

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.

Case No. IPR2024-00188
U.S. Patent No. 11,405,669

PATENT OWNER'S SUR-REPLY

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37 C.F.R. §42.104	1, 4, 5, 6
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EXHIBIT LIST

Exhibit	Reference
2001	Andrew S. Tanenbaum & David J. Wetherall, Computer Networks (Prentice Hall, 5th ed. 2011)
2002	Deposition transcript of Dr. Emmanouil M. Tentzeris, dated August 16, 2024
2003	Unicast UDP Usage Guidelines for Application Designers, RFC 5405, Networking Working Group ("RFC 5405")
2004	Declaration of John Hart, Ph.D., in Support of Patent Owner's Response
2005	Curriculum Vitae of John Hart, Ph.D.
2006	Affidavit of Grant Kinsel

LISTING OF CHALLENGED CLAIMS

Reference	Claim limitation
[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,
[1.3a]	and 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);
[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.
[2.0]	The system (I) ¹ according to claim 1,
[2.1]	comprising a video distribution server (7) for distribution of the video data (9) to the devices (6A, 6B), in particular the entire video data (9) of a video upfront to playback start at the devices (6A, 6B).
[3.0]	The system (1) according to claim 1,
[3.1]	wherein the devices (6A, 6B) are designed to determine independently from a video distribution server (7) which distributed the video data (9) to the devices (6A, 6B) that they are in a synchronous or asynchronous playback progress.
[4.0]	The system (1) according to claim 1,

¹ Patent Owner notes this dependently-claimed element reflects a typographical error in the patent language; the “system (I)” identified by Roman numeral refers to the same “system (1)” identified by Western Arabic numeral in independent claim limitation [1.0].

[4.1]	wherein the devices (6A, 6B) are designed: to playback compressed video data (9) that are structured in frames labeled by frame numbers, and to utilize a frame number that labels the frame that is currently played back as the progress-data to be transmitted.
[5.0]	The system (I) ² according to claim 4,
[5.1]	wherein each device (6A, 6B) is designed to compare a frame number received with a frame number of the frame currently played back at the device (6A, 6B) and to determine an asynchronous playback progress if the difference in the frame numbers compared with each other exceeds a pre-determined threshold value.
[6.0]	The system (1) according to claim 1,
[6.1]	wherein each device (6A, 6B) is designed to repeatedly transmit the progress-data, preferred in a periodic manner, more preferred every second.
[7.0]	The system (1) according to claim 1,
[7.1]	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.
[8.0]	The system (1) according to claim 7,
[8.1]	wherein each device (6A, 6B) is designed to embed the adjustment data in a synchronization command.
[9.0]	The system (1) according to claim 8,
[9.1]	wherein each device (6A, 6B) is designed to receive the adjustment data and to adjust its playback progress according to the adjustment data, in particular to continue its playback of compressed video data that are structured in frames labeled by frame numbers with the frame number received in the broadcast of the adjustment data.
[10.0]	The system (1) according to claim 7,
[10.1]	wherein each device (6A, 6B) is designed: to receive the adjustment data; and to adjust its playback progress according to the adjustment data, in particular to continue its playback of compressed video data that are structured in frames labeled by frame numbers with the frame number received in the broadcast of the adjustment data.
[11.0]	The system (1) according to claim 1,

² See *supra* note 1.

[11.1]	wherein the communication stage is designed to use UDP multicast data packets for the communication.
[12.0]	The system (1) according to claim 1,
[12.1]	wherein each display device (6A, 6B): comprises its screen (5) or a number of screens (5), or is connected to its external screen (5) or a number of screens (5) to be controlled by it.
[13.0]	The system (1) according to claim 1,
[13.1]	wherein said screen (5) is designed to realize a shelf rail (4) or part of it, or to cover a front of a shelf rail (4) or a part of it to which it is attachable.
[14.0]	The system (1) according to claim 1,
[14.1]	wherein the system realizes a video playback enabled electronic shelf label system.
[15.0]	A use of the system (1) according to claim 1 as video playback enabled electronic shelf label system for the playback of synchronized video content for a number of shelf rails (4),
[15.1]	wherein each of said shelves rails (4) is realized by a screen (5) or carries a screen (5).

I. INTRODUCTION

The Board should find Petitioner has not met its burden to show unpatentability of the challenged claims both because (1) Petitioner violated the Board's rules; and (2) regardless, Petitioner has failed to show that the prior art renders obvious any challenged claim.

As to (1), in Reply (Paper 28), Petitioner argues "communication stage" is subject to §112(f) and the specification discloses "no specific" corresponding structure, but that argument violates 37 C.F.R. §42.104(b)(3). Indeed, under Petitioner's proposal, it is impossible for the Board to compare corresponding structure to structure in the prior art, and the Board should thus find that Petitioner has not proven any challenged claim is unpatentable. Moreover, the Board should hold Petitioner to its §112(f) proposal because Petitioner was aware the term may be subject to §112(f) when filing the Petition, which triggered Petitioner's obligation to include a §112(f) analysis.

Turning to (2), a core principle of the '669 patent's invention is a peer-to-peer system in which playback devices are designed to engage in bidirectional/reciprocal communication to synchronize playback. Consistent with this principle, the entirety of the intrinsic evidence demonstrates claim 1 (and therefore all challenged claims) requires a video playback system in which each playback device is designed (i.e., configured, not merely "capable") to do two things during operation of the system:

(1) transmit playback progress-data to the other playback devices; and (2) based on the playback progress-data received from the other playback devices, determine synchronization with the other playback devices. Paper 23 (“POR”), 1, 22-27; Ex-2004 (“Hart”), ¶¶65-73. In other words, the devices must be configured to do both things *together* during the system’s operation—not one or the other. The Petition (Paper 2) did not meaningfully address the intrinsic evidence or how Masumoto discloses [1.3b] and [1.3c] under the proper construction. That is not surprising, as there is no display in Masumoto that is ever configured to do both things together during the system’s operation. Petitioner’s Reply does not contend otherwise. Rather, Petitioner urges the Board to interpret the claim to cover Masumoto’s fundamentally different hub-and-spoke system, which itself is not materially different from Asami—which was considered during prosecution and is also a hub-and-spoke system.

That is not the only problem with Petitioner’s arguments. Petitioner has failed to show that any playback device in Masumoto is configured to determine whether its own playback progress is in sync with other displays’ playback progress ([1.3c]). Petitioner’s Reply continues to ignore [1.3c]’s requirements to attempt to make Masumoto’s disclosures fit.

Further, regarding [1.4] and claims 7 and 11, Petitioner’s Reply resorts to distorting the disclosures of the prior art and the ’669 patent, while also improperly

backfilling or changing its arguments. Regarding Swafford ([1.4]), Petitioner relies on an improper new “substituting” argument and points to alleged disclosure of “overlap” that simply does not exist. Regarding Kipp ([1.4]), Petitioner argues—incorrectly and without support—that a “virtual electronic shelf label” is “a piece of information related to any product or price” and resorts to a new “common sense” theory that advertisements include such information. Regarding Takashi ([1.4]), Petitioner injects a new—and incorrect—inherency-light argument that Figure 14 discloses displays that “could” be overlapping.

Regarding claim 7, Petitioner belatedly and incorrectly attempts to redefine “broadcast” in a manner inconsistent with its ordinary meaning, while also improperly relying on a new embodiment of Masumoto. And finally, continuing to disregard claim 11’s UDP multicast requirement, Petitioner advances an unclear—and meritless—argument that the ’669 patent specification supports its position that UDP generally suffices.

II. THE BOARD SHOULD FIND THAT NO CHALLENGED CLAIM IS UNPATENTABLE BECAUSE PETITIONER VIOLATED 37 C.F.R. §42.104(b)(3)

The Institution Decision (Paper 11 (“ID”)) identified as a potential claim construction issue whether “communication stage” invokes §112(f). ID, 11. In response, Petitioner’s Reply asserts §112(f) applies and “the specification discloses no specific

structure for the communication stage other than it being part of each playback device that performs the communication function.” Reply, 12.

Petitioner's Reply §112(f) contention violates the Board's rules, which require a petitioner to provide §112(f) constructions that include “the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function.” 37 C.F.R. §42.104(b)(3); *see also* PTAB Consolidated Trial Practice Guide (Nov. 2019), 45. This requirement flows from Federal Circuit precedent, which holds that evaluating patentability of a §112(f) limitation requires comparing corresponding structure to structure in the prior art. *See, e.g., Fresenius USA, Inc. v. Baxter Int'l, Inc.*, 582 F.3d 1288, 1299 (Fed. Cir. 2009) (holding that a “structural analysis is required” and “a functional analysis alone will not suffice”).

In this regard, the Board should reject Petitioner's argument that the Board can assess patentability based on function alone. *See* Reply, 12. Indeed, the *Vibrant Media*, *Intel*, and *Sisvel* cases Petitioner cites are distinguishable because they do not address the relevant issue, which is whether the Board can evaluate patentability based on function alone when a petitioner fails to identify *any structure* corresponding to a §112(f) limitation (it cannot). *See Vibrant Media, Inc. v. Gen. Elec. Co.*, IPR2013-00172, Paper 50, 6-11 (July 28, 2014) (addressing whether the Board could evaluate patentability of system claims that include method steps); *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 807 (Fed. Cir. 2021) (addressing evaluating

patentability under §112(f) where petitioner's proposed structure was possibly *insufficient*); *Sisvel Int'l S.A. v. Sierra Wireless, Inc.*, 82 F.4th 1355, 1370 (Fed. Cir. 2023) (addressing same as *Intel*).

Thus, under Petitioner's §112(f) proposal,³ the Board should find that no challenged claim is unpatentable because Petitioner failed to identify corresponding structure, and under Petitioner's proposal, the Board cannot compare corresponding structure to structure in the prior art.⁴ *See, e.g., Wirtgen Am., Inc. v. Caterpillar Inc.*, IPR2022-01395, Paper 27, 35, 72 (Mar. 5, 2024) (finding petitioner was "not able to prove" unpatentability of claim containing means-plus-function limitations because

³ If the Board does not find Petitioner failed to comply with 37 C.F.R. §42.104(b)(3), there remains no reason for the Board to determine whether §112(f) applies. *See* POR, 27-28 (citing Hart, ¶¶74-75). PO reserves the right to contend that the term is not subject to §112(f) in other proceedings (or that the specification discloses corresponding structure).

⁴ Even if Petitioner's proposed construction identified structure, the Board still could not evaluate patentability under such a proposal because neither the Petition nor the Reply address prior art teachings of such structure under §112(f). *See* Petition, 24-27 (Ground 1, [1.3]); *id.*, 65-66 (Ground 2, [1.3]); *see generally* Reply (failing to supplement Petition).

“Petition [did] not identify corresponding structure...”); *Netflix, Inc. v. Avago Techs. Int’l Sales Pte. Ltd.*, IPR2021-01298, Paper 44, 58-60 (Feb. 6, 2023); *Intel Corp. v. Alacritech, Inc.*, IPR2017-01405, Paper 84, 18 (Nov. 14, 2018), *aff’d*, 817 F. App’x 1014, 1018-19 (Fed. Cir. 2020) (nonprecedential).

Moreover, the Board should hold Petitioner to its Reply §112(f) proposal and find Petitioner has not met its burden to show unpatentability. The Petition asserted “no formal claim constructions are necessary...” Petition, 4. But Petitioner’s Reply shows the Petition’s failure to address §112(f) violated 37 C.F.R. §42.104(b)(3), and the Board’s ID does not excuse Petitioner’s rule violation. Petitioner’s Reply points to evidence Petitioner was aware of when it filed the Petition (i.e., the claim and the specification). Reply, 11-13. Thus, there is no debate Petitioner was aware that the term may be subject to §112(f) when it filed its Petition, triggering Petitioner’s obligation. *See, e.g., 10x Genomics, Inc. v. President & Fellows of Harvard Coll.*, IPR2023-01299, Paper 15, 13 (Mar. 7, 2024) (declining to institute where Petitioner failed to address §112(f) despite asserting term was subject to §112(f) in District Court and thus was aware of disputed issue).

III. CLAIM CONSTRUCTION: “DESIGNED TO”

As to “designed to,” Petitioner’s Reply appears to address two issues. The first relates to whether the claims require “actual” transmission/determination. Although Petitioner believes this is disputed (Reply, 4, 11), the parties agree that “actual”

transmission/determination is not required. Rather, PO contends the claims require a system in which each device is “configured” to both transmit and determine as recited during the system’s operation. In other words, the claims require only that such a system exist as configured—even if never put into use. POR, 1, 22-27.

The second issue relates to whether, as PO contends, the claims require each device is “configured” to transmit and determine together during operation of the system. Petitioner’s Reply presents jumbled and conflicting arguments. Reply, 3-11. Indeed, Petitioner takes conflicting positions regarding whether “designed to” means “configured to” or instead means mere “capability.” Petitioner first argues that “designed to” means “configured to accomplish the specified objective.” Reply, 4 (internal quotations and citation omitted). This interpretation is consistent with PO’s position that the claims require devices configured to transmit and determine as recited during the system’s operation. And that is what the POR explained. *See, e.g.*, POR, 22-23 (explaining that the Federal Circuit has equated “adapted to” and “designed to” and citing *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1349 (Fed. Cir. 2012) for proposition that “the phrase ‘adapted to’ is most naturally understood to mean that the arms and magnetic members are *designed or configured*

to accomplish the specified objective, not simply that they can be made to serve that purpose").⁵

Yet, Petitioner then takes the contradictory position that the claims only require devices capable of transmitting/determining. *See, e.g.*, Reply, 5, 7. The bottom line is that Petitioner appears to assert that the claims are met if there are playback devices that in one system may be configured to do one thing—say, transmit—and then re-configured in a different system to do the other thing—say, determine. Put differently, Petitioner appears to assert the claims are met by devices theoretically capable of doing these two things but never configured to do both things together during the system's operation. But that is not what the claims recite. The claims require "a system" with each playback device configured to *both* transmit and determine *together* during operation of that system.

Petitioner raises several muddled arguments against PO's construction, which are addressed below.

⁵ All emphasis added unless otherwise noted.

A. Petitioner's Arguments Regarding the Claim Language Are Meritless

First, Petitioner argues against including “each device” in the construction, contending that claims 1, 5-10, and 12 “intentionally differentiate between ‘the devices’ and ‘each [playback] device.’” Reply, 5.

Petitioner is incorrect. The claim language requires that “the devices...are designed” to transmit and determine, which applies to all (i.e., each) of the devices. Hart, ¶67. If Petitioner contends claim 1 should be interpreted to mean “some” devices are designed to transmit and “some” devices are designed to determine, Petitioner is improperly rewriting the claim. Further, Petitioner's reliance on *SimpleAir* is misplaced. There, the Federal Circuit found that two different claim terms (“data channel” and “data feed”) were presumed to have different meanings. *SimpleAir, Inc. v. Sony Ericsson Mobile Commc'ns AB*, 820 F.3d 419, 431 (Fed. Cir. 2016). There is no indication the Applicant here intended “each device” and “the devices” to mean different things.

Second, Petitioner argues that “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.” Reply, 5. Petitioner's argument is unclear, but regardless, PO's construction does not render any dependent claims redundant because the dependent

claims do more than replace “the devices” with “each device.” For example, claim 7 adds the limitation that each device broadcasts adjustment data, thus narrowing claim scope compared to claim 1. POR, 39-40; Hart, ¶¶161-64.

B. Petitioner's Arguments Regarding the Specification Are Meritless

As to the specification, Petitioner contends it does not distinguish “designed to” from “capable of” and then proceeds to argue that the patent “describes no structural information or positional relationship of the playback devices, which distinguishes the cases SES cites.” Reply, 5-6.

Petitioner's arguments are unclear, but regardless, they are wrong. Petitioner appears to be focusing—incorrectly—on the devices' structural characteristics, which are not germane to the issue of whether the devices are “designed” (i.e., configured) to *do things* during the system's operation and not just capable of doing them. As explained, under applicable Federal Circuit precedent, the claim language requires devices that are “designed” (i.e., configured) to both transmit and determine together during the system's operation—not just devices capable of doing these things. Further, the specification discloses the devices are configured to do these things together during the system's operation. POR, 23-25 (citing Ex-1001, 5:49-53, 2:29-33, 2:54-59); Hart, ¶¶65-73.

Further, Petitioner contends that having multiple devices configured to both transmit and determine conflicts with the specification because—according to

Petitioner—the specification discloses there can only be “a single asynchronous event.” Reply, 6, 10-11. Petitioner also contends PO’s proposed construction improperly limits the claims to a disclosed embodiment in which there are only two devices. *Id.*, 9-10.

Neither is correct because these arguments are based on a misunderstanding of the specification and PO’s construction (which does not limit the claims to two devices). In a multi-device system, the specification discloses “a significant number of devices may operate for longer periods in synchronism with each other before a single asynchronous event is detected by one of the devices.” Ex-1001, 6:36-45. That language does not limit this embodiment to detecting one and only one asynchronous event. Rather, the natural reading is that each device is configured to detect an asynchronous event, even though only one device may detect “a single asynchronous event” at any given time (e.g., because the device that detected the event engaged in a reciprocal exchange with another device that it was not synchronized with). As Dr. Hart explained, the claimed system would work with more than two devices under PO’s proposed construction, with each pair conducting a reciprocal data exchange. Ex-1014, 64:7-67:17. Further, if multiple synchronization commands are sent, the devices would simply synchronize according to each received command. *See, e.g.*, Ex-1001, 5:59-65.

C. Petitioner's Arguments Regarding the Prosecution History Are Meritless

Petitioner contends Applicant “did not discuss ‘designed to’ during prosecution,” but then Petitioner contradicts itself and argues “Applicant stated ‘the devices are designed to’ throughout the response and emphasized the capability of the devices.” Reply, 6-7 (arguing Applicant stated “each individual playback device *can* independently detect an asynchronous playback progress within the group of playback devices” and the Examiner subsequently issued a rejection that allegedly supports Petitioner’s capability argument) (citing Ex-1002, 141, 65-66) (emphasis in original). Petitioner’s arguments are unclear and unpersuasive. Neither Applicant nor the Examiner were discussing devices theoretically capable of being configured to do things. Instead, Applicant’s arguments described claim 1 as requiring bidirectional/reciprocal communication wherein the devices are designed to transmit playback progress-data and subsequently compare their own progress data to the progress data of other devices. *See* POR, 25-26 (citing Ex-1002, 140-42); Hart, ¶¶69-71. It would be nonsensical to interpret Applicant’s argument that “each individual device can independently” determine synchronization as referring to theoretical capability. In context, Applicant plainly was arguing the devices “can” determine because they are “designed” (i.e., configured) to do so during the system’s operation.

D. Petitioner's Argument That PO's Construction Improperly Relies on the Claim's Reference Numbers Is Meritless

Petitioner argues that requiring that the playback devices are configured to both transmit and determine together improperly relies on “read[ing] the order of reference numbers (6A, 6B) as limiting claim scope.” Reply, 7-8. Petitioner then argues for rewriting the claim to remove the reference numbers, which Petitioner contends supports its view that the claim covers a hub-and-spoke system. *Id.*, 9.

Contrary to Petitioner's argument, PO is not asserting that claim 1's reference numbers should be read to incorporate anything from the specification, which is all that Petitioner's cited cases address. *See Grit Energy Sols., LLC v. Oren Techs., LLC*, 957 F.3d 1309, 1322 (Fed. Cir. 2020) (considering argument that reference numeral limited claim to specification embodiment); *NXP USA, Inc. v. Impinj, Inc.*, No. 2:20-CV-01503-JHC, 2022 WL 16716226, at *11 (W.D. Wash. Nov. 4, 2022) (considering whether claim's reference numbers indicate “corresponding structure” for means-plus-function claim). Nor does PO dispute that the presence or absence of reference characters “[g]enerally” does not affect claim scope. MPEP §608.01(m).

Rather, PO considered the entirety of the intrinsic evidence and concluded the ordering of 6A and 6B is significant here. Specifically, the fact that the claim language flips the order from 6A, 6B in [1.3a] to 6B, 6A in [1.3b] and [1.3c] indicates that—consistent with the entirety of the intrinsic evidence—claim 1 requires devices

configured to engage in reciprocal/bidirectional communication during the system's operation (i.e., to both transmit and determine together). POR, 22-27; Hart, ¶¶64-73. Thus, this supports Dr. Hart's⁶ opinion that a POSITA would have understood the order is significant. Hart, ¶67; Ex-1014, 62:12-16.

E. Petitioner's Arguments Should Be Rejected Because They Lack Expert Support

Petitioner's arguments about what the intrinsic evidence means should also be rejected because they lack expert support. *See, e.g., Lenovo Holding Co. v. DoDots Licensing Sols., LLC*, IPR2019-01278, Paper 37, 16-17 (Jan. 19, 2021) (finding Petitioner's attorney arguments regarding claim construction "not persuasive" in part because they were unsupported by expert testimony), *aff'd*, No. 21-1580, 2021 WL 5822248 (Fed. Cir. Dec. 8, 2021). Unlike PO's positions, which are expressly supported by the opinion of Dr. Hart, who considered all of the intrinsic evidence, including the claim language (Hart, ¶¶67, 72), the specification (*id.*, ¶68), and the

⁶ Nor did Dr. Hart improperly rewrite claim language. Reply, 8, 10. Dr. Hart explained a POSITA's understanding by expanding the reciprocal relationship between 6A and 6B into their separate components (e.g., the requirement that 6A transmit progress data to 6B and that 6B transmit progress data to 6A). Ex-1014, 62:16-18; Hart, ¶72.

prosecution history (*id.*, ¶¶69-71), Petitioner's Reply does not include expert opinion responding to Dr. Hart's analysis or providing an affirmative analysis. Instead, Petitioner relies solely on attorney argument. *See, e.g., Lenovo Holding Co.*, IPR2019-01278, Paper 37, 17-18.⁷

IV. GROUND 1

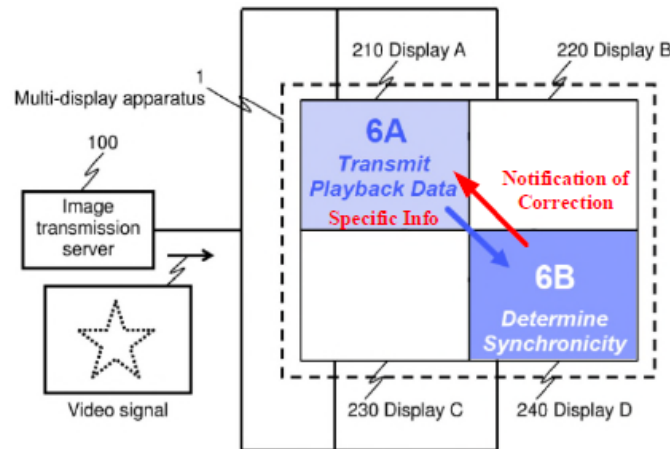
A. [1.3b], [1.3c]: Masumoto Fails to Disclose Devices That Are Configured to Transmit and Determine Together

None of the displays in Masumoto are ever configured to both transmit and determine together during the system's operation, as [1.3b] and [1.3c] require. Specifically, Masumoto's single master display is never configured to transmit playback progress-data, and the non-master displays are never configured to make a synchronicity determination. POR, 28-35.

Petitioner's Reply continues to misunderstand the claim's requirements. For example, Petitioner argues that "to the extent the Board construes [1.3b] and [1.3c] to require *actual transmission or determination*, Masumoto also satisfies such limitations." Reply, 14. But the issue is whether the devices are *configured to both transmit and determine* during the system's operation. Perhaps because Petitioner

⁷ Dr. Tentzeris's declaration had no claim construction opinions. Ex-1003, ¶¶42-43.

misunderstands the claim's requirements, Petitioner's annotated version of Masumoto's Figure 1 demonstrates that Masumoto does not disclose [1.3b] and [1.3c]:



Reply, 15 (“Ex. 1005, Figure 1 (further annotated in red only)”).

As to Display A (non-master display), the figure shows it is configured to transmit playback progress-data but is *not configured to determine* synchronization.

As to Display D (master display), the figure shows it is configured to send a “Notification of Correction” to Display A but is *not configured to transmit* its playback progress-data.⁸ At best, transmission of the “Notice of Correction” indicates that the master display made some sort of synchronization determination, but as explained in Section IV.B, not the determination [1.3c] requires.

⁸ The “Notice of Correction” is not playback progress-data, and Petitioner does not contend as much. *See* Hart, ¶139.

Thus, this does not move the needle for Petitioner, because the claim requires devices configured to both transmit playback progress-data and determine synchronization during the system's operation.

Petitioner's next argument gets closer to the issue, but it still misses the point. Petitioner contends "Masumoto allows to [sic] set any display as a master 'display' based on different rules." Reply, 15; *id.*, 16 ("As Dr. Tentzeris stresses[,] '[e]very node could be the master node that could change from second to second or from communication to communication.'") (citing Ex-2002, 128:2-6). In other words, Petitioner appears to contend that because each display can be configured to be the master display, each display can be configured in one system to transmit playback progress-data (e.g., as a non-master display) and re-configured in another system to control synchronization⁹ (e.g., as the master display).

All this shows is that Masumoto's displays can *either* be configured to be non-master displays that transmit playback progress-data (but do not determine anything) *or* the one master display that controls synchronization¹⁰ (but does not transmit playback progress-data). However, Masumoto discloses its displays are never configured

⁹ Masumoto's master display does not perform the claimed synchronization determination ([1.3c]). *See* Section IV.B.

¹⁰ *See supra*, n.9.

to *both* transmit and determine *together* during the system's operation as the limitations require. Ex-1005, [0124], [0125]; Hart, ¶¶116-17.

Petitioner next argues “Masumoto does not rely on a ‘central server’ or ‘central hub’ to communicate, instead, it relies on communication between the various displays.” Reply, 16. Petitioner's Reply relies on the second and fourth embodiments of Masumoto, which were *not* cited in the Petition or Dr. Tentzeris's declaration. *Id.* (citing Ex-1005, [0077]-[0079] (part of the “Second Exemplary Embodiment”), [0096]-[0099] (part of the “Fourth Exemplary Embodiment”). Therefore, Petitioner's reliance on them is untimely and should be rejected. *See Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367 (Fed. Cir. 2015) (finding “no error in the Board's rejection of [petitioner's] reliance, in its Reply submissions, on previously unidentified” embodiments).

Regardless, Petitioner misses the point. In Masumoto, although the master display is not called a “hub” or “server,” it is akin to a “hub” in a hub-and-spoke system because—like a hub—it is configured to control the synchronicity determination for all other devices. Ex-1005, [0124], [0125]; Hart, ¶¶104-05, 116-17, 127. Thus, Masumoto's system is distinguishable from claim 1's peer-to-peer system, in which devices are configured to both transmit and determine during the system's operation. Hart, ¶¶105, 110.

B. [1.3c]: Masumoto's Displays Are Not Designed To Determine Whether Their Own Playback Progress Is in Sync With Other Displays' Playback Progress

No display in Masumoto is designed to determine whether its own playback progress is in sync with other displays' playback progress, as [1.3c] requires. Instead, Masumoto's master display is designed to determine the non-master displays' synchronization based on a calculated frame number—which is not the master display's playback progress-data. And the non-master displays are not configured to make any determination. POR, 32-35. Hart, ¶¶145-53.

Petitioner's rebuttal is that “claim 1 recites no particular method to determine synchronicity between the displays.” Reply, 16. That is wrong. Claim 1 does not broadly recite “determin[ing] synchronicity.” The displays must be configured to determine whether their own playback progress is in sync with other displays' playback progress (“determine based on the received progress data whether *it is in a synchronous or asynchronous playback progress with the other devices*”).

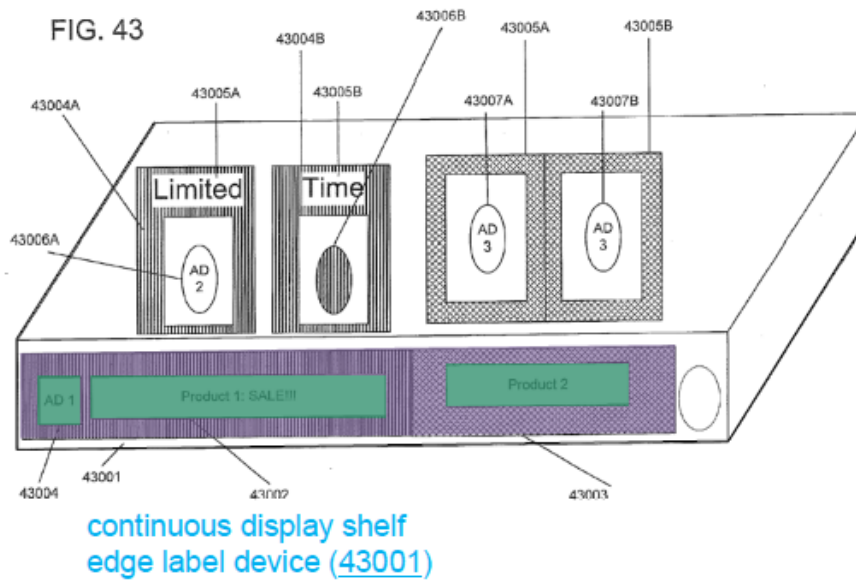
C. [1.4]: The Board Should Reject Petitioner's New “Substituting” Argument Regarding Swafford

As to [1.4], Petitioner first tries to supplement its Petition by presenting a new theory regarding “substituting.” Reply, 17 (citing Ex-1004 (Swafford), [0287]). The Petition, however, does not discuss “substituting,” Swafford's paragraph 287, or the figure described in that paragraph (Figure 29). Rather, the Petition asserts Swafford

discloses “overlap,” relies on Swafford’s Figure 43 embodiment, and cites Swafford paragraphs 388 and 404. Petition, 28-30. Accordingly, the Board should disregard Petitioner’s new argument because it is both improper in reply and unsupported attorney argument. *See Bright Data Ltd. v. Oxylabs, UAB*, IPR2023-00186, Paper 26, 20-21, 24-25, 32-33 (July 15, 2024). Moreover, Petitioner fails to provide reasoning regarding why a POSITA would have been motivated to combine Swafford’s Figure 29 embodiment that Petitioner alleges discloses “substituting” and the Figure 43 embodiment the Petition relied on.

D. [1.4]: Swafford Does Not Disclose the Claimed “Overlap”

Further, Petitioner’s Reply argument as to the Swafford disclosure upon which it relied in the Petition for [1.4] is not persuasive. Petitioner asserts the following annotated image of Swafford from its Petition “expressly identifies that static product information in 43002 (annotated in green) overlaps with a streaming video as a background (annotated in purple).” Reply, 17.



But this is incorrect, and Petitioner offers no support to show there is overlap. Instead, Petitioner invents supposed overlap where Swafford discloses none. Swafford's specification discloses that the "background" of displays 43002 and 43003 "may display additional information, such as static images or streaming video of products..." Ex-1004, [0388]. But this is immaterial because it does not mean there is overlapping video. Nothing in Swafford and anywhere else suggests that the cross-hatched and dotted portions of the figure are video such that the "product 1" and "product 2" sections are overlapping. Indeed, Swafford itself does not disclose that there is any video other than the "product 1" and "product 2" portions (highlighted in green by Petitioner). Simply put, Petitioner's use of different color does not substitute for actual disclosure in Swafford itself, which says nothing about overlapping video. Indeed, the crosshatched and dotted portions shown in Swafford could simply

be bezels surrounding a video screen and nothing in Swafford supports otherwise. Similarly, the “background” of display 43002 could be the portion annotated in green that states “product 1” and the background of display 43003 could be the portion annotated in green that states “product 2.” In that scenario, Petitioner provides no explanation regarding how Swafford discloses displaying product/price information within the green annotated sections in a manner that overlaps with video content.

V. GROUND 2

A. [1.3b], [1.3c]: Masumoto Does Not Disclose Playback Devices That Meet [1.3b] and [1.3c]

For the same reasons detailed above for Ground 1, Masumoto does not disclose any playback devices that satisfy both [1.3b] and [1.3c] for Ground 2.

B. [1.4]: Kipp Does Not Disclose Displaying Product/Price Information by Means of Virtual Electronic Shelf Labels

For [1.4], Kipp does not disclose the claimed virtual electronic shelf labels displaying product/price information. POR, 50-52; Hart, ¶¶190-91. Petitioner's Reply attempts to fix the Petition's deficiencies. Petitioner cites Dr. Tentzeris's deposition to argue a “POSITA would understand that a virtual electronic shelf label is a piece of information related to any product or price.” Reply, 24 (citing Ex-2002, 155:19-25) (emphasis in original). Petitioner then argues Kipp discloses inserting advertisements in a video stream, and “[a]ny POSITA with *common sense*...would

understand” that advertising content in a store “naturally includes information about products or prices...” Reply, 25.

This argument fails. To start, Petitioner conflates disclosure with “common sense,” which the Petition did not argue. *See* Petition, 66-67; Ex-1003, ¶178. If Petitioner is relying on “common sense” to supply a missing limitation, the Board should reject Petitioner’s new theory.

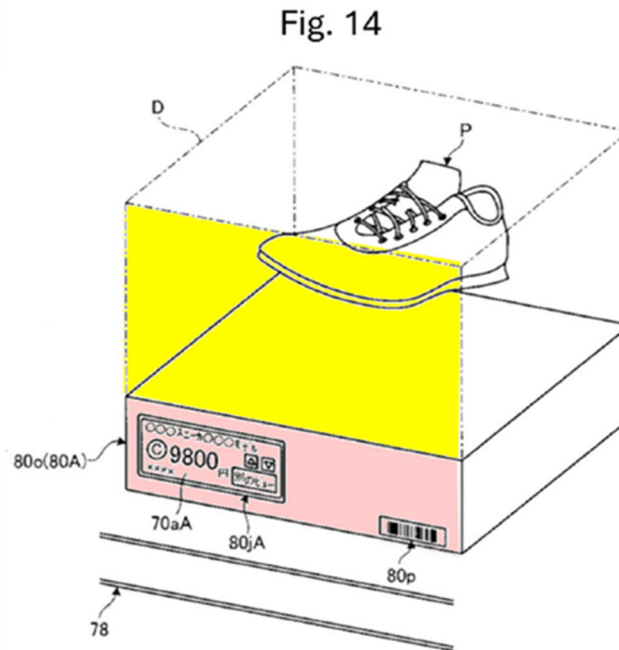
Regardless, even if the Board finds that Kipp’s advertisements would include product/price information, Petitioner’s argument that “a virtual electronic shelf label is a piece of information related to any product or price” is meritless. Petitioner’s only support is Dr. Tentzeris’s deposition, who testified that the *thing that displays the information* is the virtual electronic shelf label—not that a virtual electronic shelf label is product/price information. Ex-2002, 155:19-25 (testifying that element 43004 in Swafford’s Figure 43 “is the virtual electronic shelf [label] because this displays product[] information or product price-related information...”). Thus, even if Kipp’s advertisements included product/price information, there is no support for Petitioner’s argument that they are displayed “by means of a virtual electronic shelf label.”

C. [1.4]: Takashi Does Not Disclose Overlap Between the Display Portions That Display Product/Price information and the Display Portions That Display Video

Additionally, neither Takashi's Figure 5 nor Figure 14 embodiments disclose [1.4] because, among other reasons, there is no overlap between the display portions that display product/price information and the display portions that display video. POR, 52-59. Petitioner's Reply focuses on the Figure 14 embodiment and argues there is an "integral combination" of shelf tag terminal 70 and image display terminal 80 such that displays 70aA and D "*could* be overlapping." Reply, 25 (citing Ex-1008, [0051]). The Board should reject this inherency-light argument as untimely. *See Bright Data Ltd.*, IPR2023-00186, Paper 26, 20-21, 24-25, 32-33. The Petition argued Takashi "discloses" overlap, not that Takashi's displays "*could* be overlapping." *See* Petition, 67-70.

If the Board considers this argument, it should reject it because it is based on a misunderstanding of Takashi. The "integral combination" Takashi describes does not suggest the displays "*could* be overlapping"—just that they can be within the same structure (display terminal 80). In Figure 14, shelf tag terminal 70—which includes display section 70aA displaying product/price information—is integrated into display terminal 80's housing (80o). Display section 70aA is thus still *separate* from display (D) displaying video. POR, 40; Hart, ¶¶194-97.

This is illustrated below with display section 70aA in the pink section and display D in the yellow section.



POR, 56 (citing Ex-1007, Fig. 14)

VI. DEPENDENT CLAIMS 7 AND 11 (GROUNDS 1, 2)

A. [7.1]: Masumoto Does Not Disclose Broadcasting Adjustment Data

A POSITA would have understood “broadcast” requires sending data to multiple recipients. POR, 39; Hart, ¶¶161-62 (citing Ex-2001, 17). Masumoto discloses transmitting each notification to a single other display, which is not a broadcast of adjustment data as claim 7 requires. Hart, ¶162.

Petitioner's Reply makes a new, unsupported argument that the specification “defines ‘broadcast’ as ‘transmit’ and uses the two terms interchangeably.” Reply,

18. Petitioner's argument that the specification "defines" broadcast in way different from its ordinary meaning should have been raised in the Petition, and the Board should disregard it. *GCE Gas Control Equip. Inc. v. VBOX, Inc.*, IPR2023-00326, Paper 27, 11 (June 18, 2024) (holding that a Petitioner "may respond to claim construction issues raised" in the POR, but "cannot raise new claim construction issues in the Reply that were not previously raised in its Petition").

Regardless, Petitioner's new argument is incorrect. To support its position, Petitioner cites 1:50-54, which uses the language "transmit (broadcast)" when referring to transmitting *playback progress-data*—not the claimed *adjustment data*. Reply, 18. This does not indicate Applicant defined broadcasting in the context of "adjustment data." And when the specification discusses broadcasting adjustment data, it discloses the broadcasts "influence the playback progress [of] all other devices." Ex-1001, 3:14-28. This is consistent with PO's position that a POSITA would have understood "broadcast" requires sending data to multiple recipients. POR, 39; Hart ¶161.

Moreover, Applicant chose to use different terms for "transmit[ting] video playback progress-data" (claim 1) and "broadcast[ing] adjustment data" (claim 7), which suggests that "transmit[ting]" in claim 1 is not the same as "broadcast[ing]" in claim 7. Ex-1001, claims 1, 7.

Petitioner also argues its new definition “comports with a POSITA’s understanding of ‘broadcast.’” Reply, 19 (citing Ex-2002, 53:21-23, 54:7-10, 58:25). However, unlike Dr. Hart’s opinion, Dr. Tentzeris’s testimony that “broadcasting could be one-on-one or could be one to different nodes” is conclusory and contradicts the intrinsic and extrinsic evidence. Thus, it is entitled to no weight. *See TQ Delta, LLC v. CISCO Sys., Inc.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019) (explaining that “conclusory expert testimony is inadequate to support an obviousness determination”).

Petitioner also raises an improper new theory relying on a new embodiment in Masumoto. Specifically, Petitioner cites paragraph 79¹¹ to argue “Masumoto explicitly discloses sending adjustment data for adjusting the devices’ playback progress to multiple recipients.” Reply, 19 (citing Ex-1005, [0079]). This paragraph describes Masumoto’s second embodiment (Figure 5). However, the Petition relied on Masumoto’s fifth embodiment (Figure 9). Petition, 41-43 (citing Ex-1005, Figure 9; Ex-1005, [0117-0119]; Ex-1003, ¶¶118-24 (citing same portions of Masumoto)). Petitioner’s improper new theory should be disregarded. *See Henny Penny Corp. v.*

¹¹ The Petition mentions paragraph 79 regarding motivation to combine (Petition, 54), but it does not cite that paragraph for anything relating to broadcasting adjustment data.

Frymaster LLC, 938 F.3d 1324, 1330-31 (Fed. Cir. 2019) (explaining that a “petitioner may not raise in reply an entirely new” obviousness rationale) (internal quotations and citations omitted).

B. [11.1]: Masumoto/Swafford/Kipp Do Not Disclose UDP Multicast Data Packets

Petitioner's Reply continues to argue it would have been obvious to use UDP. Reply, 19-20. That is both wrong and irrelevant because claim 11 requires *UDP multicast*. See POR, 40-42, 59-60; Hart, ¶¶165-69, 214-18. Although unclear, Petitioner also appears to argue either that the specification discloses (1) using either UDP or UDP multicast; or (2) that UDP and UDP multicast are the same. Reply, 20.

As to (1), claim 11 requires UDP multicast, so Petitioner's argument that UDP generally meets the claim is wrong. As to (2), the specification does not disclose that UDP and UDP multicast are the same. The specification discloses the devices may communicate using “various protocol implementations” and “it is of particular advantage...to use UDP multicast data packets...” Ex-1001, 3:59-65. The specification then explains “UDP stand[s] for ‘User Datagram Protocol’” and “multicast means a transmission of a message from one device to a number of devices.” *Id.*, 3:65-67. This explains what “UDP” and “multicast” each mean. It does *not* equate “UDP” with “UDP multicast.”

VII. MOTIVATION TO COMBINE

Petitioner argues the Board rejected PO's motivation to combine arguments. Reply, 21, 27. But the Board's preliminary rejection was based, in part, on the lack of expert opinion. ID, 38-39, 60. Dr. Hart's expert opinions support the POR's arguments and demonstrate there is no motivation to combine here. POR, 42-39, 61-66; Hart, ¶¶170-184, 219-28.

VIII. CONCLUSION

Petitioner has not met its burden of demonstrating unpatentability of any challenged claim. Accordingly, PO requests the Board confirm the patentability of claims 1-15.

Respectfully submitted,

Dated: January 17, 2025

By: / Jessica C. Kaiser /
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Reg. No. 58,937
Lead Counsel for Patent Owner

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), I, Jessica C. Kaiser, certify that **PATENT OWNER'S SUR-REPLY** contains 5,575 words, excluding those portions identified in 37 C.F.R. § 42.24(a), as measured by the word-processing system used to prepare this paper.

Dated: January 17, 2025

By: / Jessica C. Kaiser /
Jessica C. Kaiser, Reg. No. 58,937

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I certify that on January 17, 2025, a copy of
PATENT OWNER'S SUR-REPLY was served upon the below-listed counsel by
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