

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VERIZON BUSINESS NETWORK SERVICES INC.,
Petitioner,

v.

HUAWEI TECHNOLOGIES CO. LTD.,
Patent Owner.

IPR2020-01080
Patent 9,521,366 B2

Before TREVOR M. JEFFERSON, CHARLES J. BOUDREAU, and
KEVIN C. TROCK, *Administrative Patent Judges*.

JEFFERSON, *Administrative Patent Judge*.

DECISION
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

In response to Verizon Business Network Services Inc.’s (“Petitioner”) Petition (Paper 2, “Pet.”), we instituted an *inter partes* review of claims 1, 5, 8, 12, 15–17, 19, and 20 of U.S. Patent No. 9,521,366 B2 (Ex. 1001, “the ’366 patent”). Paper 11 (“Inst. Dec.”). During the trial, Huawei Technologies Co. Ltd. (“Patent Owner”) filed a Response (Paper 19, “PO Resp.”), Petitioner filed a Reply (Paper 27, “Reply”), and Patent Owner filed a Sur-reply (Paper 37, “Sur-reply”). An oral hearing was held with the parties, and a copy of the transcript was entered into the record. Paper 39 (“Tr.”).¹

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. Based on the record before us, Petitioner has shown, by a preponderance of the evidence, that claims 1, 8, 15, and 16 are unpatentable. Petitioner has not shown, by a preponderance of the evidence, that claim 5, 12, 17, 19, and 20 are unpatentable.

II. BACKGROUND

A. The ’366 Patent

The ’366 patent describes “a method and apparatus for playing a conference signal, a video conference terminal, and a mobile device, to improve effects of displaying a main stream signal and a presentation stream signal.” Ex. 1001, 2:27–31, code (57). Specifically, the ’366 patent

¹ Although Petitioner appeared at the oral hearing, it did not make a presentation and instead rested on the arguments presented in its papers and the supporting exhibits. Tr. 6:5–9.

discloses a videoconference system where a “main stream” signal (such as the video image of a presenter) is displayed on a main screen at a video conference site, and a “presentation stream” signal (such as a document) is displayed on mobile devices held by conference participants at the video conference site. *Id.* at 1:54–62, 2:32–46. The ’366 patent states that this is an improvement over the prior art because the two signals “are prevented from being displayed in a PIP [picture in picture] manner, thereby improving [the] effects of playing the main stream signal and the presentation stream signal, and further improving conference experience of the conference participant and improving conference efficiency.” Ex. 1001, 5:15–21.

Figure 1, below, shows a structural diagram of a video conference system of the prior art. Ex. 1001, 5:25–26.

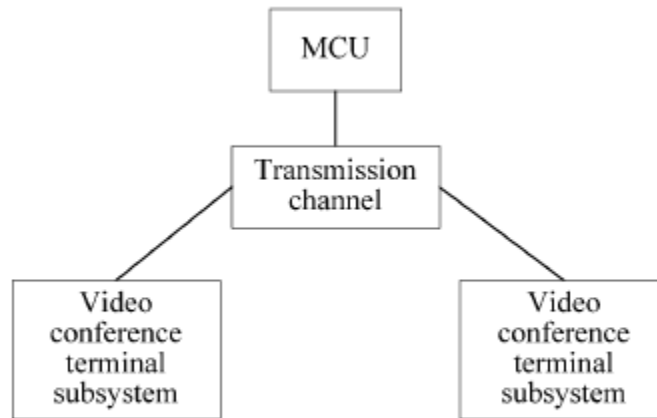


FIG. 1

Figure 1 depicts “a video conference system [that] includes at least two video conference terminal subsystems, a transmission channel, and a multipoint control unit (MCU).” *Id.* at 1:32–35. Figure 2, below, depicts the video conference terminal subsystem of the prior art. *Id.* at 5:27–28.

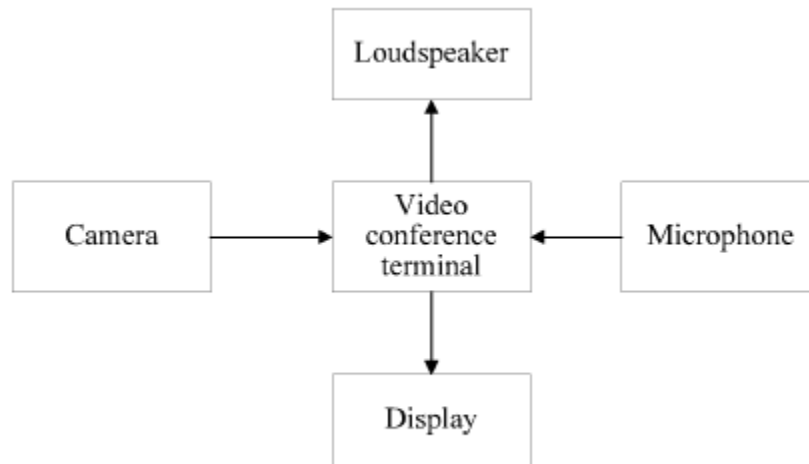


FIG. 2

Figure 2 shows

a video conference terminal subsystem located at each [conference] site includes a video conference terminal (VCT), a video input device (for example, a camera or a camera array) for collecting a video signal or an image signal, an audio input device (for example, a microphone or a microphone array), an audio output device (for example, a loudspeaker or a loudspeaker array) for playing a received audio signal, and a display device (for example, a display or a projector) for displaying a received video (or image) signal.

Id. 1:35–44

The '366 patent discloses that the mobile device that receives the main stream signal or presentation stream signal “is a smart mobile terminal, for example, a tablet computer (e.g. an iPad), a notebook computer, or a smartphone.” Ex. 1001, 6:56–59. In addition, the primary playing device “may be a device shared by conference participants at the site (that is, a device that may be seen and/or heard by all the conference participants at the site), for example, a large screen at the site.” *Id.* at 7:1–5.

Figure 5A of the '366 patent, reproduced below, provides one embodiment of the disclosed system. Ex. 1001, Fig. 5A, 8:19–23.

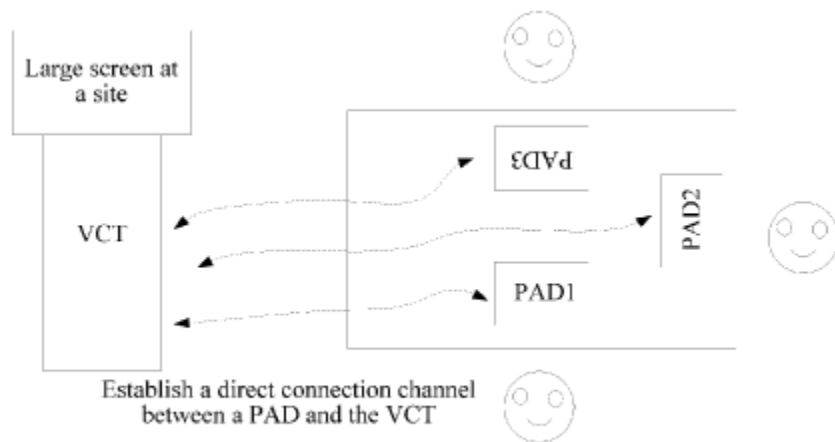


FIG. 5A

Figure 5A shows the VCT “establishing a connection channel between a mobile device held by a conference participant [PAD1, PAD2 and PAD3] and a video conference terminal that are at a site.” *Id.* at 8:11–18. This connection may be a “direct connection channel between the mobile device held by the conference participant and a VCT that are at the site or establishing, using another mobile device, an indirect connection channel between the mobile device held by the conference participant and a VCT that are at the site.” *Id.* The ’366 patent describes that a “direct connection channel between the mobile device and the VCT refers to a channel on which no routing mobile device (or relay mobile device) exists between the mobile device and the VCT, and the mobile device is directly connected to the VCT” as shown in Figure 5A. *Id.* at 8:19–23.

The ’366 patent further discloses that an “indirect connection channel between the mobile device and the VCT includes a connection channel between the mobile device and a routing mobile device (or a relay mobile device), and a connection channel between the routing mobile device (or the relay mobile device) and the VCT.” Ex. 1001, 8:24–32. Thus, “the mobile

device is not directly connected to the VCT, and a routing mobile device or a relay mobile device exists between the mobile device and the VCT.” *Id.*

B. Illustrative Claims

Claims 1 and 8 are independent and illustrative of the claims under challenge:

1. [1.1] A method for playing a conference signal, comprising:

[1.2] establishing a connection channel between a plurality of mobile devices held by a plurality of conference participants located at a site and a video conference terminal located at the site, wherein the video conference terminal comprises a primary playing device;

[1.3] sending, through the established connection channel, a first type signal in to-be-played signals to each of the mobile devices for play, wherein the to-be-played signals are signals that are received by the video conference terminal and are to be played; and

[1.4] sending a second type signal in the to-be-played signals to the primary playing device of the site for play,

[1.5] wherein the first type signal is a presentation stream signal when the second type signal is a main stream signal, or the first type signal is the main stream signal when the second type signal is the presentation stream signal,

[1.6] wherein the presentation stream signal comprises at least one of a document and a demonstration slide to be displayed, and

[1.7] wherein the main stream signal comprises real-time content to be displayed.

8. [8.1] A video conference terminal, comprising:

[8.2] a processor configured to establish a connection channel between a plurality of mobile devices held by a plurality of conference participants located at a site and the video conference terminal located at the site; and

[8.3] a signal distributor configured to:

[8.4] send, through the connection channel established by the processor, a first type signal in to-be-played signals to each of the mobile devices for play, wherein the to-be-played signals are signals that are received by the video conference terminal and are to be played; and

[8.5] send a second type signal in the to-be-played signals to a primary playing device of the site for play,

[8.6] wherein the first type signal is a presentation stream signal when the second type signal is a main stream signal, or the first type signal is the main stream signal when the second type signal is the presentation stream signal,

[8.7] wherein the presentation stream signal comprises at least one of a document and a demonstration slide to be displayed, and

[8.8] wherein the main stream signal comprises real-time content to be displayed.

Ex. 1001, 29:13–34, 31:12–35 (bracketed numbering added).

C. Instituted Grounds of Unpatentability

We instituted *inter partes* review of the challenged claims of the '366 patent on the following grounds. Pet. 33, 40–69; Inst. Dec. 7, 41.

Claims Challenged	35 U.S.C. § ²	References/Basis
1, 5, 8, 12, 15–17, 19, 20	103	Saleh, ³ Chu ⁴
19, 20	103	Saleh, Chu, Tian ⁵

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended various provisions of 35 U.S.C. Because the '288 patent was filed before March 16, 2013 (the effective date of the relevant amendment), the pre-AIA versions of those provisions apply.

³ Saleh, U.S. Patent No. 8,208,002 B2, issued Jun. 26, 2012 (Ex. 1004).

⁴ Chu, U.S. Publ’n No. 2013/0106977, published May 2, 2013 (Ex. 1005).

⁵ Tian, U.S. Patent No. 8,890,923 B1, issued Nov. 18, 2014 (Ex. 1006).

In support of its arguments, Petitioner relies on the Declarations of Samrat Bhattacharjee, Ph.D. (Exs. 1003, 1023). Dr. Bhattacharjee was cross-examined by Patent Owner, and a transcript of his deposition has been entered into the record. Ex. 2020. Patent Owner relies on Declarations by Tajana Šimunić Rosing, Ph.D. Exs. 2015. Dr. Rosing was cross-examined by Petitioner, and a transcript of her deposition has been entered into the record (Ex. 1022).

D. Real Parties in Interest

Petitioner identifies Verizon Business Network Services, Inc. and Cisco Systems, Inc. as real parties in interest. Pet. 1. In addition, “out of an abundance of caution in light of prior challenges to the named real parties-in-interest in separate and unrelated IPR petitions,” Petitioner further identifies Verizon Communications Inc., Cellco Partnership d/b/a Verizon Wireless, and Verizon Corporate Resources Group LLC, “solely to the extent that Patent Owner contends that these separate legal entities should be named real parties-in-interest.” *Id.* Petitioner additionally notes that Verizon Communications Inc. “has several hundred affiliated entities and each of these entities agrees to be estopped under the provisions of 35 U.S.C. §315 as a result of any final written decision in the requested IPR to the same extent that Petitioner is estopped.” *Id.*

Patent Owner identifies only itself as a real party in interest. Paper 3, 2.

E. Related Proceedings

The parties identify one related federal district court case, *Huawei Technologies Co. v. Verizon Communications, Inc.*, Case No. 6:20-cv-00090 (W.D. Tex.). Pet. 2; Paper 3, 2.

III. DISCUSSION

A. Legal Principles

A claim is unpatentable for obviousness under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of nonobviousness, i.e., secondary considerations.⁶ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)); see *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016) (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006)).

⁶ The parties do not address objective indicia of nonobviousness, which accordingly do not form part of our analysis.

B. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. “The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). The “person of ordinary skill in the art” is a hypothetical construct, from whose vantage point obviousness is assessed. *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998). “This legal construct is akin to the ‘reasonable person’ used as a reference in negligence determinations” and “also presumes that all prior art references in the field of the invention are available to this hypothetical skilled artisan.” *Id.* (citing *In re Carlson*, 983 F.2d 1032, 1038 (Fed. Cir. 1993)).

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). “Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case.” *Id.*

Petitioner proposes that a person of ordinary skill in the art (“POSA”)

would have had a working knowledge of video conference systems and screen sharing, including knowledge of how real-time content and presentation data were shared during videoconferences. EX1003, ¶¶ 23–25; *see also id.*, ¶¶ 1–11. A POSA would have had a bachelor’s degree in computer science, computer engineering, or an equivalent degree, and 3–4 years of professional experience with distributed multimedia or videoconference systems. *Id.*, ¶ 24. The lack of work experience can be remedied by additional education, and vice versa. *Id.*

Pet. 33–34. Petitioner supports its proposal with testimony by Dr. Bhattacharjee. Ex. 1003 ¶¶ 23–24.

Patent Owner proposes that a person of ordinary skill in the art would have had Bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and at least 2–3 years of experience in the design or development of telecommunication systems, or the equivalent. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education.

PO Resp. 15–16. Patent Owner supports its proposal with testimony by Dr. Rosing. Ex. 2015 ¶ 13–14.

Both proposals appear reasonable on the record before us. Neither party articulates whether material differences exist between their respective proposals, nor whether the proposals alter the obviousness analysis. Furthermore, we discern no material difference in the application of the parties’ proposals. Accordingly, we apply the proposal articulated by Patent Owner, but would have reached the same conclusion under either party’s proposed level of ordinary skill in the art.

C. Claim Construction

The Board uses “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b) (2019); *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). The specification may reveal a special definition given to a claim term by the patentee. *Phillips*, 415 F.3d at 1316. If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998).

Petitioner proposes several terms for construction. Pet. 24–32. Our Decision on Institution rejected Petitioner’s proposed constructions. Inst. Dec. 21–23. Patent Owner provides no argument in response to Petitioner’s proposed claim constructions, arguing instead that “Patent Owner’s positions on claim interpretation and the ‘part-to-part relationships set forth in the claims’ are included in the arguments” presented with respect to the claim limitation. PO Resp. 16 (citing *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1459 (Fed. Cir. 1984)). We briefly address Petitioner’s contentions below.

a. “Primary Playing Device” (Claims 1, 5, 8, 12, 19, and 20) & “Mobile Device” (Claims 1, 5, 8, 12, 19, and 20)

Petitioner argues that the term “primary playing device” should be construed to mean “a device shared by conference participants at a conference site that has one or more of a picture playing capability, an audio

playing capability or a video playing capability, including without limitation a screen, a television or a sound box.” Pet. 24; Ex. 1003 ¶¶ 69–71.

Petitioner contends that the specification, figures, and claims support this construction showing the capabilities of the primary playing device. Pet 24–26; *see, e.g.*, Ex. 1001, 6:63–67, 29:24–34, 30:29–38, Figure 5A.

Petitioner argues that the term “mobile device” should be construed to mean “a portable terminal capable of displaying picture or video content or playing audio content, including without limitation a laptop or notebook computer, a tablet computer, or a smartphone.” Pet. 26; Ex. 1003 ¶¶ 72–73. Petitioner contends that the specification, figures, and claims are consistent with the proposed construction. Pet. 26–28; Ex. 1003 ¶¶ 72–73.

Upon reviewing Petitioner’s proposed constructions and cited evidence, we find that no claim construction is necessary. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

b. “To-Be-Played Signals” Limitations (Claims 1, 5, 8, and 12)

Petitioner argues that the “to-be-played signals” in independent claims 1, 5, 8, and 12 are sent to both the mobile devices and primary playing devices and “should be construed to make clear that the mobile devices only receive and play either the presentation stream signal or the main stream signal, and the primary playing device receives and plays only the other signal. Pet. 28 (emphasis omitted) (citing Ex. 1001, 29:19–25, 30:21–28, 31:19–26, 32:27–32). For each of the claim limitations containing “to-be-played signals” of claims 1, 5, 8, and 12, Petitioner asserts the construction limits the mobile devices of claims 1, 5, and 8 to receive and play only a first type of signal, while the primary playing device receives and plays a second type of signal. *Id.* at 28–30. Similarly, for claim 12, Petitioner argues that

the player only receives and plays one type of signal, while the primary playing device plays another type of signal. *Id.* at 30.

Petitioner argues that the constructions are consistent with the claims and specification of the '366 patent. *Id.* at 30–31 (citing Ex. 1001, 2:32–46, 4:45–60, Fig. 3 (Steps 302, 303)). Petitioner avers that the Applicant during prosecution of the application for the '366 patent overcame a Section 112 enablement rejection by describing how two different signals are sent to different devices at a conference site to be played. Pet. 31–32 (citing Ex. 1002, 290, 309–311 (Examiner interview noting that “[t]he 112 problems are cleared up when applicant showed how 1 signal stream is going to the conferees and another signal stream is going to the main conference device delineated as ‘VCT’ on the drawings.”); Ex. 1003 ¶ 77). In addition, Petitioner argues that the Applicant argued during examination that the independent claims required separately displaying the first signal on mobile devices and second signal on primary playing devices and distinguished Tian on that basis. Pet. 32; Ex. 1002, 332; Ex. 1003 ¶¶ 78–79.

We are not persuaded by Petitioner’s constructions limiting the “to-be-played signals” received at either the primary player or the mobile (separate player) at the site to *only* be one type of distinct signal. Petitioner’s evidence and argument in support of the narrowed construction for the “to-be-played signals” in claims 1, 5, 8, and 12 address the resulting content displayed at each of the primary playing device or mobile device of each claim. *See* Pet. 30–32. However, Petitioner has not presented persuasive evidence that the Applicant’s arguments during prosecution or the '366 patent specification limits the received and played signals at each

device to *only* the specific type of signal received. Thus, we determine that no claim construction is necessary.

D. Obviousness over Saleh and Chu

Petitioner asserts that claims 1, 5, 8, 12, 15–17, 19, and 20 of the '366 patent would have been obvious over Saleh and Chu. Pet. 40–64. We describe the asserted prior art and address the parties' contentions below.

1. Overview of Asserted Prior Art

We start with an overview of the asserted prior art, Saleh and Chu, and Petitioner's motivation to combine Saleh and Chu.

a. Saleh (Ex. 1004)

Saleh is entitled "Distance Learning Via Instructor Immersion Into Remote Classroom." Ex. 1004, code (54). Saleh "relates generally to videoconferencing systems, and more particularly to distance learning videoconferencing systems." *Id.* at 1:6–8. Figure 6 of Saleh, depicted below, shows "[a] local classroom can include one or more local participants and an instructor/presenter." *Id.* at 2:34–35.

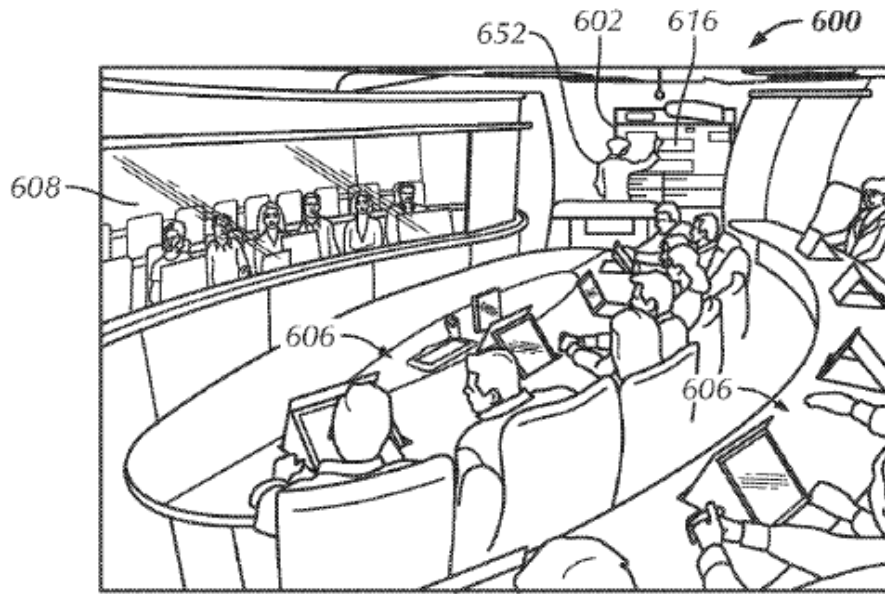


FIG. 6

Figure 6 shows “[i]mage capturing devices, such as cameras, can capture images of the local participants and the local instructor and transmit them to [a] remote classroom.” *Id.* at 2:35–38. Saleh stated that “[t]he remote classroom can include a display screen for displaying received images of local participants, and an instructor display screen for displaying received images of the local instructor.” *Id.* at 2:2:38–41. Figure 6 shows instructor 602 conducting a distance learning session from a local classroom 600. *Id.* at 8:27–30. Local classroom 600 includes local participants 606 and a set of image display screens 608 displaying remote participants. *Id.* Instructor 602 can present education materials “such as a black/white board, presentation screen, touch-screen, etc.” *Id.* at 8:30–32. Saleh teaches that the “[t]he content displayed on the touch sensitive monitor [used by the instructor] can also be displayed on pop-up personal content displays 618, or laptops 620 positioned in front of the local participants.” *Id.* at 8:36–39. Thus, “[t]he instructor can use presentation aids such as interactive white/black board,

document camera, large computer monitors, projection screen, etc., for presenting additional material to the participants.” *Id.* at 3:7–10. Saleh further teaches that “[t]he content shown on the presentation aids can be displayed to the remote participants on a separate display screen placed near the instructor or on personal display screens and laptops.” *Id.* at 3:10–13.

b. Chu (Ex. 1005)

Chu is entitled “Pairing Devices In Conferencing Using Ultrasonic Beacon.” Ex. 1005, code (54). Chu states that “[d]uring the conference, . . . the portable devices communicate audio to the conferencing unit in a wireless connection, while the conferencing unit communicates with a far-end in a conferencing connection.” Ex. 1005 ¶ 5. During video conferences, “the portable device can optionally communicate video in addition to or instead of audio.” *Id.* ¶ 6. Figure 1 of Chu, depicted below, discloses “[a] videoconferencing system [that] has a videoconference unit that use[s] portable devices as peripherals for the system.” *Id.*, code (57), ¶ 16.

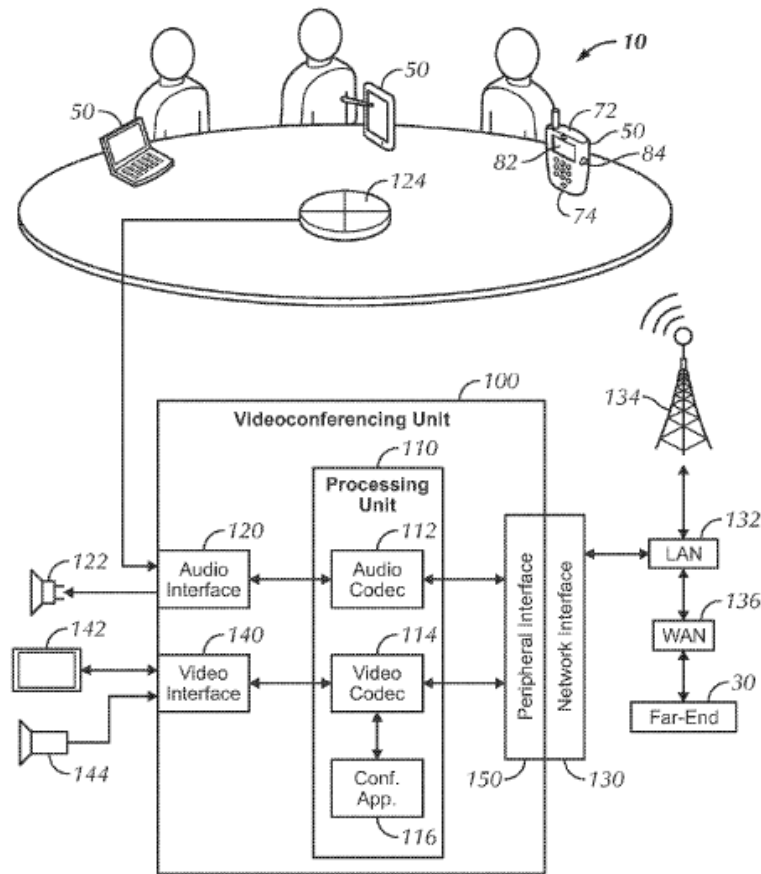


FIG. 1

Figure 1 shows videoconferencing unit 100 with “a loudspeaker 122 coupled to an audio interface 120.” *Id.* ¶ 23. “The system 10 also has a display 142 and one or more cameras 144 coupled to a video interface [140].” *Id.* “Internally, the unit 100 has a processing unit 110 with an audio codec 112 and a video codec 114 respectively connected to the audio and video interfaces 120 and 140 for encoding and decoding audio and video for the videoconference.” *Id.* ¶ 25. “Finally, the unit 100 has a network interface 130 connected to the codecs 112 and 114 for communicating audio and video between the near-end unit 100 and far-end units 30.” *Id.*

Chu discloses that “[d]uring a videoconference, many of the participants would likely have their own portable device 50 available

because portable devices 50 have become a common appliance.” Ex. 1005 ¶ 26. Chu describes that users can use portable devices 50 as videoconferencing peripherals, and that such devices “can include any of a number of available devices, including, but not limited to, peripheral devices, cellular telephones, smartphones, tablet PCs, touch screen PCs, PDAs, hand-held computers, netbook computers, laptop computers, and the like.” *Id.* ¶ 27. Furthermore, “participants can connect their portable devices 50 with the wireless network 134 to the LAN 132 so transport between the portable devices 50 and the videoconferencing unit 100 can use the wireless network 134 and the LAN 132.” *Id.* ¶ 28.

c. Motivation to Combine

Petitioner asserts that Chu’s disclosure of a transport between portable devices 50 and videoconferencing unit 100 via wireless network 134 and LAN 132 constitutes a connection channel and that a person of ordinary skill in the art would have been motivated to combine the connection channel in Chu with the videoconferencing system in Saleh. Pet. 46–47 (citing Ex. 1003 ¶¶ 8989–94, 135, 136; Ex. 1005 ¶¶ 12, 28, 32, 65). Petitioner notes that both references are assigned to the same entity and address similar technical issues regarding the transfer of video and audio signals between local and remote locations and the interaction of mobile devices with the videoconferencing systems. *Id.* at 47 (citing Ex. 1004, 2:35–45, 5:18–21, 8:27–45; Ex. 1005 ¶¶ 5–6, 12, 26–28, 65). Petitioners cite the benefits of efficient arrangement for distributing content to a plurality of mobile devices through videoconferencing terminals including reduced bandwidth. *Id.* at 47–48 (citing Ex. 1003 ¶¶ 91, 92). Finally, Petitioner argues that a person of ordinary skill in the art would have been motivated to use the use the

connection channel between the video conference terminal and the mobile devices taught by Chu to allow user edits to the presentation stream. *Id.* at 48 (citing Ex. 1003 ¶ 93).

Patent Owner argues that Petitioner fails to sufficiently explain why a person would have been motivated to modify Saleh’s original solution, and erringly relies on broad characterizations of the prior art field to show that a person of ordinary skill in the art would have modified Saleh’s teachings. PO Resp. 31–32 (citing *inter alia Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. Nov. 5, 2015); *PersonalWeb Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017)).

Patent Owner further argues that the asserted prior art’s assignment to the same entity, Polycom, Inc., is not informative regarding the motivation to combine. *Id.* Patent Owner’s overview of the prior art notes that Saleh identifies and references well-known conference device products by Polycom (PO Resp. 4) and describes the Polycom products discussed in Saleh as “[c]onsistent with the state of the art” (*id.* at 9). *See id.* at 10–11, 21 (discussing Polycom conference devices). In the present case, we find that the Saleh and Chu are in the same field as well as assigned to the same entity, which supports Petitioner’s arguments regarding the motivation to combine.

Patent Owner further asserts that Petitioner’s arguments regarding efficient distribution are unfounded and erroneous because Saleh does not teach that laptops receive content in the remote classroom. PO Resp. 31–32 (citing Ex. 2015 ¶¶ 70–83). Specifically, Patent Owner contends that Saleh’s references to laptops are only mentioned in reference to local participants (Ex. 1004, 8:30–45 (“laptops 620 positioned in front of the local

participants’)) and not used at remote sites. PO Resp. 32; Ex. 2015 ¶ 72. Patent Owner further argues that Saleh’s statement that “[t]he content shown on the presentation aids can be displayed to the remote participants on a separate display screen placed near the instructor or on personal display screens and laptops” (Ex. 1004, 3:10–13) is ambiguous and subject to “hypothetical revisions that would clarify Saleh’s . . . disclosure.” PO Resp. 33. In sum, Patent Owner argues that Saleh fails to teach use of laptops and thus, Petitioner’s motivation to combine is unfounded. *Id.* at 31–34.

We are not persuaded by Patent Owner’s argument regarding the alleged ambiguity of Saleh’s teachings. *See* PO Resp. 33–34. Considering Saleh’s teachings as a whole, Figure 4B of Saleh “illustrates a remote classroom 450 including remote participants 456” and depicts a laptop being used in the remote classroom. Ex. 1004, 7:40–41, Fig. 4B. Considering Petitioner’s analysis of Saleh as a whole, Figure 4B in combination with Saleh’s teaching that remote participants can use personal display screens and laptops (Ex. 1004, 3:10–13) provides persuasive support that Saleh teaches the use of laptops at the remote classroom. *See* Reply 11; Ex. 1023 ¶ 29.

Patent Owner further argues that an ordinarily skilled artisan would not have combined Chu’s wireless technique with Saleh to pursue reducing bandwidth and that a similar result could be obtained by using Saleh’s pre-installed pop-up personal displays. PO Resp. 35–36; Ex. 2015 ¶¶ 82–83. To the contrary, Patent Owner asserts, combining Chu and Saleh would be bandwidth inefficient and add costly networking equipment. *Id.* Patent Owner’s arguments are unavailing. We note, that “just because better alternatives exist in the prior art does not mean that an inferior combination

is inapt for obviousness purposes.” *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004); *In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012). In other words, “obviousness ‘does not require that the motivation be the *best* option, only that it be a *suitable* option from which the prior art did not teach away.’” *Bayer Pharma AG v. Watson Labs., Inc.*, 874 F.3d 1316, 1328 (Fed. Cir. 2017). In this regard, we credit Petitioner’s evidence that Saleh depicts and discusses the use of personal laptops showing video content, regardless of the existing pop-up displays. Ex. 1004, 3:10–13, Fig. 4B; Reply 11; Ex. 1023 ¶ 29. In addition, we are persuaded by Petitioner’s testimony that the use of Chu’s features to connect to portable devices via the Saleh VCT would be an efficient content delivery system and would allow for increased collaboration by portable device users with the presentation. Pet. 47–48; Ex. 1003 ¶¶ 92–93.

We also do not find availing Patent Owner’s argument that because Saleh already allows collaborative editing using pop-up displays, Petitioner’s motivation to combine Chu and Saleh to allow editing collaboration through laptops fails. PO Resp. 37–38; Ex. 1004, 8:36–465; Ex. 2015 ¶¶ 85–86. We do not find that the existing editing feature of Saleh diminishes or discourages adding a similar feature through the addition of Chu’s portable device connection. *See Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000) (stating that “[t]he fact that [a] motivating benefit comes at the expense of another benefit . . . should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another”). Here, we credit Petitioner’s argument that Chu’s features allow the use of laptops along with fixed pop-up displays to enable

enhanced collaboration. Pet. 48; Ex. 1003 ¶ 93; Reply 12–13; Ex. 1023 ¶¶ 31–34.

We find that Petitioner provides sufficient argument and evidence that a person of ordinary skill in the art would have been motivated to combine Chu’s teachings regarding the video terminal distributing connection channel with the distance learning system of Saleh. Pet. 47; Ex. 1003 ¶ 91. In light of the level of skill in the art and knowledge of an ordinarily skilled artisan, Petitioner has provided persuasive evidence regarding the addition of Chu’s connection and distribution features to Saleh’s remote learning system resulting in local video conferencing equipment with connections to mobile devices. Pet. 47–48.

In view of the full record, Petitioner has provided sufficient reasoning with rational underpinning by a preponderance of the evidence to support the combination of Chu and Saleh. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

2. Analysis

Petitioner addresses claims 1 and 8 together, presenting evidence and argument for each limitation and citing declarant testimony. Pet. 40–55; Ex. 1003 ¶¶ 80–150. Similarly, Petitioner addresses claims 5 and 12 together, presenting argument and evidence for each limitation (*id.* at 55–62) and related arguments for dependent claims 15–17, 19, and 20 (*id.* at 62–64).

Patent Owner argues “Saleh and Chu lack the claimed **multi-signal-type VCT** at a conferencing site that **receives** different types of content stream signals and **sends** those different signal types to different types of devices at the site.” PO Resp. 17 (citing Ex. 2015 ¶¶ 49–68). Throughout the Response, Patent Owner argues that “[a] **multi-signal-type VCT** at a

conferencing site that *receives* different types of content stream signals—i.e., a main stream signal and a presentation stream signal—*and sends* those different signal types to different types of devices at the site—i.e., a primary playing device and a plurality of mobile devices—is a core innovation of the ’366 Patent.” PO Resp. 14 (Ex. 2015 ¶¶ 27–32); *see* PO Resp. 8–15 (arguing that the multi-signal VCT is the innovation and improvement over prior video conferencing systems); Ex. 2015 ¶¶ 15–32.

We address the parties’ contentions below with respect to claims 1 and 8.

a. Preambles 1.1 and 8.1

The preamble of claim 1 recites “[a] method for playing a conference signal” (Ex. 1001, 29:13), and the preamble of claim 8 recites a “video conference terminal” (*id.* at 31:13). Petitioner argues that Saleh discloses video conferencing systems (Ex. 1004, 1:6–8, code (57)) and that Chu discloses videoconference equipment used to play a video signal, including portable devices. Ex. 1005 ¶¶ 5–6. Petitioner asserts that the videoconferencing unit 100 in Chu is a video conference terminal. Pet. 40–41; Ex. 1003 ¶¶ 82, 130. Patent Owner does not challenge Petitioner’s evidence or contentions regarding preambles 1.1 and 8.1. *See generally* PO Resp.

Based on the full record, we are persuaded that Petitioner has shown that Saleh and Chu teach the recited preambles 1.1 and 8.1.⁷

⁷ Regardless of whether the preamble is limiting, Petitioner provides persuasive evidence that the recitation in the preamble is taught by the prior art.

b. Limitations 1.2 and 8.2

Claim 1 further recites “establishing a connection channel between a plurality of mobile devices held by a plurality of conference participants located at a site and a video conference terminal located at the site, wherein the video conference terminal comprises a primary playing device.”

Ex. 1001, 29:14–18 (limitation 1.2). Petitioner relies on the combination of Saleh and Chu as teaching this limitation. Pet. 42; Ex. 1003 ¶¶ 84–94, 132–137. Petitioner cites the video conferencing equipment of Saleh, which can establish conferencing calls with display screens at both the local and remote classrooms. Pet. 42–43; Ex. 1004, 2:35–45, 4:34–45, 5:18–21; Ex. 1003 ¶¶ 85, 133. Petitioner argues that Saleh teaches direct connections between the video conferencing system and other video conferencing equipment, such as laptops (i.e., mobile devices), as described in Saleh’s claims and specification. Pet. 42–43; Ex. 1003 ¶¶ 85, 86, 134; Ex. 1004, 3:7–13, 4:34–45, 9:18–34, Figs. 3, 4A, 4B, 6, 7. Petitioner cites Figure 6 of Saleh and the corresponding description as supporting the connection between mobile devices and the content from remote instructors. Pet. 44; Ex. 1004, 8:30–39, Fig. 6.

Petitioner relies on Chu to disclose a connection channel is established between the videoconferencing unit and the portable devices. Pet. 46; Ex. 1005 ¶¶ 12, 28, 32, 65; Ex. 1003 ¶¶ 89, 135. As discussed in Section III.D.1.c above, Petitioner asserts that a person of ordinary skill in the art would have been motivated to combine Chu and Saleh as both relate to videoconferencing and are assigned to the same entity. Pet. 47; Ex. 1004, code (57), 1:6–8; Ex. 1005, code (57), ¶ 5. Petitioner further argues that Chu and Saleh both address transfer of audio and video between local and

remote locations and disclose participants using mobile devices. Pet. 47; Ex. 1004, 2:35–45, 5:18–21, 8:27–45; Ex. 1005 ¶¶ 5, 6, 12, 26–28, 65. Petitioner cites the testimony of Dr. Bhattacharjee to support its contentions that an ordinarily skilled artisan would have been motivated to use the connection channel of Chu with the remote classroom of Saleh to use less bandwidth (Ex. 1003 ¶ 92) and to improve participant interaction with the presentation materials (*id.* ¶ 93). Pet. 48.

Claim limitation 8.2 corresponds to claim limitation 1.2 and recites “a processor configured to establish a connection channel between a plurality of mobile devices held by a plurality of conference participants located at a site and the video conference terminal located at the site.” *Id.* at 31:14–17 (limitation 8.2). Petitioner argues that a person of skill in the art would have understood that the videoconferencing equipment in Saleh uses a processor (Ex. 1004, 4:43–62; Ex. 1003 ¶¶ 132–133) and that Chu expressly discloses a processing unit for use between the videoconferencing unit and the mobile devices (Ex. 1005 ¶¶ 25, 28, Fig. 1). Pet. 48–49. Patent Owner does not challenge Petitioner’s evidence or contentions regarding limitations 1.2 and 8.2. *See generally* PO Resp.

Based on the full record, we are persuaded that Petitioner has shown that Saleh and Chu teach the recited limitations of 1.2 and 8.2.

c. Limitations 1.3 and 8.3

Limitation 1.3 recites “sending, through the established connection channel, a first type signal in to-be-played signals to each of the mobile devices for play, wherein the to-be-played signals are signals that are received by the video conference terminal and are to be played.” Ex. 1001, 29:19–23. Similarly, limitation 8.3 recites “a signal distributor configured

to: send, through the connection channel established by the processor, a first type signal in to-be-played signals to each of the mobile devices for play, wherein the to-be-played signals are signals that are received by the video conference terminal and are to be played.” *Id.* at 31:18–24. Petitioner argues that the combination of Saleh and Chu teaches these limitations. Pet. 49–50; Ex. 1003 ¶¶ 95–98, 138–142.

Petitioner asserts that Chu and Saleh teach limitation 1.3 as Saleh recites claims for local codecs used to send information to remote locations that are then sent to laptops. Pet. 49–50; Ex. 1003 ¶¶ 96, 140; Ex. 1004, 9:24–28, 10:1–4. In addition, Chu teaches sending data through a connection channel between the videoconferencing unit and the portable devices. Ex. 1003 ¶¶ 97, 141; Ex. 1005 ¶ 56. Petitioner argues that the connection channel and codecs in Saleh and Chu teaches the to-be-played signal being sent to terminal and then to the mobile. Pet. 50–51.

With respect to limitation 8.3, Petitioner argues that a person of skill in the art would understand that the recited “signal distributor” is disclosed by the video conferencing devices of Saleh that establish connection with far-end devices and send signals to the remote classroom. Pet. 51; Ex. 1004, 4:39–41; Ex. 1003 ¶¶ 138–139. Petitioner cites the network interface of Chu that enables the videoconferencing units to communicate directly with the portable devices and send the signals to the peripheral devices. Ex. 1005 ¶ 28; Ex. 1003 ¶ 139; Pet. 51.

Patent Owner argues that,

the Petition [fails to] contend that integrating Chu’s teachings with Saleh would somehow yield a ***multi-signal-type VCT*** at a conferencing site that ***receives*** different types of content stream signals—i.e., a main stream signal and a presentation stream

signal—and *sends* those different signal types to different types of devices at the site—i.e., a primary playing device and a plurality of mobile devices.

PO Resp. 25. Patent Owner further asserts that Chu’s express disclosure of joining an existing video conference indicates that a single type of video signal is distributed to two different devices, the conference unit and the participant’s mobile device. PO Resp. 27; Ex. 2015 ¶¶ 68.

We are not persuaded by Patent Owner’s arguments that address Chu’s teachings separately, rather than the combination asserted by Petitioner. We agree with Petitioner that Chu teaches communication from portable device peripherals to the conference unit. Pet. 51; Ex. 1005 ¶ 28, Fig. 1. Thus, Chu’s teaching in combination with Saleh teaches that information shown on a “white/black board, document camera, large computer monitors, projection screen,” is displayed on portable device laptops, and sent to the remote conference locations. Pet. 9–50; Ex. 1004, 3:7–13, 8:3–45; 9:24–28; Ex. 1003 ¶¶ 96, 140.

Based on the full record, we are persuaded that Saleh and Chu teach the recited limitations 1.3 and 8.3.

d. Limitation 1.4 and 8.4

Claim 1 further recites “sending a second type signal in the to-be-played signals to the primary playing device of the site for play.” Ex. 1001, 29:24–25 (1.4). Claim 8 recites “a signal distributor configured to . . . send a second type signal in the to-be-played signals to a primary playing device of the site for play.” *Id.* at 31:18, 31:25–26. Petitioner cites Saleh’s disclosure for teaching that the local display screen can display images of participants in remote classrooms and that the remote classroom can include a display showing the received images from the presenting classroom. Ex. 1004,

2:38–41, 4:8–12, 5:18–21, Figs. 3, 4A, 4B, 6, 7. Petitioner argues that Saleh teaches signals being sent to a display screen, as the mobile devices of Saleh display educational information, while the display screens show images of the instructor or classroom participants. Ex. 1003 ¶ 99; Pet. 51–52. For claim 8, Petitioner argues that a person of skill in the art would understand that Saleh discloses an image processing engine whose signals are distributed to display screen devices. Pet. 52–53; Ex. 1003 ¶ 143.

Petitioner avers that Saleh teaches that

“[t]he remote classroom can include a *display screen for displaying received images* of local participants, and an *instructor display screen for displaying received images* of the local instructor.” EX1004, Cols. 2:38–41 (emphasis added), 4:8–12, 5:19–21, Figures 3, 4A–4B, 6–7. Saleh also discloses that display screens in the local classroom can display images of participants in the remote classroom. *Id.*, Cols. 4:8–12, 5:18–19, 8:62–66.

Pet. 52. Indeed, Petitioner asserts that “Saleh states that different signals are sent to the mobile devices than are sent to the primary playing device in the remote classroom.” Reply 7 (citing Ex. 1004, 2:38–41, 3:7–13, 4:8–12, 5:19–21, 8:3–45, 9:24–28, 10:1–4, Figs. 3, 4A–4B, 6–7; Ex. 1023 ¶¶ 15–17); *see* Pet. 52 (asserting that in “Saleh . . . the laptops display educational information from the white/black board or similar device, while the display screens show images of the instructor or classroom participants” (citing Ex. 1003 ¶ 99)); Ex. 1003 ¶¶ 99–100.

Patent Owner argues that the Petition overextends Saleh’s disclosure because Saleh fails to teach or suggest a multi-signal-type VCT. PO Resp. 17–18. Patent Owner’s arguments are unavailing. First, we agree with Petitioner that the ’366 patent does not use the term multi-signal-type VCT.

Reply 1–2. Instead, the specification of the ’366 patent expressly supports that prior art VCTs could “compress and encode” both a “main stream signal” and a “presentation stream signal” and “multiplex” those signals. Ex. 1001, 1:48–54; Reply 2. Further, the ’366 patent’s specification teaches the VCTs could “classify, decompress, and decode” multiple signals and “control the decoded main stream signal and the decoded presentation stream signal” for display. Ex. 1001, 1:67–2:11. Thus, the ’366 patent is directed toward “a method and an apparatus *for playing* a conference signal, a video conference terminal, and a mobile device, to *improve effects of displaying* a main stream signal and a presentation stream signal.” *Id.* at 2:27–31 (emphases added); *see id.* at 1:18–20 (directed “to a method and an apparatus for playing a conference signal [on] a video conference terminal, and a mobile device”). We are not persuaded by Patent Owner’s argument and evidence that the challenged claims require a multi-signal-type VCT sending particular content signals.

Second, we expressly rejected Petitioner’s argument limiting the “to-be-played signals” received at either the primary player or the mobile (separate player) at the site to *only* be one type of distinct signal. *See* Sec. III.C.b. Patent Owner revives this issue when addressing limitations 1.4 and 8.4, asserting that “[a]ny interpretation of Claim 1 that does not require the VCT to send ‘the second type signal’ would be inconsistent with the ’366 Patent’s specification, where **every embodiment** features a multi-signal-type VCT.” PO Resp. 19 (citing Ex. 1001, 5:5–21, 6:12–40, 15:24–47, 17:53–22:26, Figs. 3, 5A–9B; Ex. 2015 ¶¶ 27–32). Patent Owner argues that a textual analysis of claims 1 and 8 “demonstrate[s] that the ‘second type signal’ sent to the ‘primary playing device’ differs from the ‘first type

signal’ sent to the ‘mobile device.’” PO Resp. 19; Ex. 2015 ¶¶ 37–39, 58. Accordingly, Patent Owner contends that limitations 1.4 and 8.4 are only satisfied when a conferencing unit “*receives* different types of content stream signals and *sends* those different signal types to different types of devices at the site.” *Id.* at 18 (citing Ex. 2015 ¶¶ 36–40, 56–58).

We do not agree with Patent Owner. The claims recite a first type and a second type signal *in to-be-played signals*. *See, e.g.*, Ex. 1001, 29:19–20. Our construction above rejected the narrowed interpretation that the “to-be-played signals” of claims 1, 5, 8 and 12 were limited to distinct types of signals. Patent Owner’s arguments directed to the type of signal within the “to-be-played signals” (PO Resp. 17–20; Ex. 2015 ¶¶ 27–32, 39) fails to persuasively demonstrate that the sending of the first and second type of signal limitations of claims 1 and 8 are *limited* to distinct and different signals and *only* those distinct signals. We are not persuaded by Patent Owner’s argument and evidence that the “’366 [p]atent is about sending two different signal types to two different types of devices separately.” Sur-reply 4 (citing Ex. 2015 ¶¶ 18, 28–32).

Regardless of the signals sent, we credit Petitioner’s argument and evidence that Saleh teaches receiving and displaying different types of content sent for display on mobile devices that differs from the signal sent for display on other presentation devices. *See* Reply 6–7; Pet. 49–52; Ex. 1023 ¶¶ 15–17; Ex. 1003 ¶¶ 99, 138–141. We agree with Petitioner that Saleh discloses:

“[t]he remote classroom can include a *display screen for displaying received images* of local participants, and an *instructor display screen for displaying received images* of the local instructor.” EX1004, Cols. 2:38–41 (emphasis added), 4:8–

12, 5:19-21, Figures 3, 4A-4B, 6-7. Saleh also discloses that display screens in the local classroom can display images of participants in the remote classroom. *Id.*, Cols. 4:8-12, 5:18-19, 8:62-66.

Pet. 52. Patent Owner rejects Petitioner's assertion that displaying different content teaches sending different signals, arguing that "[i]t is entirely plausible that exactly the same type of signal is sent to both the [primary display] screen and laptops, and then simply displayed differently at each type of device." PO Resp. 24 (citing Ex. 2015 ¶ 61 (asserting that identical multiplexed signals could provide that feature)); Sur-reply 8. We are not persuaded by Patent Owner's speculation regarding the plausibility of the same signal being sent to both mobile and primary display devices. *Id.* On the full record, we credit Petitioner's argument and evidence that Saleh discloses a remote classroom that mirrors the local classroom, including a VCT that receives images of a local instructor and/or local participants, which are displayed on a primary playing device, where different signals are displayed on the mobile devices. *See* Pet. 52; *see also* Pet. 49-52; Ex. 1003 ¶¶ 99, 138-141; Ex. 1004, 2:38-41, 3:7-13, 4:8-12, 5:19-21, 8:3-45, 9:24-28, 10:1-4, Figs. 3, 4A-4B, 6-7.

We also find unavailing Patent Owner's argument that Saleh never contemplates sending a distinct and different signal in its mirror-image setup because it does not expound on the underlying technology for distributing signals at each conferencing cite and lacks implementation details.

PO Resp. 20-21. Saleh discloses VCTs in the local and remote classrooms "that allo[w] the two sites to communicate with each other" and provides examples of such VCTs that include codecs for transferring image and video data. Ex. 1004, 4:34-62; Reply 8. We are persuaded that an ordinarily

skilled artisan would understand that Saleh and Chu's disclosures sufficiently teach VCT and remote classrooms communicating different types of content streams. *See* Reply 8; Ex. 1023 ¶¶ 18, 22; Pet. 45, 50; Ex. 1005 ¶ 56.

Based on the full record, we are persuaded that Petitioner has shown that its proposed combination of Saleh and Chu teaches the recited limitations of 1.4 and 8.4.

e. Limitations 1.5 and 8.5

Limitations 1.5 and 8.5 each recite “wherein the first type signal is a presentation stream signal when the second type signal is a main stream signal, or the first type signal is the main stream signal when the second type signal is the presentation stream signal.” Ex. 1001, 29:26–29, 31:27–30. Petitioner asserts that Saleh teaches that the presentation stream is disclosed in the various educational materials sent from the instructor and that the display of the instructor or participants in the remote or local classrooms is the second type of content. Pet. 53–54 (citing Ex. 1004, 1:31–50, 2:38–41, 3:7–13, 4:8–12, 8:27–45, 8:62–66, 10:5–7, Figs. 3, 4A, 4B, 6, 7; Ex. 1003 ¶¶ 101–103, 145–146). Patent Owner does not directly challenge Petitioner's evidence or contentions regarding limitations 1.5 and 8.5. *See generally* PO Resp.

Based on the full record, we are persuaded that Petitioner has shown that Saleh and Chu teaches the recited limitations of 1.5 and 8.5.

f. Limitations 1.6, 1.7, 8.6, and 8.7

Limitations 1.6, 1.7, 8.6, and 8.7 each recite “wherein” limitations that further limit the presentation stream and main stream content. Pet. 54–55. Specifically, limitations 1.6 and 8.6 each recite “wherein the presentation

stream signal comprises at least one of a document and a demonstration slide to be displayed.” Ex. 1001, 29:30–32, 31:31–33. Limitations 1.7 and 8.7 each recite “wherein the main stream signal comprises real-time content to be displayed.” *Id.* at 29:33–34, 31:34–35.

With respect to limitations 1.6 and 8.6, Petitioner argues that the scope of the presentation aid materials in Saleh would be understood to include documents and demonstration slides. Pet. 54; Ex. 1003 ¶¶ 104, 147–148. For limitations 1.7 and 8.7, Petitioner asserts that Saleh teaches display screens at the remote or local classrooms that display the instructor or participants, where such displays images would be real-time content as recited in the claims. Pet. 54–55; Ex. 1003 ¶¶ 105, 149–150; Ex. 1004, 1:31–50, 2:38–41; 4:8–12, 5:18–21, 8:62–66, Figs. 3, 4A, 4B, 6, 7. Patent Owner does not challenge Petitioner’s evidence or contentions regarding limitations 1.6, 1.7, 8.6, and 8.7. *See generally* PO Resp.

Based on the full record, we are persuaded that Petitioner has shown that Saleh and Chu teaches the recited limitations of 1.6, 1.7, 8.6, and 8.7.

g. Claims 5 and 12

Petitioner provides argument and evidence mapping the teachings of Saleh and Chu to the limitations of claims 5 and 12. Pet. 55–61; Ex. 1003 ¶¶ 106–127, 151–166. Claims 5 and 12 are similar to claims 1 and 8, addressed above, but differ in that “receiving”/“signal receiver” limitations in claims 5 and 12 recite “wherein the type of signal is *selected from* to-be-played signals.” Ex. 1001, 30:20–25, 32:21–26 (emphasis added). Similarly, the “player” limitations in claims 5 and 12 also recite a “selected” from the to-be-played signals that differ from claims 1 and 8. *See id.* at 30:26–28, 32:27–29 (claim 5 recites in pertinent part, “playing the type of

signal selected from the to-be-played signals comprising the at least two different types of signals” and claim 12 recites in pertinent part, “a player configured to play the type of signal selected from the to-be-played signals comprising the at least two different types of signals”).

Patent Owner argues that Petitioner fails to address the “selected-signal feature” limitation of claims 5 and 12, which differs from the limitations of claims 1 and 8. PO Resp. 38–41; *see* Pet. 57. In our Decision on Institution, we found that “Petitioner’s analysis of the prior art does not sufficiently and persuasively demonstrate how the signals to-be-played on a laptop in Saleh or Chu from the video conferencing terminal using a codec teaches the selection feature.” Inst. Dec. 34–35.

With respect to the “receiving” and “playing” limitations in claim 5 (and related limitations in claim 12), Petitioner argues that the evidence that Saleh teaches limitations 1.3 and 8.3 is incorporated into Petitioner’s arguments for claim 5 and 12 and establishes “that the VCT in Saleh *necessarily* selects one type of signal from the to-be-played signals and sends that single signal to the mobile devices to be played.” Reply 16 (emphasis added). Petitioner contends that its arguments are not a new theory of obviousness as discussed in *Intelligent Bio-systems, Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359 (Fed. Cir. 2016), because Petitioner relies on the same rationale stated in the Petition. Reply 18.

We are not persuaded by Petitioner’s argument that the VCT in Saleh necessarily selects one type of signal from the to-be-played signals as required in claims 5 and 12. As we noted in the Decision on Institution, Petitioner’s argument and evidence in the Petition does not persuasively demonstrate the scope of Saleh’s teaching that addresses the “selection”

requirements of claims 5 and 12. Inst. Dec. 34–35. Although Petitioner’s Reply brief presents supporting argument interpreting the teachings of Saleh as necessarily disclosing the selection feature, these arguments are not persuasively presented in the Petition. *See* Pet. 55–61; Ex. 1003 ¶¶ 106–127, 151–166. “It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3)); *see also Apple Inc. v. Andrea Elecs. Corp.*, 949 F.3d 697, 705–707 (Fed. Cir. 2020) (discussing requirements for determining propriety of reply arguments in an *inter partes* review). Although Petitioner is allowed to elaborate on their arguments on issues previously raised, *Chamberlain Grp., Inc. v. One World Techs., Inc.*, 944 F.3d 919, 925 (Fed. Cir. 2019), in this case the Petition fails to persuasively address the selection limitation or persuasively demonstrate that a person of ordinary skill in the art would have found the recited selection limitation necessarily present in Saleh’s teachings. *Compare* Pet. 55–61, *with* Reply 14–18.

Based on the full record, Petitioner has not demonstrated Saleh and Chu teach the selected signal limitations of claims 5 and 12.

h. Claims 15 and 16

Claims 15 and 16 depend from claim 1. Claim 15 recites “wherein the first type signal is the presentation stream signal, and wherein the second type signal is the main stream signal.” Ex. 1001, 33:8–10. Claim 16 further recites:

wherein the presentation stream signal comprises a plurality of first subtype signals, wherein the first subtype signals comprise at least one of the document and the demonstration slide that is shared by another site, wherein the main stream signal comprises a plurality of second subtype signals, and wherein the second subtype signals comprise at least one of an image signal collected in real-time or a speech signal collected in real-time.

Id. at 33:11–18. Thus, claims 15 and 16 specify the signal content for claim 1.

Petitioner provides argument and evidence mapping the teachings of Saleh and Chu to the limitations of dependent claims 15 and 16. Pet. 62–63; Ex. 1003 ¶¶ 167–171. Petitioner argues that Saleh discloses a first type of signal representing educational material sent from the instructor’s black/white-board, presentation screen, or touch-screen to the laptops of participants in either the local or remote classroom, which, Petitioner alleges, teaches the presentation materials. Pet. 62; Ex. 1004, 3:7–13, 8:27–45, 10:5–7, Figs. 3, 4A–4B, 6–7. Petitioner provides persuasive evidence that a person of ordinary skill in the art would understand that “a plurality of different educational materials could be sent to the laptops, such as a document or a presentation slide sent from a remote classroom.” Pet. 62–63 (Ex. 1003 ¶169). Patent Owner does not challenge Petitioner’s evidence or contentions regarding claims 15 and 16. *See generally* PO Resp.

In view of the full record, we find that Petitioner has shown that Saleh and Chu teach the recited limitations of claims 15 and 16.

i. Claims 17 and 20

Petitioner asserts that Saleh and Chu teach the limitations of claims 17 and 20. Pet. 63–64, 67–68. As discussed above, Petitioner has not shown

Saleh and Chu teaches the limitations of independent claims 5 and 12, from which claims 17 and 20 respectively depend. *See* Sec. III.D.2.g.

Accordingly, we find that Petitioner has not shown that Saleh and Chu teach dependent claims 17 and 20 for the reasons discussed above.

j. Claim 19

Petitioner contends that Saleh and Chu teach the limitations of claim 19. Pet. 64–68. Claim 19 recites further limitations regarding the processor of independent claim 8, reciting a “master mobile device” and a “control of switching signals played by the primary playing device and the mobile devices according to a selection received from the master mobile device.” Ex. 1001, 34:7–14. Petitioner asserts that “a POSA would have known that both the laptops disclosed in Saleh and the portable devices disclosed in Chu had the capability to act as the claimed master mobile device and control what signals are shown on what devices in the videoconference.” Pet. 65 (citing Ex. 1004, 3:7–13, 8:30–45; Ex. 1005 ¶¶ 5, 6, 26–28). Petitioner further asserts that such devices were “well-known in the art, and their capabilities were well-understood.” Pet. 65 (citing Ex. 1003 ¶ 175).

Patent Owner argues that Petitioner’s argument and evidence erroneously focus on the mobile device capabilities and not the video conference terminal processor, and thus do not address the differences between claim 19 and Saleh. PO Resp. 41–42. We agree. The Petition discusses the mobile functionality but inadequately addresses the scope and content of the claims and the VCT processor limitation. *See* Reply 19–20; Pet. 64–67. Petitioner’s argument and evidence fail to persuasively demonstrate that Chu and Saleh teach that the VCT processor is configured to determine a master mobile device.

Based on the full record, we find that Petitioner has not shown that Saleh and Chu teach the limitations of claim 19.

3. Conclusion

In view of the foregoing, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 8, 15, and 16 would have been obvious over Saleh and Chu. Petitioner has not shown that claims 5, 12, 17, 19, and 20 would have been obvious over Saleh and Chu.

E. Obviousness over Saleh, Chu, and Tian

1. Analysis

In an alternative ground, Petitioner asserts that dependent claims 19 and 20 would have been obvious over Saleh, Chu, and Tian. Pet. 64–68; Ex. 1003 ¶¶ 175–182. As discussed above, dependent claim 19 recites further limitations on the processor of independent claim 8, “further configured to determine a master mobile device” and “control a switching of signals played by the primary playing device and the mobile devices according to a selection received from the master mobile device.” Ex. 1001, 34:7–14. Dependent claim 20 depends from claim 12 and recites that the processor of claim 12 is “further configured to send a switching play request message to switch a signal played by the primary playing device and the mobile device.” Ex. 1001, 34:15–18.

Tian discloses a system “for establishing a video conference session between [conference] participants at different endpoints, where each endpoint comprises at least one computing device and one or more displays.” Ex. 1006, 2:27–30. Tian discloses a plurality of video streams in a video conferencing system where data and video signals from multiple views are combined in different zones on a display. Ex. 1006, 2:27–47,

8:27–48, 11:3–33, 12:13–33. Petitioner argues that Tian teaches that “a user may desire to switch two or more views between two display screens, or zoom in to see a particular image within a view.” Pet. 65–66 (citing Ex. 1006, 12:53–13:3; Ex. 1003 ¶¶ 176–180).

Patent Owner argues that Petitioner’s analysis of the Saleh, Chu, and Tian combination fails to teach the VCT processor limitations of claim 19 for the same reasons discussed above for the Saleh and Chu combination. PO Resp. 41–44. In addition, Patent Owner argues that Tian’s description of switching views on a mobile device does not teach “[c]laim 19’s VCT processor [] ‘control(s) a switching of signals.’” *Id.* at 46–47 (citing Ex. 2015 ¶ 96). With respect to claim 20, Patent Owner also asserts that Petitioner’s argument that Tian teaches displaying multiple views does not show that the mobile device “send[s] a request message to switch a signal” as required in claim 20. *Id.* at 46–47 (citing Ex. 2015 ¶ 96). Patent Owner also argues that Saleh and Chu fail to teach the “to-be-selected” requirements of claim 20. *Id.* at 38–41; *see* Sec. III.D.2.i.

We agree with Patent Owner that Petitioner’s argument and evidence are not persuasive. Indeed, we find insufficient support in the Petition for Petitioner’s assertion that “[i]n order for the signals to be switched as disclosed by Tian, it would have been obvious to a POSA that the laptop/mobile device that initiated the switching process would need to send to the VCT a request message to switch the signal” as required in claim 20. Reply 22 (citing Ex. 1023 ¶ 46); *see* Pet. 65–69. Petitioner’s arguments regarding claims 19 and 20 are conclusory and unpersuasive, relying on the knowledge of ordinarily skilled artisans and the capabilities of the laptops and mobile devices in the Saleh, Chu, and Tian combination. *See* Pet. 65–

69. Petitioner's argument and evidence fails to persuasively address the master mobile device requirements of claim 19 or the switching signal requirements of claim 20. Reply 19–23; Ex. 1023 ¶¶ 45–47, 175.

Accordingly, Petitioner has not shown that the Saleh, Chu, and Tian combination teaches the limitations of claims 19 and 20. *See* Sec. III.D.2.i. and III.D.2.j.

2. Conclusion

In view of the foregoing, we determine that Petitioner has not shown by a preponderance of the evidence that claims 19 and 20 would have been obvious over Saleh, Chu, and Tian.

IV. CONCLUSION⁸

Based on entire record, Petitioner has shown by a preponderance of the evidence that each of claims 1, 8, 15, and 16 of the '366 patent is unpatentable, but Petitioner has not shown by a preponderance of the evidence that claims 5, 12, 17, 19, and 20 are unpatentable.

⁸ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

V. ORDER

In consideration of the foregoing, it is hereby
ORDERED that claims 1, 8, 15, and 16 of U.S. Patent No. 9,521,366
B2 are determined to be unpatentable; and

FURTHER ORDERED that claims 5, 12, 17, 19, and 20 of U.S.
Patent No. 9,521,366 B2 are not determined to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision,
parties to the proceeding seeking judicial review of the decision must
comply with the notice and service requirements of 37 C.F.R. § 90.2.

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 5, 8, 12, 15– 17, 19, 20	103	Saleh, Chu	1, 8, 15, 16	5, 12, 17, 19, 20
19, 20	103	Saleh, Chu, Tian		19, 20
Overall Outcome			1, 8, 15, 16	5, 12, 17, 19, 20

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