

Despite asserting that Saha disclosed the claim limitation “frame,” Petitioner offers no construction of the term. *E.g.*, Pet., 18-19. Petitioner apparently contends that “frame” simply means “picture.” *Id.*, 29 (“Saha explains that these MPEG standards describe an encoder to generate compressed ‘frames’ (also called ‘pictures’).”). Moreover, its expert, Dr. Fuchs, has a similar definition: “In MPEG, frames are formally defined as ‘spatial information of a video signal.’” EX1002, ¶31 (“In other words, frames represent the still images that are ordered in a sequence to produce a video or animated sequence.”). Petitioner’s position that “frame” simply means “image” cannot be correct. EX2009, ¶¶45-46.

If Petitioner were correct, the words “as a compressed frame” in the claimed phrase “wherein the server transmits the updated image as a compressed frame” (EX1001, 9:67-10:1) would be redundant and superfluous. *Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”).

As used in independent claims 1 and 8, and properly construed, “frame” means “a single instance of the display.” EX2009, ¶¶37-38, 44-51. The IEEE Dictionary defines frame as “[a] single display image analogous to a frame in a motion picture.” EX2002, 3 (display frame); *see also id.*, 4 (“**frame (1) (television)** The total area, occupied by the picture, that is scanned while the picture signal is not blanked.”). Similarly, the Microsoft Computer Dictionary defines frame as “[a] single screen-sized image that can be displayed in sequence with other, slightly different, images to create animated drawings.” EX2003, 3. Each of these definitions supports that a frame is a single instance of the display. EX2009, ¶47.

That is also how the ’109 Patent uses the term “frame.” The ’109 Patent describes that “the visual server and client can provide a sequential display of modified frames on [a] client to support animation with complex 3-dimensional graphics.” EX1001, Abstract. The ’109 Patent also explains that “[i]n generating the image-modifying data at the client and processing the image-modifying data at the visual server, *the typical data processing segment is a frame.*”³ *Id.*, 4:10-12; *see also id.* at 4:48-55 (describing “transmitting the modified image ... as a compressed data comprising a frame”). The ’109 Patent thus uses the term “frame” to mean something more than simply an image or picture. EX2009, ¶45. As the

³ All emphases in this paper are added unless otherwise indicated.

context shows, the '109 Patent uses “frame” as a specific type of image—a single instance of the display. *Id.*, ¶¶44-46, 48-49, 51.

The significance of using a “frame” as the typical data processing segment (EX1001, 4:11-12) in the '109 Patent is underscored by the alternative, which is that “the image-modifying data can be generated and transmitted from the client, and the modified image data sent from the visual server to the client after predetermined duration has elapsed.” *Id.*, 4:12-16. The invention, as claimed, specifically requires transmitting a “frame”—*i.e.*, a single instance of the display—so that the client receives what it will display. Transmitting to the client what will be displayed, instead of something other than a frame which would require additional processing at the client, comports with the '109 Patent invention’s desire for the client to “interactively generate complex graphical images to a user without the need for significant client resources.” *Id.*, 4:66-5:2.

In the Institution Decision, the Board concluded that “[t]he portions of the specification that Patent Owner relies on do not characterize a frame in terms of the display.” Paper 13 (“ID”), 13. But the entire disclosure of the '109 Patent repeatedly describes “frames” in terms of display images. The Abstract states that “the visual server and client can provide a *sequential display of modified frames*” EX1001, Abstract. In the Description of the Related Art, the specification begins by explaining: “Computer generated images are created in a series of several steps:

modeling, ... ; animation ... ; and rendering, or determined [sic] which of the images defined by the modeling and animation programs are visible *on the screen for every frame, ...*” *Id.*, 1:37-42. Similarly, that section refers to a “frame of a real-time image stream,” again tying it to display images. *Id.*, 2:5-7, 9-14. Additionally, the Description of the Related Art describes visible primitives with reference to frames, specifically tying frames to what is displayed: “[S]ince primitives visible in a current frame are likely to be visible in a subsequent frame, ...” *Id.*, 2:34-35; *see also id.*, 2:32-33, 59-63. The Summary of the Invention further explains that “the step of transmitting the modified image from the visual server to the client as compressed data is transmitting the modified image ... as a compressed data comprising *a frame*, and accordingly, the step of transmitting the image-modifying data ... is transmitting the image-modifying data ... as data sufficient to generate an *image frame*.” *Id.*, 4:48-55; *see also id.*, 6:63-7:1. Here, “frame” is specifically characterized as an “image frame” or a type of image that will be displayed as further described in the specification. *Id.*, 4:17-32 (“The present invention further includes a method of displaying an image on a client”); *id.*, 6:63-7:1 (“If the system 10 is *displaying a series of images on the client* ..., the visual server 12 transmits the modified image to the client 16,18,20 *as a frame*”). Moreover, the specification also states that “as embodied here, the client 16,18,20 transmits an end routine flag to the visual

server, as shown at step 78, to indicate that the client successfully received and *displayed the frame.*” *Id.*, 8:27-30.

To the extent that the Board’s reasoning is based on the ’109 Patent’s failure to include the express definition that Patent Owner seeks, the Board’s reasoning is incorrect as a matter of law. “Absent disclaimer or lexicography, the plain meaning of the claim [term] controls.” *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1369 (Fed. Cir. 2012).

The proper construction of “frame” as “a single instance of the display” is also consistent with how Dr. Fuchs used the term in his 1994 article “Frameless Rendering: Double Buffering Considered Harmful.” In that article, Dr. Fuchs explained that a “double-buffered display jumps *from frame to frame*” because “the double-buffered display only updates after *all pixels* are computed.” EX2008, Abstract; *see also id.*, 2 (“the double-buffered display switches from frame to frame at a 5 Hz rate”); EX2010, 63:18-66:2. In contrast with a double-buffered display, a “frameless rendering system does not update the display a frame at a time” (EX2010, 66:16-18 (Dr. Fuchs agreeing)) but instead “updates pixels as they are computed,” and, thus, Dr. Fuchs explained in his article that a “frameless rendering display exhibits fluid motion.” EX2008, Abstract; *see also id.*, EX2010, 66:3-15. Dr. Fuchs’ usage of the term “frame” is consistent with Patent Owner’s construction.

The '109 Patent file history further supports the ordinary meaning of “frame” as a single instance of the display. EX2009, ¶50. During prosecution the examiner rejected certain pending claims as anticipated by Yamada. EX2004, 289. The examiner asserted that Yamada disclosed the limitation of pending claim 21 (issued claim 1), which recited, “wherein the server transmits the updated image as a compressed frame that can be decompressed and displayed as an updated image at the client device.” *Id.* The examiner relied on Yamada’s disclosure of receiving and decompressing image information using the MPEG protocol. *Id.* (citing EX2005 (Yamada), 19:33-49 (“The MPEG decoder 52 decompresses image data such as a background image and a character image used in the game, supplied from the STB 6 via the wireless communication.”)). However, in its subsequent response, the applicant argued:

Yamada does not teach or suggest “compressing the at least one updated image and transmitting the compressed updated image to the client device” much less transmitting the “updated image as a compressed frame”. First, there is absolutely no mention of a “frame” in Yamada. Second, ***there is nothing to suggest that Yamada first generates a frame of image data and then compresses that frame prior to transmitting it to a remote client device.***

EX2004, 273. The applicant’s characterization of this limitation as requiring the generation of a frame followed by subsequent compression of the frame shows that

a frame is a single instance of the display as a person of ordinary skill would have understood the term. EX2009, ¶50. The server generates an instance of the client display, compresses that instance, and transmits the instance as a compressed frame. The examiner subsequently noted that the arguments “have been fully considered and are persuasive.” EX2004, 235.

In the Institution Decision, the Board improperly disregarded the ’109 Patent file history. *See* ID, 14. The Federal Circuit has explained that the Board “should also consult the patent’s prosecution history in [IPR] proceedings.” *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015). As discussed above, the examiner’s rejection relied on Yamada’s use of the MPEG protocol, and the applicant successfully argued that Yamada did not teach a “frame.” The prosecution history reinforces Patent Owner’s construction because a “frame” of the MPEG protocol does not constitute “a single instance of the display.”

The Board found Patent Owner’s distinction over MPEG unpersuasive given “the minimal disclosure of a compressed frame in the ’109 patent and given that the ’109 patent expressly discloses using ‘an industry standard image compression protocol such as MPEG’ for compression and decompression” (ID, 13), but the applicant expressly distinguished Yamada’s use of MPEG from the claimed invention during prosecution. The Institution Decision observed that the applicant during prosecution also distinguished Yamada on other grounds. *See* ID, 14. But

that changes nothing. *See Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1374 (Fed. Cir. 2007) (“[A]n applicant’s argument that a prior art reference is distinguishable on a particular ground can serve as a disclaimer of claim scope even if the applicant distinguishes the reference on other grounds as well.”); *see also Microsoft Corp. v. Multi-Tech Sys.*, 357 F.3d 1340, 1350 (Fed. Cir. 2004) (“We have stated on numerous occasions that a patentee’s statements during prosecution, whether relied on by the examiner or not, are relevant to claim interpretation.”).

Both the intrinsic and extrinsic evidence support Patent Owner’s proposed construction and show that “frame” means something more than “picture” or “image.” The appropriate construction of “frame” is “a single instance of the display.”

B. “mobile device”

Petitioner offers no construction of “mobile device” in its Petition even though the term appears in dependent claims 6, 11, and 12. *E.g.*, Pet., 18-19; *Maxlite, Inc. v. Jiaxing Super Lighting Elec. Appliance Co., Ltd.*, IPR2020-00181, 2020 WL 5803082, at *2 (P.T.A.B. Sept. 29, 2020) (“It is Petitioner’s burden to explain how challenged claims are to be construed and how the claims read on the prior art.” (citing 37 C.F.R. § 42.104(b)(3)-(5))). Petitioner apparently asserts that “mobile device” includes a laptop computer. Pet., 40 (“A POSITA understood that such computers could be, for example, laptops, and that those laptops could be used in a

‘mobile gaming environment’ as Wiltshire describes.”). Petitioner offers no argument or evidence in support of such a broad construction of “mobile device.” In fact, the Board has previously determined that “viewing the term ‘mobile device’ to mean ‘any device that is mobile’ would be overly broad” where “the Specification contains clear and consistent descriptions of the term ‘mobile device’ that lend further guidance to its meaning.” *Rothschild Mobile Imaging Innovations, LLC v. Mitek Sys., Inc.*, IPR2016-00457, Paper 8 at 9-10 (P.T.A.B. July 27, 2016).

The proper construction of “mobile device” is “handheld computing device.” EX2009, ¶¶37-38, 52-56. First, the specification provides two examples of such devices, “personal digital assistants (PDAs)” and “mobile telephones.” EX1001, 3:26-30; *see also id.*, 5:51-59 (describing PDA “such as a Palm Pilot” and “cellular telephone”). Both such devices are handheld computing devices. EX2009, ¶53. Thus, the specification supports the proper construction of “mobile device.” In *Rothschild*, for example, the Board held that “[t]he construction of the term ‘mobile device’ ... of ‘a mobile communication device, such as a mobile telephone handset or Personal Digital Assistant...’ is... consistent with the descriptions of the term as it is used in the Specification, and does not impermissibly import limitations from various embodiments.” IPR2016-00457, Paper 8 at 10. The same reasoning should apply here.

Second, the ordinary meaning of “mobile device” is a “handheld computing device.” *U.S. Auto. Ass’n v. Wells Fargo Bank, N.A.*, No. 2:18-cv-366-JRG, 2019 WL 3423652, at *11-12 (E.D. Tex. July 29, 2019) (“The Court understands that under its customary meaning, a ‘mobile device’ is distinct from a ‘portable device’ in that the ‘mobile device’ is a handheld device whereas a ‘portable device’ would encompass a device such as a laptop computer.”); *Uniloc 2017 LLC v. Google LLC*, No. 2:18-CV-00493-JRG-RSP, 2020 WL 339802, at *21 (E.D. Tex. Jan. 20, 2020) (construing “mobile device” to mean “computing device that is handheld in its ordinary use”); EX2009, ¶54. This ordinary meaning is confirmed by computer textbooks, such as *Discovering Computers: Fundamentals*, which distinguishes between mobile devices and mobile computers like laptops. *See* EX2007, 24-26; EX2009, ¶55. The *Discovering Computers* textbook explains that a “mobile computer is a personal computer you can *carry from place to place*” and that a “notebook computer, also called a laptop computer, is a *portable*, personal computer designed to fit on your lap.” *Id.*, 24. In contrast, it explains that “a mobile device is a computing device *small enough to hold in your hand*” and that “[t]hree popular types of mobile devices are handheld computers, PDAs, and smart phones.” EX2007, 24-25. When given the opportunity to agree or disagree with these statements, Petitioner’s expert, Dr. Fuchs, was unable to offer any opinion. EX2010, 25:14-28:8. Even Petitioner’s PC Magazine reference refers to the iBook laptop as

a “portable” computer, not a mobile device. EX1007, 10; *see also* EX1002, ¶216 (“PC Magazine describes the Apple iBook as a ‘portable’ laptop computer”); EX2009, ¶56. There is no evidence in this record, intrinsic or extrinsic, from which the Board could conclude that a “mobile device” includes a portable laptop computer.

Thus, the appropriate construction of “mobile device” in the context of the ’109 Patent is “handheld computing device.”

V. ARGUMENT

Petitioner relies on Wiltshire in Ground I to meet the requirement of independent claims 1 and 8 of “compressing the at least one updated image.” Pet., 27, 44-45. All three Grounds in the Petition require Petitioner to prevail on showing that Wiltshire disclosed this limitation. But Wiltshire did not disclose compressing *updated* images after they are generated. At most, Wiltshire disclosed transmitting an already “compressed video MPEG stream.” EX1004, 7:13-18. Claims 1 and 8 each include separate “generating,” “compressing,” and “transmitting” limitations, and Wiltshire’s disclosure of transmitting a “compressed video MPEG stream” does not show that Wiltshire disclosed compressing an updated image generated in response to user input, as required by the claims.

Petitioner also cannot prevail on any ground for any claim because its combination fails to disclose or suggest a frame as required by all Challenged

Claims. Petitioner relies on the combination of Wiltshire and Saha in Ground I to meet the requirement of independent claims 1 and 8 that “the server transmits the updated image as a [compressed] frame.” Pet., 27-34, 44-45. All three Grounds in the Petition require Petitioner to prevail on showing that the combination disclosed or suggested this limitation. But neither Wiltshire nor Saha, alone or in combination, did so. Petitioner’s reliance on the use of MPEG in Wiltshire and Saha fares no better than the Yamada reference considered during the original ’109 Patent prosecution, which also disclosed the use of MPEG and which Patent Owner successfully distinguished based on its failure to disclose a “frame.”

Additionally, Petitioner’s Ground I fails as to claims 6, 11, and 12 because Petitioner’s combination did not disclose or suggest that the client device is a mobile device. Petitioner relies on Wiltshire, but Wiltshire only disclosed that the client can be “any type of cost effective special purpose or general purpose computer.” EX1004, 5:14-15; Pet., 39-40, 50-51. Nowhere did Wiltshire teach or suggest that the client could be a laptop computer, much less a mobile device. Even if Wiltshire had disclosed a laptop computer, Petitioner’s argument still fails. In the context of the ’109 Patent, the claimed mobile device is a handheld computing device, which is not disclosed in Wiltshire. Petitioner’s obviousness case for claims 6, 11, and 12 in Ground I must fail for these additional reasons.

For the same reasons, Petitioner’s Ground III challenge to claims 6, 11, and 12 must fail. Petitioner offers a backup argument that a person of ordinary skill would have been motivated to use laptops, such as the iBook disclosed in PC Magazine, as the “client/terminal computers” in Wiltshire. Pet., 66-73. But that argument also fails because in the context of the ’109 Patent, the claimed mobile device is a handheld computing device, not a laptop. Moreover, even if a laptop could be considered a mobile device, Petitioner provides no apparent reason to use a laptop in Wiltshire’s commercial gambling system. For both reasons, Petitioner cannot prevail on its Ground III challenge.

Finally, in its Ground II challenge to claim 2, Petitioner asserts that Chen’s disclosure of the ADSL standard satisfies claim 2’s requirement of a first bandwidth for client to server transmissions and a second bandwidth for server to client transmissions, where those two bandwidths are asymmetric. Pet., 59-60. But even if true, Petitioner fails to demonstrate any motivation for combining Chen’s ADSL used on copper telephone lines in residential homes with Wiltshire’s commercial gambling operation not disclosed or suggested for use in homes. Moreover, any such combination would have been unsuccessful because it would only provide enough bandwidth for a single video stream. Petitioner’s Ground II challenge to claim 2 must fail.

For any and all of these reasons, the Board should confirm the patentability of the Challenged Claims.

A. Wiltshire Did Not Disclose “Compressing The At Least One Updated Image” As Required For Claims 1 And 3-12 In Ground I

1. Independent Claims 1 And 8 Require “Compressing The At Least One Updated Image”

Independent claims 1 and 8 each recite a series of steps including “generating at least one updated image” (EX1001, 9:62, 10:35), “compressing the at least one updated image” (*id.*, 9:65, 10:39), and then “transmitting the compressed updated image.” *Id.*, 9:65-66, 10:39-40; *see also* EX2010, 38:19-40:21, 43:17-44:22; EX2009, ¶¶40-43. The claimed steps are shown, for example, in steps 62, 66, and 68 in Figures 2B and 2D below.

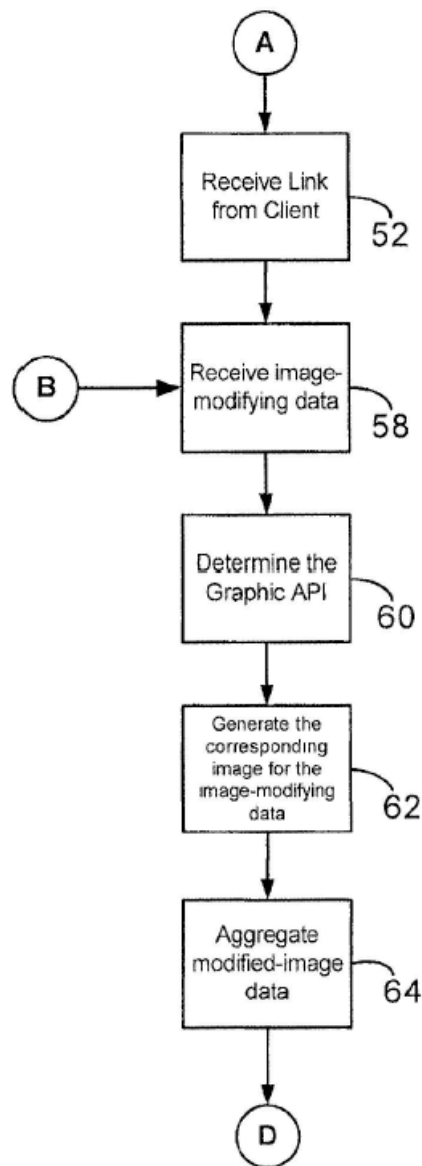


Fig. 2B

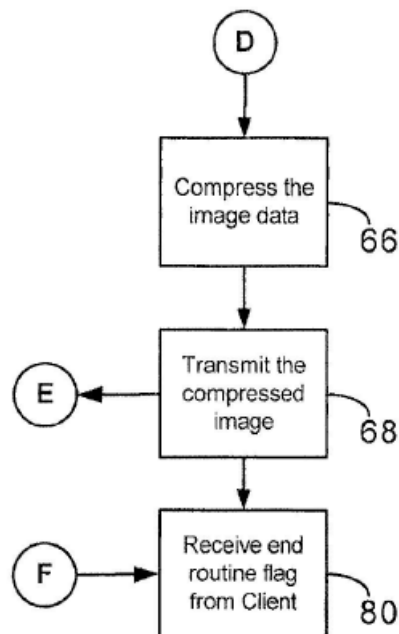


Fig. 2D

EX1001, Figs. 2B, 2D; EX2009, ¶41. The claimed steps reflect the invention described in the specification in which the visual server 12 “*generates* the ... modified image based upon the image-modifying data received from the client 16,18,20, as shown at step 62” (EX1001, 8:4-6), “*compresses* the image data in a

predetermined format, such as MPEG, as shown at step 66, and then **transmits** the modified image from the visual server 12 to the client 16,18,20 as compressed data, as shown at step 68.” *Id.*, 8:10-14; *see also id.*, 6:33-38 (“The visual server 12 ... **generates** a modified image based upon the image-modifying data, **compresses** the image or image data ... and **transmits** the modified image as compressed data back to the client 16,18,20.”); EX2010, 35:18-37:13; EX2009, ¶42. In sum, claims 1 and 8 each include distinct limitations directed to “generating,” “compressing,” and “transmitting.”

Moreover, claims 1 and 8 also require that the “generating,” “compressing,” and “transmitting” steps be performed or be configured to be performed in that order. The “generating” step requires “generating at least one updated image.” EX1001, 9:62, 10:35. The “compressing” step then requires compressing “**the** at least one updated image” (*id.*, 9:65, 10:39), which could not occur if the image had not been generated yet. Finally, the “transmitting” step requires transmitting “**the** compressed updated image” (*id.*, 9:65-66, 10:39-40), which could not occur if the image had not been generated and if the generated image had not been compressed. In claims 1 and 8, the context makes clear that the “generating,” “compressing,” and “transmitting” steps must be performed or configured to be performed in order. EX2009, ¶¶39-43; *Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc.*, 152 F.3d 1368, 1376 (Fed. Cir. 1998) (holding “that the sequential nature of the claim steps is

apparent from the plain meaning of the claim language and nothing in the written description suggests otherwise”); *Hytera Commc 'ns Co. Ltd. v. Motorola Sols., Inc.*, 841 F. App'x 210, 219 (Fed. Cir. 2021).

**2. Petitioner Relies On Wiltshire Which Did Not Disclose
“Compressing The At Least One Updated Image”**

In the Petition, Petitioner asserts that “Wiltshire discloses ‘compressing the at least one updated image ...’” (Pet., 27), relying specifically on Wiltshire’s disclosure of “a compressed video MPEG stream.” EX1004, 7:17-18. But Petitioner imparts to Wiltshire something Wiltshire never disclosed. According to Petitioner, “*Wiltshire explains* that ... the server may *compress* the updated images as ‘a compressed video MPEG Stream.’” Pet., 27-28 (citing EX1004, 7:15-18); *see also id.*, 30 (“*Wiltshire teaches* that the system may use the MPEG standard for *compressing* the updated images that are sent to the client (Ex. 1004, 7:15-19)”). In fact, Wiltshire never disclosed that any *updated image* could be compressed using MPEG compression or any other compression technique. EX2009, ¶¶60-68.

Instead, Wiltshire described sending “an image” from a server to a client. Wiltshire next observed that “[t]he image” may include “a compressed video MPEG stream.” EX1004, 7:13-18 (“In stage 230, an image is sent from server/host computer 110 to client/terminal computer 120. The image may include ... a compressed video MPEG stream.”). Wiltshire’s disclosure is entirely silent on the

origin of the compressed video MPEG stream. It never disclosed starting with an updated image, compressing that updated image, and then transmitting the compressed updated image. As Dr. Hart explains, “A POSITA would have understood Wiltshire to disclose that the ‘image [] generated by the game computer program’ could include the contents of a pre-existing compressed image file.” EX2009, ¶¶62-63. For example, although Wiltshire does not disclose this example, if a player won a jackpot, the server could send a video clip banner (compressed video MPEG stream) to play at the top of the screen showing the word “Jackpot” surrounded by fireworks. That scenario need not involve the creation of a new image or compression because the video clip may come from a file held on the server just for that purpose. *Id.*, ¶63. Wiltshire’s disclosure was completely silent as to the content or origin of that “compressed video MPEG stream.”

Wiltshire never described “generating at least one updated image,” “compressing the at least one updated image,” and then “transmitting the compressed updated image” as required by claims 1 and 8. In particular, Wiltshire did not disclose ***compressing an updated image*** generated in response to user input, as required by the claims. *See* EX1001, 9:58-66, 10:31-40; EX2009, ¶¶81-82. Wiltshire’s example confirms Petitioner’s misunderstanding of the disclosure. Wiltshire disclosed that “in some embodiments, images for use by computer gaming system 100 are preloaded into a memory of client/terminal computers 120 to further

reduce the amount of communication network bandwidth required.” EX1004, 8:8-11. Images preloaded onto the client are not being “generated” in response to “updating the state of the interactive software application” as required by claims 1 and 8. Rather, the images are preexisting and cannot meet the requirements of claims 1 and 8 even if they are compressed. EX2009, ¶¶61-63.

Petitioner’s more specific allegations fare no better than its generalizations. With respect to limitation 1[d] in claim 1, Petitioner asserts, “Wiltshire discloses that after an image is ‘update[d]’ at stage 220 of Figure 2 ..., the operation proceeds to stage 230, where the updated image ‘is sent from server/host computer 110 to client/terminal computer 120.’” Pet., 27 (citing EX1004, 7:13-14). But Petitioner’s characterization of Wiltshire is incorrect. First, Wiltshire actually described step 220 as follows: “State 220 then determines whether an image is to be displayed on the screen of client/terminal computer 120, in which case operation 200 proceeds to stage 230.” EX1004, 7:9-12. Stage 220 in Figure 2 is labeled “Display/update image ?” *Id.*, Fig. 2. Wiltshire was silent as to what is meant by “update” in Figure 2. Petitioner cannot simply assume using hindsight that the single word “update” in Figure 2 meant that Wiltshire would generate an “updated image” in response to updated software state when it could simply mean update the display by choosing a different preexisting image to display.

In fact, Wiltshire’s example suggests the latter. As noted above, Wiltshire disclosed an example of preloading images onto the client to reduce communication bandwidth requirements. EX1004, 8:8-11. In such a scenario, updating would simply mean selecting a new image to display that is already resident on the client because the images have been preloaded onto the client. Even if not preloaded onto the client, simply selecting a preexisting image to display does not involve “generating at least one updated image,” “compressing the at least one updated image,” and then “transmitting the compressed updated image” as required by claims 1 and 8.

Second, aside from Wiltshire’s ambiguous use of “update” in Figure 2, Wiltshire did not disclose compressing any allegedly updated image. Instead, it described moving straight from determining whether an image was to be displayed at the client (step 220) to sending the image (step 230). *Id.*, 7:9-15. Wiltshire never described or suggested the sequence of generating an updated image, compressing the updated image, and then transmitting the compressed updated image.

Petitioner next asserts that “Wiltshire explains that to reduce bandwidth requirements, the server may compress the updated images as ‘a compressed video MPEG Stream.’” Pet., 27-28 (quoting EX1004, 7:15-18). But Petitioner again mischaracterizes Wiltshire. As noted above, Wiltshire simply stated that the transmitted image “may include” a compressed video MPEG stream. EX1004,

7:15-18. It never said to reduce bandwidth, any image allegedly generated (or more likely simply selected) in step 220 should be compressed. EX2009, ¶¶64-68 (opining that a POSITA would have understood this passage to be referring to “a previously encoded video stream”). Moreover, a POSITA would not have thought using MPEG compression for a live transmission, such as an interactive game, was trivial in view of Saha, which discloses offline MPEG encoding. *Id.*, ¶¶69-75; EX1005, 2:60 (describing creation of B frames using “a prior and subsequent I or P frame,” which requires the existence of a series of frames after the current frame); *see also id.*, ¶¶76-79 (describing the ’109 Patent’s more specific disclosure regarding real-time compression). Petitioner also relies on Wiltshire’s generic statement that the bandwidth requirement for efficient operation of computer gaming system 100 “can be further reduced using data compression techniques to about 100 KB/sec.” Pet., 28; EX1004, 7:62-64. But that passage also did not say how “data compression techniques” might be used to reduce bandwidth and in no way disclosed or suggested that an updated image generated in step 220 might be compressed using MPEG.

Petitioner does not argue that Wiltshire renders the “generating,” “compressing,” and “transmitting” steps of claims 1 and 8 obvious. Nor does Petitioner argue in any ground that these limitations would have been obvious in view of Saha. The Petition relies solely on Wiltshire’s alleged disclosure of these limitations for all of Grounds I-III. *See* Pet., 27-34 (limitation 1[d]), 44-45

(limitation 8[d]), 58-59 (Ground II relying on Ground I), 66 (Ground III relying on Ground I). Because Wiltshire did not disclose “compressing the at least one updated image” or the “generating,” “compressing,” and “transmitting” steps in sequence, Petitioner cannot prevail on its Ground I challenge to claims 1 and 8. For at least the same reasons, Petitioner cannot prevail on its Ground I challenge to dependent claims 3-7 and 9-12 or any claim challenged in Grounds II and III because they all rely on Wiltshire for this limitation. *See* Pet., 58-59, 66. Thus, all Challenged Claims should be confirmed.

B. The Combination Of Wiltshire And Saha Did Not Disclose That A “Server Transmits The Updated Image As A [Compressed] Frame” As Required For Claims 1 And 3-12 In Ground I

1. Independent Claims 1 And 8 Require That The “Server Transmits The Updated Image As A [Compressed] Frame”

Claim 1 recites: “wherein the server transmits the updated image as a compressed *frame*.” EX1001, 9:67-10:1. Similarly, claim 8 recites: “wherein the server transmits the updated image as a *frame*.” *Id.*, 10:41-42. This claim language reflects the invention described in the specification, in which “the step of transmitting the modified image from the visual server to the client as compressed data is transmitting the modified image from the visual server to the client as a compressed data *comprising a frame*.” *Id.*, 4:48-52; *see also id.*, 4:11-12, 6:64-66, 8:27-30, 8:45-47.

As explained above and as supported by the intrinsic and extrinsic evidence cited above, a “frame” in the context of the ’109 Patent is “a single instance of the display.” EX2009, ¶¶44-51, 84. Because the frame is transmitted to the client to be displayed on the client, the relevant display is the client display. A frame is not simply an image as Petitioner appears to contend. Instead, claims 1 and 8 both require the server to transmit the updated image as a compressed frame, which requires a single instance of the client display.

2. Neither Wiltshire Nor Saha Disclosed That A “Server Transmits The Updated Image As A [Compressed] Frame”

Petitioner relies on the combination of Wiltshire and Saha to satisfy the requirement of claims 1 and 8 that the “server transmits the updated image as a [compressed] frame.” Pet., 28, 44-45. But Petitioner fails to carry its burden to show that the combination of Wiltshire and Saha disclosed or suggested transmitting a frame. *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1375 (Fed. Cir. 2016).

a. Wiltshire Described An Image, Not A Frame

As discussed above in Section IV. A, the intrinsic and extrinsic evidence showing that the ordinary and customary meaning of “frame” is “a single instance of the display” is overwhelming. The Institution Decision improperly disregarded this evidence, including the highly relevant prosecution history of the ’109 Patent. The Petition provided no evidence that Wiltshire disclosed transmitting an image as a compressed “frame” under the proper construction of the term.

Wiltshire only disclosed transmitting “an image.” EX1004, 7:13-15. As Wiltshire described its system, “[i]n stage 230, an *image* is sent from server/host computer 110 to client/terminal computer 120.” *Id.*, 7:13-15. Wiltshire explained that “the *image* is transferred over communication pathways 130 to client/terminal computer 120 via the network services provided by server operating system 116.” *Id.*, 7:20-22. Wiltshire further explained that “[t]he *image* may include any type of graphical information including a bitmap, a JPEG file, a TIFF file or even an encoded audio/video stream such as a compressed video MPEG stream.” *Id.*, 7:15-18. Wiltshire never disclosed or suggested that the “image” was or even could be a frame. EX2009, ¶¶83-85 (opining that Wiltshire limits updates to areas of the screen that are actually modified).

Wiltshire’s disclosure that an image transmitted by the server can include “any type of graphical information” (EX1004, 7:15-16) cannot satisfy the requirement of claims 1 and 8 that the image *be* a single instance of the display. Wiltshire did not disclose what part or component of the client display the “image” relied upon by Petitioner comprises. Even though Wiltshire taught that its “image” may include any type of graphical information including a compressed MPEG stream, Wiltshire was completely silent on what part of any display, much less the client display, the image comprised.

Moreover, Wiltshire disclosed less than Yamada, which was successfully distinguished during prosecution of the '109 Patent. As noted above, the examiner relied on Yamada's disclosure that "[t]he MPEG decoder 52 decompresses image data such as a background image and a character image used in the game, supplied from the STB 6 via the wireless communication." EX2005, 19:33-35, *cited in* EX2004, 289. Nevertheless, the examiner allowed the claims following applicant's argument that this disclosure failed to show a "frame" and in particular that "there is nothing to suggest that Yamada first generates a frame of image data and then compresses that frame prior to transmitting it to a remote client device." EX2004, 273; *see also id.*, 235 (finding arguments "persuasive"). Wiltshire disclosed less than Yamada and similarly failed to disclose or suggest a "frame" as required by independent claims 1 and 8.

Petitioner also relies on Wiltshire's disclosure that the "bandwidth requirement can be further reduced using data compression techniques to about 100 KB/sec." EX1004, 7:62-64; *see also* Pet., 28. But that disclosure says nothing about using "data compression techniques" on an updated image (as opposed to simply including pre-recorded MPEG clips in updates), much less applying compression to a *frame* of image data. That passage in Wiltshire says nothing more than Wiltshire's earlier passage that an image "may include ... an encoded audio/video stream such

as a compressed video MPEG stream.” EX1004, 7:15-18. Accordingly, Petitioner cannot prevail on its invalidity challenge based on Wiltshire.

b. Saha Fails To Cure Wiltshire’s Deficiencies

Recognizing Wiltshire’s deficiencies, Petitioner pivots to Saha. Petitioner states, “Saha explains that these MPEG standards describe an encoder to generate compressed ‘frames’ (also called ‘pictures’).” Pet., 29. But applying MPEG to an image is simply a form of compressing the image. *Id.*, 28 (“As recognized by the ’109 patent, MPEG is an example of compressing an image.”). MPEG does not change the nature of the input image into something more than it was before applying compression. For example, in the case of the pre-recorded video banner “Jackpot” described above in Section V. A.2, simply making a compressed MPEG file of that video banner, which only occupies a fraction of the display, does not convert the video banner into a compressed “frame” as that term is used in the ’109 Patent. EX2009, ¶¶86-87. The combination of Wiltshire and Saha disclosed no more than Yamada and did not disclose or suggest the “server transmits the updated image as a [compressed] frame” as required by independent claims 1 and 8.

Saha’s disclosure that “[a]n MPEG stream includes three types of pictures, referred to as the Intra (I) frame, the Predicted (P) frame, and the Bi-directional Interpolated (B) frame” (EX1005, 2:22-24) does not cure Wiltshire’s deficiencies regarding the requirement that the “server transmits the updated image as a

[compressed] frame.” EX1001, 9:67-10:1, 10:41-42; *see also* EX2009, ¶¶69-79. Petitioner asserts that, based on Saha’s disclosure, “a POSITA would have known that MPEG includes ‘compressed frames.’” Pet., 30. But Dr. Fuchs opined that “[i]n MPEG, frames are formally defined as ‘spatial information of a video signal.” EX1002, ¶31 (citing EX1009, 14). That is not the “frame” of claims 1 and 8 as the applicant successfully asserted during prosecution when arguing that Yamada’s disclosure of MPEG did not disclose the use of frames. EX2004, 273 (arguing “frame” over Yamada), 235 (finding argument persuasive). Petitioner itself conceded that “frame” in the MPEG context simply means picture. Pet., 29 (“Saha explains that these MPEG standards describe an encoder to generate compressed ‘frames’ (also called ‘pictures’).”).

Moreover, Petitioner does not and cannot explain how its combination satisfies the requirements that the combination “first generates a frame of image data and then compresses that frame prior to transmitting it to a remote client device,” asserted by the applicant during prosecution of the ’109 Patent. EX2004, 273; *see also* EX2009, ¶¶69-82. Claims 1 and 8 require that the updated image transmitted by the server be a frame, *i.e.*, an instance of the client display. Nothing in Wiltshire or Saha disclosed or suggested this, and Petitioner never suggests modifying Wiltshire to use images that are frames. EX2009, ¶¶83-85.

Instead, Petitioner asserts that “[a] POSITA would thus have understood Wiltshire’s disclosure of ‘a compressed video MPEG Stream’ as teaching compression of image frames by ‘server/host computer 110,’” Pet., 30. But Wiltshire’s disclosure of using a compressed MPEG stream fares no better than Yamada’s disclosure of the same, which the applicant argued during prosecution did not disclose a “frame” and which the examiner accepted. EX2009, ¶¶86-87. Petitioner has not even attempted to show that the combination of Wiltshire and Saha disclosed or suggested anything more than Yamada.

For at least two reasons, that is fatal to Petitioner’s Ground I. First, the argument applicant made during prosecution was to distinguish Yamada, which disclosed transmitting images using MPEG compression. That argument at least establishes that something more than transmitting images using MPEG compression is required to show the use of a “frame.” Petitioner has offered nothing more. Second, the use of MPEG, without more, does not show that the image being compressed satisfies the ordinary meaning of “frame” as a single instance of the display. EX2009, ¶¶86-87. That was the point the applicant made during prosecution, and it applies here with as much force. *See generally Spectrum Int’l, Inc. v. Sterilite Corp.*, 164 F.3d 1372, 1378 (Fed. Cir. 1998) (“That explicit arguments made during prosecution to overcome prior art can lead to narrow claim interpretations makes sense, because ‘[t]he public has a right to rely on such

definitive statements made during prosecution.”). Petitioner, however, has offered nothing more.

Thus, Petitioner cannot prevail on its assertion that the combination of Wiltshire and Saha renders obvious claims 1 and 8 in Ground I. For at least the same reasons, Petitioner cannot prevail on its Ground I challenge to dependent claims 3-7 and 9-12 or any claim challenged in Grounds II and III because they all rely on the combination of Wiltshire and Saha for this limitation. *See* Pet., 58-59, 66.

C. The Combination Of Wiltshire And Saha Did Not Disclose A “Mobile Device” As Required For Claims 6, 11, And 12 In Ground I

Each of dependent claims 6, 11, and 12 require that a client device is a mobile device. EX1001, 10:19-20, 55-56, 58-59. Petitioner’s assertion that Wiltshire disclosed the “mobile device” required by claims 6, 11, and 12 fails because it is based on a mischaracterization of Wiltshire. Moreover, even if Petitioner were correct that Wiltshire disclosed a laptop, and it is not, a laptop is not a mobile device within the meaning of claims 6, 11, and 12.

1. In The Context Of The ’109 Patent, A Mobile Device Is A Handheld Computing Device

As noted above in Section IV. B, as used in claims 6, 11, and 12, and properly construed, “mobile device” means “handheld computing device.” EX2009, ¶¶52-56, 88-89, 93. The ’109 Patent explains that, “for reasons of cost, size, and power consumption, sophisticated three dimensional graphics are not available on common

consumer client devices such as personal digital assistants (PDAs)[,] mobile telephones and set-top boxes used to decode cable and satellite television signals” but that “it would be advantageous to display complex three dimensional graphics, such as those used by games, on these consumer client devices.” EX1001, 3:26-33. Thus, the ’109 Patent provides examples of mobile devices in the form of PDAs and mobile telephones, which affirms the ordinary meaning of “mobile device” as “handheld computing device.”

2. Wiltshire Did Not Disclose The Claimed Mobile Device

The Board correctly determined in its Institution Decision that Petitioner failed to show that Wiltshire disclosed the claimed mobile device. *See* ID, 33-35. Petitioner asserts that Wiltshire disclosed that “the client device can be ‘a mobile device’ because Wiltshire’s clients can include ‘wireless communication pathways’ to ‘allow[] a patron to participate in a *mobile* gaming environment.’” Pet., 40 (quoting EX1004, Abstract) (alteration and emphasis in original). Petitioner extrapolates this mischaracterization of Wiltshire’s disclosure to conclude that a “POSITA understood that such computers could be, for example, laptops, and that those laptops could be used in a ‘mobile gaming environment’ as Wiltshire describes.” *Id.* But Petitioner’s expansion of Wiltshire does not withstand the mildest scrutiny.

As the Board correctly observed, the “mention of ‘wireless communication pathways’ in Wiltshire is brief and relates to the use of ‘a stereo head-mounted display together with a joystick input device ... allow[ing] a patron to participate in a mobile gaming environment.’” ID, 34; *see also* EX1004, Abstract; EX2009, ¶90. Wiltshire explained that “(stereo) head mounted displays with separate input controls such as a six degrees of freedom joystick/mouse can be used *in place of touch screen display devices*.” EX1004, 4:19-22. Relevant here, the touch screen display devices in Wiltshire were *not* the client devices. Rather, the display devices were connected to the client devices. *Id.*, 3:66-67 (“Each of client/terminal computers 120 is connected to a display device 140.”); *see also id.*, 4:4-7 (“In some embodiments, display devices 140 are touch screen display devices....”). Thus, as discussed in the passage above, the “mobile” nature of the gaming environment is due to the use of a “stereo head-mounted display together with a joystick input device” in place of a display device. Figure 1D confirms this understanding, with the particular “mobile gaming” client annotated in red:

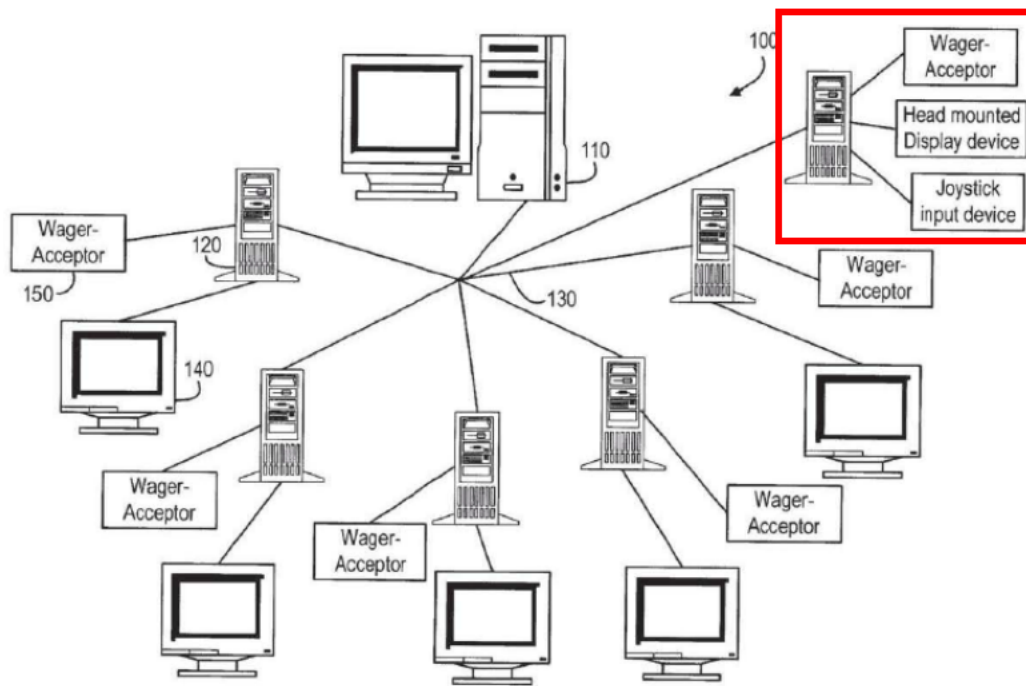


Fig. 1D

EX1004, Fig. 1D (annotation added). As is apparent from Figure 1D, the “mobile gaming” client is the same client/terminal computer as the others but without the separate display 140 shown on the other client/terminal computers. ID, 34-35. Notably, it also still has the Wager-Acceptor. *Id.*, 35. Thus, Petitioner’s mischaracterization of Wiltshire does not provide a reason to use a “mobile” client as required by claims 6, 11, and 12. EX2009, ¶¶90-91.

The Board also correctly determined in its Institution Decision that Wiltshire did not disclose the use of laptops or even that the client/terminal computers “could be laptops.” ID, 34. Petitioner relies on Wiltshire’s disclosure that “[c]lient/terminal computers 120 can also be any type of cost effective special purpose or general

purpose computer such as an Intel® x86 or Pentium® based computer, a Mac® PowerPC computer, a Sun® SPARC®, etc.” EX1004, 5:14-17, *quoted by* Pet., 40. Wiltshire’s disclosure of a “special purpose or general purpose computer” does not show that Wiltshire disclosed a mobile device. Petitioner summarily argues that a “POSITA understood that such computers could be, for example, laptops, and that those laptops could be used in a ‘mobile gaming environment’ as Wiltshire describes.” Pet., 40. Petitioner’s argument fails for multiple reasons. First, Petitioner again falsely associates Wiltshire’s disclosure of a “mobile gaming environment” with Wiltshire’s client computers. As explained above, Wiltshire’s mobile gaming environment referred to the display, not the client computer. Moreover, Wiltshire does not mention or suggest use of a laptop computer, which is not surprising given the nature of the clients in its commercial gambling system. *E.g.*, EX1004, Fig. 1D (showing clients with “Wager-Acceptors”). Second, Petitioner relies on two versions of PC Magazine (EX1007, EX1020) for the disclosure of laptop computers, which Petitioner asserts constitutes a mobile device. Those references are not part of Ground I. *See Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337 (Fed. Cir. 2020) (“[W]e conclude that the Board erred by instituting inter partes review of claims 1-11 of the ’806 patent based on obviousness over SMIL 1.0 and Hua because Google did not advance such a combination of

references in its petition.”). Thus, Petitioner cannot prevail on its argument that Wiltshire renders claims 6, 11, and 12 obvious.

Finally, even if Wiltshire suggested use of a laptop, which it did not, a laptop is not a mobile device, as claimed. As discussed above, as used in claims 6, 11, and 12, and properly construed, “mobile device” means “handheld computing device.” A laptop is not a handheld computing device. EX2009, ¶¶54-56, 92; *U.S. Auto. Ass’n*, 2019 WL 3423652, at *11 (“The Court understands that under its customary meaning, a ‘mobile device’ is distinct from a ‘portable device’ in that the ‘mobile device’ is a handheld device whereas a ‘portable device’ would encompass a device such as a laptop computer.”). The distinction between mobile devices and portable devices is confirmed by Petitioner’s own PC Magazine reference, which states, “Just as many **portable PCs** are shipping with wireless technologies, iBook users can roam up to 150 feet from \$299 base stations that plug into telephone jacks” EX1007, 10; *see also* EX2009, ¶56. Thus, even Petitioner’s own reference characterizes the iBook as a portable device, not a mobile device.

Petitioner’s obviousness case for claims 6, 11, and 12 in Ground I must fail for these additional reasons.

D. Petitioner Cannot Prevail On Its Ground III Challenge To Claims 6, 11, And 12

Petitioner, in Ground III, asserts that claims 6, 11, and 12 would have been obvious in view of the combination of PC Magazine with Wiltshire and Saha. Pet., 66-73. Petitioner reuses its mischaracterization of Wiltshire from Ground I as disclosing mobile client devices and wrongly asserts that mobile devices include portable laptop computers. Because these arguments have no merit for all the reasons explained in Section V. C, Petitioner cannot prevail on Ground III.

Petitioner first asserts that “PC Magazine describes the iBook as a ‘portable’ laptop computer for mobile use, and it includes ‘wireless technology’ that allows users to ‘roam up to 150 feet’ from a base station.” Pet., 67 (citing EX1007, 10). But a “portable” computer is not a mobile device as that term is used in the ’109 Patent. *U.S. Auto. Ass’n*, 2019 WL 3423652, at *11 (“The Court understands that under its customary meaning, a ‘mobile device’ is distinct from a ‘portable device’ in that the ‘mobile device’ is a handheld device whereas a ‘portable device’ would encompass a device such as a laptop computer.”). Instead, as noted above, “mobile device” means a handheld computing device. A laptop computer is not a handheld computing device. *Id.*; EX2009, ¶¶54-56; 106-107, 110, 113. Indeed, as Petitioner acknowledges, its own reference states that the iBook is a “portable” computer, not a mobile device. EX1007, 10; EX2009, ¶56.

Petitioner next asserts a series of reasons purporting to show why a “POSITA would have been motivated to use laptops, such as the iBook disclosed in PC Magazine, as the ‘client/terminal computers’ in Wiltshire.” Pet., 68. Even if a person of skill in the art were so motivated, a laptop computer is not a “mobile device,” as discussed *supra*, and would not satisfy the requirement of a mobile device in the claims. But Petitioner’s arguments for motivation also fail because they are either wrong, unsupported by evidence, or both.

Petitioner’s first argument is that Wiltshire’s disclosure that “any type of cost effective special purpose or general purpose computer” can be used as client/terminal computer 120 includes the iBook in PC Magazine. Pet., 68 (quoting EX1004, 5:14-17). Petitioner’s argument ignores the context of Wiltshire’s system. Wiltshire’s system was a commercial gambling system in which the client computers are equipped to facilitate that purpose. *See* ID, 33-34 (“Wiltshire’s system is directed at commercial gaming where gaming stations include ‘a display device, a wager or bet-acceptor, and controls such as buttons, keyboards, levers or the like,’ and support casino games.”); EX2009, ¶111. For example, Wiltshire disclosed that “only wagering input and display output operations [are] executed on the client/terminal computers.” EX1004, Abstract; *see also id.*, 2:45-51. As noted above, Figure 1D shows a “Wager-Acceptor” 150 on each client/terminal computer 120, which Petitioner asserts can be an iBook:

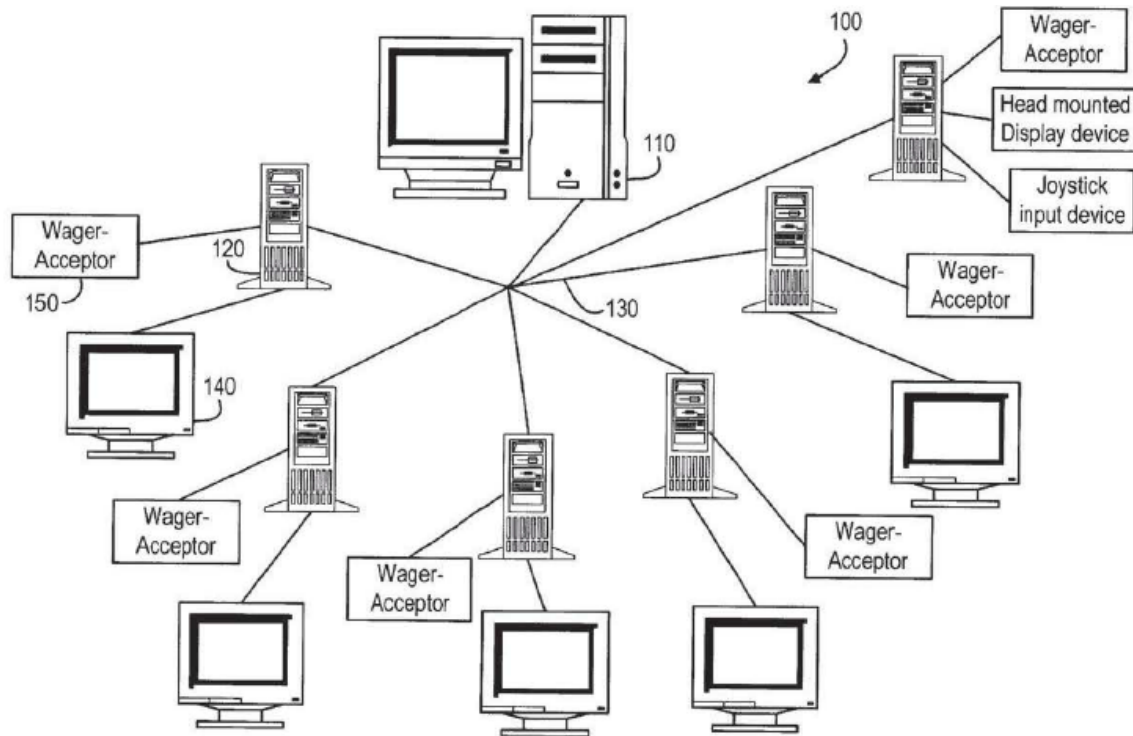


Fig. 1D

EX1004, Fig. 1D; *see also id.*, Fig. 1A (same), 1:15-18. Also, Wiltshire disclosed that Wager-Acceptors are things like “a coin collector, a bill collector, a smart-card reader, a credit-card reader, etc.” *Id.*, 4:30-33. Petitioner does not explain how an iBook, even if it could be client/terminal computer 120, would function with a Wager-Acceptor attached, much less be mobile. Even if Petitioner had explained that, a person of skill in the art would not have thought a mobile coin or bill collector or even a mobile device containing credit card information, was a good idea because mobility makes theft much easier. EX2009, ¶112. The conventional level of **immobility** of Automated Teller Machines shows how absurd Petitioner’s proposed motivation is. *E.g.*, EX2006 (U.S. Pat. No. 6,266,930), 1:14-30 (“A variety of

security and burglarproof mechanisms have conventionally been proposed, especially to those automatic transaction devices which carry cash, such as vending machines and ATMs [D]ue to the development of the burglarproof mechanisms, burglars tend to prefer stealing a vending machine entirely In particular, the recent trend in miniature equipment has facilitated to carry [sic] the entire machine.”); EX2009, ¶112. Indeed, Wiltshire repeatedly refers to its client computers as gaming *stations* for good reason. *See, e.g.*, EX1004, Abstract, 2:22-3:3 (referring to “gaming stations” of Wiltshire’s system); ID, 33 (describing Wiltshire’s system as “directed at commercial gaming” and including “gaming stations”); *see also* EX2011 (defining “station” as “a place or position in which a person or thing is normally located”).

Petitioner next re-uses its mischaracterization of Wiltshire’s system, asserting that “Wiltshire explains that its system can be used for ‘mobile gaming’ when the client devices have ‘wireless communication pathways.’” Pet., 68 (quoting EX1004, Abstract). As noted above in Section V. C.2, that is not what Wiltshire disclosed. Rather, as the Board correctly observed, the mention of “wireless communication pathways” “relates to the use of ‘a stereo head-mounted display together with a joystick input device ... allow[ing] a patron to participate in a mobile gaming environment.’” ID, 34; *see also* EX1004, Abstract; EX2009, ¶108. Annotated Figure 1D in Section V. C.2 *supra* confirms this understanding. Thus, Petitioner’s

mischaracterization of Wiltshire does not provide a reason to use a laptop computer as a client. EX2009, ¶¶108-109.

Petitioner’s third argument is that “using a mobile device for a client device would have been just one of a finite number of known options contemplated by a POSITA for use in Wiltshire—either the client devices can be non-mobile, or the client devices can be mobile.” Pet., 69. The Institution Decision relied on this theory and Petitioner’s “obvious to try” theory. ID, 39 (citing *id.*). First, the options are not so limited because a laptop is not a mobile device, meaning there are, for example, at least portable devices as well not mentioned by Petitioner. Second, the fact that mobile devices were known, which has not been shown by evidence in this record, is not, by itself, a reason to use them in Wiltshire’s system. *L.A. Biomed. Rsch. Inst. at Harbor-UCLA Med. Ctr. v. Eli Lilly & Co.*, 849 F.3d 1049, 1064 (Fed. Cir. 2017) (“In the case of a combination of references that together disclose all the limitations of the claimed invention, the adjudicator must determine whether there was an ‘apparent reason to combine the known elements in the fashion claimed by the patent at issue’” (quoting *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007))). Petitioner does not even suggest, for example, that a person of skill in the art would have had a reason to use a mobile phone or PDA in Wiltshire’s commercial gambling system.

Also, Petitioner’s “obvious to try” attorney argument cannot substitute for a lack of motivation to combine. *See Palo Alto Networks, Inc. v. Finjan, Inc.*, IPR2015-01979, Paper 62 at 62-63 (P.T.A.B. Mar. 15, 2017) (“It is not enough to assert that the prior art provides two options and that it would have been predictable to implement either. An obviousness rationale generally requires some identification of ‘a design need or market pressure to solve a problem’ before looking at the ‘finite number of identified, predictable solutions.’” (quoting *KSR*, 550 U.S. at 421)).

Here, the Institution Decision pointed to Dr. Fuchs’ testimony that “the personal computer industry had already begun shifting towards offering viable mobile laptop products to the general public” and that “many businesses competed to offer their own laptop models to potential customers.” ID, 39 (citing EX1002 ¶220). But “obviousness concerns whether a skilled artisan not only ***could have made*** but ***would have been motivated to make*** the combinations or modifications of prior art to arrive at the claimed invention.” *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (bold added). Petitioner’s reliance on the existence of laptop products, at a time when laptop computers were only beginning to catch on in the personal computer industry, is “merely a bald statement about what could have been achieved at the time of the invention.” *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-00582, 2019 WL 6790791, at *8 (P.T.A.B. Aug. 5, 2019). Even if

such a bald statement were sufficient to establish motivation to combine (and it is not), the Petition did not provide any evidence that use of laptop computers had gained traction in the commercial context. Moreover, for all the reasons discussed above including the ability to accept money, Wiltshire's clients were not suitable for using even portable devices, much less mobile devices, which is why Wiltshire never suggested using them. EX2009, ¶¶111-112. Indeed, that is why even present-day commercial gambling establishments still use large, bulky gaming stations, as Dr. Fuchs admitted. *See* EX2010, 58:2-60:9. Dr. Fuchs described a typical modern day computerized slot machine as "floor-mounted" and "four feet tall" even though "I suspect the innards were very small." *Id.*, 59:6-19. Petitioner cannot point to any apparent reason to use a laptop as a gambling station when every incentive is to make gambling stations, like ATM machines, hard to raid or steal. *E.g.*, EX2006, 1:14-30. Even Wiltshire itself acknowledged that its invention was designed to "substantially increase[] the tamper resistance of individual gaming stations." EX1004, 2:22-25. Petitioner cannot show its proposed use of laptops could possibly benefit Wiltshire's commercial gambling system.

Petitioner's fourth argument is that "using a known mobile device such as a laptop described in PC Magazine would have been a simple substitution of one known element for another to obtain predictable results." Pet., 69. Even if the results were predictable, and they were not, that does not mean that a person of skill in the

art would have been motivated to achieve them given the constraints on Wiltshire’s commercial gambling system. Petitioner’s argument provides no independent reason to use a laptop in Wiltshire’s system, much less a mobile device. Further, the Board correctly determined in its Institution Decision that Petitioner has not shown, based on Wiltshire’s disclosure, “that [Wiltshire’s] computers *could be* laptops.” ID, 34.

Petitioner next asserts that “there would have been a reasonable expectation of success in using the laptops described in PC Magazine as the ‘client terminal computers’ of Wiltshire’s computing system.” Pet., 69. But Petitioner does not address the requirements of Wiltshire’s system other than the processor and bandwidth. *Id.*, 69-70. Petitioner does not address, for example, why a person of skill in the art would use a laptop computer as a client in a gambling system like Wiltshire’s, much less a mobile device, where mobility is a detriment. *E.g.*, EX2006, 1:24-30 (“[T]he recent trend in miniature equipment has facilitated to carry [sic] the entire machine.”); EX2009, ¶¶111-112.

Because Petitioner’s combination does not disclose or suggest a mobile device, Petitioner cannot prevail on Ground III. Even if the Board were to find that a laptop was a mobile device, which it is not, Petitioner failed to provide a reason to use the iBook in PC Magazine in place of the gambling device in Wiltshire’s commercial system, which is an independent reason Ground III fails.

E. Petitioner Cannot Prevail On Its Ground II Challenge To Claim 2

Petitioner asserts in Ground II that claim 2 would have been obvious over Wiltshire in view of Saha and Chen. Pet., 3. Claim 2 depends from claim 1 and adds the requirement that “a first bandwidth for transmitting the user input data between the client device and the server and a second bandwidth for transmitting the compressed updated image from the server to the client device are asymmetric.” EX1001, 10:3-7. Petitioner admits that Wiltshire did not disclose “using a first bandwidth for the client to server transmissions and a second different bandwidth for the server to client transmissions” but nevertheless asserts that “Chen does do so.” Pet., 59. But Petitioner fails to explain why a person of ordinary skill in the art would have been motivated to combine Chen’s ADSL for use on plain old telephone service copper loops installed in homes with Wiltshire’s gambling system that was not disclosed or suggested for use in homes. Petitioner cannot prevail on its Ground II challenge.

1. Chen’s ADSL Is Designed To Optimize Bandwidth Over Copper Telephone Wires In Homes

Petitioner proposes using Chen’s ADSL as the “communication pathways 130” of Wiltshire. Pet., 61. But Petitioner’s proposed use of Chen’s ADSL for home installation relies on hindsight and ignores Wiltshire’s description of its system as a gambling system for commercial establishments that is not disclosed or suggested to be installed in homes. Chen only disclosed using ADSL in the residential context

and described a proposal for ADSL “having the traditional duplex [plain old telephone service] channels, occupying the frequency band between 300 Hz to 4 kHz, an upstream control channel of 16-64 kb/s, occupying the frequency band between 10 kHz to 50 kHz, and a downstream channel of 1.544 Mb/s, occupying the frequency band between 100 and 500 kHz.” EX1006, 5; *see also id.*, 4 (“Asymmetrical digital subscriber line (ADSL) is one of a variety of digital subscriber line (DSL) systems built upon the existing *twisted-pair telephone subscriber loop plant*.”); EX2010, 69:8-19 (Dr. Fuchs agreeing that “twisted-pair telephone subscriber loop plant” are copper wires). Chen justified the use of ADSL for residential applications: “Researchers realized that *for residential applications*, a POTS service, where the traditional telephone service can be provided whether the ADSL is on or off, was more practical than ISDN service.” EX1006, 5; *see also* EX2010, 68:15-69:7. Chen even included an appendix entitled, “The Effect of In-House Wiring,” discussing “[a] simulation study of the effect of the in-house wiring.” EX1006, 7, 8. Thus, Chen taught the use of ADSL in residential homes.

The Board’s assertion that “Chen does not *expressly* limit the use of ADSL to residential service” (ID, 43) sidesteps that Chen taught the use of ADSL solely in the residential context. The Board’s assertion that “Chen does not expressly limit the use of ADSL to residential service” ignores Chen’s disclosures and instead relies on what Chen did *not* say, which suggests impermissible hindsight. *See In re Fine*,

837 F.2d 1071, 1075 (Fed. Cir. 1988) (“One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”).

Even if there were a way to bridge the gap between Chen’s disclosure of ADSL for residential purposes and Wiltshire’s commercial gambling system, Petitioner offers no evidence to show that ADSL was an optimum choice or even an adequate choice for a commercial establishment. ADSL was meant to make the most of a preexisting telephone connection to residential homes. Petitioner offers no evidence or suggestion to support its use outside of that context. In the context of obviousness, a reference must be considered for all it teaches. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987) (“[A] prior patent must be considered in its entirety, i.e., as a *whole*, including portions that would lead away from the invention in suit”); *Akzo N.V. v. U.S. Int’l Trade Comm’n*, 808 F.2d 1471, 1481 (Fed. Cir. 1986) (“[P]rior art references before the tribunal must be read as a whole and consideration must be given where the references diverge and teach away from the claimed invention.”); *In re Wesslau*, 353 F.2d 238, 241 (C.C.P.A. 1965). Petitioner’s failure to consider Chen’s narrow focus on residential applications dooms its proposed obviousness combination.

2. Wiltshire Taught A Gambling System For Commercial Establishments

In contrast to Chen’s residential ADSL, Wiltshire taught a gambling system for commercial use. Wiltshire taught a “computer gaming system” in which “the gaming programs are executed entirely on the server/host computer, with only wagering input and display output operations being executed on the client/terminal computers” EX1004, Abstract. As explained in detail above in Section V. D and as confirmed by the Board, “Wiltshire’s system is directed at *commercial gaming* where gaming stations include ‘a display device, a *wager or bet-acceptor*, and controls such as buttons, keyboards, levers or the like,’ and support casino games.” ID, 33-34 (citing EX1004, 1:16-18). Thus, a person of ordinary skill in the art would understand Wiltshire’s system was designed for a commercial gambling establishment. EX2009, ¶111. Wiltshire never taught or suggested using its client computers in residential homes.

Wiltshire explained that its system was designed to ease the maintenance and regulatory burden on individual gambling stations, which again only makes sense in a commercial gambling operation, such as a casino. Wiltshire explained that “[t]he present invention provides a computer gaming system and method of operation thereof that both drastically reduces the cost and substantially increases the tamper

resistance of individual gaming stations.” EX1004, 2:22-25. As Wiltshire explained in detail:

Since the gaming programs and the associated gaming display generation programs are executed entirely on the server/host computer, with only input wagering and output screen display related operations being executed on the client/terminal computers, the cost of the hardware and software required for each client/terminal computer is greatly reduced. Moreover, the “fairness or regulatory compliance” of the various computer gaming programs being executed on the server/host computer can be continually monitored by the duly authorized regulators in whose jurisdiction the server/host computer and the client/terminal computers reside. Furthermore, the periodic maintenance leading to reliability and availability improvements can also be performed largely on the server/host computer. Additionally, a patron using any one of the cluster of client/terminal computers can access any of the computer gaming programs being concurrently executed on the server/host computer. Modifications and upgrades of the computer gaming programs only need to be performed on the server/host computer, thereby minimizing the unavailability of the gaming stations.

Id., 2:45-65. Wiltshire never described the use of the client/terminal computers of its commercial gambling system in residential homes.

3. Petitioner Fails To Show Why A Person Of Skill In The Art Would Use ADSL For Homes In Wiltshire's System For Commercial Gambling Establishments

Petitioner proposes several reasons why a person of ordinary skill in the art would have been motivated to apply Chen's teaching of ADSL to Wiltshire's commercial gambling system, but Petitioner fails to address why a person of ordinary skill in the art would want to use a technology meant to optimize bandwidth on residential telephone systems in a commercial establishment. EX2009, ¶¶95-100. Petitioner's obviousness theory requires departure from the teachings of at least one of its references. *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed. Cir. 2018) ("A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant."). Petitioner therefore cannot carry its burden of showing invalidity of claim 2.

First, Petitioner argues that Wiltshire describes using a communication pathway between the server and clients, such as the Internet, and Chen teaches that ADSL is an ideal vehicle for Internet access. Pet., 61; EX2009, ¶96. But as discussed above in Section V. E.1, Petitioner is overgeneralizing Chen. Chen's disclosure relates specifically to residential applications, not commercial establishments. Petitioner fails to even assert, much less show, that Chen teaches

the use of ADSL in anything other than residential applications. Moreover, Wiltshire's disclosure that the communication pathway between server and clients may be the Internet does not in any way suggest that the clients are located in residences. Petitioner does not assert that it does, much less provide any evidence to support such an assertion. To close this gap, Petitioner would have to either depart from Chen's teaching of use of ADSL in residences or supplement Wiltshire's disclosure with placing clients in residences. Petitioner argued neither, and neither is supported by this record. *Panduit*, 810 F.2d at 1568 (“[A] prior patent must be considered in its entirety, i.e., as a *whole*, including portions that would lead away from the invention in suit”); *Akzo*, 808 F.2d at 1481 (“[P]rior art references before the tribunal must be read as a whole and consideration must be given where the references diverge and teach away from the claimed invention.”).

Second, Petitioner asserts that Chen's ADSL is well-suited to the concept of video-on-demand service and that Wiltshire's system is a form of video-on-demand service. Pet., 61. But that argument fails for multiple reasons. First, it does not address the gap between Chen's disclosure of ADSL for residences, and Wiltshire's commercial system. Even if Chen's ADSL were well-suited to video on demand in residences, that does not suggest that a person of skill in the art would have thought it was a good solution for a video-on-demand system in a commercial establishment. Second, the Board agreed in its Institution Decision that “Wiltshire [did] not disclose

that its system is a video-on-demand system.” ID, 44. Petitioner simply states that it is with quotation marks around “video-on-demand,” but the only citation is to Chen. Petitioner’s expert repeats verbatim the same point without any additional evidence. EX1002, ¶198. Thus, Petitioner has failed to provide any evidence to carry its burden of proof on this point. Moreover, Wiltshire’s system was plainly not video-on-demand. EX2009, ¶97. A patron in Wiltshire’s system did not push “Play” and sit back and watch a video. It was a gambling system where a patron input money and wagered to play an interactive game. EX1004, 12:10-13 (describing included games as “any casino game or other non-casino games where players play against each other for money with the house taking a percentage of the stake for providing the game”). Thus, Petitioner’s point is factually incorrect and is unsupported in any event.

The Board in its Institution Decision nonetheless asserted that “Petitioner persuasively argues ADSL may have been ‘well-suited to exchange the same type of information (i.e., user input controls on one hand and image/video data on the other) as disclosed in Wiltshire.’” ID, 44 (citing Pet., 62). But as presented, Petitioner’s assertion “is actually a statement of anticipated success in combining the references, rather than an articulated reason to combine them in the first instance.” *Hulu*, 2019 WL 6790791, at *8. “[T]he fact that the combination might

have been successful does not mean that an ordinarily skilled artisan would have been motivated to make the combination.” *Id.* (citing *Belden*, 805 F.3d at 1073).

Moreover, Petitioner’s assertion that “ADSL described in Chen is well-suited for use as the communication pathway in Wiltshire’s client-server system” (Pet., 62) is misguided because it assumes that a commercial gambling operation, like that in Wiltshire, could operate successfully even though it would only be receiving a single video stream. Indeed, Petitioner’s argument is based on ADSL providing sufficient bandwidth for only a single MPEG video stream. *See* ID, 44-45. First, Petitioner relies on Chen’s disclosure that ADSL provides a downstream bandwidth of 1.544 Mb/s on a single pair of copper wires. Pet., 60 (citing EX1006, 5); ID, 40-41; EX2010, 70:1-9; EX2009, ¶103. Second, Petitioner relies on Chen’s disclosure that an MPEG video stream requires rates of about 1.3 Mb/s. Pet., 63-64 (citing EX1006, 5); ID, 44-45 (“Dr. Fuchs further testifies that a person of ordinary skill in the art would have understood that sending compressed updated images from Wiltshire’s server to the client requires higher bandwidth of at least 1.3 Megabits per second when an MPEG stream is used.”); EX1002, ¶200; EX2010, 70:10-72:15; EX2009, ¶103. Thus, with a bandwidth requirement of 1.3 Mb/s for an MPEG video stream, Chen disclosed that ADSL’s downstream bandwidth can provide only *one* MPEG video stream on a single pair of copper wires. EX2009, ¶¶103-104. Given that a commercial gaming operation would likely have tens of gaming stations in a

single location and a remote server (*id.*, ¶104), no reasonable POSITA would have thought ADSL could have been successfully employed. Even if Petitioner were to rely on Wiltshire’s disclosure that the “bandwidth requirement can be further reduced using data compression techniques to about 100 KB/sec” (EX1004, 7:62-64), that is still a bandwidth requirement of 0.8 Mb/s, meaning ADSL’s downstream bandwidth disclosed in Chen can provide still *just one video stream*. EX1002, ¶224 (“Wiltshire’s stated bandwidth requirement may be *as low as* ‘100 KB/sec’”); EX2010, 15:2-4, 19:20-20:1, 74:11-21, 75:21-76:7. Petitioner’s assertion that Chen’s ADSL was well-suited for Wiltshire’s commercial system is thus refuted by its own expert.

Third, Petitioner asserts that “using ADSL would have been just one of a finite number of known options for providing Internet connectivity described in Wiltshire.” Pet., 63. Petitioner fails to provide evidence to support this assertion. Petitioner argues that “broadband Internet access was typically provided by one of two options: ADSL or cable networks” and cites its expert’s declaration for support. *Id.* Its expert repeats verbatim the same sentence and cites a PC Magazine article for support. The PC Magazine article states, “Cable modems and DSL lines are proliferating faster than anyone predicted—and so are home and SOHO networks.” EX1007, 17. The PC Magazine article does not state what “typical” Internet connection options were. Nor does it state that the “DSL” referenced is ADSL as

disclosed in Chen. EX2009, ¶¶98-99. Moreover, it is describing residential Internet service. EX1007, 17 (“[S]o are home and SOHO networks.”). Petitioner again fails to offer any argument or evidence to support applying these teachings to the commercial system of Wiltshire.

Fourth, Petitioner asserts that “a POSITA would have had a reasonable expectation of success with the combination of Chen with Wiltshire and Saha.” Pet., 63. But this argument is contradicted by the record evidence as discussed above (ADSL providing only enough bandwidth for a single video stream), and even if it were not, the argument does not provide a reason to combine the references. *See Belden*, 805 F.3d at 1073 (“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.” (bold added)); EX2009, ¶¶100-105.

Fifth, Petitioner asserts that Chen, Wiltshire, and Saha are analogous art to the ’109 Patent. Pet., 64. Even if that were true, and it is not, it does not provide a reason to combine the systems or bridge the gap in Petitioner’s obviousness case.

Petitioner cannot prevail on its assertion that the combination of Chen with Wiltshire and Saha would have rendered claim 2 obvious as asserted in Ground II.

VI. CONCLUSION

For the foregoing reasons, Patent Owner respectfully requests that the Board find that Petitioner has failed to carry its burden of showing invalidity of the Challenged Claims.

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Dated: September 3, 2021

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that foregoing **PATENT OWNER’S RESPONSE TO PETITION FOR *INTER PARTES* REVIEW**, exclusive of the parts exempted as provided in 37 C.F.R. § 42.24, contains 13,848 words and therefore complies with the type-volume limitations of 37 C.F.R. § 42.24.

ARMOND WILSON LLP

Dated: September 3, 2021

By: /Douglas R. Wilson/

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CERTIFICATE OF SERVICE

The undersigned certifies that pursuant to 37 C.F.R. § 42.6(e), a true copy of the foregoing **PATENT OWNER’S RESPONSE TO PETITION FOR *INTER PARTES* REVIEW AND EXHIBITS 2007-2016**, are being served electronically on September 3, 2021 to the following lead and back-up counsel for Petitioner to the following email addresses:

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