

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HANSHOW AMERICA INC.,
HANSHOW TECHNOLOGY CO., LTD.,

Petitioners

v.

SES-IMAGOTAG GMBH,

Patent Owner

Case No.: IPR2024-00188

Patent No. 11,405,669

PETITIONERS' NOTICE OF APPEAL

Pursuant to 28 U.S.C. § 1295(a)(4)(A), 35 U.S.C. §§ 141(c), 142, and 319, 37 C.F.R. §§ 90.2(a) and 90.3(a); and Federal Circuit Rule 15(a)(1), Petitioners Hanshow America Inc. and Hanshow Technology Co., Ltd. ("Petitioners") hereby give notice of their appeal to the United States Court of Appeals for the Federal Circuit from the Final Written Decision in Case No. IPR2024-00188, concerning U.S. Patent No. 11,405,669 B2 ("the '669 Patent"), entered May 14, 2025 (Paper 41) by the Patent Trial and Appeal Board ("Board"), and all other underlying and related findings, orders, decisions, rulings, opinions, or other determinations merged into the Final Written Decision. A copy of the Final Written Decision is attached to this Notice.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Petitioners state that the anticipated issues on appeal include, but are not limited to, the following:

- 1) Whether the Board erred in determining that claim 11 of the '669 Patent is not unpatentable as obvious in light of U.S. Patent Application Publication No. 2016/0134930 A1 ("Swafford") and U.S. Patent Application Publication No. 2017/0134690 A1 ("Masumoto").
- 2) Whether the Board erred in determining that claim 11 of the '669 Patent is not unpatentable as obvious in light of Masumoto, U.S. Patent Application Publication No. 2017/0171577 A1 ("Kipp") and Japanese Unexamined Patent Application Publication No. P2011-76222A ("Takashi").
- 3) All other issues decided adversely to Petitioners in any order, decision, ruling, finding, determination, judgment, or opinion underlying or supporting the Final Written Decision.

Pursuant to 37 C.F.R. § 90.3, this Notice of Appeal is timely filed within 63 days of entry of the Final Written Decision dated May 14, 2025.

Per 35 U.S.C. § 142 and 37 C.F.R. § 90.2(a)(1), this notice is being filed with the Director of the U.S. Patent and Trademark Office, and a copy is also being filed with the Board. Per Federal Circuit Rule 15(a)(1) and 37 C.F.R. 90.2(a)(2), Petitioners are also electronically filing this notice with the United States Court of Appeals for the Federal Circuit through its CM/ECF System, together with the requisite filing fee.

Dated: May 19, 2025

Respectfully submitted,
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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(1), the undersigned certifies that on May 19, 2025, a complete and entire copy of this **PETITIONERS' NOTICE OF APPEAL** was provided by email to the Patent Owner by serving the email correspondence addresses of record as follows:

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Pursuant to 37 C.F.R. §§ 90.2(a)(1), I hereby certify that in addition to being filed electronically through the Board's P-TACTS System, this **PETITIONERS' NOTICE OF APPEAL** is being provided to the Director of the USPTO on May 19, 2025, by electronically filing to the email address as follows:

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I hereby certify that on May 19, 2025, a true and correct copy of the foregoing **PETITIONERS' NOTICE OF APPEAL**, along with a copy of the Final Written Decision, was filed electronically with the Clerk's Office of the United States Court of Appeals for the Federal Circuit, at the following address:

United States Court of Appeals for the Federal Circuit
717 Madison Place, N.W., Suite 401
Washington, DC 20005

Dated: May 19, 2025

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HANSHOW AMERICA INC. and
HANSHOW TECHNOLOGY CO., LTD.,
Petitioner,

v.

SES-IMAGOTAG GMBH,
Patent Owner.

IPR2024-00188
Patent 11,405,669 B2

Before WILLIAM V. SAINDON, JAMES P. CALVE, and
TERRENCE W. McMILLIN, *Administrative Patent Judges*.

Opinion for the Board by McMILLIN, *Administrative Patent Judge*,
Concurring Opinion by SAINDON, *Administrative Patent Judge*.

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

McMILLIN, *Administrative Patent Judge*, for the Board:

Hanshow America Inc. and Hanshow Technology Co., Ltd. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–15 (“the challenged claims”) of U.S. Patent No. 11,405,669 B2 (Ex. 1001, “the ’669 patent”). SES-Imagotag GmbH (“Patent Owner”) filed a Preliminary Response (Paper 8). With our authorization, Petitioner filed a Preliminary Reply to Patent Owner’s Preliminary Response (Paper 9) and Patent Owner filed a Preliminary Sur-reply (Paper 10). We instituted the petitioned review (Paper 11, “Inst. Dec.”).

Patent Owner filed a Patent Owner Response (Paper 23, “PO Resp.”) to oppose the Petition. Petitioner filed a Reply (Paper 28, “Pet. Reply”) to the Patent Owner Response. Patent Owner filed a Sur-reply (Paper 34, “PO Sur-reply”) to the Reply. We conducted an oral hearing on February 18, 2025. A transcript has been entered into the record (Paper 39, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6(b)(4) and § 318(a). This Decision is a final written decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of claims 1–15 of the ’669 patent. We determine Petitioner has shown by a preponderance of the evidence that claims 1–10 and 12–15 are unpatentable and has not shown by a preponderance of the evidence that claim 11 is unpatentable.

I. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies Hanshow America Inc. and Hanshow Technology Co., Ltd. as real parties-in-interest. Pet. 1. Patent Owner identifies SES-

Imagotag GmbH, SES-Imagotag SA, and SES-Imagotag Inc. as real parties-in-interest. Paper 4, 2.

B. Related Matters

The parties identify the following proceeding as related to the '669 patent (Pet. 1; Paper 4, 2): *SES-Imagotag SA et al. v. Hanshow America Inc. et al.*, Case No. 1:23-cv-01667 (E.D.N.Y.).

C. The '669 Patent

The '669 patent is directed to:

A video playback system, comprising a number of playback devices to playback a video on their screens, each playback device comprises a memory to store video data representing said video, and a communication stage to communicate data with each other, wherein the devices are designed to transmit video playback progress-data via the communication stage to the other device and to determine based on the received progress-data whether it is in a synchronous or asynchronous playback progress with the other devices.

Ex. 1001, code (57). According to the '669 patent, “the method and the system of the invention provide a robust and reliable, instantaneous re-synchronization of the playback progress over the entire group of playback devices.” *Id.* at 7:60–63.

Figure 1 of the '669 patent is reproduced below.

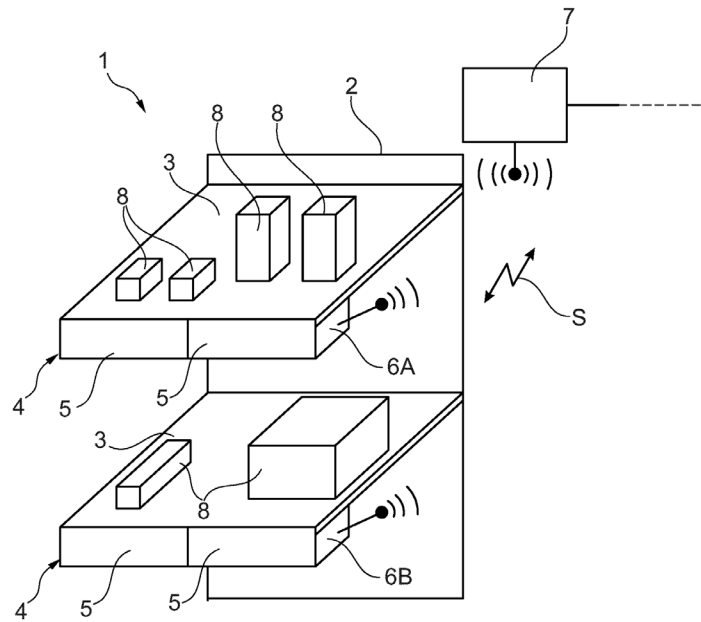


Fig. 1

Figure 1 depicts a video playback system 1 installed in a retail shop having a shelf 2 with two shelf floors 3 on which goods 8 are placed. *Id.* at 5:22–25. Figure 1 also shows two video screens 5 each attached along the entire length of the shelf rail as well as two identical playback devices 6A and 6B, which are connected to the screens 5. *Id.* at 5:25–31.

“The video content (film) to be displayed on the screens 5 is supplied by a server 7 via a radio signal to both devices 6A and 6B,” wherein “[t]he video content is delivered in form of compressed video data that are structured in frames labeled by frame numbers.” *Id.* at 5:32–36. According to the ’669 patent, “the server may use the same communication stage for downloading the video data to the devices, which is thereafter used for the transmission of playback progress-data.” *Id.* at 2:19–22; *see also id.* at 2:47–50 (“[A]ccording to a preferred embodiment of the invention the devices are designed to utilize a frame number that labels the frame that is currently played back as the progress-data to be transmitted.”). “According to a fundamental aspect of the invention, it is of particular advantage that the

devices are designed to determine independently from a video distribution server, which distributed the video data to the devices, that they are in a synchronous or asynchronous playback progress.” *Id.* at 2:29–33. The ’669 patent further explains that “each device is designed to compare a frame number received with a frame number of the frame currently played back at the device and to determine an asynchronous playback progress if the difference in the frame numbers compared with each other exceeds a pre-determined threshold value.” *Id.* at 2:54–59.

The application that led to the ’669 patent claims priority to a PCT application that was filed on November 10, 2017, and entered the U.S. national stage under 35 U.S.C. § 371(c) on May 8, 2020. Ex. 1001, codes (22), (86). We apply the November 10, 2017, date for qualifying the asserted references as prior art.

D. Illustrative Claim

Of the challenged claims, claim 1 is the sole independent claim. Claims 2–15, directly or indirectly, depend from claim 1. Claim 1 is reproduced below with Petitioner’s and Patent Owner’s annotations added to identify each limitation.¹

1. [1.0] A video playback system (1), comprising [1.1] a number of playback devices (6A, 6B) to playback a video on their screens (5), [1.2] each playback device (6A, 6B) comprises a memory to store video data (9) representing said video, and [1.3a] a communication stage to communicate data with each other, wherein the devices (6A, 6B) are designed:

[1.3b] to transmit video playback progress-data via the communication stage to the other device (6B, 6A); and,

¹ We utilize the annotations, but have retained the paragraph formatting from the issued patent.

[1.3c] to determine based on the received progress data whether it is in a synchronous or asynchronous playback progress with the other devices (6B, 6A);

[1.4] wherein the display devices (6A, 6B) are designed to display product information or product price related information by means of virtual electronic shelf labels displayed within a section of a screen's (5) display area overlapping with a video content or substituting a video content of said section.

Ex. 1001, 8:7–23; *see also* Pet. iv; Paper 8 (Preliminary Response) v & 1 n.3.

E. Cited Art

Petitioner relies on the following references:

U.S. Patent Application Publication No. 2016/0134930 A1, filed May 15, 2015, published May 12, 2016 (Ex. 1004, “Swafford”);

U.S. Patent Application Publication No. 2017/0134690 A1, filed Oct. 11, 2016, published May 11, 2017 (Ex. 1005, “Masumoto”);

U.S. Patent Application Publication No. 2017/0171577 A1, filed Dec. 9, 2015, published June 15, 2017 (Ex. 1006, “Kipp”); and

Japanese Unexamined Patent Application Publication No. P2011-76222A, filed Sept. 29, 2009, published Apr. 24, 2011 (Ex. 1007 (Japanese original), Ex. 1008 (English translation), “Takashi”).

F. Asserted Grounds

Petitioner challenges claims 1–15 (all) of the ’669 patent based on the following grounds (Pet. 2–3):

Claims Challenged	35 U.S.C. §	References
1–15	103 ²	Swafford, Masumoto
1–15	103	Masumoto, Kipp, Takashi

Petitioner relies on the Declaration of Manos M. Tentzeris, Ph.D. (Ex. 1003) and Patent Owner relies on the Declaration of John Hart, Ph.D. (Ex. 2004).

II. ANALYSIS

A. Legal Standards

Petitioner bears the burden of persuasion to prove unpatentability of the claims challenged in the Petition, and that burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioner must establish by a preponderance of the evidence that the challenged claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

A claim is unpatentable under 35 U.S.C. § 103 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

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103. Because the ’669 patent is based on a PCT application filed after March 16, 2013 (the effective date of the relevant amendments), the AIA versions of §§ 102 and 103 apply.

pertains. *See 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) where in evidence, so-called secondary considerations.³ *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We also recognize that prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

B. Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quoting *Custom Accessories, Inc. v. Jeffrey–Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)).

Petitioner contends a person of ordinary skill in the art “would have had at least a Master of Science Degree in an academic area emphasizing electrical engineering, computer engineering, wireless telecommunication systems, or an equivalent field (or a similar technical Master’s Degree, or higher degree),” or, alternatively, “a Bachelor’s Degree (or higher degree) in

³ The Petition states, “Petitioners are not aware of any evidence regarding secondary considerations of non-obviousness.” Pet 87. Patent Owner does not address secondary considerations. *See generally* PO Resp.

an academic area emphasizing electrical engineering, computer engineering, wireless telecommunication systems, or an equivalent field with two or more years of work experience in electrical engineering, wireless telecommunication systems, computer engineering, or an equivalent field.”

Pet. 8–9 (citing Ex. 1003 ¶ 33). Petitioner further notes that “[a]dditional education in a relevant field or relevant industry experience may compensate for a deficit in one of the other aspects of the requirements stated above.” *Id.* at 9. Petitioner provides no reasoning or explanation in the Petition to support its contentions regarding the level of ordinary skill in the art. *See id.*

“Patent Owner disagrees with Petitioner’s proposed level of ordinary skill in the art.” PO Resp. 19 (citing Ex. 2004 ¶¶ 53–55). Specifically, Patent Owner argues:

First, the fields of computer engineering and electrical engineering are too broad to require the specific knowledge to understand and practice the ’669 Patent. *Id.*, ¶55. Second, “wireless telecommunication systems” should not be included, as the ’669 Patent does not address wireless telecommunication systems of any sort. *Id.*, ¶¶56-58.

Id. Patent Owner proposes this definition of the level of ordinary skill in the art:

Patent Owner proposes that the proper level of ordinary skill in the art would be someone with **coursework or training in multimedia systems** and at least a Master of Science Degree in an academic area emphasizing electrical engineering, computer engineering, computer science, or an equivalent field (or a similar technical Master’s Degree, or higher degree). Hart, ¶56. Alternatively, a POSITA would have had **coursework in multimedia systems** and a Bachelor’s Degree (or higher degree) in an academic area emphasizing electrical engineering, computer engineering, computer science, or an equivalent field with **two or more years of work experience in multimedia**

systems. *Id.* Additional education in a relevant field, or relevant industry experience may compensate for a deficit in one of the other aspects of the requirements stated above. *Id.*

Id. at 19–20 (emphasis added). Patent Owner criticizes Petitioner’s definition of the level of ordinary skill in the art, but provides no reasoning or explanation to support its contentions regarding the level of ordinary skill in the art. *See id.*

The only significant difference between the positions of Petitioner and Patent Owner is that Patent Owner would require that a skilled artisan have coursework or training or work experience in multimedia systems in addition to the other requirements. Otherwise, the positions of the parties are similar.

Based upon this record and the qualifications on which the parties and their experts agree, we determine that a person of ordinary skill in the art to which the ’669 patent relates would have at least a Master of Science Degree (or higher degree) in an academic area emphasizing electrical engineering, computer engineering, or a similar technical Master’s Degree; or alternatively, a Bachelor’s Degree (or higher degree) in an academic area emphasizing electrical engineering, computer engineering, or an equivalent field with two or more years of work experience in a relevant field or relevant industry experience. However, our decision on obviousness is supported by either of the definitions offered by the parties.

C. Claim Construction

In an *inter partes* review, we apply the same claim construction standard used in district court actions under 35 U.S.C. § 282(b), namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). In applying that standard, claim terms

generally are given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.”⁴ *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

Petitioner states in the Petition that “[b]ased on the evidence below and the prior art’s description of the claimed elements being similar to that of the ’669 patent specification, no formal claim constructions are necessary in this proceeding because ‘claim terms need only be construed to the extent necessary to resolve the controversy.’” Pet. 4 (quoting *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011)). At oral argument, Petitioner’s counsel confirmed that it is Petitioner’s position that there is no need for the Board to engage in explicit claim construction and that all the claim terms should be accorded their plain and ordinary meanings. Tr. 8:17–22, 14:18–24, 18:3–7.

It is also Patent Owner’s position that there is no need for the Board to engage in explicit claim construction and that all the claim terms should be accorded their plain and ordinary meanings. Tr. 21:24–22:14.

Accordingly, we determine that no claim terms require express construction. *See, e.g., Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . .

⁴ Neither party argues lexicography or disavowal applies to any claim term. *See generally* Pet.; *see generally* PO Resp.

that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))). We apply the plain and ordinary meaning to all the claim terms. To the extent it is necessary to address the meaning of any claim term in order to make a final determination whether or not any challenged claim is unpatentable based on the arguments and evidence presented, we address the meaning as part of our unpatentability analysis.

D. Obviousness Ground Based on Swafford and Masumoto

Petitioner contends that claims 1–15 would have been obvious in view of a combination of teachings of Swafford and Masumoto. Pet. 11, 17–56. We provide summaries of Swafford and Masumoto and then analyze the arguments and evidence of the parties relating to this ground.

1. Swafford

Swafford is a U.S. patent application publication directed to “[s]ystems and methods for a merchandizing display related to a continuous display formed by electronic displays embedded along product shelves and on the packages stored on the product shelves.” Ex. 1004, code (57).

According to Swafford,

[a]n electronic label device may detect the presence of a consumer and send a trigger to the packages on its product shelf. The electronic label device may also send a trigger to surrounding electronic label devices. A streaming video may then be apportioned among displays on electronic label devices and the packages. Each of the displays may simultaneously output a different portion of the streaming video.

Id. Figure 42 of Swafford is reproduced below.

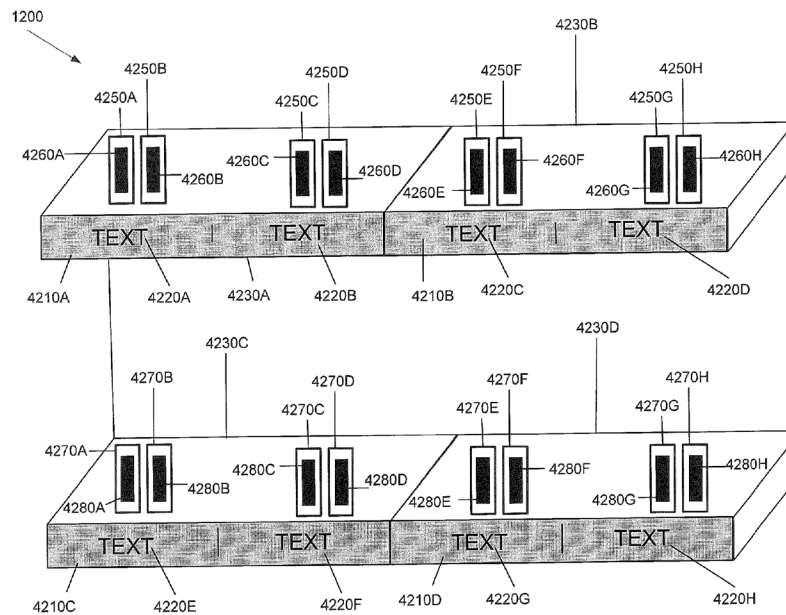


FIG. 42

Figure 42 depicts “four continuous display shelf edge label devices arranged as an array of 2×2, two rows and two columns of continuous display shelf edge label devices.” *Id.* ¶ 383. “Each continuous display shelf edge label device includes a single display area 4210A-4210D oriented along an entire edge of a shelf 4230A-4230D.” *Id.* ¶ 377. According to Swafford, “[c]ontinuous display shelf edge label devices 4210A-D may be in communication with each other, products 4260A-H and 4280A-H, as well as corresponding packages 4250A-H and 4270A-H.” *Id.* ¶ 382. In addition, “information, such as pricing information, product data, and advertisements, can be provided to the continuous display shelf edge label devices 4210A-D and packages 4250A-H and 4270A-H through network and hub 39100 discussed above in relation to FIG. 39.” *Id.* Figure 39 of Swafford is reproduced below.

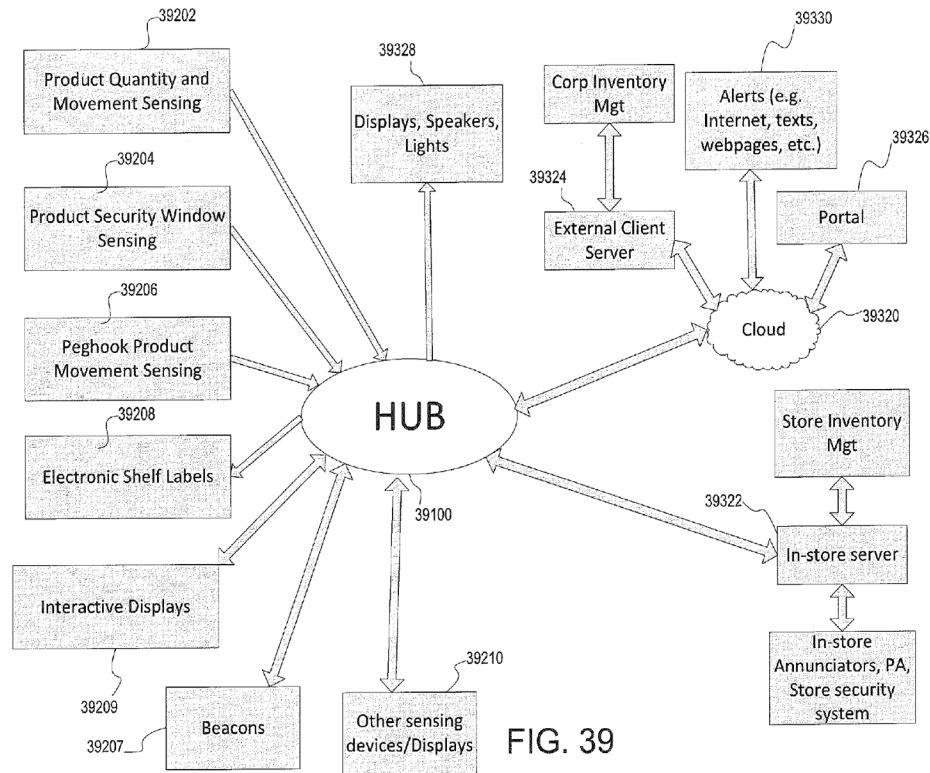


FIG. 39

Figure 39 depicts a hub 39100, which “can be a centralized data routing and receiving device and can be interconnected with various devices.” *Id.* ¶ 325. For example, “a plurality of end-point devices 39202-39210 that can be associated with a product shelf can be configured to connect to the hub,” and “configured to transmit information to the hub or to receive information from the hub 39100.” *Id.* ¶ 326. Swafford states that the end-point devices can be continuous display shelf edge label devices. *Id.* ¶ 327. As shown in Figure 39, “[t]he hub 39100 can also be interconnected with a network, which may include various servers 39322, 39324, 39326 and the cloud 39320.” *Id.* ¶ 328.

Figure 40 of Swafford is reproduced below.

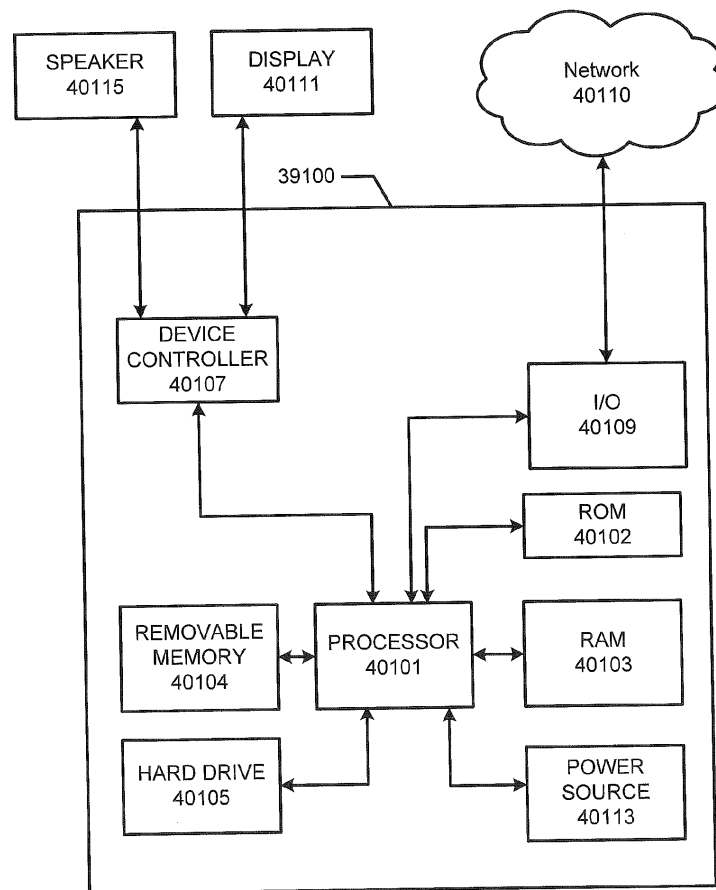


FIG. 40

Figure 40 depicts an “exemplary hub 39100 . . . which can be configured as a computing device.” *Id.* ¶ 329. The hub 39100 may include one or more processors 40101, one or more memories, such as “a read-only memory (ROM) 40102, random access memory (RAM) 40103, hard drive 40105, removable media 40104,” “one or more output device controllers 40107, such as a video or audio processor,” and “one or more network interfaces (such as a network interface circuit, a scanner interface circuit, and the like) to communicate with an external network.” *Id.* ¶¶ 329–332. According to Swafford, “[t]he hubs 39100 can be placed on a facility ceiling or at the top of a shelving or merchandizing system,” and “the plurality of hubs could be

configured to communicate with each other and determine which end-point devices each hub should communicate with.” *Id.* ¶ 334.

Swafford was published May 12, 2016, (Ex. 1004, code (43)) and Petitioner contends that Swafford qualifies as prior art. Pet. 14. Patent Owner does not contest the prior art status of Swafford. *See generally* PO Resp. We determine that Swafford qualifies as prior art, because Swafford’s publication date of May 12, 2016, is before the effective filing date for the ’669 patent, which is November 10, 2017. Ex. 1001, code (22); Ex. 1004, code (43).

2. *Masumoto*

Masumoto is a U.S. patent application publication directed to “a multi-display apparatus for displaying a single image by combining a plurality of displays.” Ex. 1005, code (57). Masumoto describes “a multi-display apparatus that can match an image display timings and image display positions of the entire image by connecting an image transmission server and multiple displays to a network.” *Id.* ¶ 15. According to Masumoto,

The multi-display apparatus includes the plurality of displays connected to a network. Each of the plurality of displays includes a communication unit that communicates via the network and a controller. The controller sends a request signal requesting other display to transmit specific information of a video signal displayed on the other display, and receives the specific information from the other display. The controller gives notification of correction to the other display sending the specific information with a difference when the specific information received differs from specific information of a video signal that is supposed to be displayed.

Id. ¶ 17.

Figure 1 of Masumoto is reproduced below.

FIG. 1

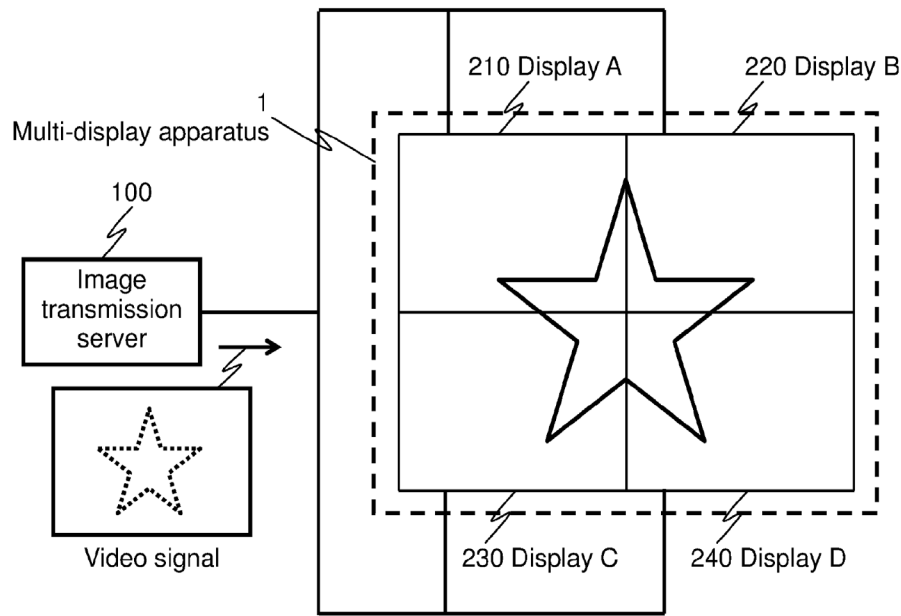


Figure 1 depicts “a configuration diagram of a multi-display apparatus,” where “[d]isplay A210 to display D240 are connected to image transmission server 100 via the network” and are also “capable of communication with each other via the network.” *Id.* ¶¶ 38, 39. According to Masumoto,

Image transmission server 100 sends same video signal to each of display A210 to display D240 simultaneously. Each of display A210 to display D240 cuts out and displays a portion in charge from the received image. By combining four displays A210 to D240, a single image is displayed.

Id. ¶ 39. Masumoto discloses that “a video signal is sent from image transmission server 100 in a streaming format or file format, and stored in each display.” *Id.*

Figure 2 of Masumoto is reproduced below.

FIG. 2

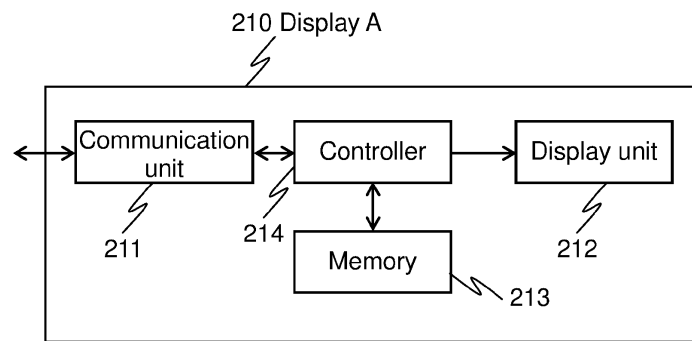


Figure 2 depicts “a block diagram illustrating a structure of each display,” e.g., display A210. *Id.* ¶ 40. “Display A210 includes communication unit 211 for communication via network, display unit 212 including a liquid crystal display panel, memory 213 for storing a range of data, and controller 214 for controlling these communication unit 211, display unit 212, and memory 213.” *Id.* According to Masumoto, “[d]ata stored in memory 213 is specifically a video signal sent from the image transmission server and a video signal for display is generated by cutting out a portion of this video signal.” *Id.*

Masumoto was published May 11, 2017, (Ex. 1005, code (43)) and Petitioner contends that Masumoto qualifies as prior art. Pet. 16. Patent Owner does not contest the prior art status of Masumoto. *See generally* PO Resp. We determine that Masumoto qualifies as prior art, because Masumoto’s publication date of May 11, 2017, is before the effective filing date for the ’669 patent, which is November 10, 2017. Ex. 1001, code (22); Ex. 1005, code (43).

3. *Claim 1*

For the reasons that follow, we are persuaded that Petitioner establishes that the subject matter of independent claim 1 would have been obvious in view of the combination of Swafford and Masumoto.

[1.0] A video playback system (1), comprising

The Petitioner contends that the preamble of claim 1 is not limiting. Pet. 17 (“The preamble of claim 1 is not limiting because it merely states the purpose or intended use of the alleged invention. It does not define any of the claim limitations, which are set forth fully in the body of the claim (i.e., a video playback system).”). Nonetheless, Petitioner cites both Swafford and Masumoto and shows both cited references disclose video playback systems. *Id.* at 17–18.

Patent Owner does not dispute Petitioner’s contention that the preamble is not limiting or dispute that the cited art discloses the preamble. *See generally* PO Resp.

We determine that the preamble is not limiting but, if it were, the cited art has been shown to teach it.

[1.1] a number of playback devices (6A, 6B) to playback a video on their screens (5),

Petitioner contends that both Swafford and Masumoto disclose this limitation. Pet. 18 (citing Ex. 1003 ¶¶ 57–64). With regard to Swafford, the Petition provides:

Specifically, Swafford discloses that “continuous display shelf edge label devices arranged in side by side (4210A and 4210B or 4210C and 4210D) orientation and stacked on top of each other like shelves (4210A and 4210C or 4210B and

4210D), an array of continuous display shelf edge label devices may be configured, which can be configured to be combined together display a uniform image or video.” (Ex.1004, [0383], FIG. 42). Furthermore, FIG. 43 shows another example of one continuous display shelf edge label device 43001 which “can be provided with any number of displays.” (Ex.1004, [0388], FIG. 43).

Thus, each continuous display shelf edge label device 4210A - 4210D, 43001 corresponds to a playback device in [1.1] and the multiple continuous display shelf edge label devices are designed to display a video on their displays as in [1.1]. (Ex.1003, ¶60).

Id. (bracketed material in original). With regard to Masumoto, the Petition provides:

Additionally, Masumoto discloses a plurality of displays to playback a video on their display units by disclosing “a multi-display apparatus for displaying a single image by combining a plurality of displays.” (Ex.1005, [0017]). “Image transmission server 100 sends same video signal to each of display A210 to display D240 simultaneously.” (Ex.1005, [0039]). “All displays have the same structure.” (Ex.1005, [0040]). “[M]ulti-display apparatus 1 may be used for simultaneously displaying multiple video signal A and video signal B from image transmission server 100.” (Ex.1005, [0094]). Each display includes a display unit 212 to display a video and the display unit 212 includes “a liquid crystal display panel.” (Ex.1005, [0040], FIG. 2). Thus, the plurality of displays A210-D240 in Masumoto correspond to a number of playback devices in [1.1] and the plurality of displays A210-D240 are configured to display a video on their display units. (Ex.1003, ¶¶61-63).

Id. at 20–21 (bracketed material in original).

Patent Owner does not dispute the showing in the Petition for this limitation. *See generally* PO Resp.

Petitioner has shown that the cited art teaches this limitation.

[1.2] each playback device (6A, 6B) comprises a memory to store video data (9) representing said video, and

Although the Petition states that “Masumoto discloses this element” (Pet. 21 (citing Ex. 1003 ¶¶ 69–70)), both Swafford and Masumoto are cited and discussed in the section of the Petition relating to this limitation. *See id.* at 21–24.

Figure 27 of Swafford is reproduced below.

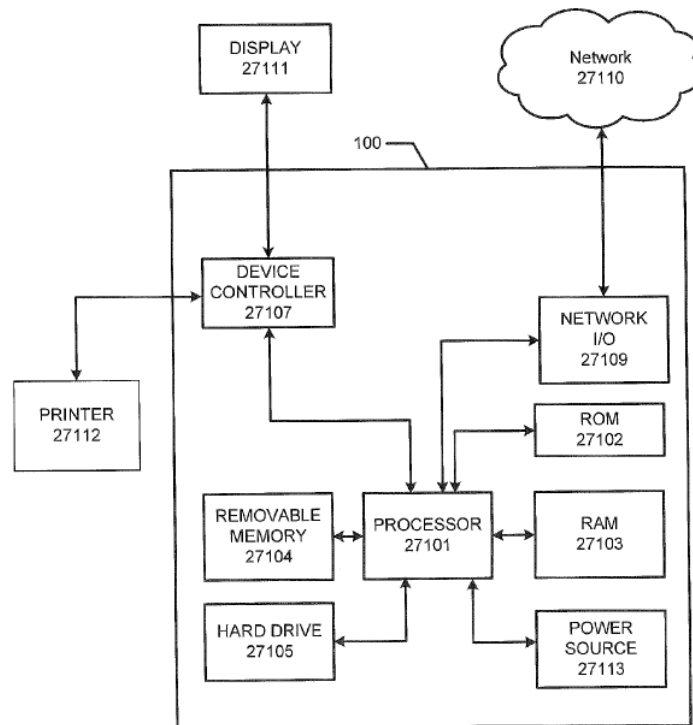


FIG. 27

Figure 27 of Swafford depicts the “general hardware elements that can be used to implement” the described devices. Ex. 1004 ¶ 264. With regard to Swafford, the Petition provides:

First, Swafford discloses that “[o]ne or more *memories 27102, 27103, 27104, and/or 27105* may include a stored

address location and display data location data” and “[d]isplay data location data may be used by processor 27101 to format data to be displayed on display 27111.” (Swafford, [0265], FIG. 27). “Although shown in FIG. 27 as being outside of computing device 27100, display 27111 also may be integrated into a same physical housing and/or structure as computing device 27100.” (Swafford, [0265]).

“As shown illustratively in the examples of FIGS. 29-34B, display 27111 may be configured to be oriented along an entire edge of a shelf of a retailer.” (Ex.1004, [0266]). Thus, display 27111 may be the continuous display 34801 oriented along an entire edge of a shelf as shown in FIG. 34A and has one or more memories to store video data representing video. (Ex.1003, ¶67). Therefore, Swafford discloses that each continuous display 34801 includes one or more memories to display data location data that may be used to format data to be displayed on display. (Ex.1003, ¶68).

Pet. 22 (bracketed material in original).

Figure 2 of Masumoto is reproduced below.

FIG. 2

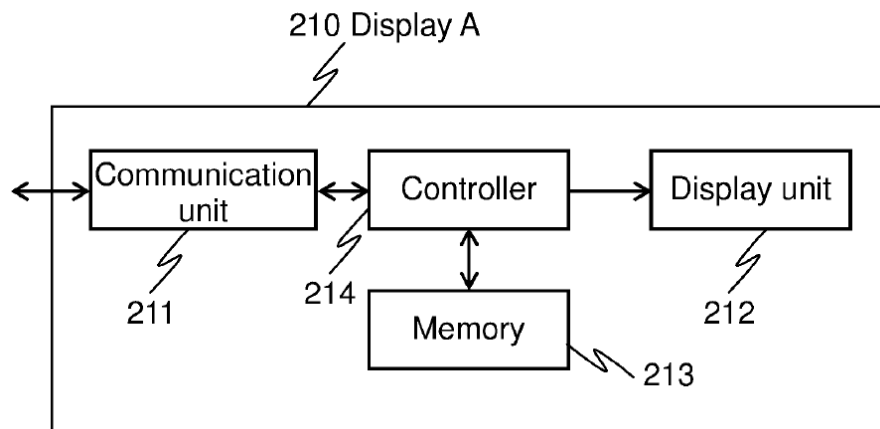


Figure 2 of Masumoto depicts “a block diagram illustrating a structure of each display.” Ex. 1005 ¶ 40. With regard to Masumoto, the Petition provides:

Additionally, Masumoto discloses that each display includes a memory to store video data representing the video by disclosing that “[d]isplay A210 includes communication unit 211 for communication via network, display unit 212 including a liquid crystal display panel, **memory 213 for storing a range of data**, and controller 214 for controlling these communication unit 211, display unit 212, and memory 213.” (Ex.1005, [0040]). “**Data stored in memory 213 is specifically a video signal** sent from the image transmission server and a video signal for display is generated by cutting out a portion of this video signal.” *Id.*

Pet. 23–24 (bracketed material in original).⁵

Patent Owner does not dispute the showing in the Petition for this limitation. *See generally* PO Resp.

Petitioner has shown that the cited art teaches this limitation.

[1.3a] a communication stage to communicate data with each other, wherein the devices (6A, 6B) are designed:

[1.3b] to transmit video playback progress-data via the communication stage to the other device (6B, 6A); and,

[1.3c] to determine based on the received progress data whether it is in a synchronous or asynchronous playback progress with the other devices (6B, 6A);

Petitioner contends that “Swafford in view of Masumoto discloses this element.” Pet. 24 (citing Ex. 1003 ¶¶ 71–85); *see also id.* at 27 (“Swafford in view of Masumoto discloses each and every limitation of [1.3].”). With regard to Swafford, the Petition provides:

Specifically, Swafford discloses that “**[e]ach of the vertically-stacked multiple continuous displays**, user

⁵ We also note that claim 2 of Masumoto recites that “each of the plurality of displays has a memory.” Ex. 1005, 22.

interfaces, and packages may then *simultaneously* output a different part of the message” and “[t]he message may include graphics, text, animations, *streaming video*, or any combination thereof.” (Ex.1004, [0287]). Further, Swafford discloses that “*a continuous display shelf edge label device* may determine or *receive data from another continuous display shelf edge label device* about a competitive product and/or related product (such as toothpastes to toothbrushes).” (Ex.1004, [0315]). “The electronic label devices may be configured to receive a streaming video and apportion the streaming video between the one or more electronic label devices and the plurality of packages.” (Ex.1004, [0421]).

Id. at 24–25 (bracketed material in original). Thus, Petitioner shows that Swafford discloses video playback devices that communicate data with each other. However, Petitioner fails to show that Swafford teaches or suggests the remaining elements of limitation 1.3 and acknowledges that Swafford does not describe limitation 1.3b. *See id.* at 24–27. In this regard, the Petition states:

Swafford does not explicitly describe that the video playback progress-data is transmitted from one continuous display shelf edge label device to another continuous display shelf edge label device, i.e., Swafford does not explicitly disclose that “the devices (6A, 6B) are designed to transmit video playback progress-data via the communication stage to the other device (6B, 6A).” This modification would be obvious in view of Masumoto. (Ex.1003, ¶74).

Id. at 25.

Figure 9 of Masumoto is reproduced below.

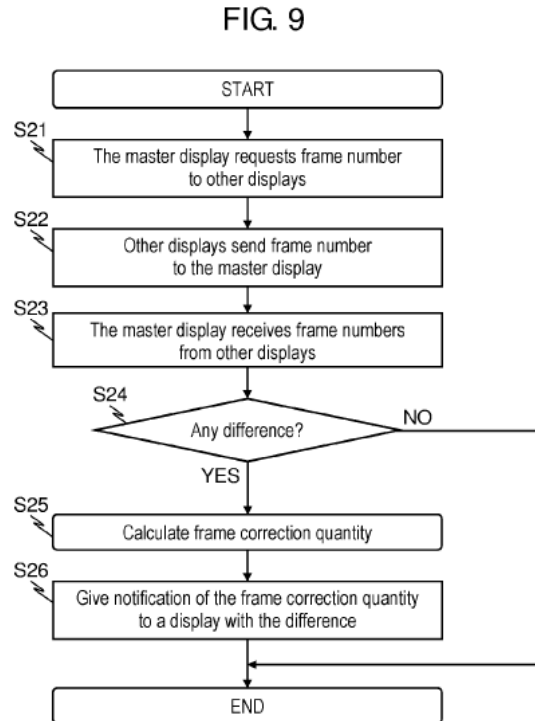


Figure 9 of Masumoto depicts “a flow chart illustrating the operation of a multi-display apparatus.” Ex. 1005 ¶ 28. With regard to Masumoto, the Petition provides:

Specifically, Masumoto discloses that the displays can communicate data with each other and are designed to transmit specific information of a video signal displayed on the display (*corresponding to the video playback progress-data*), such as the frame number or the time stamp, to the other display and to determine synchronization or asynchronization based on the video playback progress-data by disclosing that “[t]he multi-display apparatus includes the plurality of displays connected to a network. Each of the plurality of displays includes a communication unit that communicates via the network and a controller. *The controller [in one display] sends a request signal requesting other display to transmit specific information of a video signal displayed on the other display, and receives the specific information from the other display.* The controller gives *notification of correction* to the other display sending the specific information with a difference when the specific information received differs from specific

information of a video signal that is supposed to be displayed.” (Ex.1005, [0017]). Thus, Masumoto discloses that the displays can communicate data with each other and the displays are designed to transmit specific information of a video signal displayed on one display to the other display and to determine synchronization or asynchronization based on the specific information. Masumoto discloses the specific information of a video signal displayed on one display as the video playback progress-data in [1.3]. (Ex.1003, ¶¶75-76).

Furthermore, as shown in FIG. 9, Masumoto discloses that “the frame number is an example of specific information of the video signal, and the time [stamp] is also another example of the specific information of the video signal.” (Ex.1005, [0107]). Therefore, Masumoto discloses that the displays transmit video playback progress-data, such as the frame number or the time stamp, between each other to determine synchronization/asynchronization. (Ex.1003, ¶¶77-80).

Pet. 25–26 (bracketed material in original). Thus, Petitioner shows that Masumoto discloses video playback devices comprising a communication unit and controller (ref. nos. 211 and 214 in Fig. 2) and that these playback devices communicate data with each other. And, Petitioner shows that Masumoto discloses that the video playback devices are designed to transmit frame number or time stamp information to the other playback devices. And, still further, Petitioner shows that the video playback devices are designed to determine whether the frame number or time stamp of the other devices are different.⁶

⁶ We also note that claims 7 and 8 of Masumoto recite:

7. A multi-display apparatus for displaying a single image by combining a plurality of displays, the multi-display apparatus comprising:
the plurality of displays that are connected to a network,
wherein

With specific regard to limitation 1.3a, Patent Owner does not dispute that the asserted art teaches a communication stage. Tr. 50:9–15. We find that both Swafford and Masumoto teach “*a communication stage to communicate data with each other*” as recited in claim 1.

Patent Owner disputes Petitioner’s showing as to limitations 1.3b and 1.3c. PO Resp. 1, 28–35; Tr. 21:5–6. As discussed above, Petitioner relies on Masumoto for these limitations. Pet. 24–27. Patent Owner argues that “Masumoto does not disclose limitations [1.3b] or [1.3c] because it discloses unilateral communication, not reciprocal communication.” PO Resp. 30 (highlighting from heading omitted; bracketed material in original).

With specific regard to limitation 1.3b, in the context of claim 1, it recites: “*wherein the [playback] devices (6A, 6B) are designed: to transmit video playback progress-data via the communication stage to the other device (6B, 6A).*” Ex. 1001, 8:12–14. Thus, limitation 1.3b requires that

each of the plurality of displays includes,
a communication unit that communicates via the network,
and
a controller that sends a request signal requesting other
display to transmit specific information of a video signal
displayed on the other display, receives the specific
information from the other display, and gives notification
of correction to the other display sending the specific
information with a difference when the specific
information received differs from specific information of a
video signal that is supposed to be displayed.

8. The multi-display apparatus of claim 7, wherein the
controller of each of the plurality of displays conducts mutual
time synchronization periodically.

Ex. 1005, 23. As noted in the Petition (Pet. 26), the “specific
information” is a frame number or time stamp. *Id.* at ¶ 107.

each playback device be designed to transmit video playback progress-data to the other device. *See* PO Resp. 28 (“Limitation [1.3b] requires that the playback devices “transmit video playback progress-data to the other device (6B, 6A).”). Patent Owner argues that “Masumoto discloses a unilateral communication of playback progress-data to a master display” (*id.* at 29–30) and so does not meet this claim limitation because each playback device must “at all times be ‘designed to’ . . . transmit” (*id.* at 30) and “each [playback] device be expressly configured to transmit . . . during the operation of the system” (*id.* at 22). We reject this argument because, in applying the plain and ordinary meaning to the language of claim 1, we do not find any basis for restricting claim 1 in the manner Patent Owner suggests.

Claim 1 is directed to “*video playback system . . . comprising a number of playback **devices**” in which “each playback device (6A, 6B) comprises . . . a communication **stage . . . designed: to transmit video playback progress-data.***” Ex. 1001, 8:7–13 (emphasis added). Although claim 1 includes functional limitations, such as “transmit video playback progress-data,” claim 1 is not directed to a method as this functional limitation is stated in terms of what its component playback devices are “designed to” do. We do not interpret this language in claim 1 to require the actual transmission of video playback progress-data at all times or during operation (or to require actual transmission at any time), but to be fully met if each playback device is designed to transmit video playback progress-data.⁷ This invention is broadly defined so as to cover a system with

⁷ Even though the Board raised the issue of construing “designed to” in its Institution Decision (Inst. Dec. 12), both parties take the position that no

playback devices designed to transmit playback progress-data without regard to whether the system is in operation or use.⁸ The design of the playback devices as recited (and as disclosed in Masumoto) does not change during operation or use. The design of the playback devices is fixed. We do not find any support in the plain and ordinary meaning of claim 1 to support the distinction that Patent Owner argues.

Masumoto teaches a system “*wherein the [playback] devices (6A, 6B) are designed: to transmit video playback progress-data via the communication stage to the other device (6B, 6A)*” as recited in claim 1. Petitioner shows that Masumoto teaches limitation 1b. Pet. 25–26 (quoted above). Citing paragraph 17 of Masumoto, the Petition states that “Masumoto discloses that the displays can communicate data with each other and the displays are designed to transmit specific information of a video signal displayed on one display to the other display.” Pet. 26.

explicit construction is necessary. Tr. 8:17–22, 21:24–22:14. And, both parties contend “designed to” means “configured to.” *Id.* at 9:13–16, 23:14–15. We agree. The Federal Circuit has held, in the context of a computer-implemented invention that recited “a signal generator configured to generate . . . a signal,” “configured to” should be interpreted to mean that the signal generator is programmed to generate the claimed signals. *Nevro Corp. v. Boston Scientific Corp.*, 955 F.3d 35, 41 (Fed. Cir. 2020) (“A person of ordinary skill would be reasonably certain that ‘a signal generator configured to generate’ means ‘a signal generator programmed to generate.’”).

⁸ In the Sur-reply, Patent Owner acknowledges that “the parties agree that ‘actual’ transmission/determination is not required” and that “the claims require only that such a system exist as configured—even if never put into use.” PO Sur-reply 6–7.

Paragraph 17 of Masumoto supports this statement. Paragraph 17 of Masumoto provides:

Another multi-display apparatus of the present disclosure is a multi-display apparatus for displaying a single image by combining a plurality of displays. The multi-display apparatus includes the plurality of displays connected to a network. Each of the plurality of displays includes a communication unit that communicates via the network and a controller. **The controller sends a request signal requesting other display to transmit specific information of a video signal displayed on the other display, and receives the specific information from the other display.**

Ex. 1005 ¶ 17 (emphasis added). As noted in the Petition on the same page (Pet. 26), the “specific information” is a frame number or time stamp.⁹ *Id.* at ¶ 107. We find that the transmitted “specific information” as described in Masumoto is “*video playback progress-data*” as recited in claim 1. Moreover, Patent Owner acknowledges that Masumoto teaches all of the following:

“[T]he master display receives data, makes a determination regarding synchronization, and then instructs the other playback devices on how to synchronize.” PO Resp. at 2.

⁹ The ’669 patent describes frame number and playback time as video playback progress data. *See* Ex. 1001, 2:47–50 (“[A]ccording to a preferred embodiment of the invention the devices are designed to utilize a frame number that labels the frame that is currently played back as the progress-data to be transmitted.”), 2:41–46 (“The progress-data may be any indicator that allows to represent the currently played back part of the video or to measure the already elapsed playback time since playback start or to indicate the remaining playback time until the end of the video or the like, e.g. measured in milliseconds or seconds or percentage.”). Patent Owner agrees that the plain and ordinary meaning of playback progress data “is data that reflects where the display is at the time that it is reporting its progress.” Tr. 41:11–13.

“Coordinating the timing requires the displays to communicate ‘specific information’ including time stamp and frame at that time to a ‘controller’ (214) of a separate display.” *Id.* at 11 (citing Ex. 1005 ¶¶ 17, 107, 108).

“Masumoto discloses a single ‘master display’ that requests timing information from all other displays, with the other displays sending their timing information only to the master . . . Masumoto says that the display[s] may have similar configurations and that any one of the displays may be the master.” *Id.* (citing Ex. 1005 ¶¶ 108, 124).

“[T]he designated master display makes a request for frame numbers from the other displays (step S21), each of which sends that information to the master display (step S22).” *Id.* at 12 (citing Ex. 1005, Fig. 9).

“Masumoto discloses a unidirectional transmission of playback progress-data to a master display.” *Id.* at 29–30 (citing Ex. 1005, Fig. 1).

“In Step S21 [of Figure 9 of Masumoto], the master display requests that the non-master displays send their current frame numbers, which they do in Step S22.” *Id.* at 34 (citing Ex. 1005 ¶¶ 135, 138).

“Masumoto’s displays can . . . be configured to be non-master displays that transmit playback progress-data.” PO Sur-reply 17.

Patent Owner even acknowledges that “the non-master displays are **designed to transmit** their current frame number or time stamp to the master display.” *Id.* at 29 (citing Ex. 1005 ¶¶ 107–118, Fig. 9; Ex. 2004 ¶ 127) (emphasis added). We find that Masumoto teaches limitation 1b.

With specific regard to limitation 1c, in the context of claim 1, it recites: “*wherein the [playback] devices (6A, 6B) are designed: . . . to*

determine based on the received progress data whether it is in a synchronous or asynchronous playback progress with the other devices (6B, 6A.” Ex. 1001, 8:12–14. Petitioner establishes that Masumoto teaches limitation 1c. Pet. 25–26 (quoted above). Paragraph 17 of Masumoto supports this statement. Paragraph 17 of Masumoto provides:

The multi-display apparatus includes the plurality of displays connected to a network. Each of the plurality of displays includes a communication unit that communicates via the network and a controller. The controller sends a request signal requesting other display to transmit specific information of a video signal displayed on the other display, and receives the specific information from the other display. **The controller gives notification of correction to the other display sending the specific information with a difference when the specific information received differs from specific information of a video signal that is supposed to be displayed.**

Ex. 1005 ¶ 17 (emphasis added).

Patent Owner’s arguments regarding limitation 1c are similar to and related to its arguments regarding limitation 1b. Patent Owner argues: “This limitation reflects the reciprocal nature of the communications and synchronization determination required by the claims because each display must determine whether it is in sync”¹⁰ and “Masumoto’s master display does not do this.” PO Resp. 32. Here again, Patent Owner’s argument that Masumoto does not teach this limitation is contradicted by what it acknowledges Masumoto teaches which includes:

¹⁰ As noted previously in footnote 7, claim 8 of Masumoto recites, “the controller of each of the plurality of displays conducts mutual time synchronization periodically.”

“[T]he master display receives data, makes a determination regarding synchronization, and then instructs the other playback devices on how to synchronize.” PO Resp. 2.

“In Masumoto’s system, only the master display system determines synchronization—it ‘match[es] display timings of all [non-master] displays at a desired original timing of the video signal [from the master display], without adjusting the displays to a display with the slowest display timing.’” *Id.* at 11–12 (citing Ex. 1005 ¶ 126) (bracketed material in original).

“[T]he master display controls the timing of the other displays.” *Id.* at 12 (citing Ex. 2004 ¶ 105).

“As depicted in Figure 9 . . . , the designated master display makes a request for frame numbers from the other displays (step S21), each of which sends that information to the master display (step S22). . . . The master display—and only the master display—uses the frame information received from the other displays to calculate whether to send a correction to the sending display (step S24–S26).” *Id.* (citing Ex. 1005 ¶¶ 108–119, Fig. 9).

“Masumoto discloses a system that synchronizes video on multiple displays using a ‘master display’ that ‘calculates a desired frame number’ and notifies other non-master display devices to correct their own frame number based on the calculation.” *Id.* at 29 (citing Ex. 2004 ¶¶ 112–127; Ex. 1005 ¶¶ 110, 113) (footnote omitted).

“[T]he master display makes a synchronization determination, which it bases on information received from the non-master devices.” *Id.* (citing Ex. 1005 ¶¶ 113–118, Fig. 9).

“Masumoto’s master display ‘calculates a desired frame number at [a] specific time’ and ‘compares its calculation result with the frame number received’ from other displays. . . . (‘When a frame number different from the desired frame number (difference exists) is detected (Yes in Step S24),

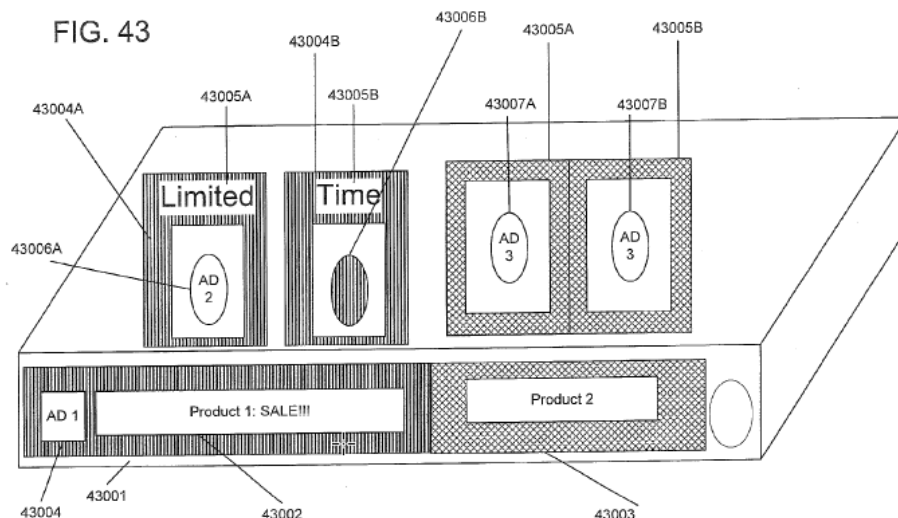
display D240 calculates a frame correction quantity (Step S25).’.” *Id.* at 33 (citing Ex. 1005 ¶¶ 113–118, Fig. 9) (bracketed material in original).

In Step S21 [of Figure 9 of Masumoto], the master display requests that the non-master displays send their current frame numbers, which they do in Step S22. . . . Then in Steps S23 and S24 . . . , it is the master display that makes the synchronization determination. *Id.* at 34 (Ex. 1005 ¶¶ 135, 138).

We find that Masumoto teaches limitation 1c.

[1.4] wherein the display devices (6A, 6B) are designed to display product information or product price related information by means of virtual electronic shelf labels displayed within a section of a screen’s (5) display area overlapping with a video content or substituting a video content of said section.

Petitioner relies on Swafford for teaching all the elements of this limitation. *See* Pet. 28–30 (citing Ex. 1003 ¶¶ 86–90; Ex. 1004 ¶¶ 388, 404, Fig. 43). Figure 43 of Swafford is reproduced below.



Cited paragraph 388 of Swafford provides:

In this example, a single continuous display shelf edge label device 43001 is shown. Continuous display shelf edge label device 43001 can be provided with any number of displays. In this example, continuous display shelf label device 43001 can be provided with two displays which again may or may not be configured also as user interfaces and can be configured similarly as the example discussed above in relation to FIG. 42. Display 43002 provides information on products 43006A and 43006B and may also display a static or dynamic advertisement 43004. For example, the background of display 43002 may display the logo representing the manufacturer of products 43006A and 43006B. Display 43003 can provide information on products 43007A and 43007B. Also the background of display 43003 may display the logo representing the manufacturer of products 43007A and 43007B, where the logo displayed on the background of display 43003 may differ from the logo displayed on the background of display 43002. However, it is contemplated that the backgrounds of displays 43002 and 43003 may display additional information, such as static images or streaming video of products 43006A-B and 43007A-B, promotional content, good-will messages, advertisements or any related information.

Ex. 1004 ¶ 388. The cited figure and passage in Swafford disclose display devices that display product information in a virtual electronic shelf label and also display a static or dynamic advertisement. The disclosed display devices are further described as displaying in the background of the displays streaming video of the products. The Petition states:

Specifically, Swafford discloses that the display shelf edge label device 43001 includes different displays area 43002 and 43003 as shown in FIG. 43. “Display 43002 provides information on products 43006A and 43006B and may also display a static or dynamic advertisement 43004. For example, the background of display 43002 may display the logo representing the manufacturer of products 43006A and 43006B. Display 43003 can provide information on products 43007A

and 43007B. Also the background of display 43003 may display the logo representing the manufacturer of products 43007A and 43007B, where the logo displayed on the background of display 43003 may differ from the logo displayed on the background of display 43002. However, it is contemplated that ***the backgrounds of displays 43002 and 43003 may display additional information, such as static images or streaming video of products 43006A-B and 43007A-B, promotional content, good-will messages, advertisements or any related information.***” (Ex.1004, [0388]).

Therefore, Swafford discloses that the display shelf edge label device 43001 is designed to display both static images and streaming video of products. (Ex.1003, ¶87). As shown in FIG. 43, static information about Product 1 or Product 2 . . . may overlap with a streaming video as a background Furthermore, the dynamic advertisement 43004 . . . , information about Product 1 or Product 2 are [sic] respectively occupies one section in the displays area 43002 or 43003. The dynamic advertisement 43004 may inherently include same content as the streaming video displayed in the backgrounds of displays 43002 and 43003 by virtue of “advertisement.” (Ex.1003, ¶88).

Pet. 28–29. Swafford supports Petitioner’s contention that the cited art teaches all the elements of this limitation.

Patent Owner argues that Swafford does not disclose limitation 1.4. PO Resp. 35–38. Patent Owner acknowledges that Swafford discloses “displays (4210A-H) are affixed to shelves for packaged products (4260A-H, 4280A-H, 4250A-H, 4270A-H) to show product information (text 4220A-D).” PO Resp. 14 (citing Ex. 1004, Fig. 42; Ex. 2004 ¶ 107). Patent Owner argues that Swafford does not disclose video content that overlaps with displayed product information. Patent Owner characterizes Petitioner’s position as asserting that “Swafford *might* provide overlapping information,” and asserts that Petitioner is relying on possible or inherent disclosure. *Id.* at

35–37. However, Patent Owner misreads cited paragraph 388 of Swafford, which states that “[d]isplay 43002 provides information on products 43006A and 43006B and may also display a static or dynamic advertisement 43004,” “such as static images or streaming video of products 43006A-B and 43007A-B, promotional content, good-will messages, advertisements or any related information.” Ex. 1004 ¶ 388. We find that Swafford’s disclosure that the display “may also display” video content is an affirmative disclosure of a display with *both* information and video. We reject Patent Owner’s argument as lacking merit.

We find that Swafford teaches limitation 1.4. In summary, after considering the arguments and evidence presented by the parties, we determine Petitioner establishes that the combination of Swafford and Masumoto teaches all the limitations of claim 1 of the ’669 patent.

4. *Claims 2–6, 8–10, and 12–15*

Petitioner also challenges dependent claims 2–15 of the ’669 patent as unpatentable in view of a combination of the teachings of Swafford and Masumoto. Pet. 2, 30–51. Petitioner presents an element-by-element mapping of the limitations of these claims to the relevant teachings of Swafford and Masumoto. *Id.* Patent Owner does not present any separate or specific arguments directed to dependent claims 2–6, 8–10, and 12–15. *See generally* PO Resp. After considering the Petitioner’s undisputed showing as to the additional limitations recited in claims 2–6, 8–10, and 12–15 and the evidence relied upon by Petitioner, and for the reasons discussed above with regard to claim 1, we determine that Petitioner has sufficiently shown that all the additional limitations of claims 2–6, 8–10, and 12–15 of the ’669

patent are taught by the combination of Swafford and Masumoto for the reasons set out in the Petition.

5. *Claim 7*

Dependent claim 7 recites:

The system (1) according to claim 1, wherein each device is designed to broadcast adjustment data for adjusting the playback progress of the devices (6A, 6B) over its communication stage if it detects an asynchronous playback progress.

Ex. 1001, 8:51–55. Petitioner relies on Masumoto for teaching all the elements of the additional limitation recited in claim 7. Pet. 41–43 (citing Ex. 1003 ¶¶ 118–124; Ex. 1005 ¶¶ 117–119, Fig. 9). The Petition provides:

Masumoto discloses that the display D240 is configured to broadcast a frame correction quantity (*corresponding to the adjustment data in [7.1]*) for correcting the playback progress of delayed display (A210; B220; C230) when frame number difference is detected. (Ex.1003, ¶¶118-124).

Specifically, Masumoto discloses that “[w]hen a frame number different from the desired frame number (difference exists) is detected (Yes in Step S24), display D240 calculates a frame correction quantity (Step S25). . . .

“Display D240 notifies delayed display A210 [(B220; C230)] of the frame correction quantity calculated in Step S25 (Step S26).

Id. at 4.

Patent Owner argues that, in Masumoto, the master device does not “broadcast” the adjustment data. PO Resp. 39–40. In particular, Patent Owner contends that “[i]n the context of the specification, a POSITA would have understood that ‘broadcast’ is the sending of data to multiple recipients.” *Id.* at 39 (citing Ex. 2002, 53:14–54:10; Ex. 2004 ¶ 161). But, Patent Owner fails to explain how or why the Specification of the ’669

patent supports its argument as to the meaning of “broadcast” in the context of the Specification. *See id.* Moreover, as pointed out by Petitioner, the Specification of the ’669 patent provides support for using the terms “transmit” and “broadcast” interchangeably. Pet. Reply 18–19. The ’669 patent states that “the devices are designed to **transmit (broadcast)** video playback progress-data via the communication stage to the other device.” Ex. 1001, 1:50–54 (emphasis added).

We find Petitioner’s position that Masumoto teaches this limitation to be better supported than Patent Owner’s contrary argument. Accordingly, we find that Masumoto teaches the additional limitation of claim 7.

6. *Claim 11*

Claim 11 recites:

The system (1) according to claim 1, wherein the communication stage is designed to use UDP multicast data packets for the communication.

Ex. 1001, 9:7–9. With regard to the additional limitation recited in claim 11, the entire presentation in the Petition states:

Swafford discloses that “[a]lthough illustratively shown as a wireless communication, the transmission path between continuous display shelf edge label devices 28200A-200C and products 28201A-201C may be a wired communication path, through network 28210.” (Ex.1004, [0274]).

UDP is a well-known communication protocol. A POSITA would understand to use UDP multicast data packets for the communication in Swafford. (Ex.1003, ¶¶136-137).

Pet. 46. Petitioner’s presentation on claim 11 is not well-developed, not well-supported, and not persuasive. Petitioner fails to explain how or why the cited statement in Swafford supports finding claim 11 obvious. And, Petitioner fails to explain why a POSITA would design the communication

stages in the playback devices of Swafford to use UDP multicast packets for any communication.

The cited testimony of Dr. Tentzeris in Exhibit 1003, paragraphs 136 and 137, does not provide sufficient evidentiary support for, or fill the holes in, Petitioner's presentation relating to claim 11. The cited testimony provides:

136. Swafford discloses that “[a]lthough illustratively shown as a wireless communication, the transmission path between continuous display shelf edge label devices 28200A-200C and products 28201A-201C may be a wired communication path, through network 28210.” Ex.1004 (Swafford), [0274].

137. User Datagram Protocol (UDP) is a well-known communication protocol for time-sensitive applications like gaming or playing videos. For example, Kipp discloses that “some examples of network communication protocols that may be employed to deliver video fragments from a video server to a playback device include TCP/IP, HTTP/1.1, HTTP/2.0, and QUIC (Quick UDP Internet Connections).” Ex.1006 (Kipp), [0129]. Therefore, a POSITA would understand to use UDP multicast data packets for the communication in Swafford.

Ex. 1003 ¶¶ 136, 137. Paragraph 136 is a copy of the same statement that appears in the Petition and contains no explanation of the relevancy of the statement to the additional limitation in claim 11. Paragraph 137 states that “User Datagram Protocol (UDP) is a well-known communication protocol.” And, the only evidence cited to support this testimony (Ex. 1006 ¶ 129) does not support either the conclusory testimony that precedes it (“User Datagram Protocol (UDP) is a well-known communication protocol for time-sensitive applications like gaming or playing videos.”) or the conclusory testimony that follows it (“Therefore, a POSITA would understand to use UDP multicast data packets for the communication in Swafford.”).

With regard to claim 11, Patent Owner argues:

For its contention that Swafford discloses UDP, Petitioner cites Swafford's disclosure that it may use a wired communication path, through a network. Petition, 46 (citing Ex-1004, [0274]). From this limited disclosure of a wired network, Petitioner asserts that element [11.1] is met because "UDP is a well-known communication protocol." *Id.* But being a well-known protocol is not enough to show that a POSITA would use UDP in Swafford (or Masumoto). Hart, ¶166. Petitioner's expert relies on Kipp (a reference not used in Ground 1) to show that UDP is a well-known protocol. Ex-1003, ¶137. But as Dr. Tentzeris acknowledges, Kipp recites numerous network protocols suitable for video delivery, including TCP/IP, HTTP/1.1, and HTTP/2.0. *Id.* (citing Ex-1006, [0129]). Dr. Tentzeris even stated that there are reasons to choose TCP/IP over UDP and that he would normally use TCP/IP. Tentzeris Dep., 62:2-5, 64:3-9, 66:24-67:2, 68:19-22. Neither Petitioner nor its expert provides any rationale for why a POSITA would choose UDP over any other communication protocol, including those listed in Kipp. Hart, ¶167. Moreover, Petitioner conflates communication for downloading video content—which is all the cited section of Kipp addresses—and communication of progress-data—which is what is required of the communication stage claimed in the '669 Patent. *Id.* These are two different types of communication. *Id.* Importantly, the '669 Patent discloses a system where video is already downloaded to the playback devices. Ex-1001, 2:15-28. Therefore, the communication protocol a POSITA might use for transmitting video is irrelevant. Hart, ¶167. What matters is what communication protocol a POSITA would use for transmission of the data required by the challenged claims, including progress-data. *Id.* Petitioner provides no reason why a POSITA would have found it obvious to use UDP for transmitting progress data in Swafford or Masumoto. *Id.*

Even were Kipp's disclosure relevant (it is not), it discloses only UDP communication, and does not disclose using UDP *multicast* data, as required by this limitation. *Id.*, ¶168. UDP is capable of unicasting and broadcasting data, in addition to multicasting data. *Id.* In his deposition, Dr.

Tentzeris admitted that UDP is capable of unicasting data. Tentzeris Dep., 50:25-51:2. In fact, use of unicast in UDP communications is the most common case. Hart, ¶168; Ex-2003, 4. And Petitioner provides no rationale for a motivation to use multicast data over any other form of UDP data. *Id.*

PO Resp. 40–42. Patent Owner’s criticism of Petitioner’s presentation as to claim 11 is valid. We agree with Patent Owner. Further, even if Petitioner were to establish that UDP were well known, Petitioner has not articulated any reason to modify the prior art to use UDP. *See KSR*, 550 U.S. at 418 (“a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art”); *Belden Inc. v. Berk-Tek LLC*, 805 F. 3d 1064, 1073 (Fed. Cir. 2015) (“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”).

The additional limitation recited in dependent claim 11 has not been shown to be unpatentable by a preponderance of the evidence.

7. *Motivation to Combine the Teachings of
Swafford and Masumoto*

Petitioner contends that “a POSITA would have found it obvious to apply multiple displays communicating video playback progress-data (e.g., the frame number, the time stamp) with each other, as taught in Masumoto, in Swafford’s system.” Pet. 51–52 (citing Ex. 1003 ¶¶ 152–158). The Petition provides:

First, a POSITA would have been motivated to combine Swafford with Masumoto because Swafford and Masumoto are designed to achieve the same goal to synchronize a video across multiple displays. . . . a POSITA would have been motivated and able to use the teaching of Masumoto modify [sic]

Swafford in order to fulfill Swafford’s express objective of “simultaneously output[ing] a different portion of the streaming video.” (*Id.* at 52–53 (citing Ex. 1004, code (57), ¶ 423; Ex. 1005 ¶¶ 4, 17)).

Second, it would have been obvious to a POSITA to have looked to Masumoto’s disclosure of transmitting video playback progress-data from one display to another display because it provides a solution to a well-recognized need in synchronizing video displays – a need for low bandwidth and simple, inexpensive hardware, as identified in Yamada, Kipp, Masumoto, and the ’669 Patent. (*Id.* at 53 (citing Ex. 1001, 1:28–40; Ex. 1005 ¶ 79; Ex. 1006 ¶ 26; Ex. 1010 ¶ 11)).

....

Third, a POSITA would have expected that Swafford’s system would likely be subjected to the way of transmitting video playback progress-data among different displays addressed in Masumoto because of the structural similarity between Swafford’s and Masumoto’s devices. (*Id.* at 54 (citing Ex. 1004 ¶ 330; Ex. 1005 ¶¶ 17, 40, 107–118)).

....

Fourth, . . . a POSITA would have been readily able to incorporate Masumoto’s displays that transmit video playback progress-data (e.g., frame numbers) and Masumoto’s memory that stores video data representing the video into Swafford’s electronic label devices with an expectation of success. (*Id.* at 55).

The Petition states that, “[f]or at least the above reasons, a POSITA would have found it obvious to incorporate Masumoto’s teaching to Swafford’s system so as to transmit the video playback progress-data from one electronic label device to another electronic label device.” *Id.* at 56.

Patent Owner argues, “Petitioner says that ‘Swafford and Masumoto are designed to achieve the same goal to synchronize a video across multiple

displays” and that “[t]his is incorrect.” PO Resp. 43.¹¹ However, Patent Owner fails to directly address whether “Swafford and Masumoto are designed to achieve the same goal to synchronize a video across multiple displays” as asserted by Petitioner. *See* Pet. 52. Instead, Patent Owner argues distinctions in the structure and use of the systems described in Swafford and Masumoto that are unrelated to whether these references are both directed to the goal of synchronizing video across multiple displays. *See* PO Resp. 43–45.

Petitioner supports the contention that Swafford and Masumoto are both directed to the goal of synchronizing video across multiple displays with quotations from Swafford and Masumoto. Pet. 52–53. The Petition quotes paragraph 423 of Swafford (Ex. 1004) which states that “[e]ach of the first electronic label device, the second electronic label device, the first group of electronic displays, and the second group of electronic displays may be configured to *simultaneously* output a different portion of the streaming video”) and quotes paragraph 4 of Masumoto (Ex. 1005) which states, “mutually synchronizing displays to match the frame number contained in the image marker. This enables to display one entire image by multiple displays without a sense of incongruity.” *Id.* The relied-upon art supports Petitioner’s reasoning.

¹¹ Elsewhere in its Response, Patent Owner acknowledges that “Swafford is directed to video ‘apportioned among displays on electronic label devices and the packages,’ which ‘simultaneously output a different portion of the streaming video’” (PO Resp. 13 (citing Ex. 1004, code (57) (Abstract)) and “Masumoto focuses on synchronization between the displays.” *Id.* at 42 (citing Ex. 1005 ¶¶ 102–126). Thus, Patent Owner contradicts its own argument.

Patent Owner asserts that “[t]he displays contemplated by Swafford and Masumoto are fundamentally different and involve different considerations.”¹² PO Resp. 43. With regard to Swafford, Patent Owner argues that Swafford is directed to electronic merchandising displays along product shelves that are wide but very short, and on the product packages that have a different aspect ratio and number of pixels. *Id.* (citing Ex. 1004, code (57) (Abstract), Fig. 43). And, Patent Owner argues that “Masumoto, on the other hand, contemplates ‘video wall systems and signage systems,’ such as what one might see in a sports bar or displaying a fast-food menu” (*id.* at 44 (citing Ex. 1005 ¶ 148, Fig. 1)) and “Masumoto discloses nothing related to adjusting to the differing aspect ratios or differing numbers of pixels per screen because Masumoto assumes the displays are all the same (*id.* at 45 (citing Ex. 1005 ¶ 0107)). Patent Owner contends that “[t]he two references, thus, are not directed to the same goal,” because “Masumoto involves simple video processing using uniform displays and a network server to expand the size of a streaming video from covering one screen to covering four, whereas Swafford pieces together streaming video segments

¹² Patent Owner’s arguments related to motivation to combine are not well-directed to the issue of combining the relevant teachings of the references but are instead directed to bodily incorporation of the devices of Masumoto into the system of Swafford. But, to justify combining the relevant teachings of the cited references, it is not necessary that a device shown in one reference can be physically inserted into the system shown in the other. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.”).

having different widths and heights.” *Id.* Although it is true that the video playback displays in Swafford and Masumoto are quite different and require different considerations, we determine that does not undermine Petitioner’s contention that “Swafford and Masumoto are designed to achieve the same goal to synchronize a video across multiple displays.” *See* Pet. 52.¹³ In this regard, we note that the claims of the ’669 patent are not limited to systems with playback devices that have any specified size, aspect ratio, number of pixels, or number of displays. And, the differences and considerations argued by Patent Owner do not relate to any claimed feature.

With regard to Petitioner’s contention that “it would have been obvious to a POSITA to have looked to Masumoto’s disclosure of transmitting video playback progress-data from one display to another display because it provides a solution to a well-recognized need in synchronizing video displays – a need for low bandwidth and simple, inexpensive hardware” (Pet. 53), Patent Owner argues, “[b]ut even if true, Swafford expressly discloses that his system can be implemented with ‘off-

¹³ The claims of Swafford and Masumoto support Petitioner’s contention that Swafford and Masumoto are both directed to the goal of synchronizing video across multiple displays. Claim 1 of Swafford is directed to “[a] system comprising . . . an electronic label device . . . comprising one or more electronic displays [and] a plurality of packages connected to the electronic label device, wherein each . . . comprises an [sic] display; wherein the one or mor electronic displays and each display of the plurality of packages forms a continuous display” and claim 2 recites, “[t]he system of claim 1 wherein the electronic label device receives a streaming video and apports the streaming video between each of the one or more electronic displays and the plurality of packages.” Ex. 1004, 106. Claim 1 of Masumoto is directed to “[a] multi-display apparatus for displaying a single image by combining a plurality of displays.” Ex. 1005, 22.

the-shelf' components.” PO Resp. 46 (citing Ex. 1004 ¶ 257). Paragraph 257 is a general description of the types of hardware and software that can be used to implement the various embodiments in Swafford. *See* Ex. 1004 ¶ 257.¹⁴ And the specific reference to off-the-shelf components in Swafford relates to whether application specific integrated circuits are needed in the Swafford system. *See id.* And, these off-the-shelf components are not necessarily simple, inexpensive hardware as Patent Owner’s argument

¹⁴ Paragraph 257 of Swafford states:

The various embodiments described herein may be implemented by general-purpose or specialized computer hardware. In one example, the computer hardware may comprise one or more processors, otherwise referred to as microprocessors, having one or more processing cores configured to allow for parallel processing/execution of instructions. As such, the various disclosures described herein may be implemented as software coding, wherein those of skill in the art will recognize various coding languages that may be employed with the disclosures described herein. Additionally, the disclosures described herein may be utilized in the implementation of application-specific integrated circuits (ASICs), or in the implementation of various electronic components comprising conventional electronic circuits (otherwise referred to as **off-the-shelf** components). Furthermore, those of ordinary skill in the art will understand that the various descriptions included in this disclosure may be implemented as data signals communicated using a variety of different technologies and processes. For example, the descriptions of the various disclosures described herein may be understood as comprising one or more streams of data signals, data instructions, or requests, and physically communicated as bits or symbols represented by differing voltage levels, currents, electromagnetic waves, magnetic fields, optical fields, or combinations thereof.

Ex. 1004 ¶ 257 (emphasis added).

implies and Patent Owner does not address the need for low bandwidth. In short, here again, Patent Owner's argument does not directly address Petitioner's reasoning.

However, we do agree with Patent Owner that Petitioner's contention that the cited combination of teachings is supported "because of the structural similarity between Swafford's and Masumoto's devices" (Pet. 54–55) does not provide a motivation to combine. PO Resp, 47–48. The only structural similarity relied on by Petitioner in support of this argument is that Swafford and Masumoto both disclose use of LCDs. *See* Pet. 54–55. Petitioner provides an inadequate explanation as to how or why the use of LCDs which are a common form of video displays would motivate the combination of the relied-upon teachings. But, this deficiency does not undermine the persuasiveness of Petitioner's overall showing of motivation to combine.

After considering all the arguments and evidence offered by the parties, we determine that Petitioner shows that a person of ordinary skill in the art would have been motivated to combine the relied-upon teachings of Swafford and Masumoto with a reasonable expectation of success.

8. *Summary as to Obviousness Ground Based on
Swafford and Masumoto*

Petitioner establishes that the combination of Swafford and Masumoto teaches all the limitations of claims 1–10 and 12–15 and articulates well-supported reasoning as to why a skilled artisan would have been motivated to combine the relied-upon teachings of Swafford and Masumoto. We conclude that claims 1–10 and 12–15 of the '669 patent are unpatentable as obvious in view of Swafford and Masumoto.

Petitioner does not show that the limitation recited in dependent claim 11 of the '669 patent would have been obvious. We conclude that claim 11 has not been shown to be unpatentable in view of Swafford and Masumoto.

E. Obviousness Ground Based on Masumoto, Kipp, and Takashi

Petitioner contends that claims 1–15 would have been obvious in view of Masumoto, Kipp, and Takashi. Pet. 3, 56–87. Patent Owner argues to the contrary. PO Resp. 49–66.

We provide summaries of Kipp and Takashi and then analyze the arguments and evidence of the parties relating to this ground.

1. Kipp

Kipp is a U.S. patent application publication directed to “[s]ystems, methods, and devices for synchronizing playback of segmented video content across multiple video playback devices.” Ex. 1006, code (57). According to Kipp, “playback devices may synchronize playback of a segmented video stream regardless of the clock time at the video server or the respective clock times of the playback devices.” *Id.* ¶ 26.

Figure 1 of Kipp is reproduced below.

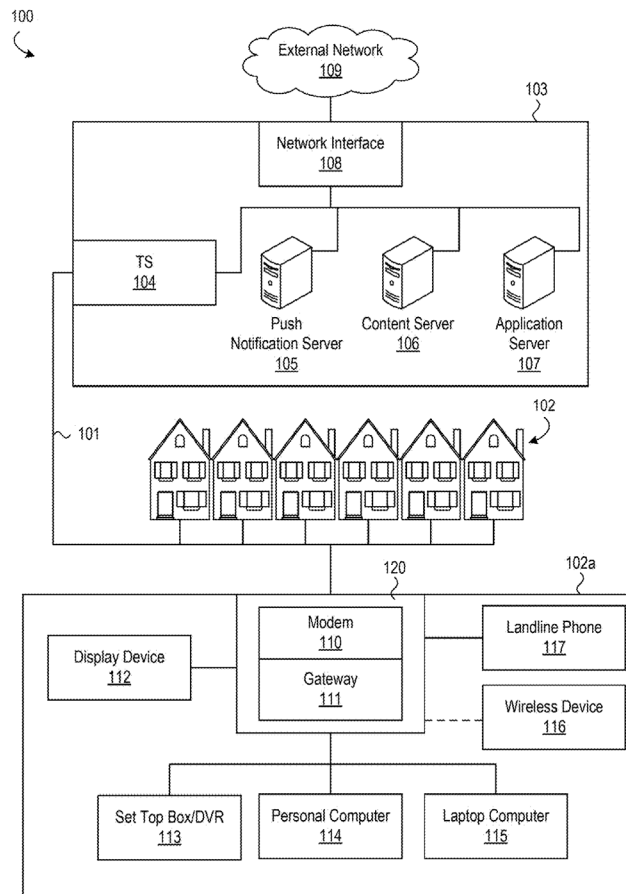


FIG. 1

Figure 1 depicts a communication network 100 using “a series of interconnected communication links 101 (e.g., coaxial cables, optical fibers, wireless, etc.) to connect multiple premises 102 (e.g., businesses, homes, consumer dwellings, etc.) to a local office or head end 103.” *Id.* ¶ 28. The local office 103 may include a variety of servers 105–107, such as a content server 106, which “may be one or more computing devices that are configured to provide content to users at their premises,” and application server 107, which “may be a computing device configured to offer any desired service.” *Id.* ¶¶ 32–33. According to Kipp, “premise 102a, such as a home, may include an interface 120,” which “can include any

communication circuitry needed to allow a device to communicate on one or more links 101 with other devices in the network.” *Id.* ¶ 34.

Figure 2 of Kipp is reproduced below.

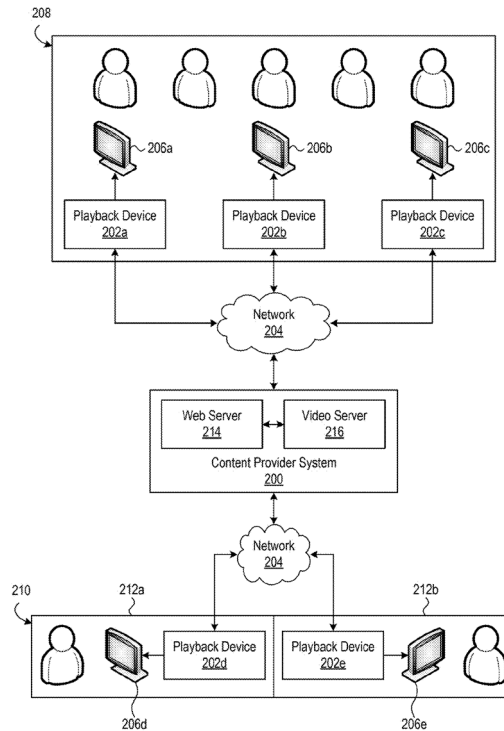


FIG. 2

Figure 2 depicts “an example configuration of a system for synchronizing segmented video streams across multiple playback devices,” where “a content provider system 200 is in signal communication with multiple playback devices 202a-e (collectively 202) via a network 204.” *Id.* ¶ 35. Kipp describes synchronizing playback of segmented video streams at the co-located playback devices shown in Figure 2:

Co-located playback devices may be arranged such that their respective display devices are or are not within view of each viewer. At site 208, for example, each of the display devices 206a-c are within view of the viewers. Such arrangements may be found, for example, at sports bars, classrooms, meeting rooms, and other locations where it may be desirable to have multiple display devices presenting the same content. In

contrast, at site 210, the co-located playback devices 202*d-e* are arranged such that their respective display devices are not within view of each viewer, e.g., within different areas 212*a-b* of the site 210. At site 210, for example, playback device 202*d* and display device 206*d* are located in area 212*a* while playback device 202*e* and display device 206*e* are located in area 212*b*. These arrangements may be found, for example, at hotels, apartment buildings, residences having display devices in different rooms (e.g., upstairs and downstairs), and other locations in which the playback devices may be within vicinity of each other but present the video content to different viewers.

Id. ¶ 36. Kipp further states that “the techniques described herein may synchronize playback of segmented video streams at playback devices that are not co-located with each other, i.e., not within vicinity of each other,” such as those “across stadium video boards and other types of devices such as mobile devices (e.g., smartphones of attendees) and fixed devices (e.g., television screens installed throughout the stadium).” *Id.*

In one scenario, for example, two viewers may call each other on the telephone with the same program airing in the background. If the playback devices at each location employ the synchronization techniques described, then playback at one location may not get ahead of playback at the other location. In this way, hearing noticeable events over the phone prior to receiving them at the local playback device can be advantageously avoided.

Id.

Kipp was published June 15, 2017, (Ex. 1006, code (43)) and Petitioner contends that Kipp qualifies as prior art under 35 U.S.C. § 102(a). Pet. 58. Patent Owner does not contest the prior art status of Kipp. *See generally* PO Resp. We determine that Kipp qualifies as prior art, because Kipp’s publication date of June 15, 2017, is before the effective filing date

for the '669 patent, which is November 10, 2017. Ex. 1001, code (22); Ex. 1006, code (43).

2. Takashi

Takashi is a Japanese patent application publication directed to a “merchandise information display system,” which is provided with “a shelf tag terminal 70 as merchandise information display terminal that displays text information about merchandise, and an image display terminal 80 that displays images relating to the merchandise.” Ex. 1008, code (57).

Figure 1 of Takashi is reproduced below.

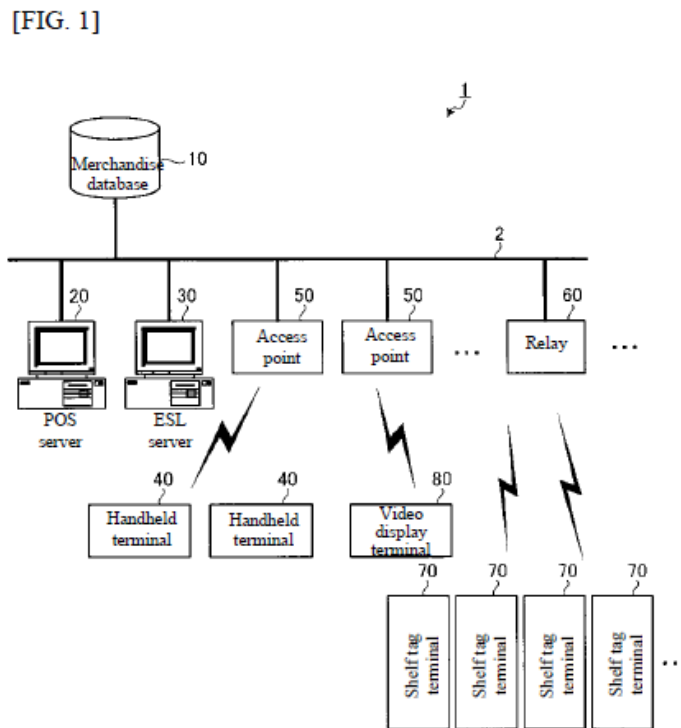


Figure 1 depicts “a schematic configuration of a merchandise information display system.” *Id.* ¶ 8. The merchandise information display system 1 comprises, *inter alia*, a shelf tag terminal 70 and an image display terminal 80, which display information about the merchandise, and an electronic shelf label (ESL) server 30, which corresponds to the server device. *Id.* ¶ 10.

Figure 9 of Takashi is reproduced below.

[FIG. 9]

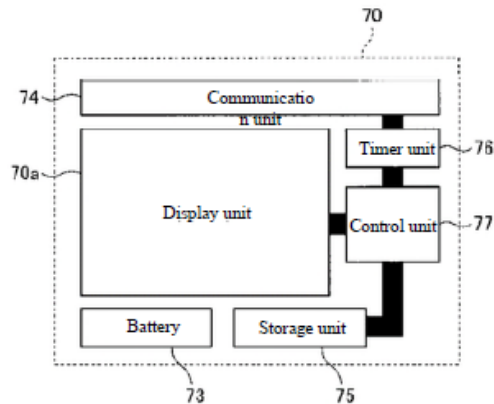


Figure 9 depicts “a schematic configuration of a shelf tag terminal.” *Id.* ¶ 8. According to Takashi, “the shelf tag terminal 70 is provided with the display portion 70a, a battery 73 as a drive source, a communication unit 74 that communicates data with the ESL server 30 via the relay 60, a non-volatile storage unit 75, a timer unit 76 used for synchronization and time measurement during communication control, and a control unit 77 that controls each unit.” *Id.* ¶ 30.

Figure 5 of Takashi is reproduced below.

[FIG. 5]

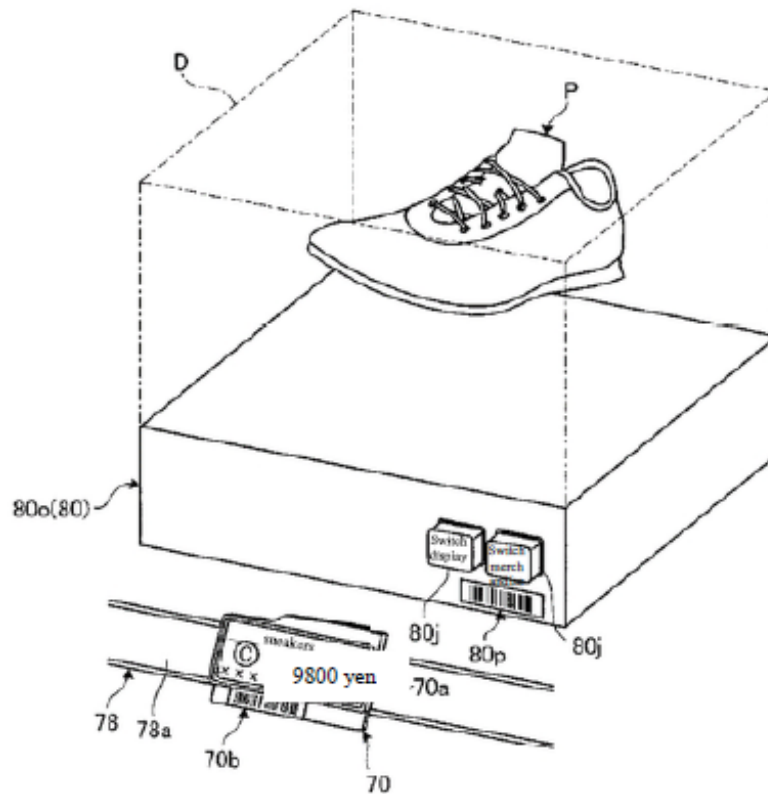


Figure 5 depicts “a perspective view showing an example of a shelf tag terminal and an image display terminal.” *Id.* ¶ 8. According to Takashi, “the shelf tag terminal 70 is provided with a display portion 70a that displays information including text information relating to merchandise such as merchandise name and price on the front side of the thin plate (label-shaped) housing, and a terminal code display portion 70b that shows a barcode as the terminal code.” *Id.* ¶ 19. In addition, “the image display terminal 80 is provided with a display area D that is larger than the display portion 70a of the shelf tag terminal 70 . . . , and this display area D displays images P relating to the merchandise.” *Id.* ¶ 20.

Figure 14 of Takashi is reproduced below.

[FIG. 14]

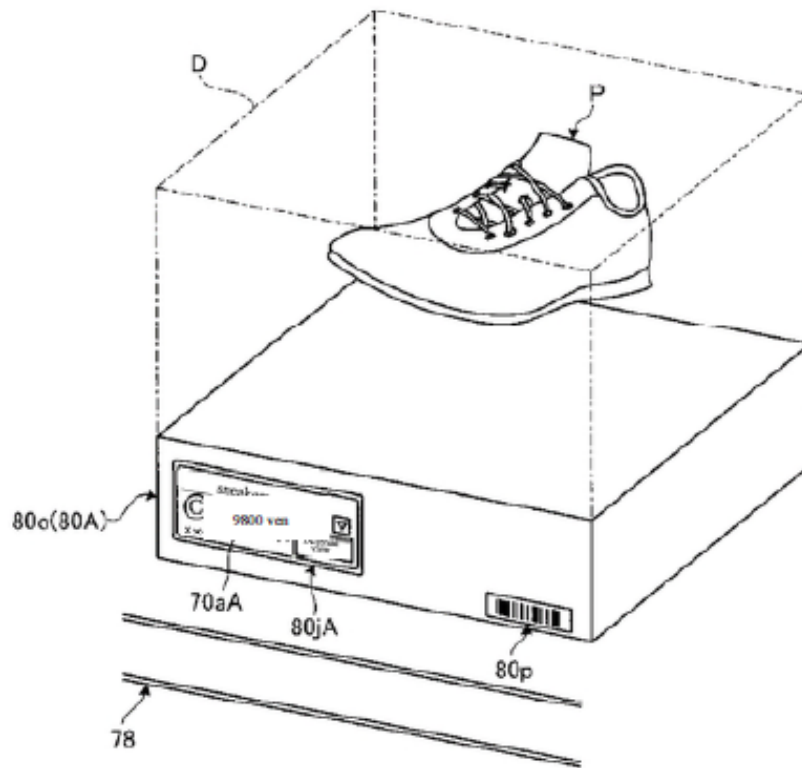


Figure 14 depicts “a perspective view showing a variation of a shelf tag terminal and an image display terminal.” *Id.* ¶ 8. According to Takashi, the shelf tag terminal 70 and the image display terminal 80 may be combined such that, as shown in Figure 14, “the merchandise information display system 1 may include . . . an information display terminal 80A having a first display portion 70aA that mainly displays text information about the merchandise, and a display portion D serving as a second display portion that has a display portion larger than the first display portion 70aA and mainly displays images about the merchandise.” *Id.* ¶ 51.

Takashi was published April 24, 2011, (Ex. 1008, code (43)) and Petitioner contends that Takashi qualifies as prior art under 35 U.S.C. §§ 102(a) and (b). Pet. 60. Patent Owner does not contest the prior art

status of Takashi. *See generally* PO Resp. We determine that Takashi qualifies as prior art, because Takashi's publication date of April 24, 2011, is before the effective filing date for the '669 patent, which is November 10, 2017. Ex. 1001, code (22); Ex. 1008, code (43).

3. *Claim 1*

For the reasons that follow, we are persuaded that Petitioner establishes that the subject matter of independent claim 1 would have been obvious in view of the combination of Masumoto, Kipp, and Takashi.

[1.0] A video playback system (1), comprising

The Petitioner contends that the preamble of claim 1 is not limiting. Pet. 61 ("The preamble of claim 1 is not limiting because it merely states the purpose or intended use of the alleged invention. It does not define any of the claim limitations, which are set forth fully in the body of the claim (i.e., a video playback system)."). Nonetheless, Petitioner cites Masumoto, Kipp, and Takashi and shows that each of the three cited references disclose video playback systems. *Id.* at 62.

Patent Owner does not discuss the preamble of claim 1 and, thus, does not dispute Petitioner's contention that the preamble is not limiting or dispute that the cited art discloses the preamble. *See generally* PO Resp.

We determine that the preamble is not limiting but, if it were, the cited art teaches "[a] video playback system."

[1.1] a number of playback devices (6A, 6B) to playback a video on their screens (5),

Petitioner contends that both Masumoto and Kipp disclose this limitation. Pet. 62 (citing Ex. 1003 ¶¶ 168–171). With regard to Masumoto,

Petitioner relies on its showing as discussed above. *Id.* With regard to Kipp, the Petition provides:

Kipp discloses this element because Kipp discloses that “[a]s seen in FIG. 2, a content provider system 200 is in signal communication with *multiple playback devices 202a-e (collectively 202)* via a network 204. Each playback device 202a-e is connected to *a respective display device 206a-e (collectively 206)*.” (Ex.1006, [0035], FIG. 2). Thus, the multiple playback devices 202a-e (collectively 202) corresponding to “a number of playback devices (6A, 6B)” that playback a video on their respective display device 206a-e (collectively 206) in [1.1]. (Ex.1003, ¶171).

Id. (bracketed material in original).

Patent Owner does not dispute the showing in the Petition for this limitation. *See generally* PO Resp.

Petitioner establishes that the cited art teaches this limitation.

[1.2] each playback device (6A, 6B) comprises a memory to store video data (9) representing said video, and

Petitioner contends that both Masumoto and Kipp disclose this limitation. Pet. 64 (citing Ex. 1003 ¶¶ 173–175). With regard to Masumoto, Petitioner relies on its showing as discussed above. *Id.* With regard to Kipp, the Petition provides:

Kipp discloses that “[t]he playback device 400, in this example, includes *a video content buffer 406 configured to store a set 408 video fragments 410*, a video content playlist 411 that includes the age 413 of the video content playlist, video content playback instructions 412, a clock 414 that provides a clock time 416 for the playback device, and configuration information 418.” (Ex.1006, [0056], FIG. 4). Thus, the video content buffer 406 corresponds to the “memory” in [1.2]. (Ex.1003, ¶174).

Pet. 64 (bracketed material in original).

Patent Owner does not dispute the showing in the Petition for this limitation. *See generally* PO Resp.

Petitioner establishes that the cited art teaches this limitation.

[1.3a] a communication stage to communicate data with each other, wherein the devices (6A, 6B) are designed:

[1.3b] to transmit video playback progress-data via the communication stage to the other device (6B, 6A); and,

[1.3c] to determine based on the received progress data whether it is in a synchronous or asynchronous playback progress with the other devices (6B, 6A);

Petitioner relies on Masumoto for teaching all the elements of this limitation and on its showing for this limitation as discussed above. Pet. 65–66. Patent Owner acknowledges that Petitioner relies on its previous showing for this limitation and disputes the showing for reasons discussed above. PO Resp. 49 (“For Ground 2, Petitioner relies solely on its discussion of Masumoto in Ground 1 for limitations [1.3b] and [1.3c]. Petition, 65. For the same reasons detailed for Ground 1, Masumoto does not disclose any playback devices that satisfy both limitations [1.3b] and [1.3c]. Hart, ¶188.”). Accordingly, the arguments of both parties regarding limitation 1.3 are the same as those discussed above for this limitation. And, for the reasons discussed above, we find that Petitioner establishes that the cited art teaches all the elements of this limitation.

[1.4] wherein the display devices (6A, 6B) are designed to display product information or product price related information by means of virtual electronic shelf labels displayed within a section of a screen’s (5) display area

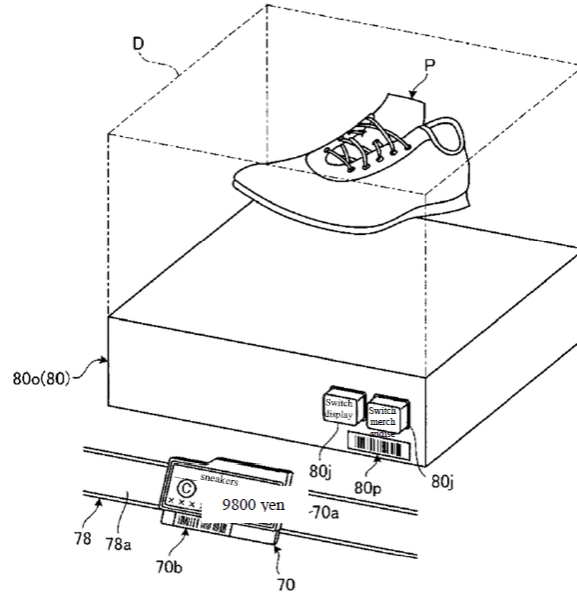
overlapping with a video content or substituting a video content of said section.

Petitioner relies on Kipp and Takashi for teaching all the elements of this limitation. *See* Pet. 66–71 (citing Ex. 1003 ¶¶ 178–182; Ex. 1006 ¶¶ 32, 33, 36, 124; Ex. 1008, code (57) (Abstract), ¶¶ 19–21, 51, 52, Figs. 5, 14). With regard to Kipp, Petitioner contends that Kipp discloses multiple display devices presenting the same content and that Kipp discloses including advertisements in the content. *Id.* at 66. These contentions are supported by the cited passages in Kipp. *See* Ex. 1006 ¶¶ 32, 33, 36, 124. Patent Owner acknowledges that “Kipp discloses playing content on multiple screens.” *See* PO Resp. 50.

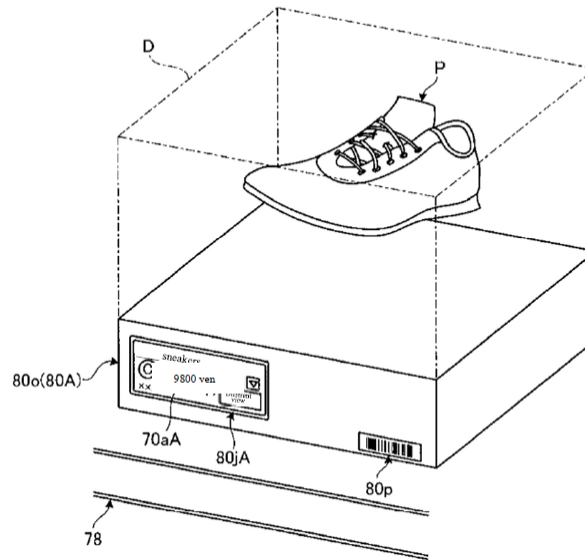
The Petition states that “a POSITA would understand that in a business premise, such as a retail store, the content associated with the premise will include product information.” Pet. 67 (citing Ex. 1003 ¶ 178). Patent Owner argues that “Kipp itself makes no such disclosure and Petitioner cites none.” PO Resp. 50–51.

Cited Figures 5 and 14 of Takashi are reproduced below.

[FIG. 5]



[FIG. 14]



Figures 5 and 14 depict “a shelf tag terminal and an image display terminal.”

Ex. 1008 ¶ 8. The Petition states:

Takashi discloses an electronic shelf tag system in which multiple display units are used to display information including a video relating to a product. (Takashi, Abstract). “As shown

in FIG. 5, the image display terminal 80 is provided with a display area D that is larger than the display portion 70a of the shelf tag terminal 70, and this display area D displays images P relating to the merchandise. [FIG.] 5 illustrates a case in which the display device is configured as a display device which displays a three-dimensional image (the image P) showing the appearance of the merchandise.” (Ex.1008, [0020]). “It is also possible to configure the image display terminal 80 as a known display device (e.g., a cathode ray tube (CRT) or liquid crystal display (LCD)) that displays two-dimensional images of the merchandise. In such cases, the display area D is flat.” *Id.* “Note that the image display terminal 80 may display not only the appearance of the merchandise, but also cross-sections and other images, display still images, and display videos such as usage and commercial video.” (Ex.1008, [0021], FIG. 5). “[T]he shelf tag terminal 70 is provided with a display portion 70a that displays information including ***text information relating to merchandise such as merchandise name and price*** on the front side of the thin plate (label-shaped) housing.” (Ex.1008, [0019], FIG. 5). Thus, FIG. 5 of Takashi discloses the shelf tag 70 (*corresponding to the virtual* electronic shelf labels) including display portion 70a displaying product information or product price related information and the image display terminal 80 including display area displaying display ***videos*** such as usage and commercial video. (Ex.1003, ¶179).

. . . .

In another embodiment, as shown in FIG. 14, “the merchandise information display system 1 may include a merchandise information display terminal 80A having a first display portion 70aA that mainly displays text information about the merchandise, and a display portion D serving as a second display portion that has a display portion larger than the first display portion 70aA and mainly displays images about the merchandise” and “[t]his can be said to be an integral combination of the shelf tag terminal 70 and the image display terminal 80.” (Ex.1008, [0051], FIG. 14). ***The display portion D of the image display terminal 80 may display video as well.*** (Ex.1008, [0021]).

....

Takashi further discloses that “the shelf tag terminal is not limited to what is illustrated in the above embodiments” and ***“the image display terminal [80; 80A] or the second display unit [D] may display text information about the merchandise along with images relating to the merchandise.”*** (Ex.1008, [0052]). Thus, the area in the image display terminal [80; 80A] or the second display unit [D] that displays text information about the merchandise correspond to the virtual electronic shelf labels in [1.4]. (Ex.1003, ¶181).

Therefore, Takashi discloses that the image display terminal is configured to display text information about the merchandise via virtual electronic shelf labels displayed within a section of the display area of the merchandise information display terminal 80; 80A that is overlapping with the video displayed, as featured in [1.4]. (Ex.1003, ¶181).

Moreover, a POSITA would understand that designing substitutive video content in overlapping display areas is commonly used to attract customers’ attention. *See* Ex.1004, [0404] (“provide additional information to a customer or to attract a customer’s attention.”) (Ex.1003, ¶182).

Pet. 67–71. The passages of Takashi cited in the Petition (Pet. 66–71) support Petitioner’s contentions that the cited art teaches all the elements of this limitation. *See* Ex. 1008, code (57) (Abstract), ¶¶ 19–21, 51, 52.

In Takashi, the display devices are designed to display product information or product price related information. *Id.* ¶¶ 19 (“As shown in FIG. 5, the shelf tag terminal 70 is provided with a display portion 70a that displays information including text information relating to merchandise such as merchandise name and price on the front side of the thin plate (label-shaped) housing.”), 52 (“[T]he image display terminal or the second display unit may display text information about the merchandise along with images relating to the merchandise.”). The image display terminal of Takashi is

described as including video content. *Id.* ¶¶ 13 (“[T]he image data may be still image data or video data”), 22 (“Note that the image display terminal 80 may . . . display videos such as usage and commercial video.”), 41 (“The data transmitted in step S15 [to the shelf tag terminal as shown in the flow diagram of Figure 12] is mainly data (video data or still image data) for displaying images P (see FIG. 5) such as the appearance or cross-section of the merchandise displayed in the display area D of the image display terminal 80.”).¹⁵

Patent Owner argues that the combination of Masumoto, Kipp, and Takashi “fails to teach overlapping with video content or substituting the video content.” PO Resp. 50 (citing Ex. 2004 ¶ 189). However, cited paragraph 51 in describing cited Figure 14 of Takashi provides:

For example, as shown in FIG. 14, the merchandise information display system 1 may include merchandise an information display terminal 80A having a first display portion 70aA that mainly displays text information about the merchandise, and a display portion D serving as a second display portion that has a display portion larger than the first display portion 70aA and mainly displays images about the merchandise (note, however, that this comparison is of the projection planes generally from a customer’s perspective). **This can be said to be an integral combination of the shelf tag terminal 70 and the image display terminal 80.**

¹⁵ We also note that claim 2 of Takashi states that “the image display terminal is capable of displaying video relating to a plurality of merchandise items” and claim 5 of Takashi states that “the image display terminal displays video of the merchandise.” Ex. 1008, 3

Ex. 1008 ¶ 51 (emphasis added).¹⁶ We determine that, as contended by Petitioner, Takashi teaches overlapping or substituting video content within a section of a screen's display area.

We find that the cited art teaches this limitation. In summary, after considering the arguments and evidence presented by the parties, we determine Petitioner establishes that the combination of Masumoto, Kipp, and Takashi teaches all the limitations of claim 1 of the '669 patent.

4. *Claims 2–6, 8–10, and 12–15*

Petitioner also challenges dependent claims 2–15 of the '669 patent as unpatentable in view of a combination of the teachings of Masumoto, Kipp, and Takashi. Pet. 3, 71–87. Petitioner presents an element-by-element mapping of the limitations of these claims to the relevant teachings of Masumoto, Kipp, and Takashi. *Id.* Patent Owner does not present any separate or specific arguments directed to dependent claims 2–6, 8–10, and 12–15. *See generally* PO Resp. After considering the Petitioner's undisputed showing as to the additional limitations recited in claims 2–6, 8–10, and 12–15 and the evidence relied upon by Petitioner, and for the reasons discussed above with regard to claim 1, we determine that Petitioner has shown that all the additional limitations of claims 2–6, 8–10, and 12–15 of the '669 patent are taught by the combination of Masumoto, Kipp, and Takashi for the reasons set out in the Petition.

¹⁶ We also note that claim 6 of Takashi states, “merchandise information display terminal having a first display portion that mainly displays text information relating to the merchandise and a second display portion that has a larger display area than the first display portion and mainly displays images relating to the merchandise.” Ex. 1008, 3.

5. *Claim 7*

Dependent claim 7 recites:

The system (1) according to claim 1, wherein each device is designed to broadcast adjustment data for adjusting the playback progress of the devices (6A, 6B) over its communication stage if it detects an asynchronous playback progress.

Ex. 1001, 8:51–55. For dependent claim 7, Petitioner relies on its showing as to claim 1 and the combination of Masumoto, Kipp, and Takashi and for its showing based on Masumoto for the additional limitation recited in claim 7. Pet. 74.

Patent Owner relies on its argument discussed above in relation to claim 7. PO Resp. (“Petitioner relies entirely on Ground 1 for the argument that limitation [7.1] is met in Ground 2. Petition, 74. Masumoto does not disclose limitation [7.1] for Ground 2 for the same reasons Masumoto does not disclose limitation [7.1] for Ground 1.”).

For the reasons discussed above in relation to claim 7 and the arguments and evidence of the parties, we find Petitioner’s position that Masumoto teaches this limitation to be better supported than Patent Owner’s contrary argument. Accordingly, we find that Masumoto teaches the additional limitation of claim 7.

6. *Claim 11*

Claim 11 recites:

The system (1) according to claim 1, wherein the communication stage is designed to use UDP multicast data packets for the communication.

Ex. 1001, 9:7–9. With regard to the additional limitation recited in claim 11, the entire presentation in the Petition states:

UDP is a well-known communication protocol. (Ex.1003, ¶208). For example, Kipp discloses that “some examples of network communication protocols that may be employed to deliver video fragments from a video server to a playback device include TCP/IP, HTTP/1.1, HTTP/2.0, and QUIC (Quick **UDP** Internet Connections).” (Ex.1006, [0129]).

A POSITA would understand to use UDP multicast data packets for the communication among the displays in Masumoto. (Ex.1003, ¶¶209-210).

Pet. 75. Petitioner’s presentation on claim 11 is not well-developed, not well-supported, and not persuasive. As we explained in our analysis of the Swafford-Masumoto ground, Petitioner fails to explain why a POSITA would design the communication stages in the playback devices of Masumoto to use UDP multicast packets for any communication.

The cited testimony of Dr. Tentzeris in Exhibit 1003, paragraphs 208–210, does not provide sufficient evidentiary support for, or fill the holes in, Petitioner’s presentation relating to claim 11. The cited testimony provides:

208. As explained above with respect to [1.0]-[1.4] in §III.B.3, Masumoto in view of Kipp and Takashi teaches [11.0]. Furthermore, as explained in sections below, Kipp teaches [11.1].

209. UDP is a well-known communication protocol. For example, Kipp discloses that “some examples of network communication protocols that may be employed to deliver video fragments from a video server to a playback device include TCP/IP, HTTP/1.1, HTTP/2.0, and QUIC (Quick UDP Internet Connections).” Ex.1006 (Kipp), [0129].

210. A POSITA would understand to use UDP multicast data packets for the communication among the displays in Masumoto.

Ex. 1003 ¶¶ 208–210. Paragraph 209 states that “UDP is a well-known communication protocol” but the only evidence cited to support this

testimony (Ex. 1006 ¶ 129 (a single sentence from a single reference that does not say UDP is well-known)) does not support either the conclusory testimony that precedes it (“UDP is a well-known communication protocol.”) or the conclusory testimony that follows it (“A POSITA would understand to use UDP multicast data packets for the communication among the displays in Masumoto.”).

With regard to claim 11, Patent Owner argues:

Petitioner’s entire argument for Ground 2 is that UDP is a well-known protocol, citing the same phrase from Kipp relied on by Dr. Tentzeris for Ground 1. Petition, 75. As detailed for Ground 1, Kipp lists a number of protocols that it purports can be used for video delivery. As also detailed for Ground 1, Petitioner conflates communication for downloading video content—which is all the cited section of Kipp addresses—and communication of progress-data—which is what is required of the communication stage claimed in the ’669 Patent. Hart, ¶214. These are two different types of communication. *Id.* Importantly, the ’669 Patent discloses a system where video is already downloaded to the playback devices. Ex-1001, 2:15-28. Therefore, the disclosure in Kipp of using UDP for downloading video content is irrelevant to showing disclosure of using UDP for the communication stage of the challenged claims. Hart, ¶214. Beyond the disclosure of Kipp, Petitioner provides no reason why a POSITA would have found it obvious to use UDP for transmitting progress-data. Hart, ¶¶214-16.

Further, even were Kipp’s disclosure of using UDP for downloading video content considered a disclosure of using UDP to send progress-data via the communication stage, Kipp does not disclose using UDP *multicast* data, as required by this limitation. Hart, ¶217. As discussed for Ground 1, UDP is capable of unicasting and broadcasting data, in addition to multicasting data. *Id.* In his deposition, Dr. Tentzeris admitted that UDP is capable of unicasting data. Tentzeris Dep., 50:25-51:2. In fact, use of unicast in UDP communications is the most common case. Hart, ¶217. Petitioner provides no

rationale for a motivation to use multicast data over any other form of UDP data. Hart, ¶217.

Because Petitioner has failed to show how element [11.1] is met, Petitioner fails to meet its burden of showing that Claim 11 is unpatentable by a preponderance of the evidence under Ground 2. *Id.*, ¶218.

PO Resp. 59–60. Patent Owner’s criticism of Petitioner’s presentation as to claim 11 is valid. We agree with Patent Owner.

The additional limitation recited in dependent claim 11 has not been shown to be taught or suggested by the cited art and claim 11 has not been shown to be unpatentable.

7. *Motivation to Combine Masumoto, Kipp, and Takashi*

Petitioner contends that “a POSITA reading Masumoto in view of Kipp and Takashi would have found it obvious to implement the video content displayed on Kipp’s multiple playback devices and the product content displayed on Takashi’s image display terminal, in Masumoto’s multiple displays when applying Masumoto’s multiple-display apparatus in a specific business premise, e.g., a retail store.” Pet. 82–83 (citing Ex. 1003 ¶ 224). The Petition provides:

First, a POSITA would have been motivated to combine Masumoto with Kipp because Masumoto and Kipp are designed to achieve the same goal to synchronize a video across multiple displays.

....

Second, it would have been obvious to a POSITA to have looked to Kipp’s disclosure of synchronously displaying advertisement content associated with a premise where the multiple playback devices are co-located when applying Masumoto’s multiple-display apparatus in a specific business premise, e.g., a retail store, to solve a well-recognized need in a

business premise – a need for synchronously providing clients with promotional information or advertisement.

....

Third, a POSITA would have expected using Masumoto's multiple displays to display advertisement video as in Kipp and Kipp's approach of presenting the same content can be extended to different content that needs to be synchronized as in Masumoto.

....

Fourth, a POSITA would have had have been readily able to combine Masumoto's displays with Kipp's display devices that display information related to a premise and Takashi's manner of displaying production information and advertisement with an expectation of success.

....

Fifth, a POSITA would also have looked to Takushi [sic] for displaying promotion content related to products in a business premise, e.g., a retail store. It is a universal, obvious goal of all such systems to display promotion content related to the premise where the systems are located. Both Kipp and Takushi [sic] disclose that, the video content displayed on the multiple playback devices or the image display terminal may include various content to the users at their premises. Ex.1006, [0032], [0036]; Ex.1008, [0020], [0042]. A POSITA reading Masumoto and Kipp naturally would have looked to Takushi [sic] for additional details regarding how to display advertisement contents in a business premise such as a retail store. (Ex.1003, ¶229).

Moreover, a POSITA would have understood that to attract customers (e.g., Ex.1004, [0404] - "provide additional information to a customer or to attract a customer's attention"), designing other promotion contents to substitute a part of advertisement video is a commonly used promotional strategy in a business premise, e.g., a retail store. (Ex.1003, ¶230).

Furthermore, it is a universal, obvious goal of all such systems to attract customers' attention but less intrusive in a business premise. See Ex.1009, [0008] ("Electronic

components, such as a video display device, audio speakers, a printer or a wireless transmitting device used to deliver content to shoppers in the vicinity of the shelf can be housed securely within the enclosure of the shelf”). Takashi describes placing the shelf tag terminal 70 and the image display terminal 80 on or close to shelves. (Ex.1008, FIG. 5.) A POSITA reading Masumoto and Kipp would have been motivate [sic] to apply the shelf tag terminal 70 and the image display terminal 80/80A to the combination of Masumoto and Kipp. (Ex.1003, ¶218).

Thus, it would be obvious to a POSITA, in view of Takashi, to use the multiple displays in the combination of Masumoto and Kipp to display the product information in the similar manner as Takashi in the premise of a retail store. (Ex.1003, ¶231).

Pet. 83–86. Petitioner contends that, “[f]or at least the above reasons, a POSITA would have found it obvious to incorporate Kipp’s synchronously displaying advertisement content associated with a premise where the multiple playback devices are co-located and Takashi’s manner of displaying promotion content in Masumoto’s system.” *Id.* at 86–87 (citing (Ex. 1003 ¶ 232)).

Patent Owner argues that Petitioner has not shown that there would have been a motivation to combine Masumoto, Kipp, and Takashi. PO Resp. 61–66. More specifically, Patent Owner argues:

Petitioner is trying to combine Masumoto, which discloses a large multi-display system, with a reference focused on small shelf-based displays (Takashi). Hart, ¶219. Beyond these two disparate references, Petitioner adds on a third: Kipp, which discloses playing video on multiple monitors. *See, e.g.*, Ex-1006, [0025]. Unlike Masumoto, Kipp does not disclose playing different parts of a video on different displays. Hart, ¶219. And unlike Takashi, Kipp does not disclose anything related to shelf tags or product video. *Id.*

Without any connection between these references, Petitioner provides seven different rationales for combining

Masumoto with Kipp and Takashi. Petition, 82-87. All are flawed. Hart, ¶220.

Id. at 61. Weighing the evidence presented by the parties, we find that a clear preponderance of the evidence favors Petitioner’s position.

Patent Owner argues, “Petitioner asserts it would have been obvious to combine Masumoto with Kipp because ‘Masumoto and Kipp are designed to achieve the same goal to synchronize a video across multiple displays’” and that “[t]his is incorrect.” PO Resp. 61.¹⁷ However, Patent Owner fails to directly address whether “‘Masumoto and Kipp are designed to achieve the same goal to synchronize a video across multiple displays’” as asserted by Petitioner. *See* Pet. 83. Instead, Patent Owner argues distinctions in the structure and use of the systems described in Masumoto and Kipp that are unrelated to whether these references are both directed to the goal of synchronizing video across multiple displays. *See* PO Resp. 61–62.

Petitioner supports the contention that Masumoto and Kipp are both directed to the goal of synchronizing video across multiple displays with quotations from Masumoto and Kipp. Pet. 83. The Petition quotes paragraph 4 of Masumoto (Ex. 1005) which discloses, “mutually synchronizing displays to match the frame number contained in the image marker. This enables to display [sic] one entire image by multiple displays without a sense of incongruity” and quotes paragraph 3 of Kipp (Ex. 1006)

¹⁷ Elsewhere in its Response, Patent Owner acknowledges that “Masumoto focuses on synchronization between the displays” (PO Resp. 42 (citing Ex. 1005 ¶¶ 102–126)) and that “Kipp discloses a system for synchronizing playback of ‘segmented video content across multiple video playback devices’” (*id.* at 15 (citing Ex. 1006, code (57) (Abstract))). Thus, Patent Owner contradicts its own argument.

which states, “a need exists for synchronizing video streams across multiple playback devices.” *Id.*; *see also id.* at 83–84 (quoting Ex. 1006 ¶ 23 (“playback devices deployed to a common location (e.g., a sports bar, a residence, etc.) may synchronize a segmented video stream presented to viewers on multiple displays at that location”). The relied-upon art supports Petitioner’s reasoning.

Patent Owner argues that Petitioner has failed to establish that there exists a “well-recognized need” for synchronizing promotional information or advertisements in a business premise as alleged by Petitioner (*see* Pet. 83). PO Resp. 62–63. However, Patent Owner fails to address Kipp’s statement in its “Background” section that “a need exists for synchronizing video streams across multiple playback devices” (*see* Ex. 1006 ¶ 3) and acknowledges that “Petitioner . . . cites Kipp for the propositions that ‘playback devices deployed to a common location (e.g., a sports bar, a residence, etc.) may synchronize’ and advertisements may ‘playback on multiple digital billboards,’” PO Resp. 63; *see also* Pet. 83 (citing Ex. 1006 ¶¶ 23, 124).

Patent Owner argues that Kipp’s statement that “[t]he display devices 206 may be any type of device configured to receive a video signal and output visual images corresponding to that video signal” (PO Resp. 63 (citing Ex. 1006 ¶41)) does not support Petitioner’s combining the teachings of Kipp and Masumoto (*id.* at 64). We do not understand how or why Kipp’s statement that its teachings are applicable to any type of device undermines Petitioner’s combination of teachings. To the contrary, we believe this statement supports combining the teachings of Kipp and Masumoto.

Patent Owner argues that “Petitioner fails to explain how combining Masumoto’s big-screen video synchronization techniques with Takashi’s electronic shelf tag system and Kipp’s multi-premise streaming system would have been routine or would come with an expectation of success” and “Petitioner and its expert offer nothing beyond bare conclusions for this point.” PO Resp. 64. However, Patent Owner’s argument seems more focused on bodily incorporation and combining the systems and methods disclosed rather than properly focused on combining the relevant and cited teachings of the combination of references.

Patent Owner also argues that Petitioner’s combination is otherwise not adequately supported and is conclusory, not clearly articulated, and generic. *See* PO Resp. 64–66. However, as set forth above, Petitioner articulates a number of adequately supported and well-reasoned motivations for combining the relevant teachings of the cited combination.

After considering all the arguments and evidence offered by the parties, we determine that Petitioner shows that a person of ordinary skill in the art would have been motivated to combine the relied-upon teachings of Masumoto, Kipp, and Takashi with a reasonable expectation of success.

8. *Summary as to Obviousness Ground Based on
Masumoto, Kipp, and Takashi*

Petitioner establishes that the combination of Masumoto, Kipp, and Takashi teaches all the limitations of claims 1–10 and 12–15 and articulates well-supported reasoning as to why a skilled artisan would have been motivated to combine the relied-upon teachings of Masumoto, Kipp, and Takashi. We conclude that claims 1–10 and 12–15 of the ’669 patent are

unpatentable as obvious in view of a combination of the teachings of Masumoto, Kipp, and Takashi.

Petitioner does not show that the limitation recited in dependent claim 11 of the '669 patent is taught or suggested by the cited art.

III. CONCLUSION

After considering the evidence and arguments presented, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–10 and 12–15 are unpatentable and has not shown by a preponderance of the evidence that claim 11 is unpatentable. A summary of our conclusions is set forth in the table below.

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–15	103	Masumoto, Swafford	1–10, 12–15	11
1–15	103	Masumoto, Kipp, Takashi	1–10, 12–15	11
Overall Outcome			1–10, 12–15	11

IV. ORDER

Accordingly, it is

ORDERED that claims 1–10 and 12–15 of U.S. Patent No. 11,405,669 B2 are determined to be unpatentable;

FURTHER ORDERED that claim 11 of U.S. Patent No. 11,405,669 B2 is 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.

IPR2024-00188
Patent 11,405,669 B2

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HANSHOW AMERICA INC. and
HANSHOW TECHNOLOGY CO., LTD.,
Petitioner,

v.

SES-IMAGOTAG GMBH,
Patent Owner.

IPR2024-00188
Patent 11,405,669 B2

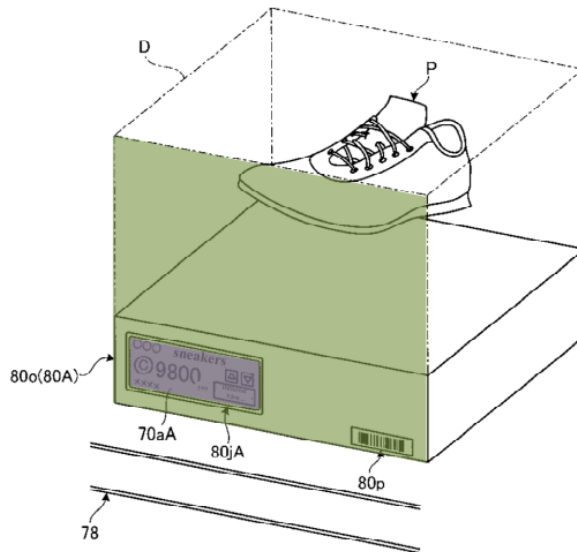
Before WILLIAM V. SAINDON, JAMES P. CALVE, and
TERRENCE W. McMILLIN, *Administrative Patent Judges*.

SAINDON, *Administrative Patent Judge*, concurring:

I concur in the result holding all challenged claims unpatentable. I join the majority for each part of their Decision except their analysis of the obviousness ground based on Masumoto, Kipp, and Takashi (Section II.E). For the Masumoto-Kipp-Takashi ground, I would determine that Petitioner has failed to demonstrate unpatentability by a preponderance of the evidence. In particular, I would find that Petitioner failed to show where the prior art teaches the limitation of claim 1 requiring “virtual electronic shelf

labels displayed within a section of a screen's (5) display area overlapping with a video content or substituting a video content of said section." This limitation requires a single screen display area with a shelf label overlapping or substituting video content. Thus, both the label and the video need to be on the same screen. The majority agrees with Petitioner's position that Takashi teaches this in Figure 15. I respectfully disagree.

The majority agrees with Petitioner's position that the entire front face of the object in Figure 15 of Takashi is a screen. Petitioner's marked-up copy of Figure 14 allegedly depicting this is reproduced below:



Pet. 69. Figure 14 of Takashi depicts an object P displayed within a display D of image display terminal 80A. Ex. 1008 ¶ 51. Display D depicts images of merchandise. *Id.*; *see also id.* ¶¶ 20, 41 (describing display D more generally). Display terminal 80A includes, on the front face of an unmarked box, display portion 70aA (in purple), which displays text information about the merchandise. Pet. 69; Ex. 1008 ¶ 51; *see also id.* ¶¶ 19, 42 (describing shelf tag terminal 70 more generally).

In order to meet the language of claim 1, Petitioner asserts that the unlabeled front face of the box *below the display D* is also a screen. Pet. 69–70. In particular, Petitioner asserts that both the display D and the unlabeled front face of the box below the display D is part of the same screen, marking it in green. *Id.* at 69.

I would not find that Petitioner has established by a preponderance of the evidence that the unlabeled front face of the box below the display D is a screen, nor would I find the unlabeled front face of the box below the display D to be a part of display D. Takashi says that “display portion D serv[es] as a second display,” and marks D with a dashed outline in Figure 14, but makes no indication that the box underneath it (in solid outline) is part of that display. Ex. 1008 ¶ 51. I would interpret the unlabeled box to be the housing for the various electronic components of the device. For example, it would house the CPU, memory, LAN interface, etc. *Id.* ¶ 31. I acknowledge that Takashi describes Figure 14 as showing “an integral combination of the shelf tag terminal 70 and the image display terminal 80,” *id.*, but I interpret this as saying that the shelf tag and display terminal are in one unit, not that the display D is also carried down to the unlabeled front face of the box below display D. Similarly, when Takashi claims an image display terminal capable of displaying video, it is not saying that the entire surface area of the display terminal is capable of displaying video, but rather that the device as a whole is capable of displaying video (or video and text for claim 6), via the denoted displays D and 70 that are later described in its detailed description. Ex. 1008, claims 2, 5, 6.

In sum, I agree with Patent Owner and its expert that a person of ordinary skill in the art would not have considered display D to continue into

the housing. PO Resp. 56–57 (citing Ex. 2001 ¶ 197). If display D does not continue into the housing, then display D and tag 70 are not on the same screen and could not meet the limitation of claim 1 requiring the tag to overlap or substitute the video content. For these reasons, I respectfully do not join the majority’s analysis of the Masumoto-Kipp-Takashi ground.