

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

**SAMSUNG ELECTRONICS CO., LTD. AND
SAMSUNG ELECTRONICS AMERICA, INC.,**
Petitioners

v.

MAXELL LTD.,
Patent Owner

Inter Partes Review No. IPR2025-01307
U.S. Patent No. 11,026,088

**PETITIONERS' REPLY TO
PATENT OWNER'S RESPONSE**

TABLE OF CONTENTS

	Page
I. INTRODUCTION	1
II. ARGUMENT	1
A. Claim Construction.....	1
1. “access point device”	1
2. Limitation [6b]	2
B. Motivation to Combine	3
1. PO’s Mischaracterization of the Prior Art	3
2. PO’s Mischaracterization of the Combination of Iwami’s Second and Third Embodiments	4
3. PO’s Mischaracterization of the Combination of Iwami and Kim	7
C. Claim Elements [1d], [14c], and [15d].....	11
D. Claim Elements [1c], [1e], [14b], [14d], and [15e].....	15
E. Ground 2	23
F. Ground 3	24
G. Ground 4	24
H. Ground 5	25
III. CONCLUSION.....	25

INDEX OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 11,026,088
1002	File History of U.S. Patent No. 11,026,088
1003	Declaration of Joseph A. Paradiso in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 11,026,088
1004	U.S. Patent Publication No. 2019/0053149 (“Twami”)
1005	Certified Translation of Japanese Application No. 2014-024016
1006	U.S. Patent Publication No. 2007/0005788 (“Kim”)
1007	Certified Translation of Korean Application No. 10-2003-0065676
1008	U.S. Patent Publication No. 2013/0147900 (“Weiser”)
1009	U.S. Patent Publication No. 2015/0007302 (“Kato”)
1010	Certified Translation of Japanese Application No. 2013-134145
1011	Certified Translation of Japanese Application No. 2014-006624
1012	U.S. Patent No. 9,323,713 (“Liansky”)
1013	U.S. Patent Publication No. 2005/0036509 (“Acharya”)
1014	U.S. Patent Publication No. 2014/0233443 (“Kumar”)
1015	U.S. Patent Publication No. 2004/0267981 (“Kakemura”)
1016	U.S. Patent Publication No. 2015/0327310 (“Miura”)
1017	U.S. Patent Publication No. 2010/0323682 (“Hatayama”)
1018	U.S. Patent Publication No. 2013/0221084 (“Doss”)
1019	Microsoft Computer Dictionary (5th ed. 2002)
1020	Newton’s Telecom Dictionary (30th ed. 2016)
1021	U.S. Patent No. 6,636,499 (“Dowling”)
1047	DLNA Wikipedia
1048	Transcript of Deposition of Dr. Pachamanov dated June 17, 2026
1049	Declaration of Michail Bletsas in Support of Petitioner’s Reply in <i>Inter Partes</i> Review of U.S. Patent No. 11,026,088
1050	Wi-Fi Display Technical Specification Version 1.1
1051	IEEE Standard for Information technology 802.11h-2003: Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications Amendment 5: Spectrum and Transmit Power Management Extensions in the 5 GHz band in Europe
1052	IEEE Standard for Information technology 802.11y-2008: Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment 3: 3650–3700 MHz Operation in USA

Exhibit No.	Description
1053	IEEE Standard for Information technology 802.11z-2010: Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment 7: Extensions to Direct-Link Setup (DLS)
1054	Transactions on Communications, VOL. COM-22, NO. 5, May 1974; “A Protocol for Packet Network Intercommunication,” Vinton G. Cerf and Robert E. Icahn
1055	RFC 793: Transmission Control Protocol, DARPA Internet Program Protocol Specification, September 1981
1056	RFC 2988: Computing TCP's Retransmission Timer, V. Paxson and M. Allman, November 2000
2001	Notice Letter to Samsung (July 7, 2021)
2002	Follow-up Notice Letter to Samsung (December 29, 2021)
2003	Docket Navigator Time to Trial Statistics for the Eastern District of Texas
2004	Docket Control Order, Maxell, Ltd. v. Samsung Elecs. Co., Ltd., No. 5:25-cv-00052-RWS (E.D. Tex.)
2005	Jury Trial Transcript, Vol. 4, Maxell, Ltd. v. Samsung Elecs. Co., Ltd., No. 5:23-cv-00092-RWS (E.D. Tex.)
2006	Complaint, Maxell, Ltd. v. Samsung Elecs. Co., Ltd., No. 5:25-cv-00052-RWS (E.D. Tex.)
2007	Follow-up Notice Letter to Samsung (April 21, 2025)
2008	Law360 Article, “Maxell Settles Patent Suit Against Apple Over Mobile Tech”
2009	Law360 Article, “Maxell Scores \$43M EDTX Jury Win In ZTE Patent Trial”
2010	Law360 Article, “Maxell, Huawei Reach Terms To End Smartphone Patent Suit”
2011	Hudson Institute Article, “Google’s Loss to Sonos Settles It, Big Tech Has an IP Piracy Problem”
2012	PatentRenewal.com Article, “which-companies-hold-the-most-patents-in-the-world”
2013	Motion for Partial Summary Judgment of Validity Based on Sotera Stipulations, Maxell, Ltd. v. Samsung Elecs. Co., Ltd., No. 5:23-cv-00092-RWS (E.D. Tex.)
2014	Declaration of Dr. Radostin Pachamanov in Support of Patent Owner’s Response

Exhibit No.	Description
2015	Transcript of March 27, 2026 Deposition of Dr. Joseph A. Paradiso

I. INTRODUCTION

Petitioners submit this Reply to the Patent Owner's Response (POR, Paper 18).

II. ARGUMENT

A. Claim Construction

1. "access point device"

The Petition (Paper 1) provides a plain meaning construction of this term: "in a wireless LAN (local area network), a transceiver that connects the LAN to a wired network." Petition, 19. In support of this plain meaning construction, Petitioner and Dr. Paradiso cite to the Microsoft Computer Dictionary, Newton's Telecom Dictionary, and the expert declaration of Dr. Paradiso. EX1003, ¶52; EX1019; and EX1020. PO argues that no construction is necessary but does not dispute that Petitioner's construction is correct, and references only the expert declaration of Dr. Pachamanov, who makes several assertions about what a POSITA would have known and understood in 2014 but provides no evidence in support of these assertions. The unsupported assertions are therefore entitled to little or no weight. 37 C.F.R. § 42.65(a). The Board should adopt Petitioner's construction of "access point device." That said, the Petition establishes unpatentability under either party's construction.

2. Limitation [6b]

The Petition provides a construction for this limitation specifically to emphasize and ensure a *broad* interpretation of the claim. Petitioner notes that limitation [6b] “does not include any requirement for the communication device to terminate the connection with the second communication terminal *in response to or as a result of* the communication device being unable to receive information from the first communication terminal” and “does not limit what kind of information the communication device must be unable to receive.” Petition, 19-20. PO argues the construction is “unnecessary” and the term is clear on its face, and cites Dr. Pachamanov in support. POR, 22-23. Dr. Pachamanov does not dispute the substance of Petitioner’s proposed construction, only its necessity, as Dr. Pachamanov reiterated in his deposition. EX2014, ¶¶86-87; EX1048, pp.23-24. However, on redirect in response to questions asked by PO’s counsel, Dr. Pachamanov later stated that “Petitioner’s construction is wrong” because it unnecessarily “narrows the claim.” EX1048, p.164. On re-cross, Dr. Pachamanov was unable or unwilling to articulate how Petitioner’s construction narrowed the claim. EX1048, pp.175-178, *see also* pp.167-175. Dr. Pachamanov’s statements on redirect arguing that Petitioner’s construction is wrong and narrowing are inconsistent with, and outside the scope of, his written opinion and should be disregarded by the Board, and his inability to demonstrate an error indicate that his

testimony is entitled to no weight. The Board should adopt Petitioner's construction.

B. Motivation to Combine

1. PO's Mischaracterization of the Prior Art

PO characterizes the '088 Patent as "generally directed to communication systems for establishing and managing a network of devices." POR, 2; *see* EX1001, 2:13-37. PO notes that the '088 Patent teaches devices working in conjunction to provide permission to a second terminal to connect to a communication device and also teaches a first terminal controlling a display operation on the communication device. POR, 3.

PO then argues Iwami is "fundamentally different" from the '088 Patent, attempting to characterize Iwami's entire detailed description as addressing "real-time multimedia stream optimization." POR, 33. This characterization is incomplete and misleading. As the Petition clearly states, Iwami describes much more than real-time multimedia stream optimization. At bottom, Iwami describes a system, using an exemplary context of a classroom, in which a teacher controls students' access to a display device to allow students to make presentations on that display device, and controls how those presentations are displayed. This is directly analogous to the '088 patent's discussion of allowing a visitor to use an organization's projector (a display device) to make a presentation. For example,

Iwami describes “a system 700 where source devices 703, 704, 710, and/or 720 can send image data to sink device 730 connected to a display device 731 that displays the image data.” Petition, 21; *see also* EX1006, [0035]-[0047]. In this system, “control device 740 manages connections between source devices 703, 704, 710, and/or 720 and sink device 730.” *Id.* Control device 740 provides permission to form, maintain, and/or terminate connections between source devices 703, 704, 710, and/or 720 and sink device 730. *Id.* Control device 740 further sends commands causing sink device 730 to change the size and/or position of images from source devices 703, 704, 710, and/or 720. Petition, 22-23; *see also* EX1004 [0296]-[0308]. This tracks PO’s description of the ’088 Patent closely. The fact that Iwami’s system manages multiple students is an improvement, and a POSITA would readily recognize that the ’088 patent system could be used to allow multiple visitors to make presentations on the projector. Thus, there is no “fundamental difference” between Iwami and the ’088 Patent as the PO alleges.

2. PO’s Mischaracterization of the Combination of Iwami’s Second and Third Embodiments

Iwami describes an embodiment where connections between a source device and a sink device can be made through an access point and a direct connection, with authentication starting after the source device connects to the access point (“second embodiment,” *see* EX1004, [0234]-[0435]). The Petition relies primarily on this second embodiment. Iwami also describes another embodiment where

authentication between the source device and sink device starts using near field communication (“third embodiment,” *see* EX1004, [0436]-[0465]). The Petition relies on this third embodiment only in alternative theories. A POSITA would find it obvious to combine features of these embodiments, as the Petition makes clear and as discussed below. Petition, 34-36.

Both the second and third embodiments of Iwami use the same hardware in the same environment. EX1004, [0234]-[0256], [0440]-[0465]. Indeed, Dr. Pachamanov acknowledged that both embodiments refer to Figure 18 and are related to similar system architecture. EX1048, pp.155-156. Moreover, Iwami describes the operation example of the source device for the third embodiment as a modified example of the operation example of the source device for the second embodiment. EX1004, [0327], [0443]. Thus, PO is incorrect in saying these embodiments are “complete, alternative designs that address different control problems in mutually exclusive ways” with “architectures that conflict if superimposed.” POR, 36.

Petitioner demonstrates that both embodiments teach “that the connections between source devices 703, 704, 710, and/or 720 and sink device 730 are formed, maintained, and/or terminated according to permission from control device 740.” Petition, 21. Generally, Petitioner cites to the second embodiment in the Petition. To the extent Petitioner discusses combining elements from the third embodiment

with the second embodiment, it is to explain a straightforward modification of an element already present in the second embodiment. Namely, control device 740 can set connection information permission or non-permission each time there is a connection request from the source device for an “outdoor use” case where a source device is attempting to connect via a network other than the access point. Petition, 34; EX1004, [0409], [0413]. The third embodiment is cited *in addition* to the second embodiment only to provide an example of the type of communications that can be exchanged to provide permission which are not described in as much detail for the second embodiment. Petition, 34; EX1004, [0448]-[0455].

Petitioner’s proposed modification of Iwami simply adapts the system to send permission information all the time instead of sometimes (“a POSITA would have found it obvious to send all connection permission information (not only outdoor use permission) from control device 740 to sink device 730”). Petition, 36. This is explained clearly and particularly in the Petition.

PO’s argument that Iwami’s second and third embodiments are technically incompatible and there is no motivation to combine is simply wrong. PO explains the specific control flows of the second and third embodiment in detail and says they cannot be bodily incorporated with one another, being (allegedly) fully self-contained and conflicting. *See* POR, 36-41. Petitioner has not argued any such bodily incorporation, only a minor modification to a fully-described embodiment,

as discussed in the Petition and above. Petitioner's actual arguments demonstrate that the proposed combination is appropriate and would have been obvious to a POSITA.

3. PO's Mischaracterization of the Combination of Iwami and Kim

PO and Dr. Pachamanov assert that there is no motivation to combine Iwami and Kim because "Iwami and Kim inhabit different protocol stacks, control planes, and distribution models." POR, 41. Again, PO focuses on alleged differences between Iwami and Kim in detail, proposing and attacking a bodily incorporation of Kim's "one-to-many" system into Iwami's "many-to-one system," while ignoring Petitioner's actual obviousness combination which does no such thing. *See* POR, 41-46. Petitioner's combination is much more straightforward and, as established in the Petition, would have been obvious to a POSITA.

The Petition relies on Kim for the simple concept that message-based commands as disclosed in Kim can be used to accomplish the types of control actions disclosed in Iwami. For example, the Petition states:

A POSITA would have found it obvious and been motivated to configure Iwami's control device 740 to transmit message-based commands of the type taught by Kim to Iwami's information processing device 730 ("sink device 730")/display device 731 and to Iwami's information processing devices 710, 720 ("source devices 710, 720") for controlling connections to, and controlling

display operations on, Iwami's sink device 730/display device 731 (as discussed in detail below) for several reasons.

Petition, 20. This does not change the form or basic structure of Iwami's system, such as changing from a "many-to-one" to a "one-to-many" system. Rather, it is simply using the known technique of message-based commands as taught by Kim to implement the control actions disclosed in Iwami. Petition, 22-23.

PO further argues that "[n]othing in Iwami suggests introducing UPnP control primitives," POR, 45. However, the Petition is clear that the command messages in the modified Iwami system need not be same as the particular messages used in Kim's system:

In other words, a POSITA would have found it obvious to configure control device 740 to send a command to either source device 710, sink device 730, or both, as taught by Kim when Kim describes sending a MulticastStart() action message. **A POSITA would not need to use the specific MulticastStart() action message of Kim**, but rather would have understood that a message including a command can be transmitted.

Petition, 32 (emphasis added). Similarly, the Petition states:

In other words, a POSITA would have found it obvious for the reasons discussed above to configure control device 740 to send a message as taught by Kim to sink device 730 indicating that permission for source device 710 to connect to sink device 730 has been revoked. A POSITA would have understood that it was

not necessary to use the specific Leave() action message of Kim, but rather would have understood that **any suitable message could be used** to terminate the permission.

Petition, 40-41 (emphasis added). As discussed above, the Petition relies on Kim only for the concept of sending commands using messages and does not assert that those message-based commands must use the UPnP or any other particular protocol. Moreover, contrary to PO's assertion that nothing in Iwami discloses using "UPnP control primitives," Iwami discloses using UPnP for communications between source and sink devices. EX1004, ¶¶[0331], [0336]-[0340]. Iwami also discloses that DLNA can be used as an alternative to Miracast, and DLNA includes UPnP. EX1004, [00244]; EX1047, 1. A POSITA would therefore have understood, directly from Iwami, that Iwami's system is compatible with UPnP. For this reason, along with the reasons provided in the Petition, a POSITA would have recognized that Iwami and Kim are in a similar field of art and found it obvious to combine Iwami and Kim in the manner stated in the Petition. *See* Petition, 21-23.

PO argues that "Kim does not disclose a system of permissions." POR, 43. This assertion is based on a flawed construction of permissions as discussed below for limitations [1d], [14c], and [15d] and is simply not correct. As admitted in the POR, Kim's "control point requests the media server to transmit media to a multicast address." POR at 43. This is accomplished by Kim's control point sending MulticastStart() action message to a media server as discussed in Kim at

¶[0040] and in the Petition at 23 and 31. A command message that causes the media server to start transmission includes permission to do so, in the same way that a parent's command to a child to buy bread at the store includes permission for the child to go to the store and buy the bread. This parallels the disclosure in the '088 patent, where the "permission" is implied when the first terminal establishes a near-field communication with the second terminal to transmit the SSID and password to access the projector. EX1001, 12:58-13:2.

For the Petition's second "outdoor use" theory (discussed below) only, the POR includes a lengthy argument starting on page 47 that the Petition " fails to provide any explanation of *if* such permission establishes the connection with an alleged communication device to use the communication device." This argument fails on its face. The POR itself acknowledges that "Iwami defines 'outdoor use permission' as '**permission information** indicating whether or not the connection with the information processing device 730 via the access point other than the access point 701 or the base station is **permitted**.'" POR, 48 (citing EX1004, [0407]). This is all the "permission" that the claim requires. PO goes on to argue that this "is a routing/location parameter tied to access-point choice, not a gate that enables or disables the second terminal's ability to connect to and use the communication device." POR, 48. This argument ignores the premise of the outside use permission, which is that the source device 710 is allowed to connect to

the sink device 730 via an access point other than 701 because the source device 710 is out of range from the access point 701, and therefore the absence of permission for a connection via the other access point does disable the second terminal's 710 ability to use the communication device 730. Again, this argument does not apply to the first theory discussed below, which does not involve outdoor use.

In any event, this argument appears to be based on an implied claim construction of "if having permission" requires that the permission have the absolute ability to preclude connections under all circumstances. This is not what is described in the '088 patent. In the embodiment of the '088 patent in which the permission consists of the first terminal establishing an NFC connection to the second terminal and providing password and SSID information (EX1001, 12:58-13:2), nothing will stop the second terminal from connecting to the projector if the second terminal has obtained the correct password and SSID information from another source, such as another company employee. PO's arguments regarding the incompatibility of Iwami and Kim all fail for the reasons discussed above.

C. Claim Elements [1d], [14c], and [15d]

Claim element 1d recites "a second communication terminal configured to, if *having permission from the first communication terminal*, establish a connection with the communication device to use the communication device" (emphasis

added). Claim element 14c recites “the controller (of a communication terminal) *is configured to transmit permission* to establish a connection for the communication device and another communication terminal” (emphasis added). Claim element 15d recites “the controller (of a communication device) is configured to establish a connection with the another communication terminal, if *having permission from the communication terminal*, and control data received from the another communication terminal” (emphasis added). A first communication terminal transmits permission. The second communication terminal or the communication device has the permission from the first communication terminal, and then is able to establish a connection.

The Petition includes two theories for limitation [1d], which refer back to limitation [1c]. The first theory is not addressed in the POR. As the Petition explains under the first theory, in Iwami’s second embodiment,¹ Iwami’s control device 740 can be used by a teacher to select a student source device 710, in which case the control device 740 transmits a command to the sink device 730 which in turn relays a command to the student source device to start transmitting video to the sink device 730. Petition, 29-30, 33-34. The command originating from the

¹ PO’s arguments in the POR at 47 regarding lack of motivation to combine embodiments 2 and 3 of Iwami are therefore inapplicable to both theories.

control device 740 that passes through the sink device 730 to the source device 710 is a permission from the control device 740 for the source device 710 to establish a connection to the sink device 730. Petition, 34; EX1004 [0405]-[0407], [0409], [0413].

The Petition also includes a second theory which explains that Iwami describes an alternative in the second embodiment that at least in the “outdoor use” case, sink device 730 (communication device) receives outdoor use permission from control device 740 (first communication terminal) and sends the permission to the source device 710 (second communication terminal). Thus, both the sink device and the source device have permission from the control device, and, inherently, the control device has transmitted the permission. Petition, 34-35; EX1004, [0448]-[0455].

Dr. Pachamanov’s disagreement that these disclosures in Iwami constitute permission from the control device is grounded in an erroneous construction of “permission” as meaning “that a source device can be given short-term access to the system, and then that access can be taken away.” EX1048, p.114. (Dr. Pachamanov also erroneously construes claim 1 as requiring that the permission must be sent by the first terminal without any request or solicitation from any other device. EX1058, pp.136-146.) The ’088 claims are not limited to “short-term access” permission, and Iwami’s “outdoor use permission” is clearly and

unambiguously permission, even if Dr. Pachamanov's "tied to an access point choice" construction were correct (which Petitioner does not concede). EX1048, pp.111-114.

Additionally, control device 740 performs group management generally, and membership in the group is a basis for granting permission for a source device to connect to sink device 730. Petition, 36-37; EX1004, [0266]-[0273], [0357]-[0362]. Iwami describes a group management information retention unit 750 that is part of control device 740, and Dr. Pachamanov conceded that "if information of that (source) device is not in the (group management information) retention unit table, then the attempt of this device to connect would be declined." EX1048, p.152. It is not relevant to the '088 claims how or when the device information was initially placed in the table by control device 740. The claims do not require a "trust hierarchy." The claims require a first terminal to transmit permission, and another terminal or communication device to have permission from the first terminal. In Iwami, control device 740 performing group management meets these limitations, as Petitioner has explained. Petition, 36-37.

PO's response does not refute the clear teachings of Iwami as explained in the Petition. Instead, due to misinterpretation of these claim elements, PO advances an irrelevant argument centered around intervening steps between initial connection and video transmission. POR, pp. 48-53. PO's argument that

permission to connect is unrelated to permission to transmit video is false because permission to connect is inherent in permission to transmit video (i.e., a device must first connect before it can be selected to present on display 731). Moreover, the claims do not recite that the first communication terminal generates the permission or provides the permission through any particular channel, nor do the claims even qualify the “permission” except that it permits the devices to establish a connection. Iwami plainly teaches the claim elements as recited.

Iwami in view of Kim therefore teaches all features of claim elements [1d], [14c], and [15d].

D. Claim Elements [1c], [1e], [14b], [14d], and [15e]

Iwami’s control device 740 selects source devices of students, causing the students’ source devices to connect with sink device 730 so that their presentations appear on display device 731. The Petition references Iwami’s FIG. 22, showing a total of four source devices connected to sink device 730 at a given time. Petition, 27-30. As explained, responsive to a selection made at control device 740, the specific source devices connected to sink device 730 change and, responsive to the same selection, images of data sent from source devices displayed on a screen of display device 731 change in location and, in some cases, size. Petition, 29-30; EX1004, [0284]-[0308]. The control by control device 740 is an example of remotely controlling a display operation (claim elements [1c], [14b], [15e]), and

sink device 730 moving images around on display device 731 is an example of controlling how to display data received from source devices while maintaining connection with the source devices (claim elements [1e], [14d], [15e]). Petition, 30, 38, 48, 49-50.

PO argues that Iwami teaches sending “mode-switching and related commands to the source devices, not display-control commands to the sink device as required by the claims.” POR, 57. This argument fails for multiple reasons.

First, this argument is based on a flawed understanding of the Petition and Iwami. The Petition alleges that Iwami’s control device 740 sends a command to Iwami’s **sink device 730**, citing Iwami at ¶[0304]. Petition, 28-29. In contrast to the Petition’s reliance on the disclosure of ¶[0304], the POR relies on ¶[264] and a discussion of mode switching. POR, 56. What PO fails to recognize is that the general statement at ¶[0264] that “the control unit 747 performs control such that the communication mode is set in the source device” can happen in multiple ways as discussed in Iwami, ¶¶[0296]-[0300], and that one of these ways is discussed in detail in ¶[0304]. EX1048, pp.78-80. As explained in ¶[0304], “when the switching manipulation of the source device **is performed in the control device 740, information (for example, the terminal identification information)** related to the source device in which the switching manipulation has been performed **is transmitted to the sink device (the information processing device 730).**” At his

deposition, Dr. Pachamanov first denied that any information is sent from the control device 740 to the sink device 730. EX1048, pp.66-68, *see also* pp.57-63. When confronted with ¶[0304], he then admitted that the sink device 730 does receive command information from the control device 740. EX1048, pp.88-96. That admission is fatal to his argument.

At the deposition, Dr. Pachamanov continued to assert that ¶[0304] would be understood to mean that the control device 740 transmits information to both the sink device 730 and the source device 710 in the scenario described in ¶[0304], rather than the more logical interpretation that the command from the control device 740 is sent to the sink device 730 so that it recognizes that a new source device is to begin transmitting video, and then the sink device 730 sends the command on to the new source device 710 to instruct it to start transmitting. EX1048, pp.89-91, 95-96. However, even if Dr. Pachamanov were correct in this regard (he is not), it does not change the fact that the sink device 730 receives a command from the control device 740 and, in response to that command, rearranges the locations on which video from multiple source devices will be displayed in the peripheral and main channel regions as discussed herein and in the Petition, 27-31. Thus, Dr. Pachamanov's admission that the sink device 730 receives a command from the control device 740 is fatal to this first argument.

Second, the claims require the communication device to receive the

command that is transmitted by the first communication terminal. Petitioner explained how and why it would have been obvious to modify Iwami's control device 740 to transmit the command to source device 710, sink device 730, or both in view of the teachings of Kim. Petition, 31-32, 38. PO again argues against bodily incorporation of exact messages from exact devices of Kim's system into Iwami's system. POR, 57-58. This is irrelevant to the Iwami/Kim combination which, as Petitioner notes, "would not need to use the specific MulticastStart() action message of Kim." Petition, 32.

PO's expert witness, Dr. Pachamanov, makes an additional argument at ¶¶128-131 that it is not possible for Iwami's system to maintain the connection between a source device 710 and the sink device 730 when the frequency used for the direct connection for transmission of video changes from low to high when the video from the source device 710 is moved from the peripheral channel region 734 to the middle channel region 733. However, this argument is not included in the POR, and the bare citations to these paragraphs is not sufficient because it is improper to incorporate arguments from a declaration by reference. 37 C.F.R. § 42.6(a)(3). Therefore, this should not be considered by the Board and should be deemed waived. Scheduling Order, B.1.a. Petitioner addresses this argument below solely as a precaution, but does not waive its objection to consideration of this argument.

Dr. Pachamanov's argument is flawed for multiple reasons. First, Iwami references the Wi-Fi CERTIFIED Miracast specification as only one possible technology that can be used to transmit audio and images from one terminal to another. *See* EX1004, [0076]-[0077]. Dr. Pachamanov incorrectly assumes not only that Wi-Fi CERTIFIED Miracast is the only technology discussed by Iwami, but also that Wi-Fi CERTIFIED Miracast is limited to Wi-Fi Direct. EX2014, ¶¶129-131.

In fact, Iwami's disclosure is broader. For example, Iwami teaches that connecting source device 710 with sink device 730 enables "image communication such as the Wi-Fi CERTIFIED Miracast or digital living network alliance (DLNA)." EX1004, [0244]. Dr. Pachamanov has conceded that Iwami presents DLNA as a protocol for image transmission instead of Wi-Fi CERTIFIED Miracast. EX1048, pp.32-33. Even considering Miracast itself, Iwami teaches that Wi-Fi CERTIFIED Miracast uses "the technology of Wi-Fi Direct or TDLS," where TDLS indicates "Tunneled Direct Link Setup." EX1004, [0076]. Here again, Dr. Pachamanov has conceded that Iwami presents TDLS as an alternative of Wi-Fi Direct. EX1048, pp.161-162.

Based on his incorrect, narrow reading of Iwami as limited to Wi-Fi CERTIFIED Miracast and Wi-Fi Direct, Dr. Pachamanov states that the system of Iwami cannot maintain a continuous connection when switching frequencies.

EX2014, ¶¶129-131. Dr. Pachamanov does not adequately support this opinion.

Dr. Pachamanov says that in the case of a frequency transition (e.g., the change from the low band to the high band of Iwami), the IEEE 802.11 standards that govern Miracast require a connection to be terminated and then reestablished on a new frequency. EX2014, ¶130. Citing IEEE Std 802.11-2012, ¶10.3.5, Dr.

Pachamanov states that the reassociation process described therein “drops the station from State 4 with respect to the current channel, effectively moving it to an unassociated state and blocking the data transmission, before it can successfully re-associate and establish a new ‘State 4’ connection on the new frequency. This is a disruptive event that terminates the existing Media Access Control (MAC) layer session.” *Id.* But the cited portion of this document does not state what Dr.

Pachamanov says it does, and Dr. Pachamanov does not explain how or where IEEE Std 802.11-2012, ¶10.3.5 teaches this, or why this is a disruptive event. In fact, the reassociation process Dr. Pachamanov describes only happens during an uncoordinated reassociation, as opposed to a coordinated reassociation where both devices maintain association while changing channels. EX1049, ¶¶35-37, 43; EX1050, Section 6.5.1; EX1051, Section 7.3.2.20; EX1052, Section 7.3.2.53.

Second, even assuming Dr. Pachamanov’s claims about Wi-Fi Direct are true (which Petitioner does not concede), Dr. Pachamanov ignores the fact that a command from the control device 740 to add a video from a new source device

710 to the peripheral channel region 734 constitutes a command to remotely control a display operation on sink device 730 because it causes the sink device 730 to move video from two source devices 710 to different positions in the peripheral channel regions (i.e., controls how the video from those two devices is displayed) without any frequency change.

As noted in the Petition, a single command in Iwami transitions the display depicted in FIG. 22 from the image shown in FIG. 22b to the image shown in FIG. 22c. Petition, 29-30. In response to that command, the horse video moves from peripheral channel region 734 to middle channel region 733, *the smiley face video and star video move within peripheral channel region 734*, and the triangle video is added to the peripheral channel region 734 while the previous presentation within middle channel region 733 is removed. When this happens, at least with respect to the smiley face video and the star video, the command from control device 740 controls how to display the data received from those respective source devices without changing the frequency band on which the source devices are connected to the sink device because they both use the low frequency band as disclosed in Iwami ¶[0288]. PO's expert does not dispute this. EX1048, pp.100-105. Thus, even if Dr. Pachamanov's argument had not been waived and were correct, Iwami still discloses this limitation.

Additionally, with respect to the horse video, Iwami discloses changing

frequency from the band used for peripheral channel region 734 to the band used for middle channel region 733. EX1004, [0315]. Iwami teaches that with Wi-Fi Direct, in at least some cases, a connection period may take several seconds. EX1004, [0076], [0309]-[0314]. In a packet communication scheme such as TCP (which is used by Iwami, *see* EX1004, [0077]), communication sessions persist over unreliable communication channels. That is, the connection between devices using TCP is maintained at Layer 4 even when there is disruption at Layer 2 (the MAC layer). EX1049, ¶¶23-29; EX1050, Sections 4.10.1, 6.5.1, Figure 4.7; EX1055, sections 1.5, 2.7, 3.2, 3.7; EX1056, section 5; *see also* EX1054. A POSITA would have understood that for Wi-Fi Direct, the OSI Layer 4 connection between source and sink devices is maintained during the channel change. EX1049, ¶¶30-33, 43; EX1050, Sections 4.14, 6.5.1; EX1053, Section 11.21.6.3. Moreover, a POSITA would have understood that the alternative TDLS implementation taught by Iwami also enables continuous connection during a frequency switch. In TDLS, two terminals maintain respective connections with an access point while establishing a direct connection with one another. Here again, the OSI Layer 4 connection between source and sink devices is maintained during the channel change, with the added feature that the devices preserve association with one another via the access point during the change. EX1049, ¶¶30-33, 38, 43; EX1050, Sections 4.14, 6.5.1; EX1053, Sections 5.2.10, 11.21.6, 11.21.6.1,

11.21.6.3, Figure 11.17a.

In view of the foregoing and the content of the Petition, it is clear that under any interpretation advanced in this proceeding, Iwami in view of Kim teaches all features of claim elements [1c], [1e], [14b], [14d], and [15e].

E. Ground 2

Claims 2 and 12 depend from claim 1 and limit the permission recited in claim 1 by requiring it to be transmitted from the first communication terminal to the second communication terminal through short range communication (claim 2) which can be a bar code (claim 12). Claim 1 already requires the second communication terminal to have the permission from the first communication terminal, and the Petition explains how this happens in the Iwami/Kim system in the discussion of Ground 1. Petition, 32-37.

PO argues that Liansky describes a communication device displaying a QR code and a second terminal capturing the code, and therefore the “role assignments” are different from those in claims 2 and 12. POR, 65-66. This is not relevant, because the Petition’s Ground 1 already establishes the “role assignments” in which the first terminal provides permission to the second terminal; the Petitioner cites Liansky for teaching a specific technique for communicating permission, which a POSITA would have found obvious to adapt to any elements of the system exchanging permission information, including the

first communication terminal and the second communication terminal. Petition, 50-52.

F. Ground 3

Claims 7, 8, and 10 depend from claim 1 and limit the permission recited in claim 1 by including permission list features. PO argues that Weiser's whitelist/blacklist mechanisms are implemented at "infrastructure intermediaries, not at an endpoint display/communication device." . POR, 66-68. This is not relevant, because Ground 1 already establishes that permission/termination information is exchanged by "endpoints" (e.g., first communication terminal, second communication terminal, communication device) in the Iwami/Kim system. Petition, 32-37, 38-41. As the Petition explains at 60-74, a POSITA would have found it obvious to implement the "message content and white/blacklist techniques" of Weiser and "would not necessarily send the exact sequence of messages to/from the exact sources/destinations specified by Weiser." Petition, 64-65.

G. Ground 4

As with Ground 2, PO again relies on the "inversion of roles" of Liansky and "apparatus-centric OTP login and verification" of Kato to argue that because the specific messages of Liansky and Kato do not map exactly to the claims, claims 9 and 11 are not obvious. POR, 68-69. Again, Ground 1 describes how, and among

which devices, permission is exchanged in Iwami/Kim. Petition, 32-37. Using short range communication and a one-time password *for the permission already being exchanged in Iwami/Kim*, as taught by Liansky and Kato, would have been an obvious modification to a POSITA. Petition, 74-82.

H. Ground 5

PO argues that claim 6 recites “permission/command-based supervisory control over a second-terminal connection at a display device.” POR, 70. This is wrong. Claim 6 does not further limit the claimed permission from claim 1. Claim 6 recites being able or unable to receive “information” – a different claim term from “permission.” PO does not dispute that Dowling’s heartbeat signals work as described by Petitioner, but rather argues from the mistaken idea that “information” is “permission.” POR, 69-70. As the Petition explains, Dowling teaches sending heartbeat signals and terminating a connection when they are not received, which would have been an obvious modification to the Iwami/Kim system for a POSITA. Petition, 82-85.

III. CONCLUSION

All Challenged Claims of the ’088 patent should be found unpatentable for the reasons discussed above and for the reasons discussed in the Petition.

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Respectfully submitted,

/s/ James M. Heintz

James M. Heintz

Reg. No. 41,828

DLA Piper LLP (US)

One Fountain Square

11911 Freedom Drive, Suite 3000

Reston, VA 20190-5602

Phone: 703.773.4000

Fax: 703.773.5000

Jim.Heintz@us.dlapiper.com

*Attorney for Petitioners Samsung
Electronics Co., Ltd. and Samsung
Electronics America, Inc.*

CERTIFICATE OF SERVICE

The undersigned certifies pursuant to 37 C.F.R. §§ 42.6(e) and 42.105 that on July 1, 2026, a true and correct copy of this brief and any new exhibits were served by emailing a copy of the same (by agreement) to the following attorneys for PO:

Robert G. Pluta (rpluta@mayerbrown.com); and

Saqib Siddiqui (ssiddiqui@mayerbrown.com).

A courtesy copy also was sent via email to:

maxell-samsung-service@mayerbrown.com

Date: July 1, 2026

/s/ James M. Heintz

James M. Heintz

Reg. No. 41,828

DLA Piper LLP (US)

One Fountain Square

11911 Freedom Drive, Suite 3000

Reston, VA 20190-5602

Phone: 703.773.4000

Fax: 703.773.5000

Jim.Heintz@us.dlapiper.com

*Attorney for Petitioners Samsung
Electronics Co., Ltd. and Samsung
Electronics America, Inc.*