

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

**PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE TO
PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 11,405,669**

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LIST OF EXHIBITS¹

Exhibit	Description
1001	U.S. Patent No. 11,405,669
1002	Prosecution history of U.S. Patent No. 11,405,669
1003	Declaration of Dr. Manos M. Tentzeris
1004	US 2016/0134930 A1 by Swafford (“Swafford”)
1005	US 2017/0134690 A1 by Masumoto (“Masumoto”)
1006	US 2017/0171577A1 by Kipp (“Kipp”)
1007	JP2011-76222A by Takashi (“Takashi”)
1008	Certified translation of JP2011-76222A by Takashi (“Takashi”)
1009	WO 2008/073829 A2 by Clontz (“Clontz”)
1010	US 2018/0035018 A1 by Yamada (“Yamada”)
1011	<i>curriculum vitae</i> of Dr. Manos M. Tentzeris
1012	Email titled “Hanshow v. SES-Imagotag // IPR2024-00188” from Esther Goldschlager on March 1, 2024
1013	Declaration Of Christopher J. Fahy In Support Of Motion For Pro Hac Vice Admission
1014*	Deposition transcript of Dr. John C. Hart

¹ Petitioners have noted new exhibits with “*”.

I. INTRODUCTION

Patent Owner SES-Imagotag GMBH (“SES”)’s Response presents no persuasive reason to find the challenged claims valid.

First, SES ignores the full context of Dr. Tentzeris’ testimony and distorts his testimony to argue he does not qualify as an expert. To the contrary, Dr. Tentzeris has explained his experience in multimedia systems and application layers in detail and has shown the required expertise.

Second, SES attempts to import additional, unsupported “reciprocal communication” or “bidirectional communication” limitations. But the Board should reject SES’s proposed construction because it is contrary to the intrinsic record and would render the claim indefinite.

Third, SES’s other arguments are all fundamentally flawed and reflect misunderstandings of either the prior art or Petitioner’s arguments. The Board should cancel all challenged claims.

II. DR. TENTZERIS HAS THE KNOWLEDGE AND EXPERIENCE TO QUALIFY AS AN EXPERT

SES admits Dr. Tentzeris meets its own definition of a POSITA but claims Dr. Tentzeris is not an expert, although he meets SES’s definition of a POSITA, because his experience allegedly concerns “antennas, fractal RF structures and circuit design....,” whereas the subject matter of the ’669 Patent is directed to a “higher level” of the network-communications stack. Paper 23, 20. This argument

is unfounded. The law is clear that to qualify as an expert a witness must have “knowledge, skill, experience, training, or education” of a “scientific, technical, or other specialized” nature that is likely to help the Board “to understand the evidence or to determine a fact in issue.” Fed. R. Evid. 702; PTAB Practice Guide, 34 (citing *SEB S.A. v. Montgomery Ward & Co.*, 594 F.3d 1360, 1373 (Fed. Cir. 2010)) (explaining that there is “no requirement of a perfect match between the expert’s experience and the relevant field”). Dr. Tentzeris more than satisfies these criteria.

Dr. Tentzeris has substantial experience in multimedia systems. For example, he is “the chair of the newly-formed IPP conference on digital twins [] focusing on creating digital twins, utilizing multimedia video, audio, and sensing input to create a digital twins.” Ex.2002, 10:9-13. He has a “paper on artificial recalling intelligence service, ... communication titles that have to simultaneously process incoming signals...that are 5G-based. And these broadband signals could consist of audio/video sensing collection data and so on.” *Id.* 11:12-19. Dr. Tentzeris was invited to present “RF Reconfigurable Fully-Packaged Modules for Telecom, **Multimedia** and Sensing Applications” at IEEE PIMRC2007. Ex.1011, 87. With over 30 years of industry and academic experience, Dr. Tentzeris’ expertise will assist the Board. *See* Ex.1003, ¶2; Ex.1011, 1; Fed. R. Evid. 702(a); PTAB Practice Guide, 34.

SES's arguments about Dr. Tentzeris' qualifications are misleading and often irrelevant. SES asserts that Dr. Tentzeris' experience with levels higher than the physical layer of the OSI model is "exceedingly limited" by ignoring his experience with higher layers including application layers. Ex.2002, 69:12-13 ("I am familiar with ... application layer."); 70:18-71:1 ("[W]e provide to the Qualcomms, the Apples, the Googles, the specifications for the application. We tell them with existing technology and with existing cost, with existing variety of modulation schemes... And [we then] ...implement them to standards that will combine with the OSI application"); 71:9-12 ("And in this case, they provide us the application layer specs. And ... we ...go to the underlying layers and see how it's possible."); Ex.1011, 23:105, 52:171, 60:274.

Dr. Tentzeris is an expert qualified to render opinions concerning a POSITA's knowledge and understanding regarding the '669 Patent.

III. CLAIM CONSTRUCTION

The Board raised two potential claim construction issues in its Institution Decision. Paper 11, 9-13.

A. "designed to"

The first potential issue the Board raised is whether claim 1 requires only that "the playback devices be designed to transmit and determine," not actual "transmission or determination." *Id.*, 13.

“[D]esigned to” should be accorded its plain meaning, which is “configured to” accomplish the specified objective. *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1349 (Fed. Cir. 2012) (the phrase “adapted to” should be construed consistent with “configured to”: it requires the structure be “designed or configured to accomplish the specified objective, not simply that [it] can be made to serve that purpose.”). Courts consistently construe “configured to” as equivalent to “designed to” or “made to.” *Impinj, Inc. v. NXP USA, Inc.*, No. 19-CV-03161-YGR, 2022 WL 2125134, at *5 (N.D. Cal. Mar. 21, 2022); *In re Man Mach. Interface Techs. LLC*, 822 F.3d 1282, 1286 (Fed. Cir. 2016); *In re Giannelli*, 739 F.3d 1375, 1379 (Fed. Cir. 2014).

Claim 1, considered as a whole, does not require actual transmission or determination, but rather requires that the playback devices be “designed to” or “configured to” accomplish that function. *Rothschild Connected Devices Innovations, LLC v. Coca-Cola Co.*, 813 F. Appx 557, 563-64 (Fed. Cir. 2020) (“configured to receive an identity of a user and an identifier of a beverage” does not “require that such communication actually occurs.”).

By sidestepping the Board’s explicit question about whether transmission or determination is required, SES argues “designed to” further imposes “*each device [to] be expressly configured to transmit and determine during the operation of the*

system.” Paper 23, 22 (emphasis added). However, no evidence supports introducing these new phrases into the claim.

First, the claim contains no such requirements. Rather, the claims intentionally differentiate between “the devices” and “each [playback] device.” Ex.1001, claims 1, 5-10, 12. Specifically, claims 5-10 and 12 recite “each device,” thus “the devices” in claim 1 was an intentional choice and SES’s construction contradicts the claim language. *Simpleair, Inc. v. Sony Ericsson Mobile Communications AB*, 820 F.3d 419 (Fed. Cir. 2016) (“[d]ifferent claim terms are presumed to have different meanings.”). Additionally, importing “each device be expressly” and “during the operation of the system” to “designed to” in claim 1 ignores dependent claim 7’s “each device is designed to” and “if it detects an asynchronous playback progress” requirements. SES’s construction would render claim 7 and other claims redundant and improperly capture their scopes. *In re Varma*, 816 F.3d 1352 (Fed. Cir. 2016) (“[T]he principle that the same phrase in different claims of the same patent should have the same meaning is a strong one.”); *Ross-Hime Designs, Inc. v. United States*, 126 Fed. Cl. 299, 317 (Fed. Cl. 2016) (rejecting a proposed construction that would render claim language redundant).

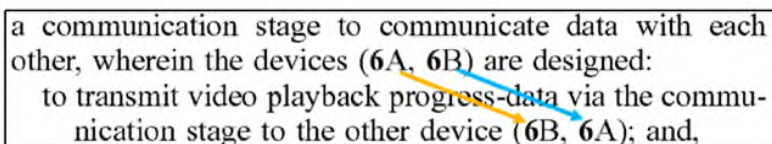
Second, the specification does not support SES’s construction. The ’669 Patent uses “designed to” throughout without distinguishing it from “capable of,” let alone suggesting the additional limitations “each device be expressly” and “during

the operation of the system.” *Aspex*, 672 F.3d 1349 (finding that “‘adapted to’ was intended to have a different meaning from ‘capable of’ because two adjacent claims use different terms in parallel settings). Moreover, the ’669 Patent describes no structural information or positional relationship of the playback devices, which distinguishes the cases SES cites. *In re Giannelli*, 739 F.3d at 1380 (although “configured to” can also mean “capable of” or “suitable for,” the specification described structural attributes including the position and location of the handles); *In re Man Mach.*, 822 F.3d at 1286 (the specification describes the structure and positional relationship of the remote control device and thumb switch, and expressly distinguishes the remote control device from a conventional desk-bound device). Further, SES’s construction contradicts the specification because it creates multiple asynchronous events being detected, instead of “a single asynchronous event.” Ex.1001, 6:36-45 (“This [single asynchronous event] of asynchronous playback progress then causes all the other devices to adjust to the frame number dictated by the device that detected the asynchronous playback progress.”). When multiple asynchronous events are sent by multiple devices, which one would dictate?

Third, SES did not discuss “designed to” during prosecution. Applicant only argued for an additional bidirectional or reciprocal relationship to distinguish from reference *Asami*. Ex.1002, 140-143. However, Applicant did not address “designed to,” “each device be expressly,” or “during the operation of the system” during

prosecution. Instead, Applicant stated “the devices are designed to” throughout the response and emphasized the capability of the devices. *Id.*, 141 (“each individual playback *can* independently detect an asynchronous playback progress within the group of playback devices.”). Notably, the Examiner rejected Applicant’s argument and issued another non-final office action and final office action, noting “the progress data is construed to be that of the management device having the content and *able* to send the data and the reproduction device sending the standby state telling the management device that it is ready to receive the data.” *Id.*, 65-66. Thus, the Examiner’s construction of “designed to” during prosecution comports with Petitioner’s proposal.

Additionally, adding “each device be expressly” and “during the operation of the system” does not clarify the claim scope. Instead, SES reads the order of reference numbers (6A, 6B) as limiting claim scope by alleging that “the claim limitations require that each device be designed so that in operation each device can both transmit video playback progress-data to all other devices and determine, based on the received playback progress-data, whether it is synchronized with the other devices.” Paper 23, 23-24.



a communication stage to communicate data with each other, wherein the devices (6A, 6B) are designed: to transmit video playback progress-data via the communication stage to the other device (6B, 6A); and,

Ex. 1001, Claim 1 (annotated by SES)

Dr. Hart admitted that he considered the order of reference numbers when construing the claim. Ex.1014, 71:8-14. He even rewrote claim language based on the order of reference numbers. Ex.2004, ¶72; Ex.1014, 63:2-21 (noting certain “corrections” to ¶72²).

72. Claim element 1.3 requires:

a playback device (6A) designed: transmit video playback progress-data via the communication stage to the other device (6B, 6A), and to determine based on the received progress data whether it is in a synchronous or asynchronous playback progress with the other device 6B,

AND

a playback device (6B) designed: transmit video playback progress-data via the communication stage to the other device (6B, 6A), and to determine based on the received progress data whether it is in a synchronous or asynchronous playback progress with the other device 6A.

However, it is well-established that, reference numerals in the claims “do[] not limit the disclosure of the claims.” *Grit Energy Solutions, LLC v. Oren Technologies, LLC*, 957 F.3d 1309, 1317, (Fed. Cir. 2020); *NXP USA, Inc. v. Impinj*,

² Dr. Hart proposed “correcting” ¶72 by adding “to” after two “designed,” amending the first “(6B, 6A)” to “(6B)” and amending the second “(6B, 6A)” to “(6A).”

Inc., No. 2:20-cv-01503-JHC, 2022 U.S. Dist. LEXIS 201381, at *32 (W.D. Wash. Nov. 4, 2022) (“The general rule is that reference numbers used in the claims of a patent carry no meaning; they do not limit or alter the scope of the term in any way.”); MPEP, §608.01(m) (9th ed., 2019) (“[g]enerally, the presence or absence of such reference characters does not affect the scope of a claim.”). Courts recognize an exception when the reference character is a well-known term with an understood meaning, which is not true here. *VLSI Tech. LLC v. Intel. Corp.*, 706 F. Supp. 3d 953, 981 (N.D. Cal. 2023). Thus, the reference numbers should not affect the claim scope.

Without reference numbers, [1.3] recites “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, 8:7-23 (reference numbers removed). Thus, the plain and ordinary meaning of [1.3] is that the devices are designed to transmit video playback progress-data to one device, and the receiving device is designed to determine its synchronous status “based on the received progress data” from “the other devices.”

Further, the '669 Patent specification does not support the additional “reciprocal communication” requirements SES proposes. The specification discusses “a 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.*, 2:29-33. But it does not show a “reciprocal nature of the communication during operation between playback devices so that each device can independently make its own synchronicity determination.” Paper 23, 24-25. To advance its argument, SES relies on the disclosure “transmission of the playback progress-data of the device 6A is received at the device 6B and *vice versa*.” *Id.*, 5:40-55. However, this is only one embodiment involving only two display devices. *Info-Hold, Inc. v. Applied Media Techs. Corp.*, 783 F.3d 1262, 1267 (Fed. Cir. 2015) (improper to read limitations from described embodiments into the claims unless “the patentee uses words that manifest a clear intention to restrict the scope of the claims to that embodiment.”).

Similarly, Dr. Hart’s reconstruction of [1.3] modifies “the other devices” in [1.3c] to “the other device” to fit his argument, which essentially limits the system to include only two devices. *Compare* Ex.2004, ¶72, *with* Ex.1001, claim 1. But Dr. Hart admits that claim 1 is not limited to two playback devices. Ex.1014, 59:22-60:6. This admission shows that his claim (re)construction is unreasonable.

On the contrary, the ’669 Patent states that “[a]lthough the method of the invention was so far explained by only two display devices 6A and 6B, ...in a system with a relatively high number of display devices,” “a single asynchronous event is detected by *one of the devices*” and “then causes all the other devices to adjust to the

frame number *dictated by the device that detected the asynchronous playback progress.*” Ex.1001, 6:36-45. Thus, in a multi-display system, only one device determines the synchronous status based on the received progress data. This is consistent with Petitioner’s proposed construction that claim 1 requires only that the devices be “designed to” transmit and determine not actual transmission or determination by each.

B. “communication stage to communicate data with each other”

The Board also raised “whether ‘communication stage to communicate with each other’ is a means-plus-function limitation that invokes 35 U.S.C. §112(f).” Paper 11, 11.

Claim 1 recites a function without reciting sufficient structure to perform the function, which overcomes the rebuttable presumption that the identified phrase is not a means-plus-function limitation. Claim 1 recites each playback device comprises “a communication stage to communicate with each other.” “Communication stage,” by itself, denotes no particular structure or even a class of structure, instead, it encompasses any structure(s) performing the communication functions. The remainder of the claim language merely explains the functions the communication stage performs. Ex.1001, claims 1, 7, and 11. In other words, the claim does not recite what structure in the communication stage performs this

function, but instead recites only what it *does*. Thus, it is a functional limitation to be construed under §112(f).

SES argues that the Board need not construe this term because the parties have not disputed its construction. Paper 23, 27-28. But to the extent SES concedes that prior art, especially Masumoto, discloses a “communication stage to communicate data with each other,” SES still fails to explain why the presumption has not been rebutted. Neither SES nor Dr. Hart identifies any specific structure that “communicat[es] with each other.” Paper 23, Ex.2004.

Further, the specification discloses no specific structure for the communication stage other than it being part of each playback device that performs the communication function. Ex.1001, 1: 49-54, 2:18-20, 3:24-28, 3:60-65. The '669 Patent discloses that the playback devices communicate with each other or with a server according to a known protocol implementation. *Id.*, 2:34-38, 3:59-60. Each claimed playback device has a memory and a communication stage to communicate with each other. *Id.*, 1:47-50, 8:9-14. Understanding that the communication stage in each device is designed to send data to or receive data from the other devices according to a known protocol implementation, the Board “can ascertain the scope of each claim limitation with reasonable certainty” and review the claims’ patentability. *Vibrant Media, Inc. v. General Electric Company*, IPR2013-00172 (July 28, 2014) (the board reviewed patentability despite finding of indefiniteness);

Intel Corp. v. Qualcomm Inc., 21 F.4th 801 (Fed. Cir. 2021) (“[t]he indefiniteness of a limitation ... precludes a patentability determination only when the indefiniteness renders it logically impossible for the Board to reach such a decision.”); *Sisvel Int’l S.A. v. Sierra Wireless, Inc.*, 22-1493 (October 6, 2023) (“*Intel* held that when faced with a means-plus-function limitation with possibly insufficient corresponding structure in the specification, the Board must either (1) determine whether the claim is indefinite and then whether such indefiniteness renders it *impossible* to adjudicate a prior-art challenge on the merits, or (2) resolve the prior art challenge to the patentability of the claims despite the potential indefiniteness of the means-plus-function term.”).

If the Board finds that this term does not invoking 35 U.S.C. §112(f), the proper construction for “communication stage to communicate data with each other” is a communication module that performs the function of communicating with each other. Paper 9, 8.

IV. GROUND 1 INVALIDATES ALL CHALLENGED CLAIMS

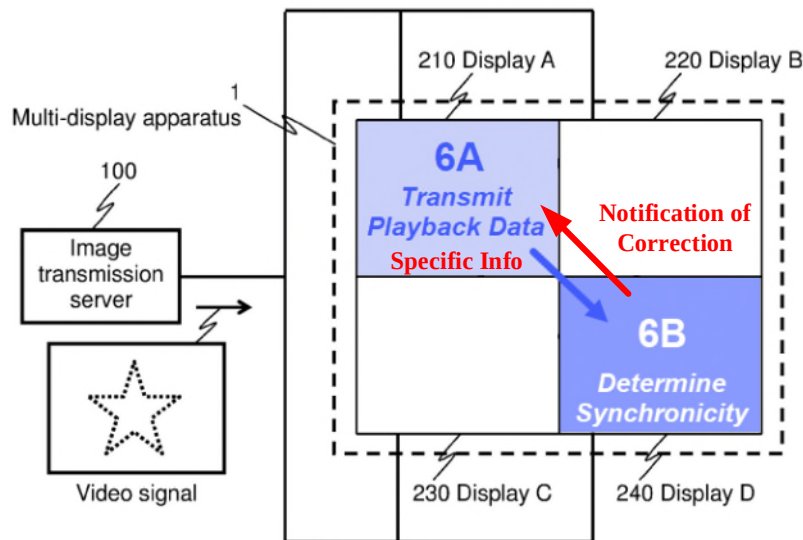
A. Masumoto discloses [1.3b] and [1.3c]

As discussed above, by reading the order of the reference numbers into claim 1, SES creates a requirement for “reciprocal/bidirectional communication” which appears nowhere in the ’669 Patent. *See supra*, §III.A.

By its plain and ordinary meaning, Masumoto discloses that the displays are designed to transmit specific information via the communication unit and controller to the other display and determine based on the received specific information whether it is in a synchronous or asynchronous playback progress with the other displays. Paper 2, 25-26; Ex.1005, [0017]; Ex.1003, ¶¶75-76.

But to the extent the Board construes [1.3b] and [1.3c] to require actual transmission or determination, Masumoto also satisfies such limitations. Notably, SES's annotated Figure 1 (Paper 23, 30) illustrates that Masumoto discloses [1.3b] and [1.3c] because as shown below, 210 Display A (annotated as 6A) and 240 Display D (annotated as 6B) communicate data with each other, 210 Display A transmits specific information (i.e., playback progress data) to 240 Display D (i.e., the other device), and 240 Display D determines synchronicity based on the received specific information and sends notification of correction to 210 Display A (i.e., the other devices). Ex.1005, [0017], FIG. 1.

FIG. 1



Ex.1005, Figure 1 (further annotated in red only)

Even accepting SES's overly limiting construction that *each device be expressly* configured to transmit and determine *during the operation of the system*, Masumoto still satisfies [1.3b] and [1.3c]. As SES admits, Masumoto allows to set any display as a master "display" based on different rules. Ex.1005, [0076], [0120]. Masumoto's each display, *during the operation of its system*, is thus *expressly* configured to transmit and determine. *Id.*, [0124-125]; Ex.2002, 126:8-128:6 (noting that change of master and slave could take place at different time instance); *Parkervision, Inc. v. Qualcomm Inc.*, 116 F.4th 1345, 1354, 1373 (Fed. Cir. 2024) (affirming the prior art taught an apparatus "capable of" performing functions would satisfy the limitations of apparatus claims); *In re Schreiber*, 128 F.3d 1473, 1478

(Fed. Cir. 1997) (affirming the prior art discloses the function in an apparatus claim reciting features functionally). As Dr. Tentzeris stresses “[e]very node could be the master node that could change from second to second or from communication to communication,” a POSITA would understand Masumoto’s displays each is *expressly* configured to transmit and determine *during operation*. Ex.2002, 128:2-6; Ex.1003, ¶80.

SES tries to argue that Masumoto discloses a “hub-and spoke” system different from a so-called “peer-to-peer” network in the ’669 Patent. Paper 23, 7, 10-13; Ex.1014, 113:9-12 (Dr. Hart noting that claim 1 doesn’t state “communicate directly”). But Masumoto does not rely on a “central server” or “central hub” to communicate, instead, it relies on communication between the various displays. *See e.g.*, Ex. 1005, [0041], [0077-79], [0096-99]. Masumoto’s each display thus makes its own synchronicity determination independently from any server. *Id.*

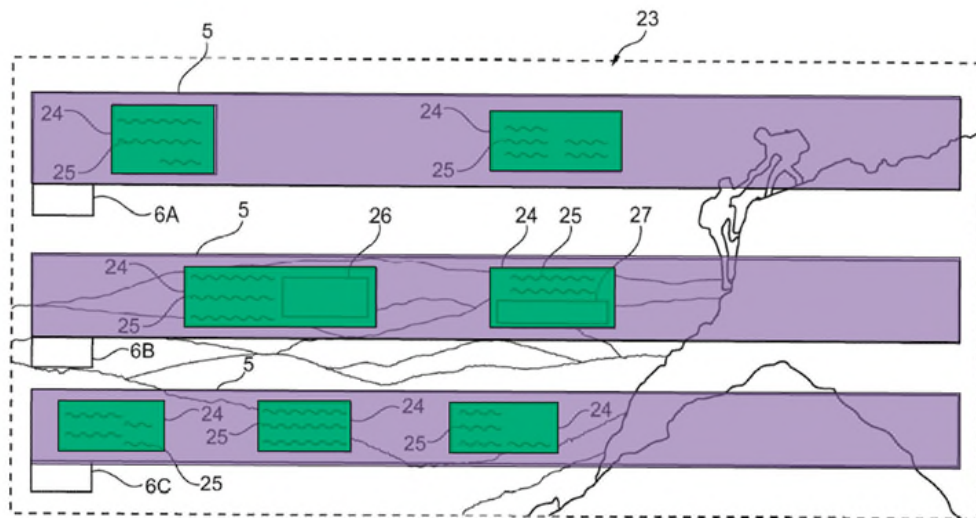
Further, SES argues Masumoto does not disclose [1.3c] by claiming its determination of synchronicity is not “about whether the master display itself is in synchronous or asynchronous playback progress with the non-master displays.” Paper 23, 33; Ex.2004, ¶147. However, claim 1 recites no particular method to determine synchronicity between the displays; it broadly recites “based on the received progress data.” And as SES has recognized, Masumoto “‘compares its calculation result with the frame number received’ from other displays” to

“determine whether it is in synchronous or asynchronous playback progress with the other devices.” Paper 23, 33. Masumoto thus discloses [1.3c].

B. Swafford discloses [1.4]

SES argues Swafford does not disclose “overlap.” Paper 23, 35. However, claim limitation [1.4] does not always require “overlapping,” “substituting” a video content can also meet this limitation. Swafford discloses a dynamic display where “the message may be dynamically and continuously altered.” Ex. 1004, [0287]. And “[t]he message may include graphics, text, animations, streaming video, or any combination thereof.” *Id.* Therefore, Swafford at least discloses “substituting” video content as in [1.4].

SES relies only on Figures 44a-d to argue Swafford does not disclose “overlap,” and mischaracterizes Petition as “say[ing] that overlap is ‘inherent.’” *Id.*, 35-38. Not so. Petitioner expressly identifies that static product information in 43002 (annotated in green) overlaps with a streaming video as a background (annotated in purple), just as the overlapping shown in Figure 6 of the '669 Patent. Paper 2, 28-29; *compare* Ex.1001, FIG. 6, *with* Ex.1004, FIG. 43; *see also* Paper 2, 29-30.



Ex.1001, FIG. 6 (annotated in Petition)

Petition shows Swafford discloses “overlap” by stating “*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*” and the overlapping “[d]isplay 43002 provides information on products 43006A and 43006B” as virtual shelf labels. Paper 2, 28 (citing Ex. 1004, [0388]).

C. Masumoto discloses broadcasting adjustment data as recited in [7.1]

SES argues Masumoto does not disclose broadcasting because it is “the sending of data to multiple recipients.” Paper 23, 39. However, the ’669 Patent specification of the defines “broadcast” as “transmit” and uses the two terms interchangeably. Ex.1001, 1:50-54 (“wherein the devices are designed to **transmit (broadcast)** video playback progress-data via the communication stage to the other device”). *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) (*en banc*)

(“the ‘ordinary meaning’ of a claim term is its meaning to the ordinary artisan after reading the entire patent”). This definition comports with a POSITA’s understanding of “broadcast.” Ex.2002, 53:21-23; 54:7-10 (“[T]he fact that broadcast has to do with the transmitter. Broadcast does not have the number of the [receivers].”); 58:25 (“So broadcasting... could be one-on-one or could be one to different nodes.”). A POSITA would understand that “broadcast” is about transmitting to any number of recipients.

Regardless, Masumoto explicitly discloses sending adjustment data for adjusting the devices’ playback progress to multiple recipients. Ex.1005, [0079] (“A display frame rate determined based on comparison result in Step S7 is notified from display D240, which is the master display, to other display A210 to display C230 (Step S8).”)

Therefore, Masumoto discloses broadcasting adjustment data in [7.1].

D. UDP is a well-known communication protocol as required by [11.1]

SES admits “UDP is a well-known communication protocol” but contends that a POSITA would not use UDP in Swafford or Masumoto. Paper 23, 40. This argument ignores Swafford’s explicit disclosure of wireless communication or wired communication through network 28210. Paper 2, 46; Ex.1004, Figure 28A and [0274]. Therefore, it would be logical for a POSTA to consult the well-known UDP protocol for communication between 28200A-200C. Paper 2, 46.

SES argues there are numerous network protocols suitable for video delivery by claiming “Dr. Tentzeris even stated that there are reasons to choose TCP/IP over UDP and that he would normally use TCP/IP.” Paper 23, 41. But Dr. Tentzeris only discussed choosing TCP/IP over UDP for transmitting *secure data*. Ex.2002, 62:2-5, 64:3-9, 66:24-67:2, 68:19-22. The '669 Patent never mentions secure data or data security, and the existence of other network protocols would not prevent a POSITA from using the well-known UDP protocol. Paper 2, 46; Ex.1003, ¶¶65-66; Ex.2002, 62:19-21.

SES further asserts that “being a well-known protocol is not enough” and “[w]hat matters is what communication protocol a POSITA would use for transmission of the data required by the challenged claims, including *progress-data*.” Paper 23, 40-41. However, the '669 Patent discloses UDP multicast data packets for communication as an example after stating that “[t]he communication between the devices may be performed according to *various protocol implementations*.” Ex.1001, 3:59-67. The '669 Patent does not distinguish UDP communication from UDP multicast data for progress data. Therefore, a POSITA would immediately recognize that he could use the well-known UDP protocol for communication. Paper 2, 46; Ex.1003, ¶137.

E. Petition provides a reasoned rationale for combining Swafford and Masumoto

SES's arguments against the motivation to combine Swafford and Masumoto (Paper 23, 42-48) largely repeat those in its Preliminary Response (Paper 8, 31-47), which the Board already rejected. Paper 11, at 37-41. Dr. Hart's declaration similarly repeats the POR's arguments. Ex.2004, 170-183; Paper 23, 42-48.

First, SES argues that combining Swafford and Masumoto would create compatibility issues due to differences in display size, aspect ratios, and pixel counts. Paper 23, 42-45. However, neither Swafford, Masumoto, nor the '669 Patent specifies these display characteristics. SES claims Masumoto's multi-display apparatus is large but does not clarify whether the individual displays (A210, B220, C230, D240) have the same size. *Id.*, 43. Lacking any support, SES *assumes* that "these continuous displays [of Swafford] *may* have a wide but very short aspect ratio, and they *may* be attached to each other lengthwise, effectively making them even wider." *Id.*; Ex.2004, 173. The Board correctly found that these considerations are unrelated to any claimed feature and should be rejected. Paper 11, 40-41.

Further, SES misapplies the law by arguing that incompatibility would dissuade a POSITA from incorporating unmodified displays from Masumoto into Swafford's system. Paper 23, 43; Ex.2004, 173. "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference." *Facebook, Inc. v. Windy City Innovations, LLC*,

953 F.3d 1313, 1333 (Fed. Cir. 2020); *Orthopedic Equipment Co., Inc. v. United States*, 702 F.2d 1005, 1013 (Fed. Cir. 1983) (“There is a distinction between trying to physically combine the two separate apparatus disclosed in two prior art references on the one hand, and on the other hand trying to learn enough from the disclosures of the two references to render obvious the claim in suit.”); *Skedco, Inc. v. Strategic Operations, Inc.*, 287 F.Supp.3d 1100 (Fed. Cir. 2018) (“Claims may be obvious in view of a combination of references, even if the features of one reference cannot be substituted physically into the structure of the other reference”); *Elektta Limited v. ZAP Surgical Systems, Inc.*, 81 F.4th 1368, 1375 (Fed. Cir. 2023) (the court agrees with the Board, finding motivation to combine even though the two prior arts relate to different devices with different weight). Petitioner never proposed a physical combination or bodily incorporation of Matsumoto and Swafford, only that a POSITA would implement Masumoto’s disclosure of how different displays communicate to synchronously display a video into the entire system of Swafford. Paper 2, 52-55.

The Board has correctly rejected SES’s argument that Swafford and Masumoto are not directed to the same goal. Paper 23, 45-46; Paper 11, 39. SES challenges the use of Yamada and Kipp as hindsight. But Petitioner cites Yamada and Kipp to show there was a well-recognized need for low bandwidth and simple, inexpensive hardware before the critical date of the ’669 Patent. *In re Gorman*, 933

F.2d 982, 986 (Fed. Cir. 1991) (“The extent to which such suggestion must be explicit in, or may be fairly inferred from, the references, is decided on the facts of each case, in light of the prior art and its relationship to the applicant’s invention.”). Dr. Hart has confirmed that lower network bandwidth requirements was one consideration for a POSITA before the invention date. Ex.1014, 121:17-122:5. Further, SES argued that “Swafford itself belies Petitioner’s supposed well-recognized need” because its systems “can be implemented with ‘off-the-shelf’ components.” Paper 23, 46. However, the disclosure of “off-the-shelf” alternatives does not negate a motivation to modify Swafford with Masumoto’s solution to arrive at the claimed invention. *In re Fulton*, 391 F.3d 1195, 73 USPQ2d 1141 (Fed. Cir. 2004).

SES also asserts that “structural similarity” does not sufficiently support Petitioner’s alleged motivation to combine. However, a combination is obvious if a POSITA would recognize the technique would improve a **similar device** in the same way. *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380 (Fed. Cir. 2023); *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1003 (Fed. Cir. 2016) (“For the technique’s use to be obvious, the skilled artisan need only be able to recognize, based on her background knowledge, its potential to improve the device and be able to apply the technique.”). As Petition correctly notes: “given the structural similarity between Swafford’s and Masumoto’s devices ... a POSITA would recognize that it

would improve Swafford's similar device (*i.e.*, electronic label device including the LCD displays) in the same way." Paper 2, 54-55.

Therefore, contrary to SES's assertions (Paper 23, 42-48), Petitioner explicitly detailed how a POSITA would be both motivated and able to modify Swafford in view of Masumoto. Paper 2, at 52-55. The Board should reject SES's repetitive arguments and reaffirm its earlier holding.

V. GROUND 2 INVALIDATES ALL CHALLENGED CLAIMS

For the same reasons detailed above for Ground 1, Masumoto discloses both [1.3b] and [1.3c]. *See supra*, § IV. A-C.

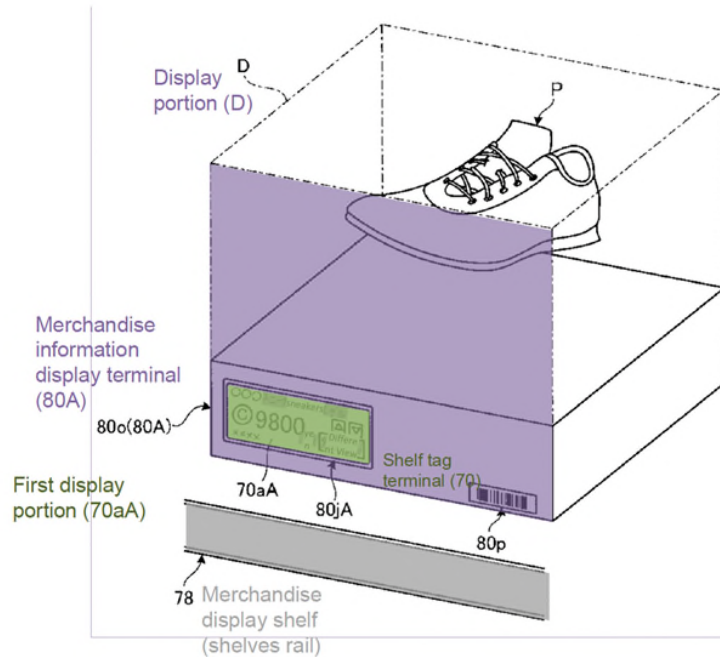
A. KIPP AND TAKASHI DISCLOSE [1.4]

SES first asserts Kipp does not disclose electronic shelf labels. Paper 23, 50. However, the claims do not require "electronic shelf labels." Ex.1001, claim 1. Instead, claim 1 recites "virtual electronic shelf labels" as a means to display product information or product price-related information. *Id.* Notably, the '669 Patent nowhere recites what product information or price-related information is displayed. Only FIG. 6 "shows electronic shelf label content 24 (of virtual electronic shelf labels) displayed at the appropriate position". Ex.1001, 7:18-21; Ex.1014, 123:10-22. A POSITA would understand that a virtual electronic shelf label is a piece of information related to any product or price. Ex.2002, 155:19-25.

Kipp discloses “another application server may be responsible for formatting and inserting advertisements in a video stream being transmitted to the premises 102” and such arrangements may be found at “locations where it may be desirable to have multiple display devices presenting the same content.” Ex.1006, [0033], [0036]; Paper 2, 66. The premises 102 include “businesses, homes, consumer dwellings, etc.” *Id.*, [0028]. Any POSITA with common sense (which all POSITAs have) would understand that in a store, the advertising content naturally includes information about products or prices, because conveying such information is the fundamental purpose of advertising. Paper 2, 67; Ex.1003, ¶178

SES further asserts Takashi does not disclose [1.4] because the display portion D does not extend to the lower housing 80o. Paper 23, 56. But SES ignores that FIG. 14 of Takashi provides a variation including multiple display portions as “an integral combination of the shelf tag terminal 70 and the image display terminal 80.” Ex. 1008, [0051].

Therefore, Takashi, in [0051], discloses two display portions 70aA and D without limiting the location relationship between them. *EWP Corp.*, 755 F.2d 898, 907; *In re Applied Materials, Inc.*, 692 F.3d 1289, 1298. In other words, a POSITA, after reading [0051], would understand the two display portions 70aA and D could be overlapping. Ex.1003, ¶180. And “the structure has to be integrated so it can not be a part one from the other.” Ex.2002, 169:24-170:10.



Ex.1008, FIG. 14 (annotated)

As such, Kipp and Takashi disclose [1.4].

B. Claims 7 and 11

SES's arguments regarding claims 7 and 11 for Ground 2 are the same as for Ground 1. The Board should reject SES's positions for all the reasons noted above. *See supra*, §IV.C-D.

C. Petition provides a reasoned rationale for combining Masumoto, Kipp and Takashi.

As with Ground 1, SES's arguments against the motivation to combine Masumoto, Kipp and Takashi (Paper 23, 61-66) repeat those in its Preliminary Response (Paper 8, 37-41), which the Board already rejected. Paper 11, 60-61. Dr.

Hart's declaration similarly rehashes POR's seven rationales. Ex.2004, 221-227; Paper 23, 61-66.

SES uses the same rationale as in Ground 1 to argue that Masumoto and Kipp are not directed to the same goal, which the Board has correctly rejected. Paper 23, 61-62; Paper 11, 39. Further, SES claims reliance on the "universal, obvious goal of all such systems to display promotion content related to the premise where the systems are located" and goal to "to attract customers" as insufficient to show motivation to combine. Paper 23, 62-66. However, the "[u]niversal motivations known in a particular field to improve technology," such as increasing energy efficiency in electronics, provide "a motivation to combine prior art references even absent any hint of suggestion in the references themselves."'. *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 797 (Fed. Cir. 2021); *DyStar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006) (referencing an "implicit motivation to combine" to make a device "more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient").

ActiveVideo and *Xerox Corp.* do not apply here. Takashi expresses concern for attracting customers. Ex.1008, [0045] ("the effect is obtained of customers' interest in the merchandise being increased, contributing to sales promotion"); [0047] ("customers can select the desired merchandise item from among multiple merchandise items"); [0050] ("customers can better understand the appearance,

modes of use, operation, and so on of merchandise, making it easier to select merchandise.”). Instead of providing conclusory opinions, Dr. Tentzeris stresses how to modify prior art addressing such concern. Ex.2002, 156:1-7 (“video content in order to display areas is commonly used to provide additional information to a customer or attract the customer’s attention”); 166:14-20; 167:1-3, and Ex.1003, ¶¶188-191.

SES also argues about “structural similarity” as in Ground 1. For reasons similar to those described above, the Board should reject such argument.

Contrary to SES’s assertions (Paper 23, 61-66), Petitioner explicitly detailed how a POSITA would be motivated and able to modify Masumoto in view of teachings from Kipp and Takashi. Paper 2, 82-87. The Board should reject SES’s repetitive arguments and reaffirm its earlier holding.

VI. CONCLUSION

For at least the above reasons, Petitioner respectfully requests the Board cancel all the challenged claims.

Date: December 2, 2024

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

I hereby certify that the foregoing PETITIONER'S REPLY includes 5,558 words (as calculated by Microsoft Word), excluding those in a table of contents; a table of authorities; a listing of facts that are admitted, denied, or cannot be admitted or denied; a certificate of service or word count; or an appendix of exhibits. Accordingly, this Reply is under the word count limit of 5,600 words.

Date: December 2, 2024

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I hereby certify that, on December 2, 2024, a set of true and correct copies of PETITIONER'S REPLY and supporting materials has been served via e-mail and UPS to the Petitioner by serving the below-listed attorneys of record for Petitioner in the concurrent proceeding:

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