**IN THE 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

---

**IPR2025-01307**

**U.S. Patent No. 11,026,088**

---

# PATENT OWNER'S RESPONSE TO PETITION FOR *INTER PARTES REVIEW* OF U.S. PATENT NO. 11,026,088

Mail Stop **Patent Board**
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

# TABLE OF CONTENTS

Page

I. INTRODUCTION ..... 1
II. BACKGROUND ..... 2
A. Overview of the '088 Patent ..... 2
B. Patent Prosecution History ..... 4
C. Summary of Instituted Grounds for Unpatentability ..... 5
D. Cited References ..... 6
1. Overview of Iwami (EX1004) ..... 6
2. Overview of Kim (EX1006) ..... 10
3. Overview of Liansky (EX1012) ..... 12
4. Overview of Weiser (EX1008) ..... 14
5. Overview of Kato (EX1009) ..... 15
6. Overview of Dowling (EX1021) ..... 16
III. Level of Ordinary Skill ..... 17
IV. Claim Construction ..... 18
A. The Proper Construction of "access point device" (Claims 1, 14, and 15) ..... 18
B. The Proper Construction of "wherein, in a case that the communication device is unable to receive information from the first communication terminal, the communication device terminates the connection with the second communication terminal." (Claim Element [6b]) ..... 22
C. All Remaining Claim Terms Should be Given Their Plain and Ordinary Meaning ..... 23
V. Legal Standard ..... 24
VI. The Petition failS to Show Any Challenged Claim is Rendered Obvious by a Preponderance of the Evidence ..... 25
A. Ground 1: Petitioner Fails to Establish That Claims 1, 5, and 13-15 Would Have Been Obvious Based on Iwami and Kim ..... 25

1. Iwami is Fundamentally Different than the '088 Patent ..... 26
2. Petitioner Fails to Establish Any Motivation to Combine the Separate and Distinct Embodiments of Iwami ..... 33
3. Petitioner Fails to Establish Any Motivation to Combine Iwami and Kim ..... 41
4. Petitioner Fails to Establish That Claim Elements [1d], [14d], and [15c] Would Have Been Obvious Based on Iwami and Kim ..... 46
5. Petitioner Fails to Establish That Claim Elements [1c], [1e], [14b], and [15e] Would Have Been Obvious Based on Iwami and Kim ..... 54
6. Petitioner Fails to Establish That Claim Elements [1f], [14e], and [15f] Would Have Been Obvious Based on Iwami and Kim ..... 59
7. Petitioner Fails to Establish That Claim 5 Would Have Been Obvious Based on Iwami and Kim ..... 63
8. Petitioner Fails to Establish That Claim 13 Would Have Been Obvious Based on Iwami and Kim ..... 64

B. Ground 2: Petitioner Fails to Establish That Claims 2 and 12 Would Have Been Obvious Based on Iwami, Kim, and Liansky ..... 65

C. Ground 3: Petitioner Fails to Establish That Claims 7, 8, and 10 Would Have Been Obvious Based on Iwami, Kim, Liansky, and Weiser ..... 66

D. Ground 4: Petitioner Fails to Establish That Claims 9 and 11 Would Have Been Obvious Based on Iwami, Kim, Liansky, and Kato ..... 68

E. Ground 5: Petitioner Fails to Establish That Claim 6 Would Have Been Obvious Based on Iwami, Kim, and Dowling ..... 69

VII. CONCLUSION ..... 70

# TABLE OF AUTHORITIES

**Page(s)**

**Cases**

*Abiomed, Inc. v. Maquet Cardiovascular, LLC*,
IPR2017-01204, Paper 9 (P.T.A.B. Oct. 23, 2017)..... 35

*Amazon.com v. Almondnet, Inc.*,
IPR2022-01455, Paper 12 (P.T.A.B. Apr. 6, 2023) ..... 35

*E.I. DuPont de Nemours & Co. v. Synvina C.V.*,
904 F.3d 996 (Fed. Cir. 2018)..... 24

*Graham v. John Deere Co. of Kansas City*,
383 U.S. 1 (1966)..... 24

*Intel Corp. v. Tela Innovations, Inc.*,
IPR2019-01521, Paper 65 (P.T.A.B. Mar. 9, 2021)..... 35

*Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*,
821 F.3d 1359 (Fed. Cir. 2016)..... 24

*KSR Int'l Co. v. Teleflex Inc.*,
550 U.S. 398 (2007) ..... 24

*Lumenis BE Ltd., v. BTL Healthcare Techs. A.S.*,
IPR2021-01280, Paper 8 (P.T.A.B. Mar. 9, 2022)..... 34, 35

*Medichem, S.A. v. Rolabo, S.L.*,
437 F.3d 1157 (Fed. Cir. 2006)..... 24

*Phillips v. AWH Corp.*,
415 F.3d 1303 (Fed. Cir. 2005)..... 19

*SIBIA Neurosciences, Inc. v. Cadus Pharma. Corp.*,
225 F.3d 1349 (Fed. Cir. 2000)..... 34

*In re Stepan*,
868 F.3d 1342 (Fed. Cir. 2017) ..... 34

*Vitronics Corp. v. Conceptronic, Inc.*,
90 F.3d 1576 (Fed. Cir. 1996) ..... 20

**Statutes**

35 U.S.C. § 103 ..... 6, 24

35 U.S.C. § 312(a) ..... 35

**Other Authorities**

37 C.F.R. § 42.22(a) ..... 36

37 C.F.R. § 42.65(a) ..... 1

## PATENT OWNER'S EXHIBIT LIST

| Exhibit # | Description |
|---|---|
| 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** |
| **2015** | **Transcript of March 27, 2026 Deposition of Dr. Joseph A. Paradiso** |

## LISTING OF CHALLENGED CLAIMS

| Claim | Claim Text |
|---|---|
| [1pre] | A communication system comprising: |
| [1a] | a communication device; |
| [1b] | an access point device; |
| [1c] | a first communication terminal configured to connect to the communication device via the access point device and transmit a command to remotely control a display operation on the communication device connected with the first communication terminal; and |
| [1d] | 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; |
| [1e] | wherein, while the communication device outputs data received from the second communication terminal that has established the connection with the communication device and upon receiving, by the communication device, the command from the first communication terminal, the communication device is configured to control how to display the data received from the second communication terminal while maintaining the connection with the second communication terminal, and |
| [1f] | wherein, when the communication device receives information to |

| | |
|---|---|
| | terminate the permission from the first communication terminal, the communication device is configured to terminate the connection with the second communication terminal in accordance with the information to terminate permission received from the first communication terminal. |
| [2pre] | The communication system according to claim 1, wherein, |
| [2a] | for the permission, the first communication terminal transmits, to the second communication terminal, connection information necessary for a connection through short range communication with the second communication terminal, and the second communication terminal connects to the communication device by using the connection information. |
| [5pre] | The communication system according to claim 1, wherein, |
| [5a] | the first communication terminal displays information whether to terminate the permission on a display screen, receives an input operation for terminating the permission, and transmits the information to terminate the permission to the communication device in accordance with the input operation for terminating the permission. |
| [6pre] | The communication system according to claim 1, wherein, |
| [6a] | in a case that the communication device is able to receive information from the first communication terminal, the communication device controls the communication device in accordance with information from the first communication terminal, |
| [6b] | wherein, in a case that the communication device is unable to receive information from the first communication terminal, the |

| | |
|---|---|
| | communication device terminates the connection with the second communication terminal. |
| [7pre] | The communication system according to claim 1, wherein, |
| [7a] | for the permission, the first communication terminal transmits, to the second communication terminal, connection information necessary for a connection through short range communication with the second communication terminal, and |
| [7b] | the second communication terminal transmits address information on the second communication terminal to the first communication terminal, |
| [7c] | the first communication terminal transmits the address information on the second communication terminal to the communication device, |
| [7d] | the communication device registers the address information on the second communication terminal into a permission list, |
| [7e] | the second communication terminal connects to the communication device by using the connection information, |
| [7f] | upon confirming the permission is to be terminated, the first communication terminal causes the communication device to deletes the address information on the second communication terminal from the permission list of the communication device, and, |
| [7g] | upon the address information on the second communication terminal being not registered in the permission list, the communication device terminates the connection with the second communication terminal. |
| [8pre] | The communication system according to claim 1, wherein, |

| | |
|---|---|
| [8a] | for the permission, the first communication terminal transmits, to the second communication terminal, connection information necessary for a connection through short range communication with the second communication terminal, and |
| [8b] | the second communication terminal transmits address information on the second communication terminal to the first communication terminal, |
| [8c] | the first communication terminal registers the address information on the second communication terminal into a permission list, |
| [8d] | the second communication terminal connects to the communication device by using the connection information, |
| [8e] | upon confirming the permission is to be terminated, the first communication terminal causes the communication device to deletes the address information on the second communication terminal from the permission list, and |
| [8f] | the communication device performs communication for confirmation with the first communication terminal and, |
| [8g] | upon the address information on the second communication terminal being not registered in the permission list of the communication device, terminates the connection with the second communication terminal. |
| [9pre] | The communication system according to claim 1, wherein, |
| [9a] | for the permission, the first communication terminal requests a one-time password from the communication device, and the communication device responds with the one-time password, |

| | |
|---|---|
| [9b] | the first communication terminal transmits, to the second communication terminal, connection information including the one-time password necessary for a connection through short range communication with the second communication terminal, and |
| [9c] | the second communication terminal connects to the communication device by using the connection information including the one-time password. |
| [10pre] | The communication system according to claim 1, wherein, |
| [10a] | for the permission, the second communication terminal performs short range communication with the communication device, |
| [10b] | the communication device transmits, to the second communication terminal, connection information necessary for a connection, and |
| [10c] | the second communication terminal transmits address information on the second communication terminal to the communication device, |
| [10d] | the communication device registers the address information on the second communication terminal into a permission list, |
| [10e] | the second communication terminal connects to the communication device by using the connection information, |
| [10f] | upon confirming the permission is to be terminated, the first communication terminal causes the communication device to deletes the address information on the second communication terminal from the permission list of the communication device, and, |
| [10g] | upon the address information on the second communication terminal being not registered in the permission list, the communication device |

| | |
|---|---|
| | terminates the connection with the second communication terminal. |
| [11pre] | The communication system according to claim 1, wherein, |
| [11a] | for the permission, the second communication terminal requests a one-time password from the communication device through short range communication with the communication device, and |
| [11b] | the communication device transmits connection information including the one-time password necessary for a connection to the second communication terminal, and |
| [11c] | the second communication terminal connects to the communication device by using the connection information including the one-time password. |
| [12pre] | The communication system according to claim 1, wherein, |
| [12a] | for the permission, the first communication terminal transmits, to the second communication terminal, connection information necessary for a connection through short range communication with the second communication terminal, the second communication terminal connects to the communication device by using the connection information, and |
| [12b] | in the short range communication, the first communication terminal displays a bar code representing the connection information on a display screen thereof and the second communication terminal captures an image of the bar code with a camera to read the connection information. |
| [13pre] | The communication system according to claim 1, wherein, |
| [13a] | the second communication terminal controls the communication |

| | |
|---|---|
| | device while maintaining the connection with the communication device, and |
| [13b] | the first communication terminal controls the communication device while maintaining the connection with the communication device via the access point. |
| [14pre] | A communication terminal comprising: |
| [14a] | a wireless connection interface configured to connect to a communication device via an access point device; and |
| [14b] | a controller configured to control the wireless connection interface and to transmit a command to remotely control a display operation on the communication device connected with the communication terminal, |
| [14c] | wherein the controller is configured to transmit permission to establish a connection for the communication device and another communication terminal, |
| [14d] | wherein, while the communication device outputs data received from the another communication terminal that has established the connection with the communication device, the controller is configured to transmit the command to control how to display the data while the communication device and the another communication terminal are connected, and |
| [14e] | wherein, when the controller transmits information to terminate the permission from the communication terminal, the controller is configured to transmit the information to terminate the connection with the another communication terminal to the communication device. |

| | |
|---|---|
| [15pre] | A communication device comprising: |
| [15a] | a wireless connection interface configured to connect to a communication terminal and another communication terminal; and |
| [15b] | a controller configured to control the wireless connection interface, |
| [15c] | wherein the wireless connection interface is configured to connect to the communication terminal via an access point device, |
| [15d] | wherein the controller is configured to control 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, |
| [15e] | wherein, while the controller controls the data received from the another communication terminal and upon receiving at the wireless communication interface, from the communication terminal, a command to remotely control how the data received from the another communication terminal is displayed, the controller is configured to control the data received from the another communication terminal in accordance with the command from the communication terminal while maintaining the connection with the another communication terminal, and |
| [15f] | wherein, when the wireless communication interface receives information to terminate the permission from the communication terminal, the controller is configured to terminate the connection with the another communication terminal. |

# I. INTRODUCTION

Patent Owner Maxell, Ltd. ("Patent Owner") respectfully requests that the Board confirm the patentability of claims 1, 2, and 5-15 ("Challenged Claims") of U.S. Patent No. 11,026,088 ("'088 Patent") (EX1001). Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc., ("Petitioner") has failed to show by a preponderance of the evidence that the challenged claims are unpatentable. Consistent with the prosecution history and previous findings of the Patent Office, Petitioner cannot demonstrate that any claim is obvious in view of the asserted prior art.

Moreover, the Petition is filled with conclusory statements, which (1) are neither bolstered nor supported by the similarly conclusory statements in Dr. Joseph A. Paradiso's declaration (EX1003), and (2) fail to demonstrate by a preponderance of the evidence that any of the Challenged Claims are rendered obvious by the asserted combinations of references. *See* 37 C.F.R. § 42.65(a) ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.").

For at least these reasons, Petitioner has failed to meet their burden of showing by a preponderance of the evidence that any of Claims 1, 2, and 5-15 are rendered

obvious based on any of Grounds 1-5. Accordingly, the Board should uphold the patentability of the '088 Patent.

## II. BACKGROUND

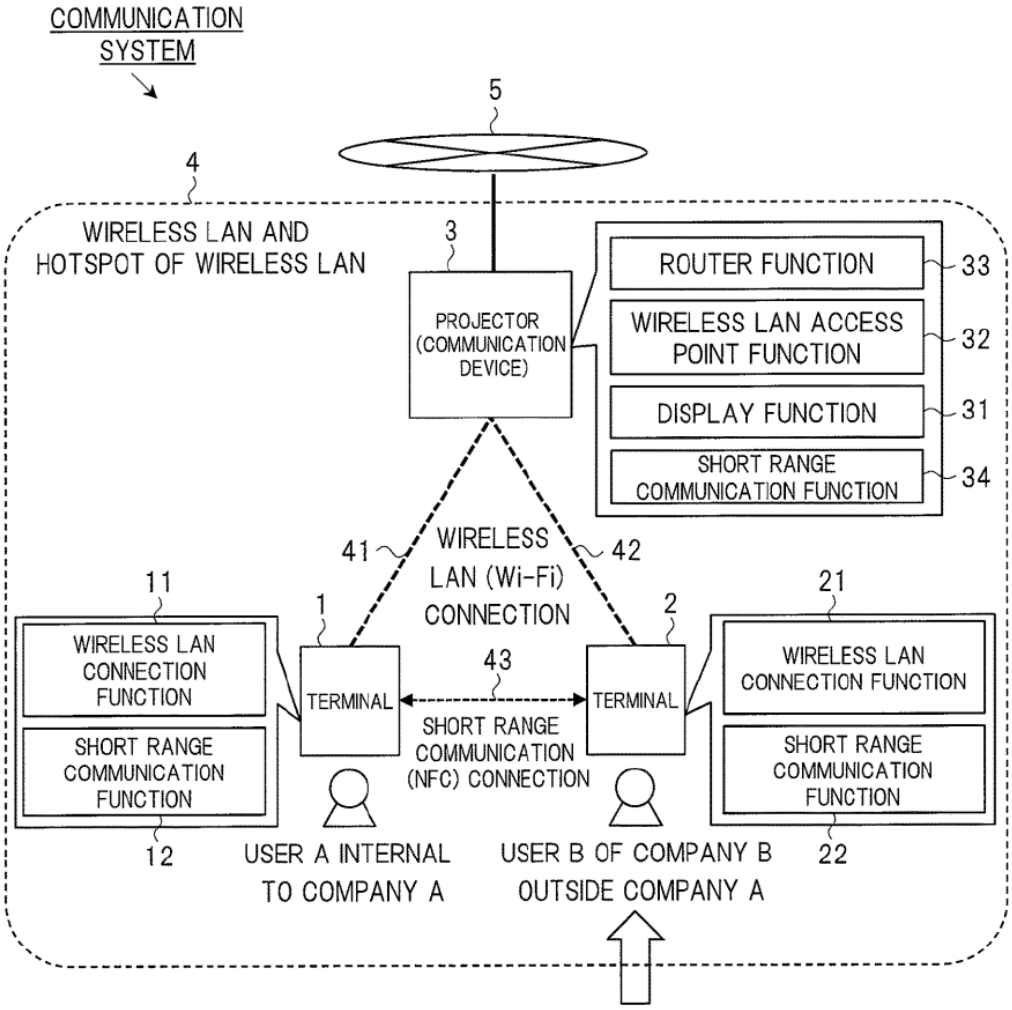
### A. Overview of the '088 Patent

The '088 Patent, entitled "*Communication System, Communication Device, and Communication Terminal Device*," issued from U.S. Patent Application No. 15/504,668, which was filed on February 17, 2017 as a U.S. National Phase application of PCT/JP2014/072783, filed on August 29, 2014. *See* EX1001.

The '088 Patent is generally directed to communication systems for establishing and managing a network of devices, including, for example, a communication device, an access point device, and/or one or more communication terminals. EX1001, 2:13-37. In particular, the system and apparatus disclosed in the '088 Patent ensure that communication device and communication terminals connect to each other via an access point device and enable communication terminal to permit another communication terminal to establish a connection with another communication terminal in the communication system. *See id.* Further, the system and apparatus disclosed in the '088 Patent "provide a technology pertaining to a wireless LAN communication system, a communication device in the system, and the like, which can achieve convenience for a terminal of a user who is external to

an organization to temporarily use the system and ensure security in such a case." *Id.* at 2:4-9.

Specifically, the '088 Patent discloses an exemplary communication system including "a communication device," "a first communication terminal," "a second communication terminal," and "an access point device" that all work in conjunction to provide permission to a second communication terminal to establish a connection with a communication device if the first communication terminal provides the permission. EX1001, 2:13-37. Further, the first communication device is configured to control displaying of data received from the second communication terminal and also the first communication terminal is configured to remotely control a display operation on the communication device. *See id.* An exemplary configuration is shown below in Figure 1 of the '088 Patent:




*Id.* at FIG. 1.

### B. Patent Prosecution History

The '088 Patent is the result of a thorough examination whereby the Examiner considered prior art analogous to that in the Petition and found the invention patentable. *See* EX1002, 12-20. During prosecution, the Examiner issued four office actions (two non-final office actions and two final office actions). EX1002, 52-297.

In the Notice of Allowance, dated February 1, 2021, the Examiner noted the

following:

> "The applicants' arguments filed on 30 November 2020 have been deemed persuasive. Specifically, the prior art does not disclose, teach or fairly suggest the feature of "wherein, while the communication device outputs data received from the second communication terminal that has established the connection with the communication device and upon receiving, by the communication device, the command from the first communication terminal, the communication device is configured to control how to display the data received from the second communication terminal while maintaining the connection with the second communication terminal."

*Id.* at 293, 296-297. The Examiner also noted that the claims of the '088 Patent were patentable over several additional references. *Id.* at 297.

The prosecution history therefore demonstrates that the USPTO recognized that the interplay between the communication device, the first communication terminal, and second communication terminal of the '088 Patent as patentably distinct over the relevant art. As shown below, Petitioner's cited references fail to disclose at least the same limitations.

### C. Summary of Instituted Grounds for Unpatentability

The Board instituted review of claims 1, 2, and 5-15 of the '088 Patent based on five grounds of alleged unpatentability. *See* Pet. at 12; Paper 13. The instituted invalidity grounds are summarized as follows:

| Ground | '088 Claims | Type of Challenge | Asserted References |
|---|---|---|---|
| 1 | 1, 5, and 13-15 | § 103 | Iwami, Kim |
| 2 | 2 and 12 | § 103 | Iwami, Kim, and Lianksy |
| 3 | 7, 8, and 10 | § 103 | Iwami, Kim, Liansky, and Weiser |
| 4 | 9 and 11 | § 103 | Iwami, Kim, Liansky, and Kato |
| 5 | 6 | § 103 | Iwami, Kim, and Dowling |

### D. Cited References

The six references relied upon are summarized as follows:

#### 1. Overview of Iwami (EX1004)

Iwami is entitled "Information Processing Device, Information Processing System, and Information Processing Method" and directed to a many-to-one system, where there are many "source devices" and a single "display device." *See* EX1004, FIGs. 17-18. "[W]hen real-time image transmission is performed between the sink device and a plurality of source devices according to the Wi - Fi CERTIFIED Miracast specification, the control unit 747 [of control device 740] performs control such that the communication mode is set in the source device." *See* EX1004, ¶ [0264].

Iwami is directed to a fundamentally different technological field than the '088 patent—specifically, the problem of **real-time video streaming and image transmission between information processing devices** using the Wi-Fi

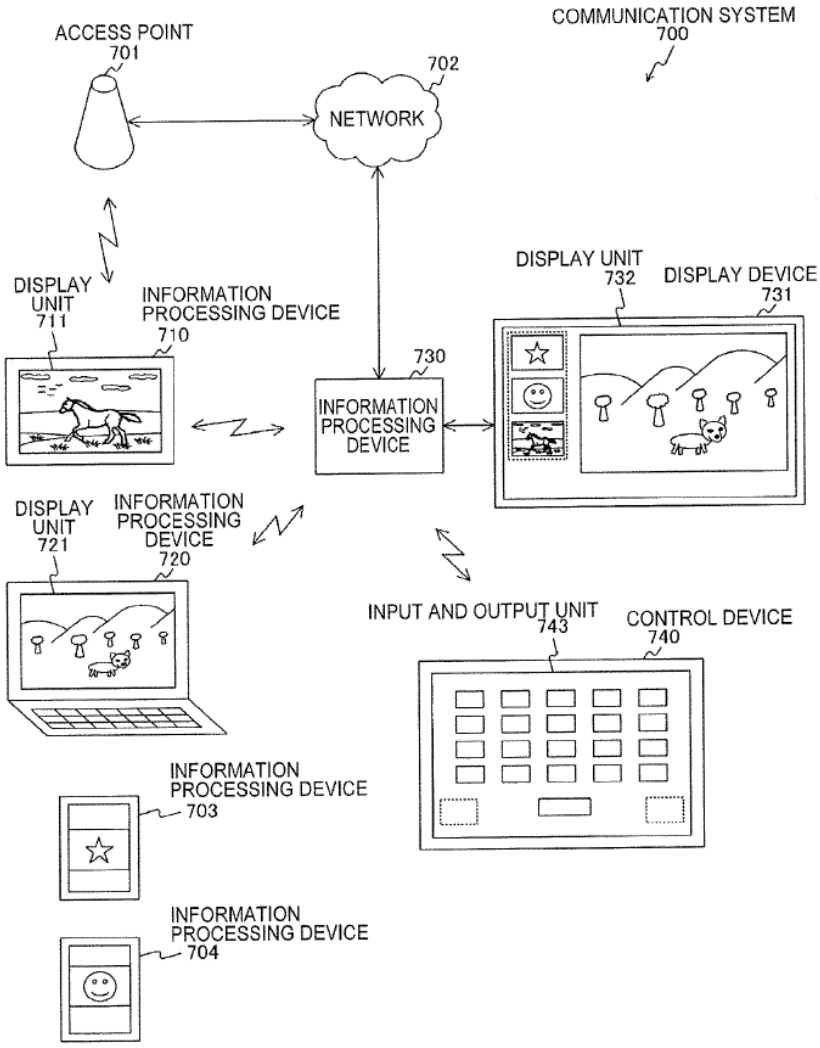
CERTIFIED Miracast specification. EX1004, ¶ [0002]. Rather than addressing the security concerns of temporary guest access to an organizational network (as the '088 Patent does), Iwami identifies a different technical challenge: "when communication is performed directly between the two information processing devices, transition is assumed to be performed so that communication is performed indirectly between the two information processing devices" and vice versa. EX1004, ¶ [0007]. Iwami notes that "[w]hen switching of communication is performed as described above, it is important to perform appropriate control." EX1004, ¶ [0007]. Accordingly, Iwami states "it is an object of the present technology to perform appropriate control when communication is performed between a plurality of information processing devices." EX1004, ¶ [0008].

Iwami's solution involves, for example, "a control unit configured to perform control such that setting request information for performing a setting related to the real-time image transmission is received from the other information processing device via an access point," and "a setting request for performing the setting based on the setting request information is transmitted to the other information processing device through direct communication." EX1004, ¶ [0009]. Iwami describes controlling how a "sink device" receives image data from "source devices" (*e.g.*, cameras, smartphones, or content players) and displays that content—with the ability

to switch between direct peer-to-peer communication and indirect communication via an access point. EX1004, ¶¶ [0079]-[0081]. This stands in stark contrast to the '088 patent, which is directed to a "wireless LAN communication system which achieves convenience where a terminal of a user who is external to an organization can temporarily use the system while ensuring security." EX1001, Abstract.

In its second embodiment (system 700)—which the Petition al relies upon—Iwami describes a classroom setting where a teacher's control device 740 manages connections between student source devices (710, 720) and a sink device 730 connected to a display device 731. EX1004, ¶¶ [0235]-[0236]. FIG. 17 shows the configuration of this classroom setting for the second embodiment:

FIG. 17




Iwami describes that "[t]he communication system 700 includes an access point 701, a network 702, information processing devices 703, 704, 710, 720, and 730 a display device 731, and a control device 740." EX1004, ¶ [0236]. Within this educational presentation environment, Iwami teaches that the control device 740 "perform[s] control such that, when real-time image transmission is performed between a sink device and a plurality of source devices according to a Wi-Fi

CERTIFIED Miracast specification, any one communication mode of a standby mode in which the sink device and the source devices are connected via an access point and an image transmission mode in which the sink device and the source devices are connected through direct communication is set in the source devices." EX1004, ¶ [0020].

Notably, Iwami's system is designed to enable "appropriate control" of **image transmission modes and display regions for educational presentations** rather than to manage temporary guest access and security permissions for external users within an organization's network. EX1004, ¶ [0024].

**2. Overview of Kim (EX1006)**

Kim is entitled "Multicast Streaming Service Method and System Thereof," and is directed to managing multi-casting in relation to a one-to-many system where there is a single "source device" (described as "media server" (MS) in Kim) and multiple "display devices" (described as "media renderers" (MRs) in Kim). EX1006, ¶ [0019]. Kim states that a control point facilitates the ability of a media renderer to join and leave a multicast group. *See, e.g.*, EX1006, ¶ [0036]. The control point requests the media server to transmit media to a multicast address, and informs media renderers of the multicast address so that the media renderers can use the multicast address to access the media. *See id.*

Kim is directed to an entirely different field of invention from the '088 patent, focusing on "a home networking service, and more particularly to, a multicast streaming service and system in the UPnPTM technology." EX1006, ¶ [0001]. The problem addressed by Kim arises in the context of UPnP Audio/Video networks, where "in the conventional UPnP AV standards, only the circumstances of establishing a connection between the media server and the media renderer and transmitting media data are taken into consideration, thus in case of sending and receiving contents to/from a multicast group, this cannot be controlled effectively." EX1006, ¶ [0017]. Kim explains that "in the conventional UPnP AV standards, a multicast model is not taken into consideration, thus this makes it difficult to realize a multicast streaming service." EX1006, ¶ [0017]. Kim's proposed solution is specific to UPnP multicast protocols: "an object of the present invention is to provide a multicast streaming service method and system which are devised to enable an efficient control of multicast streaming on an UPnP by defining actions such as MulticastStart(), Join() and Leave() in order to enable a multicast service by UPnP AV standards." EX1006, ¶ [0018]; *see also* EX1006, ¶ [0053].

Kim's technical solution involves specific UPnP protocol actions designed for multicast group management. EX1006, ¶¶ [0032]-[0037]. In operation, "a control point 110 invokes MulticastStart() action to a media server 120 to request for the

transmission of designated contents to a multicast address," after which "the media server 120 delivers a RTSP URL (RTSP server address), which is to be accessed for receiving the corresponding contents, to the control point 110." EX1006, ¶ [0036]. The "control point 110 informs multiple media renderers 131 to 136 wanting to join a multicast group of the RTSP URL by using Joint() action," and "one of the media renderers 131 to 136 wanting to joint the multicast group accesses to a RTSP server of the media server 120 using the RTSP URL, acquires the properties of media data being transmitted and the multicast address and then receives multicast data using the acquired information." EX1006, ¶ [0036]. Additionally, "the control point 110 invokes Leave() action of the one of the media renderers 131 to 136 having joined the multicast group in order to stop the data reception of the corresponding media renderer." EX1006, ¶ [0037]. This entire framework is directed to the narrow problem of UPnP home network multicast streaming—an entirely different technical field from the wireless communication system architecture addressed by the '088 patent. EX1006, ¶¶ [0001], [0018].

### 3. Overview of Liansky (EX1012)

Liansky is entitled "Method for Automatic Establishing Wireless Connectivity Between a Mobile Wireless Device and a Target Screen for Multimedia Data Streaming" and is directed to a mobile wireless device may connect

"by pointing its camera 180 to the receiving screen device 110 and capturing a picture which later on will be decoded by the QR-Code decoding software 140." EX1012, 4:27-33.

Liansky is directed to an entirely different field of invention from the '088 Patent, focusing on "a method for automatically establishing a wireless connection between a receiving screen and a mobile wireless device to enable streaming of multimedia data." EX1012, Abstract. The problem addressed by Liansky arises in the context of consumer device pairing, where "there are several challenges when connecting a mobile wireless device to another wireless device." EX1012, 3:43-44. The solution proposed by Liansky is narrow and technically specific to QR code-based device pairing: "methods and systems which use Quick Response (QR) Code technology" to "transfer required connection information from a receiving screen device to a mobile wireless device." EX1012, 3:66-4:4.

Liansky teaches that "[t]he generated QR-Code image (i.e. dynamic image code) is displayed on the receiving screen device (i.e. target screen device) until a connection with a mobile wireless device is established." EX1012, 5:11-14. In operation, "the connection is established by capturing the visual image of the QR-Code by the camera of the mobile wireless device, when the camera of the mobile wireless device is being pointed to the receiving screen device." EX1012, 5:19-23.

Once established, "the receiving screen device 110 starts displaying the multimedia data or any other type of data 160 that is streamed from the mobile wireless device 110." EX1012, 4:57-62. This entire framework is directed to the narrow problem of simplifying device pairing for consumer multimedia streaming from mobile devices to external screens—an entirely different technical field from the wireless communication system architecture involving communication terminals and access point devices addressed by the '088 Patent. EX1012, Abstract, 1:16-28.

**4. Overview of Weiser (EX1008)**

Weiser is entitled "Systems and Methods for Providing Video Conferencing Services via an Ethernet Adapter" and is directed to "systems and methods for providing video conference services via a single device installed as an Ethernet adapter on a computing device. EX1008, Abstract.

Weiser is focused specifically on "systems and methods for providing video conference services via a single device installed as an Ethernet adapter on a computing device." EX1008, ¶ [0001]. The problem addressed by Weiser arises in the context of enterprise video conferencing, where "[a]s more users are added to a video conference, bandwidth requirements may drastically increase, scaling according to (number of users)*(number of users-1)." EX1008, ¶ [0003]. Weiser explains that "[s]imilarly, processing requirements may drastically increase as the

conference size grows" because "[e]ach user's computer is required to receive the multiple video streams and display them simultaneously." EX1008, ¶ [0004]. This proposed solution is narrow and technically specific to video stream mixing hardware: "[t]he device may comprise an audio/video media processor for mixing a plurality of video streams to generate one or more mixed video streams, which may be provided to video conference participants." EX1008, ¶ [0006].

Weiser's framework is directed to the narrow problem of video conferencing bandwidth and processing optimization—an entirely different technical field from the wireless communication system architecture addressed by the '088 Patent.

**5. Overview of Kato (EX1009)**

Kato is entitled "Communication Apparatus, Communication System, and Recording Medium" and is directed to a communication apparatus including "a communication unit that connects with an external device in a one-to-one relationship." EX1009, Abstract.

Kato addresses a problem in the context of enterprise wireless security, where "it has been difficult in the related art to supply enhanced prevention of leakage of information from a communication apparatus and allow a user to set up security information in a simple manner." EX1009, ¶ [0007]. Kato explains that "unlike the cable communication, the wireless communication has a problem such that, if radio

waves used in the wireless communication are illegally intercepted by a third party, the third party can gain access to data carried in the radio waves." EX1009, ¶ [0005]. The stated solution is narrow and technically specific to certificate-based authentication. Kato describes "a communication apparatus which supplies enhanced prevention of leakage of information from the communication apparatus and allows a user to set up security information in a simple manner" through a system that "acquires the certificate information from the external device connected with the communication unit" and "sends a request for connection with the network to a communication management device, the request including the certificate information." EX1009, ¶¶ [0008]-[0009]. This framework is directed to the narrow problem of secure wireless network authentication through certificate importation from external devices—an entirely different technical field from the wireless communication system architecture addressed by the '088 Patent.

### 6. Overview of Dowling (EX1021)

Dowling is entitled "Apparatus and Method for Cluster Network Device Discovery" and is directed to "[a] group of network devices, such as Ethernet switches, [that] are logically configured as a single cluster, with one commander device and one or more member devices." EX1021, Abstract.

The problem addressed by Dowling arises in the context of enterprise network

administration, where "network devices such as LAN switches need to be configured and managed, because they typically include a number of programmable features that can be changed by a network administrator for optimal performance." EX1021, 6:13-17. Dowling explains that "[a]ssigning an IP address to each and every network device is undesirable, because registering IP addresses with a DNS is both costly and cumbersome." EX1021, 6:38-41.

Dowling is directed to the narrow problem of network device management and discovery for LAN infrastructure—an entirely different technical field from the wireless communication system architecture addressed by the '088 Patent.

## III. LEVEL OF ORDINARY SKILL

Petitioner proposes that a person of ordinary skill in the art (POSITA) would have had "a Bachelors' degree in Electrical or Computer Engineering or a comparable field of study, plus approximately two to three years of professional experience with wireless LAN communications systems and distribution of information over the same, or other relevant industry experience." Pet. at 18; *see also* EX1003 at ¶ 54.

Patent Owner does not contest that the relevant fields of art include electrical engineering or computer engineering with experience in wireless communications systems. However, Patent Owner proposes that a more accurate definition would be

a degree in Computer Science or Electrical Engineering or equivalent degree, and at least two years of experience in the field managing communication systems including network devices or other relevant fields. As explained in his attached Declaration, Patent Owner's expert, Dr. Pachamanov, qualifies as a POSITA under either definition. EX2014 at ¶¶ 74-76.

## IV. CLAIM CONSTRUCTION

### A. The Proper Construction of "access point device" (Claims 1, 14, and 15)

Petitioner asserts that "access point device," as recited in Claims 1, 14, and 15 of the '088 Patent means "in a wireless LAN (local area network), a transceiver that connects the LAN to a wired network." *See* Pet. at 19; *see also* EX1003 at ¶52. However, Petitioner's proposed construction is unnecessary, overly narrow, and fails to account for the context provided by the '088 Patent.

First, no construction is necessary and the plain and ordinary meaning of the term should apply. An access point device is a well-known term for a device in the field of wireless communications, and a POSITA would readily understand its meaning. *See* EX2014 at ¶¶ 77-80. As Dr. Pachamanov explains in his attached declaration, the meaning of the "access point device" is clear from the context of the claims themselves. *Id*. For example, claim 1 recites that the access point device connects the first communication terminal to the communication device in the

communication system. Similarly, claims 13 and 14 recite that the access point device connects the communication terminal to a wireless connection interface, which connects the communication terminal to another communication terminal.

The specification of the '088 Patent describes the access point device consistent with the claims. For example, the specification teaches that "Communication systems of the embodiments provide the function of temporarily connecting, under permission from a terminal of a user who is internal to a company, a terminal of a user who is external to the company, to a projector which has a wireless LAN access point function and enabling the terminal of the user who is external to the company to use a display function of the projector." EX1001, 3:32-38; see also *id*. at 3:45-58.

A person of ordinary skill in the art would have known that such devices can function as access points through software-based hotspot capabilities without any wired connection. *See* EX2014 at ¶¶ 77-85.

Ignoring the intrinsic evidence, Petitioner jumps directly to dictionary definitions to support their proposed construction, contrary to well-established principles of claim construction. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) ("the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the

meaning of a disputed term."), quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) (internal quotations omitted). Petitioner's dictionary definitions include the Microsoft Computer Dictionary (2002) and Newton's Telecom Dictionary (2016). Moreover, Petitioner's reliance on a 2002 dictionary fails to account for the state of the art as of the August 2014 priority date, when wireless portable devices commonly functioned as access points through, for example, hotspot features. *See* EX2014 at ¶¶ 81-84.

Second, Petitioner's proposed construction is overly narrow because it requires a connection to a wired network. *See* EX2014 at ¶¶ 81-84. The claims of the '088 Patent do not impose any wired connection requirement for the "access point device." Claim 1 recites "an access point device" and "a first communication terminal configured to connect to the communication device via the access point device." This language describes only that the access point device enables wireless connections between communication terminals and the communication device. The claim language is silent as to any wired connection requirement for the access point device itself. As Dr. Pachamanov explains, a person of ordinary skill in the art at the time of the invention would have understood that access point functionality—that is, the ability to establish wireless connections with client devices compliant with wireless LAN standards such as Wi-Fi—can be provided by a variety of devices,

including but not limited to traditional routers with wired backhaul connections. *See* EX2014 at ¶¶ 81-84. By the priority date of the '088 patent (August 29, 2014), software-defined access point functionality was well-known and commonly implemented in portable devices through "hotspot" features, enabling them to function as access points without any wired connection to another network.

Petitioner's own expert, Dr. Paradiso, agrees that the term "access point device" as used in the claims has a well-understood plain and ordinary meaning. EX2015 (Transcript of March 27, 2026 Deposition of Dr. Joseph A. Paradiso), 52:8-17. ("Q. [G]oing down to the next line in Claim 1 the claim states an access point device. Do you see that? A. Yes, I do. Q. What is your understanding of this claim element? A. That's plain and ordinary meaning…"). During his deposition, Dr. Paradiso also agreed that his understanding of an "access point device" is that it could connect multiple ***wireless*** networks together, and is not limited to connecting a wireless network to a wired network, as Petitioner contends. *See* EX2015, 58:14-61:23.

As mentioned, the specification of the '088 patent provides substantial intrinsic evidence demonstrating that the term "access point device" should not be limited to devices with wired connections. The specification describes multiple embodiments and configurations that collectively teach a flexible, function-based

understanding of the access point device. *See* EX2014 at ¶¶ 81-84. Accordingly, a POSITA would readily understand the meaning of the term "access point device" and not construction is necessary.

### B. The Proper Construction of "wherein, in a case that the communication device is unable to receive information from the first communication terminal, the communication device terminates the connection with the second communication terminal." (Claim Element [6b])

Petitioner asserts that claim element [6b] of the '088 Patent "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." *See* Pet. at 19-20; *see also* EX1003 at ¶53. Petitioner therefore concludes that claim element [6b] "is satisfied if the communication device terminates a connection with the second communication terminal during a time period when the communication device is unable to receive any kind of information from the first communication terminal." *See* Pet. at 20; *see also* EX1003 at ¶53. However, this proposed construction is unnecessary and fails to account for the context provided by both the claims and specification of the '088 Patent.

At the outset, it is ambiguous from the Petition whether Petitioner is seeking

a specific construction of this claimed phrase or simply looking for the Board to confirm Petitioner's reading of the claim language. The Petition does not explicitly assert a construction: is Petitioner proposing plain and ordinary meaning, or asserting that a more specific construction is necessary?

Regardless, no construction is necessary. The claim language is clear on its face: in a case that the communication device is unable to receive information from the first communication terminal, the communication device terminates the connection with the second communication terminal. A POSITA would readily understand the scope and meaning of claim element [6b] without the need for a construction of the plainly worded phrase. *See* EX2014 at ¶¶ 86-87. Petitioner is asserting its invalidity read of the claim under the not-so-veiled guise of an unnecessary claim construction. This is an inappropriate use of claim construction, and the Board should not adopt Petitioner's construction.

### C. All Remaining Claim Terms Should be Given Their Plain and Ordinary Meaning

For purposes of this proceeding, Petitioner has not identified any other claim terms for construction as necessary to resolve the controversy, and therefore applies the plain and ordinary meaning to the claims. Patent Owner agrees that the plain and ordinary meaning should apply to the claims. *See* EX2014 at ¶ 88. Patent Owner reserves the right to contest any claim constructions raised by Petitioner in any future

filings or at any hearing.

## V. LEGAL STANDARD

A claim is not patentable if the differences between the claim and the prior art are such that the subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time of the invention. 35 U.S.C. § 103(a). Obviousness requires assessing (1) the "level of ordinary skill in the pertinent art," (2) the "scope and content of the prior art," (3) the "differences between the prior art and the claims at issue," and (4) "secondary considerations" of non-obviousness such as "commercial success, long felt but unsolved needs, failure of others, etc." *KSR Int'l Co. v. Teleflex Inc.,* 550 U.S. 398, 406 (2007) (quoting *Graham v. John Deere Co. of Kansas City,* 383 U.S. 1, 17-18 (1966)).

It is the petitioner's burden to prove unpatentability, *E.I. DuPont de Nemours & Co. v. Synvina C.V.*, 904 F.3d 996, 1007 (Fed. Cir. 2018), and "to demonstrate both 'that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.'" *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367-68 (Fed. Cir. 2016) (quotations and citations omitted). However, a petitioner must first show that all of the claimed elements are disclosed in the prior art. *See Medichem, S.A. v. Rolabo,*

*S.L.*, 437 F.3d 1157, 1164 (Fed. Cir. 2006) (considering motivation to combine and reasonable expectation of success only "if all the elements of an invention are found in a combination of prior art references").

## VI. THE PETITION FAILS TO SHOW ANY CHALLENGED CLAIM IS RENDERED OBVIOUS BY A PREPONDERANCE OF THE EVIDENCE

Petitioner failed to show by a preponderance of the evidence that any of Grounds 1-5 renders obvious claims 1, 2, and 5-15. *See* EX2014 at § VIII. Therefore, Patent Owner respectfully submits that the Board should confirm the patentability of all Challenged Claims.

### A. Ground 1: Petitioner Fails to Establish That Claims 1, 5, and 13-15 Would Have Been Obvious Based on Iwami and Kim

Petitioner has not shown by a preponderance of the evidence that claims 1, 5, and 13-15 are invalid based on Ground 1 because the alleged combination of Iwami and Kim would not have been obvious to a POSITA and fails to disclose or suggest key features of the '088 Patent's invention, as discussed in detailed below. *See* EX2014 at § VIII(A). Because all instituted grounds, *i.e.*, Grounds 1-5, depend on the combination of Iwami and Kim, the arguments and explanations set forth herein with respect to Ground 1 apply equally to Grounds 2-5. Further, the '088 Patent includes three independent claims (claims 1, 14, and 15), which are only challenged in Ground 1, and therefore upon confirming the patentability of claims 1, 14, and 15,

the patentability of the remaining Challenged Claims should also be confirmed.

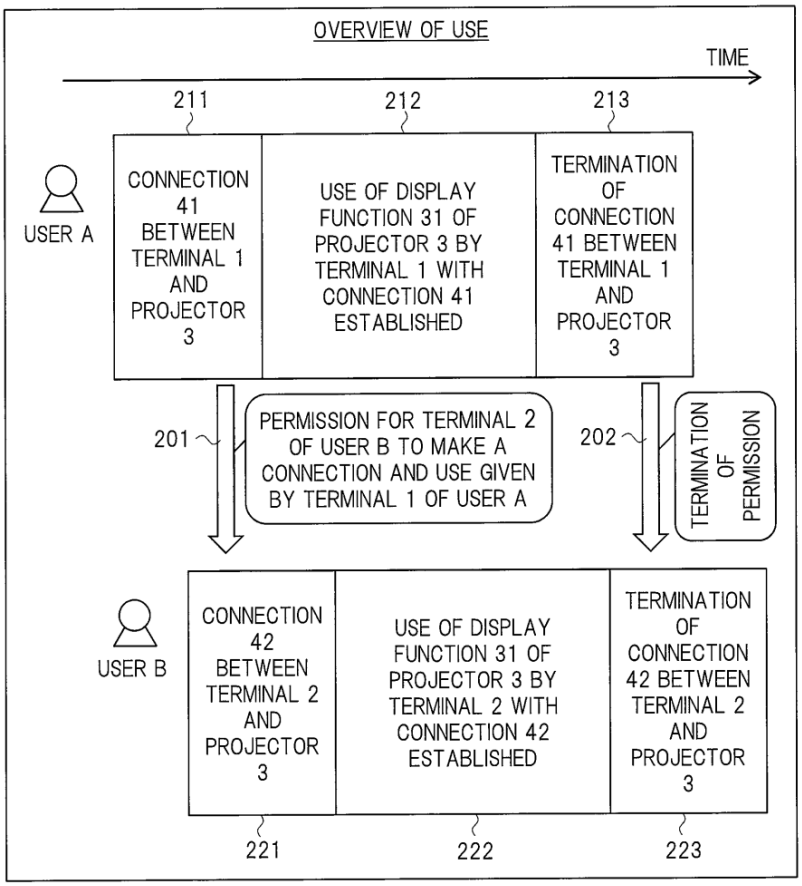
### 1. Iwami is Fundamentally Different than the '088 Patent

Petitioner mischaracterizes and misapplies the teachings of Iwami in the Petition. EX2014 at ¶¶ 93-101. As explained in Section II(D)(1) above, Iwami addresses a different problem from the '088 Patent, which is focused on the risk that "a terminal of a user who is external to an organization can independently use the wireless LAN communication system inside the organization after a temporary use." EX1001, 1:62–66. The '088 Patent's stated objective is "to provide a technology . . . which can achieve convenience for a terminal of a user who is external to an organization to temporarily use the system and ensure security in such a case." EX1001, 2:4–9.

In contrast, Iwami is wholly unconcerned with temporary access control or organizational security. It is directed to "an information processing device . . . performing real-time image transmission with another information processing device according to a wireless fidelity (Wi-Fi) CERTIFIED Miracast specification," (EX1004, ¶ [0009]) with the object "to perform appropriate control when communication is performed between a plurality of information processing devices." EX1004, ¶ [0008]. Iwami describes "switching [between] a connection between the source device and the sink device via an access point and a direct connection" so

that "appropriate stream transmission control (for example, the data transmission speed control) can be performed…" EX1004, ¶¶ [0216], [0234]. As Dr. Pachamanov explains in his attached Declaration, a person of ordinary skill in the art would not look to Iwami's stream-optimization teachings to solve the '088 Patent's security-and-permission problem. EX2014 at ¶¶ 94-96.

The '088 patent's system is organized around a trust hierarchy: "the user A, such as an employee who is internal to the company A, possesses and uses the terminal 1" while "[t]he user B, such as an employee of the company B outside the company A, possesses and uses the terminal 2." EX1001, 4:38–45; FIG. 2. The first terminal acts as gatekeeper: "[t]he second communication terminal device connects, under permission from the first communication terminal device, to the communication device via the wireless LAN." EX1001, 2:24-27.




EX1001, FIG.2.

According to the '088 Patent, permission requires that "the terminal 1 of the user A and the terminal 2 of the user B are located close to each other and the user A knows the existence of the user B." EX1001, 6:34–42. The communication device then regularly confirms "whether the permission for the second communication terminal device to connect to and use the communication device is to be continued or terminated." EX1001, 2:28–37.

Iwami's architecture has no such trust hierarchy. Iwami comprises generic

"information processing devices" with "a wireless communication function," organized into source devices and a sink device, with the second embodiment adding "an access point 701 . . . a display device 731, and a control device 740." EX1004, ¶¶ [0074], [0236]. All source devices are functionally equivalent peers — there is no concept of "internal" versus "external" users. EX2014 at ¶ 97. Iwami's control device 740 manages "any one communication mode of a standby mode . . . and an image transmission mode," as well as bandwidth allocation and display scheduling, not security-based access permission. EX1004, ¶ [0023]; EX2014 at ¶ 97.

Further, the '088 Patent 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." *See* EX1001, Claim 1. The '088 Patent describes multiple helpful examples of this mechanism, including short range communication via NFC of permission information between the terminal 1 and the terminal 2 for the connection to and use of the projector 3 by the terminal 2, and "the terminal 1 transmits connection information including the SSID and PW for establishing a connection to the projector 3, to the terminal 2…" EX1001, 12:58–66. As another example, the projector "registers the information including Mb, which is the MAC address of the terminal 2 . . . so as to add the information to the permission list 52." EX1001, 19:1-

7. As a further example, a one-time password may be relayed through Terminal 1. *See* EX1001, 21:22-22:33. Each of these examples (among others in the '088 Patent) involves the first terminal actively enabling the second terminal's access. EX2014 at ¶¶ 97-98.

Iwami has no analogous mechanism, nor would such be obvious to a POSITA. EX2014 at ¶¶ 97-100. In Iwami, a source device simply "activates an application that is installed in advance, and transmits a connection request to the sink device . . . via a specific access point." EX1004, ¶ [0329]. The sink device then performs "a group authentication process" in which "it is determined whether or not the manipulation of the user for giving the permission to the information processing device 710 has been performed in any one of the source device, the sink device, and the control device 740 that belong to the same group." EX1004, ¶¶ [0357]–[0358]. This is group-level access control performed by the sink device and existing group members — not a permission granted by one designated gatekeeper terminal to another based on a trust hierarchy, as described by the '088 Patent. EX2014 at ¶¶ 99-100.

The distinction extends to each patent's use of NFC. In the '088 patent, NFC may be the permission mechanism itself — the physical act of bringing the terminals together "corresponds to permission from the terminal 1 of the user A for the

connection to and use of the projector 3 by the terminal 2 of the user B." EX1001, 12:47–62. Whereas in Iwami, NFC is merely a device-pairing shortcut: "a protocol for interchanging information for connecting Wi-Fi Direct by causing the source device with the NFC tag to touch (or approach) the sink device equipped with the NFC reader/writer function." EX1004, ¶ [0438]. It is not a permission delegation mechanism embodying a trust relationship between an internal and external user. EX2014 at ¶¶ 99-101.

In addition, the '088 patent describes that "the application 35 of the projector 3 regularly performs communication for confirmation with the terminal 1" to confirm "whether to continue and update or terminate the permission from the terminal 1 . . . for the terminal 2 . . . to connect to and use the projector 3." EX1001, 13:24–32. Under this exemplary confirmation method, "[w]hen having not received the predetermined response information for confirmation from the terminal 1, the application 35 of the projector 3 can determine, for example, that the terminal 1 and the application 15 have yet to be activated or are not located within the hotspot of the wireless LAN 4…" EX1001, 15:7–12. The projector then "determines that the permission given to the terminal 2 of the user B by the terminal 1 of the user A is to be terminated, and terminates the connection 42 with the terminal 2…" EX1001, 15:12-18; *see also id.* at claim 6.

Iwami has no analogous confirmation-and-termination loop, nor would such be obvious to a POSITA. EX2014 at ¶¶ 99-101. Iwami's mode switching concerns bandwidth management — "switching using the control device (for example, switching (remote manipulation switching) according to a manipulation of the user using the control device 740)" — not whether a terminal retains permission to remain connected. EX1004, ¶¶ [0296]–[0299]. Moreover, where Iwami addresses a device moving out of range, the system attempts to *maintain* the connection: "the user using the source device may move to a place in which it is difficult to establish the connection with the access point. In this case, the user may desire to continuously perform the connection with the sink device." EX1004, ¶ [0399]. This is the opposite of the '088 Patent, which may terminate the connection when the first terminal is unreachable. The '088 Patent performs a form of display-control authority such that the first terminal not only grants and terminates permission but also directs the communication device's display of the second terminal's data while maintaining the second terminal's connection. EX2014 at ¶¶ 93-101. On the other hand, in Iwami, the sink device allocates streams between "middle channel" and "peripheral channel" displays, and the control device 740 switches communication modes of source devices. EX1004, ¶¶ [0286]–[0288], [0306]. But this management is performed by the sink or control device for bandwidth optimization — not by a

gatekeeper terminal remotely controlling another terminal's displayed data.

In sum, Iwami is a fundamentally different invention from the '088 Patent. Iwami addresses real-time multimedia stream optimization in a Miracast-compliant environment, whereas the '088 Patent addresses temporary access control and security in a wireless LAN system where an internal user's terminal gatekeeps an external user's access. The '088 Patent and Iwami differ in their technological problems, system architectures, permission paradigms, display control mechanisms, and uses of short-range communication. Accordingly, a POSITA would have had no reason to look to Iwami's stream-optimization teachings to solve the security-and-permission problem addressed by the '088 Patent. EX2014 at ¶¶ 93-101.

**2. Petitioner Fails to Establish Any Motivation to Combine the Separate and Distinct Embodiments of Iwami**

Petitioner mischaracterizes the teachings of Iwami by improperly combining features from separate and distinct embodiments of Iwami, treating these embodiments like a buffet to be picked and chosen from, without providing any sufficient reason to attempt such modifications, and ignoring their incompatibilities. Petitioner's expert acknowledged at his deposition that Iwami does not state that its separate embodiments can be combined. *See* EX2015, 107:21-25.

a. Petitioner Fails to Meet Their Burden as a Matter of Law

The Federal Circuit has emphasized that when "combining multiple

embodiments from a single reference, or selecting from large lists of elements in a single reference, ***there must be a motivation to make the combination and a reasonable expectation that such a combination would be successful, otherwise a skilled artisan would not arrive at the claimed combination***." *In re Stepan Co.*, 868 F.3d 1342, 1346 n. 1 (Fed. Cir. 2017) (Emphasis added); *see also* MPEP § 2143.01 ("The mere fact that references ***can*** be combined or modified does not render the resultant combination obvious ***unless*** the results would have been predictable to one of ordinary skill in the art.") (Emphasis added). The Federal Circuit has further instructed that the prior art must be considered as a whole, such that even though "a single prior art reference can render a claim obvious[,] . . . there must be a showing of a suggestion or motivation to modify the teachings of that reference to the claimed invention in order to support the obviousness conclusion." *SIBIA Neurosciences, Inc. v. Cadus Pharma. Corp.*, 225 F.3d 1349, 1356 (Fed. Cir. 2000); *see also Lumenis BE Ltd., v. BTL Healthcare Techs. A.S.*, IPR2021-01280, Paper 8 at 20 (P.T.A.B. Mar. 9, 2022) ("Given that Petitioner's obviousness assertions rely on combining the teachings from multiple embodiments, Petitioner was required to provide some explanation of how those teachings fit together to teach or suggest a method employing all of the steps recited in the claims. This, Petitioner has not done."). Petitioner did not, and cannot, make such as showing.

Petitioner merely cites various portions of Iwami without identifying that these paragraphs relate to different embodiments and without articulating any motivation to combine the different embodiments. *See, e.g.*, Pet. at 34. This is insufficient to meet its burden of proof. *See Intel Corp. v. Tela Innovations, Inc.*, IPR2019-01521, Paper 65, at 25 (P.T.A.B. Mar. 9, 2021) ("It is not sufficient to demonstrate that each of the components in a challenged claim is known in the prior art; Petitioner must also explain why a POSITA would have combined the elements disclosed in the separate embodiments described in [the reference]… That the elements are disclosed in separate embodiments of the same reference does not excuse this requirement."); *see also Lumenis BE Ltd*, Paper 8 at 20; *Amazon.com v. Almondnet, Inc.*, IPR2022-01455, Paper 12, at 18 (P.T.A.B. Apr. 6, 2023); *Abiomed, Inc. v. Maquet Cardiovascular, LLC*, IPR2017-01204, Paper 9, at 11 (P.T.A.B. Oct. 23, 2017).

In addition, because Petitioner has failed to articulate the manner in which it asserts a combination of different embodiments of Iwami, Petitioner has failed to satisfy 35 U.S.C. § 312(a)(3) (Petitions must "identif[y], in writing and ***with particularity***, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim.") (Emphasis added). Petitioner also failed to provide "[a] full statement of the

reasons for the relief requested, including a detailed explanation of the significance of the evidence including material facts, and the governing law, rules, and precedent." 37 C.F.R. § 42.22(a)(2). Accordingly, Petitioner has failed to satisfy their burden of proof to articulate a reason or motivation why a POSITA would have found it obvious to combine separate and distinct embodiments of Iwami.

b. A POSITA Would Not Have Found It Obvious to Combine Separate and Distinct Embodiments of Iwami

Iwami teaches different ways to establish connection between source devices and sink devices. *See* EX1004 ¶¶ [0066]-[0070].

Iwami presents distinct embodiments as complete, alternative designs that address different control problems in mutually exclusive ways, not as modular features to be freely intermixed. EX1004, ¶¶ [0066]-[0070]; EX2014 at ¶¶ 102-104. Each embodiment carries its own system configuration, sequence charts, and flowcharts. EX1004, ¶¶ [0066]-[0070]. These self-contained systems have architectures that conflict if superimposed. *Id*. For example, in the sink-controlled flow, the source device transmits a mode table request to the sink device (steps 505–506), and the sink device responds with command information specifying the output form, audio quality, and power mode that the source device must adopt (steps 507–510). EX1004, ¶¶ [0146]-[0148]. The sink also controls standby and wake-up: the source periodically inquires whether the user has changed the output form, and the

sink transmits a standby cancellation message to trigger wake-up and re-initiate mode-setting under the sink's renewed authority (steps 531–550). EX1004, ¶¶ [0162]-[0171]. In contrast, in the source-controlled flow, the sink transmits a mode status notification—not command information—to the source (steps 565–566). EX1004, ¶ [0176]. The source then independently decides the setting content and transmits a mode setting request to the sink (steps 567–568). EX1004, ¶¶ [0177]-[0178]. The sink responds with permission or non-permission; if denied, the source newly decides and resubmits (steps 569–570). EX1004, ¶¶ [0179]-[0181]. For subsequent mode changes, the sink transmits a mode status change notification, but the source transmits the mode change request embodying its own decision (steps 584–589). EX1004, ¶¶ [0183]-[0185]; EX2014 at ¶¶ 102-106.

These flows are structurally incompatible. EX1004, ¶¶ [0146]-[0148], [0176]-[0178]; EX2014 at ¶¶ 105-106. The messages differ—mode table requests and command information in the sink-controlled flow versus mode status notifications and mode setting requests in the source-controlled flow—and the RTSP exchanges that implement them cannot run concurrently without collision. EX1004, ¶¶ [0146]-[0148], [0176]-[0178]; EX2014 at ¶ 105. Running both standby/wake-up mechanisms simultaneously would create ambiguity over which device's signal governs, producing duplicative or contradictory RTSP messages. EX1004, ¶¶

[0162]-[0165], [0183]-[0185]. For example, at the RTSP level, the sink-controlled capability exchange maps to M3 RTSP GET_PARAMETER and M4 RTSP SET_PARAMETER (FIG. 14), while the source-controlled regime uses M5 RTSP SET_PARAMETER (wfd-trigger-method) and M7 PLAY Request for standby cancellation, with the sink's M12 RTSP SET_PARAMETER (WFD-standby) used to notify mode status rather than command it. EX1004, ¶¶ [0220]-[0228], FIG. 14. These assign trigger and response roles to opposite devices; interleaving them would produce undefined protocol states. EX1004, ¶¶ [0220]-[0228]; EX2014 at ¶¶ 105-106.

The remaining embodiments are further incompatible. In the second embodiment, a separate control device (device 740) manages multiple source devices through group management information, including terminal identification, group participation state, scheduling, and outdoor use permissions. EX1004, ¶¶ [0250], [0265]-[0273]. The control device governs which source device is switched between standby and image transmission via drag-and-drop operations. EX1004, ¶¶ [0274]-[0283], [0305]-[0306]. A fundamentally different architecture from the first embodiment's direct source-sink RTSP negotiations, with a separate control device orchestrating mode switching across multiple sources. EX1004, ¶¶ [0378]-[0391]. In the third embodiment, NFC-based group authentication is used as the gateway to

connection: the source physically touches the sink (or an NFC reader/writer), and direct P2P communication is established first, with the system switching to the access point connection afterward. EX1004, ¶¶ [0436]-[0439]. This is the inverse of the second embodiment's AP-first sequence; merging them would require resolving contradictory connection initiation orders. EX1004, ¶¶ [0378]-[0380], [0438]-[0439]. Further, in the fourth embodiment, user-initiated connection is replaced with automatic soft handover, in which the source is automatically connected to the access point at its location and then discovers the sink device (FIG. 32). EX1004, ¶¶ [0470]-[0471]. These embodiments are separate and distinct from each other; implementing standalone architectures that cannot be used in the plug and play manner Petitioner contends. *See* EX2014 at ¶¶ 103-106.

In addition, Iwami's core design locks RTSP messages to particular points in each embodiment's state flows for capability negotiation, standby, and wake-up; mixing in different embodiment flows would disrupt these semantics and timing guarantees. EX1004, ¶¶ [0219]-[0228]. Iwami states "transmission of an image (video) or audio via the access point is not considered" in the operative embodiments, acknowledging infrastructure-mode streaming only as a variant beyond the embodiments. EX1004, ¶ [0482]. Iwami's WFD sub-element structures further bind device capabilities, content protection, and session information to either

the sink-controlled or source-controlled flow, but not both. EX1004, ¶¶ [0326], [0342]-[0344]; *see also* FIGS. 34-38.

In sum, Iwami's embodiments solve different problems in incompatible ways and are taught as alternatives. EX1004, ¶¶ [0024], [0066]-[0070]. Petitioner provides no articulated reason to merge them, and doing so would destabilize the appropriate control discipline Iwami seeks to achieve. EX2014 at ¶¶ 103-106.

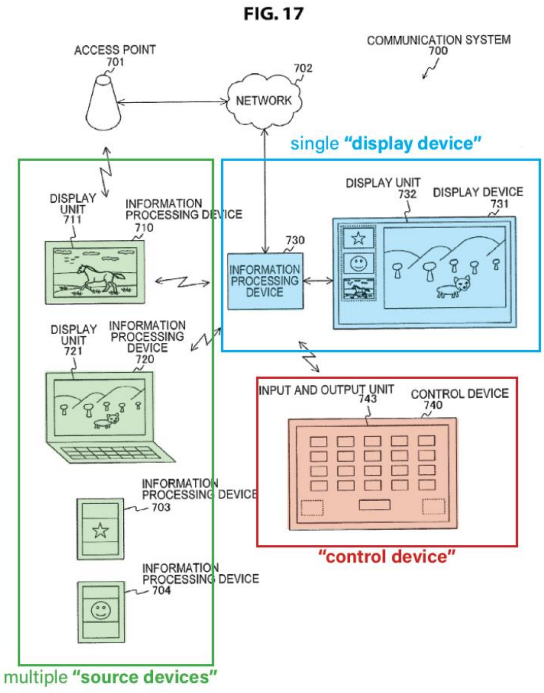
As another example of incompatibility of Iwami's embodiments, paragraphs [0409] and [0413] are directed to a process for setting up connection between a source device and sink device via an access point. EX1004 ¶¶ [0409], [0413], FIGs. 29-30. Figures 29-30 describe outdoor use permission in relation to the second embodiment, which is directed to giving permission when an access point is being used. EX1004, ¶ [0407]. Outdoor use permission is therefore irrelevant to the third embodiment, which discusses initiating a connection *without* an access point. EX1004, ¶ [0069] (discussing that third embodiment involves starting connection "between source device and sink device using near field communication"). Further, initiating connection via an access point (and using outdoor use information) via the second embodiment begins a flow composed of different steps than initiating connection via near field communication. *Compare*, *e.g.*, EX1004, FIG. 27 *with* EX1004, FIG. 31. Initiating connection via an access point requires disconnection

via an access point and start of a new direct connection before image transmission begins. EX1004, FIG. 27. The third embodiment does not disclose such a procedure—there is no need to disconnect connection with an access point before image transmission because connection was initiated via direct connection. However, the Petition asserts to combine these separate embodiments without providing any motivation or reasoning to do so. As Dr. Pachamanov explains in his Declaration, no such motivation to combine exists to achieve the claimed features, except through the use of impermissible hindsight. EX2014 at ¶¶ 102-106.

### 3. Petitioner Fails to Establish Any Motivation to Combine Iwami and Kim

Iwami and Kim are directed to two fundamentally different systems and a POSITA would not be motivated to combine the two references in the manner proposed by Petitioner. EX2014 at ¶¶ 107-114. In particular, Iwami and Kim inhabit different protocol stacks, control planes, and distribution models.

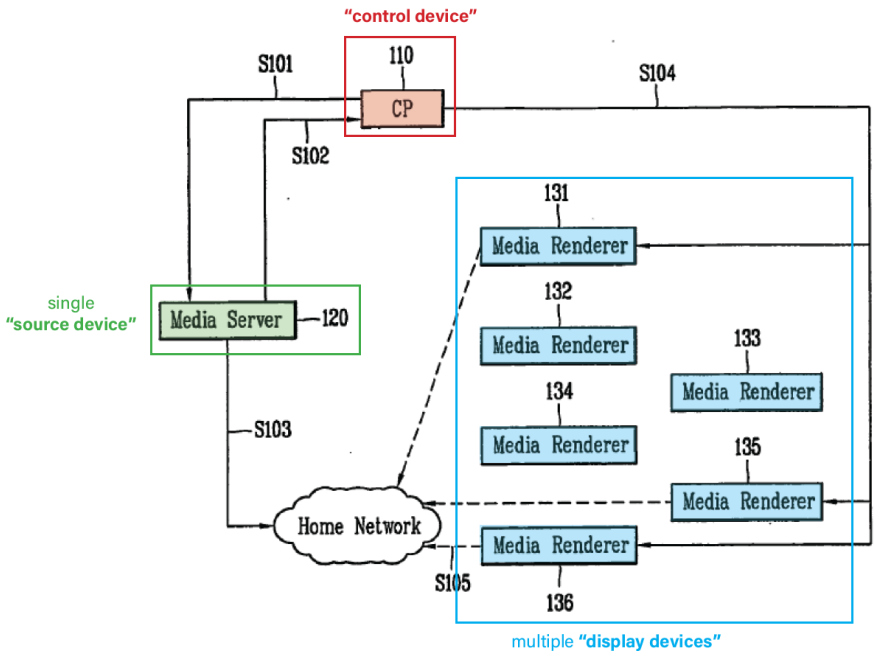
Iwami is directed to a many-to-one system, where there are many "source devices" and a single "display device." EX1004, Figs. 17-18. An annotated image of Figure 17 of Iwami is below.




In Iwami, a control device asserts control over multiple source devices. EX1004, ¶ [0250]. The control device controls what is displayed on the display device by selecting specific source devices (*i.e.*, information processing devices) to cause a particular image to be displayed on the display device. EX1004, ¶ [0255] ("The teacher can sequentially select the information processing devices of the students who have to cause the image to be displayed on a display unit 732 of the display device 731 by manipulating the control device 740."). To take part in such a system, the source device communicates with the sink device to start connections. *See, e.g.*, EX1004, Fig. 27.

Kim is directed to managing multi-casting in relation to a one-to-many system

where there is a single "source device" (described as "media server" (MS)) and multiple "display devices" (described as "media renderers" (MRs)). EX1006, Fig. 1, ¶ [0019].




In Kim, a control point facilitates the ability of a media renderer to join and leave a multicast group. EX1006, ¶ [0036]. The control point requests the media server to transmit media to a multicast address, informs media renderers of the multicast address so that the media renderers can use the multicast address to access the media. *Id.* Kim does not disclose a system of permissions. EX2014 at ¶¶ 108-110. The control point simply facilitates as an intermediary to allow media renderers to join or leave a multicast group. EX1006, ¶¶ [0042], [0045]. Nothing in Kim

suggests that the control point will block access to media renderers or the media server based on revoking permission. EX1006, ¶¶ [0043]-[0046]; EX2014 at ¶¶ 109-110. None of Petitioner's cited paragraphs support the assertion that Kim is directed to a system using permissions in which a control point grants or revokes permission for connection. EX1006, ¶¶ [0037]-[0045]; EX2014 at ¶¶ 109-110. Kim does not even use the word "permission" anywhere in its disclosure.

Petitioner asserts that "[a] POSITA would have been motivated to implement elements of the Kim permission technique as one mechanism by which the control device 740 of Iwami can manage connections between source devices 703, 704, 710, and/or 720 and sink device 730." However, as explained, Kim fails to recite any "permission techniques" at all. EX2014 at ¶ 110.

Fundamentally, Kim and Iwami are directed to different systems, and therefore a POSITA would not have found it obvious to modify Iwami with Kim to achieve the elements of the Challenged Claims. EX2014 at ¶¶ 111-113. Iwami is grounded in Miracast/Wi-Fi Direct with RTSP-based control and a source–sink point-to-point model. EX1004, ¶¶ [0076]-[0077], [0219]. Kim describes augmenting UPnP AV with multicast-specific actions (MulticastStart(), Join(), Leave()) for group streaming under UPnP's SOAP/HTTP architecture. Nothing in Iwami suggests introducing UPnP control primitives; Iwami binds its control logic to RTSP

exchanges and WFD subelements that presuppose a unicast Miracast session, and displacing that with Kim's multicast group distribution would discard Iwami's WFD capability model and RTSP state machine. *See e.g.*, EX1004, ¶¶ [0076]-[0077], [0219]; EX1006, ¶¶ [0147], [0219]-[0228]. As Dr. Paradiso acknowledged, Iwami does not even mention multicast. EX2015, 103:5-6. Nor does Kim suggest porting its multicast action model into a Miracast/WFD session. *See* EX2014 at ¶¶ 112-113.

Iwami and Kim attempt to solve different, non-complementary problems. Iwami addresses "appropriate control" when switching between AP and direct communication under Miracast. EX1004, ¶¶ [0005]-[0008], [0024], [0392]. On the other hand, Kim addresses multicast distribution scalability in UPnP networks. *See e.g.*, EX1006, ¶¶ [0016]-[0026], [0032]-[0033]. Substituting UPnP multicast, as taught by Kim, into Iwami's Miracast control would change its principle of operation. EX2014 at ¶¶ 112-114; MPEP § 2143.01.

Specific technical incompatibilities confirm the mismatch. Iwami's WFD sub-elements include content protection for pairwise sessions, which Kim's multicast actions do not address; mapping multicast distribution into WFD's pairwise framework would require nontrivial redesign beyond either reference's teachings. EX1004, ¶¶ [0147], [0326], [0342]-[0344]. Iwami's standby/wake-up mechanisms tie to RTSP messages coordinating two peers, not group membership dynamics;

Kim's Join/Leave do not integrate with Miracast's RTSP PLAY-trigger or standby cancellation semantics. EX1004, ¶¶ [0225]-[0228].

As Dr. Pachamanov explains in his declaration, there is no reasoned path by which a POSITA would select Kim's multicast UPnP actions to modify Iwami's Miracast/RTSP flows, and no basis to expect success without rearchitecting the system. EX2014 at ¶¶ 112-114. Iwami's Miracast/WFD and RTSP pairwise controls are ***not*** interchangeable with Kim's UPnP AV multicast semantics. *Id*. Accordingly, a POSITA would not have found it obvious to combine Iwami with Kim to achieve the elements of the Challenged Claims.

#### 4. Petitioner Fails to Establish That Claim Elements [1d], [14d], and [15c] Would Have Been Obvious Based on Iwami and Kim

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." Claim Element [14c] recites "wherein the controller is configured to transmit permission to establish a connection for the communication device and another communication terminal…" Claim Element [15d] recites "wherein the controller is configured to control 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."

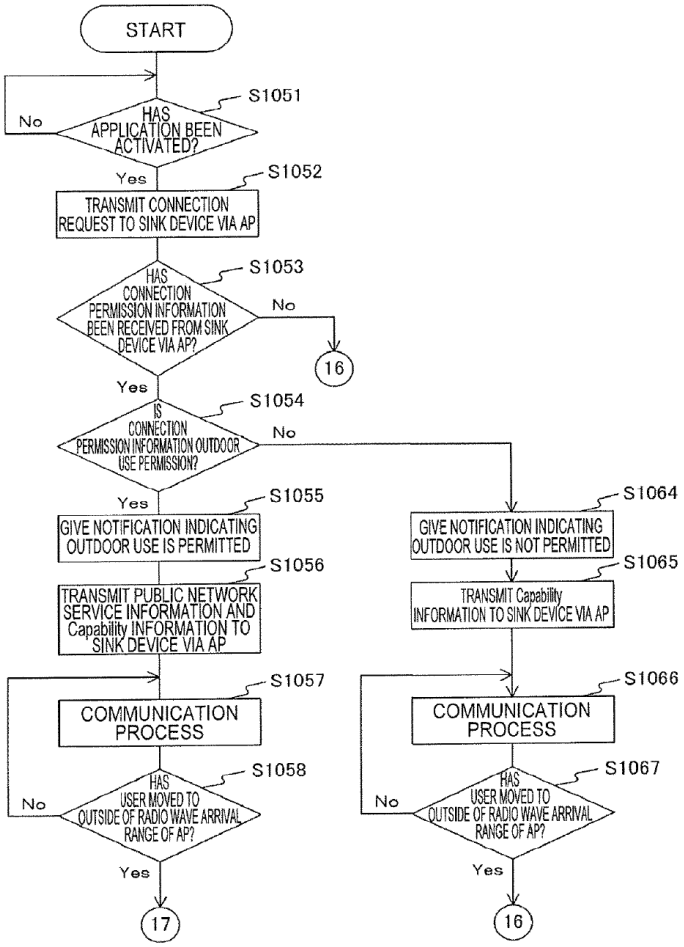
Although Claim Elements [1d], [14c], and [15d] are separate required elements of claims 1, 14, and 15, respectively, the errors in the Petitioners' invalidity grounds for these claim elements are interrelated and will be discussed together for purposes of conciseness and ease of explanation herein. The Petition fails to establish that the combination of Iwami and Kim would have rendered obvious these claim elements.

At the outset, Petitioner relies on combining distinct features from the second embodiment and the third embodiment (*e.g.*, relying on EX1004, ¶¶ [0266]-[0273], [0357]-[0362], [0405]-[0407], [0409], [0410], [0413] (second embodiment) and ¶¶ [0448]-[0455] (third embodiment)), without providing a sufficient motivation to combine as explained in detail supra, § VI(A)(2). Putting this threshold error aside, Petitioner continues to err by fundamentally failing to establish the required causal link between permission from the first terminal and the second terminal's establishment of a connection to use the communication device. EX1004, ¶¶[0406]–[0407]; EX2014 at ¶ 116. Petitioner solely addresses what constitutes the alleged permission, and how the permission is allegedly "from the first communication terminal" but fails to provide any explanation of ***if*** such permission establishes the connection with an alleged communication device to use the communication device.

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," which 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. EX1004, ¶ [0407]. Nothing in that definition makes the second terminal's ability to establish the connection to use the sink device (*e.g.*, information processing device 730) dependent on the first terminal's permission, *e.g.*, permission from the control device 740. Indeed, Iwami's system can operate with access-point connectivity or direct P2P connectivity independent of the "outdoor use" flag. EX1004, ¶¶ [0437]–[0447], [0448]–[0455]; EX2014 at ¶¶ 117-118.

Outdoor use permission is included in "connection permission information" used by source device in communication with the sink device via an access point. As shown in Figure 29 (reproduced below), once a notification indicating outdoor use is permitted is received in S1055, public network service information and capability information is transmitted to the sink device via the access point (S1056) and a communication process begins (S1057). EX1004, FIG. 29.

FIG. 29

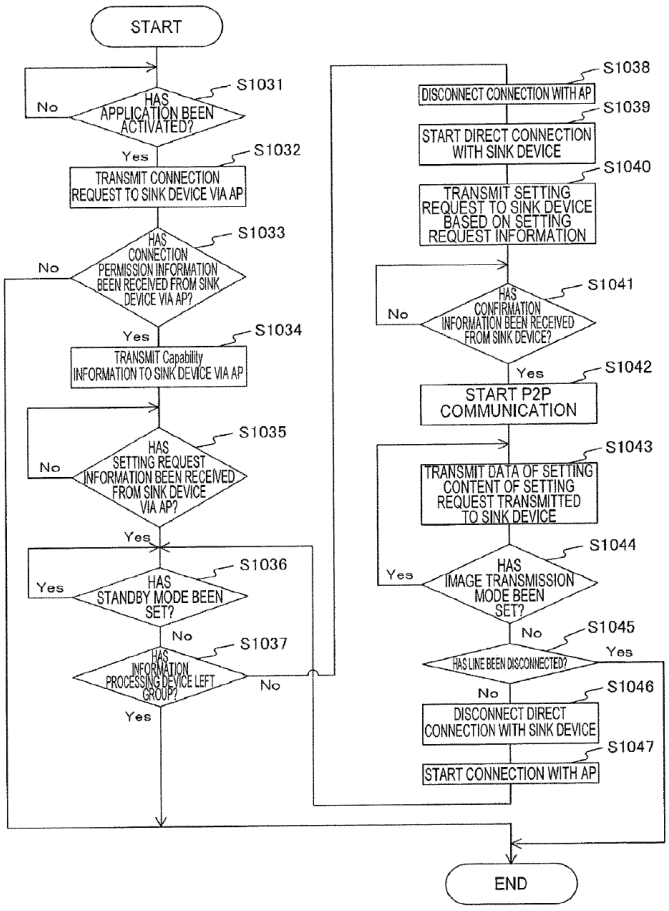



EX1004, Fig. 29.

The communication process of S1057 includes additional steps that are not depicted in Figure 29 but are portrayed in Figure 27. EX1004 ¶ [0417] ("In the communication process [(step S1057)], the process (steps 1035 to S1047) illustrated in FIG. 27 is performed."). As shown in Figure 27 (reproduced below), once the communication process has initiated, additional steps are performed including, for

example, at least setting request information must be received (S1035), connection with the access point is disconnected (S1038), a direct connection with sink device is started (S1039), P2P communication must be started (S1042), and data of setting content of setting request transmitted to sink device must be transmitted (S1043), and image transmission mode must be set (S1036).

FIG. 27




EX1004, Fig. 27.

Petitioner has mapped the permission to outdoor use information and "use" to

the ability to transmit video. Pet. at 33-37. Based on Petitioner's own mapping, there is no relationship between having "outdoor use" permission and establishing a connection with the communication device to "use the communication device." *See* EX2014 at ¶¶ 117-118.

Further, as Dr. Paradiso confirmed during his deposition, Iwami's paragraphs 313 and 314 teach that the second embodiment omits security authentication between the source device and the sink device based on an assumption that because they are in the same group no authentication of the security authentication needs to be performed. EX2015, 128:17-130:2. Dr. Paradiso also confirms, in referencing paragraph 357, that Iwami's second embodiment describes that it is the information processing device 730 that performs group authentication. EX2015, 132:15-135:12.

As noted above, Petitioner mixes reliance on the second and third embodiments. Iwami expressly states that outdoor use permission "is 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," and it is irrelevant to the third embodiment's near-field-initiated, direct-connection workflow. EX1004, ¶¶ [0407], [0448]–[0455]. The Petition's mapping improperly mixes the access-point embodiment (which provides outdoor use permission) with the touch-initiated embodiment (which provides direct

P2P connection and control messaging), contrary to Iwami's own disclosure. *Id.*; EX2014 at ¶¶ 116-118.

Even within Iwami's access-point embodiment (third embodiment), the outdoor use permission does not cause connection establishment for use because a source must first disconnect from the access point, initiate a direct P2P session, negotiate GO/WPS/4-way handshake, acquire a new IP address, and then transition to image transmission. EX1004, ¶¶ [0437]–[0447]. Those intervening steps break any causal link between the mere receipt of "outdoor use permission" and the act of establishing the P2P connection used for image transmission. EX1004, ¶¶ [0437]–[0447]; EX2014 at ¶¶ 119-120.

The Petition also contends that a POSITA would have found it obvious to modify Iwami such that "any and all connection permission information would originate with control device 740 and be passed to source device 710 via sink device 730." Pet. at 36. However, this shifting of "permission information" to originate from Iwami's control device 740, as the Petition suggests, does not cure the causation defect explained herein because the same sequence of disconnection, P2P negotiation, IP address reassignment, and start of image transmission would still be required before any "use" of the sink device occurs. EX1004, ¶¶ [0437]–[0447]; EX2014 at ¶¶ 119-120. In Iwami, the control device 740 "is a connection control

device that manages the information processing devices (the information processing devices 703, 704, 710, 720, and 730) included in the communication system 700 and controls the connection of the information processing devices. For example, the control device 740 manages and detects information (for example, terminal identification information and capability information) related to the information processing devices and an operation state (for example, a communication mode and a group participation state) of the information processing devices." EX1004, ¶ [0250]. Iwami's control device 740 "manages and detects" information related to the information processing devices, such as whether they are in standby mode or image transmission mode. EX1004, ¶¶ [0250], [0296]-[0297].

However, the control device 740 does not provide ***permission*** (outdoor use permission or any other permission) to any of the information processing devices (e.g., 703, 704, 710, and/or 720) to "***establish a connection*** with the communication device to use the communication device" (allegedly Iwami's information processing device 730), as required by Claim 1. Accordingly, Petitioner fails to show by a preponderance of the evidence that a POSITA would have found Claim Elements [1d], [14d], and [15c] obvious in view of the inapplicable and incomplete teachings of Iwami. *See* EX2014 at ¶¶ 119-120.

Kim does not cure these deficiencies of Iwami. Notably, Kim does ***not*** address

"permission" at all. Instead, Kim focuses on multicast session orchestration in which a control point coordinates MulticastStart(), Join(), and Leave() actions for renderers and a server, not a gatekeeping "permission" from a first terminal that enables or disables a second terminal's direct connection to and use of a sink device. EX1006, ¶¶ [0016], [0018], [0037]–[0045]; EX2014 at ¶¶ 121-123.

For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that Claim Elements [1d], [14d], and [15c] would have been rendered obvious based on Iwami and Kim.

### 5. Petitioner Fails to Establish That Claim Elements [1c], [1e], [14b], and [15e] Would Have Been Obvious Based on Iwami and Kim

Claim Element [1c] recites "a first communication terminal configured to connect to the communication device via the access point device and transmit a command to remotely control a display operation on the communication device connected with the first communication terminal," and Claim Element [1e] recites "wherein, while the communication device outputs data received from the second communication terminal that has established the connection with the communication device and upon receiving, by the communication device, the command from the first communication terminal, the communication device is configured to control how to display the data received from the second communication terminal while

maintaining the connection with the second communication terminal." Claim Element [14b] recites "a controller configured to control the wireless connection interface and to transmit a command to remotely control a display operation on the communication device connected with the communication terminal…" Claim Element [15e] recites "wherein, while the controller controls the data received from the another communication terminal and upon receiving at the wireless communication interface, from the communication terminal, a command to remotely control how the data received from the another communication terminal is displayed, the controller is configured to control the data received from the another communication terminal in accordance with the command from the communication terminal while maintaining the connection with the another communication terminal…"

Although Claim Elements [1c], [1e], [14b], and [15e] are separate required elements of claims 1, 14, and 15, respectively, the errors in the Petitioners' invalidity grounds for these claim elements are interrelated and will be discussed together for purposes of conciseness and ease of explanation herein. The Petition fails to establish that the combination of Iwami and Kim would have rendered obvious these claim elements. *See* EX2014 at ¶¶ 124-133.

Petitioner relies on purely conclusory assumptions that Iwami teaches that

control device 740 transmits a command to sink device 730 that causes an image to be moved from the peripheral channel region 734 to the middle channel region 733. Pet. 37-38. Iwami's deficiencies are implicitly acknowledged by Petitioner by failing to cite to Iwami a single time in relation to limitation [1e]. *See id.* Instead, Petitioner only cites to its expert declaration and earlier discussion of limitation [1c] in relation to Iwami's alleged disclosures. *See, e.g.*, *id.*

Iwami teaches that when changing communication modes, control device 740 sets the communication mode in the source device, *i.e.*, transmits information to the source device, rather than the sink device 730. EX1004, ¶ [0264] ("[W]hen real-time image transmission is performed between the sink device and a plurality of source devices according to the Wi - Fi CERTIFIED Miracast specification, the control unit 747 [of control device 740] performs control such that the communication mode is set in the source device."). Iwami fails to disclose that a command is sent from the control device 740 to the sink device (*i.e.*, information processing device 730) to change the communication mode in the sink device. EX2014 at ¶¶ 126-127.

Iwami also describes triggers (referred to as (B1) to (B3)) that can be used to switch communication modes of the source device. EX1004, ¶ [0296]. However, Iwami only describes the use of switching in the context of switching between two modes: standby mode and image transmission mode. EX1004, ¶¶ [0296]-[0297]

("Here, a switching method when the communication modes (the standby mode and the image transmission mode) of the source device are switched will be described… For example, the following (B1) to (B3) can be used as triggers for switching of the communication modes of the source device."); *see also* EX1004, ¶¶ [0305]-[0306], FIG. 21. Iwami never states that the trigger can be used to change between two different image transmission modes. EX2014 at ¶¶ 125-126.

Notably, Iwami's architecture sends mode-switching and related commands to the source devices, not display-control commands to the sink device as required by the claims. *See* EX1004, ¶¶ [0437]–[0447]; EX2014 at ¶ 127. Iwami describes the control device manipulating which source is active and in which band or mode, and then the sink device displays whatever it receives from the source devices; the sink is not described as receiving a display-control command from the control device and then, in response, controlling how it displays the second terminal's data while maintaining the second terminal's connection. *Id*. In the touch-initiated embodiment, Iwami again emphasizes direct P2P establishment and group control via NFC but does not disclose the claimed command/response relationship between the first terminal and the sink for in-place display control during an ongoing second-terminal session. *See* EX1004, ¶¶ [0448]–[0455]; EX2014 at ¶¶ 127-131.

Petitioner tacitly recognizes these deficiencies in Iwami and is forced to

attempt to rely on Kim. *See* Pet. at 38. However, Kim fails to cure these deficiencies in Iwami. Kim describes that a control point facilitates the ability of a media renderer to join and leave a multicast group and does not contemplate how to manage ***how*** a media renderer displays information, instead focusing on sending information that allows a media renderer to display media from a multicast stream. *See, e.g.*, EX1006 ¶ [0036]; EX2014 at ¶ 132. Further, Kim's UPnP AV actions are limited to session/multicast orchestration such as MulticastStart(), Join(), and Leave(); Kim says nothing about a control point transmitting display-control commands to a renderer that cause the renderer to change how it displays ongoing content from a particular source while maintaining that source's connection. EX1006, ¶¶[0037]–[0045]. Because of this, Kim fails to disclose any command related to remotely controlling a display operation on the communication device and controlling how to display the data received from the second communication terminal. EX2014 at ¶ 132.

For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that Claim Elements [1c], [1e], [14b], and [15e] would have been rendered obvious based on Iwami and Kim.

### 6. Petitioner Fails to Establish That Claim Elements [1f], [14e], and [15f] Would Have Been Obvious Based on Iwami and Kim

Claim Element [1f] recites "wherein, when the communication device receives information to terminate the permission from the first communication terminal, the communication device is configured to terminate the connection with the second communication terminal in accordance with the information to terminate permission received from the first communication terminal." Claim Element [14e] recites "wherein, when the controller transmits information to terminate the permission from the communication terminal, the controller is configured to transmit the information to terminate the connection with the another communication terminal to the communication device." Claim Element [15f] recites "wherein, when the wireless communication interface receives information to terminate the permission from the communication terminal, the controller is configured to terminate the connection with the another communication terminal."

Although Claim Elements [1f], [14e], and [15f] are separate required elements of claims 1, 14, and 15, respectively, the errors in the Petitioners' invalidity grounds for these claim elements are interrelated and will be discussed together for purposes of conciseness and ease of explanation herein. The Petition fails to establish that the combination of Iwami and Kim would have rendered obvious these claim elements.

*See* EX2014 at ¶¶ 134-140.

Petitioner acknowledges that "Iwami does not disclose a mechanism by which control device 740 terminates the permission of source device 710 to connect to sink device 730." Pet. at 39. Petitioner tenuously contends that: "Based on Kim's teachings, a POSITA would have found it obvious to modify the system 700 of Iwami to send an explicit message from first communication terminal 740 to sink device 730 to terminate permission for a second communication terminal 710 to connect with sink device 730." Pet. 40. This rationale fails because neither Iwami or Kim teaches any alleged communication device receiving "information to terminate the permission" from an alleged first communication terminal. EX2014 at ¶¶ 135-136.

Petitioner relies on the "Leave() action" in Kim to satisfy this limitation. Pet. 40. The Leave() action is described in Kim as an action that can be used by a media renderer (*e.g.*, a display device) to leave a multicast group. EX1006, ¶ [0045]. In other words, Kim's Leave() is a renderer-side action indicating that a renderer stops receiving multicast content. Kim does not disclose the communication device receiving "information to terminate the permission" from a first terminal and then terminating the second terminal's connection in accordance with that termination information. EX1006, ¶¶ [0037]–[0045]; EX2014 at ¶¶ 136-137. Kim's control point

coordinates multicast joins and leaves, but the act of leaving is executed by the renderer in the context of multicast membership, not by receiving and executing a permission-termination instruction that compels a disconnect. *Id*. Kim also contemplates that a renderer can leave and then later re-join a multicast group, which is inconsistent with a permission-termination regime that disables further use until permission is re-granted. EX1006, ¶¶ [0019], [0037]–[0045]. However, Kim's control point does ***not*** send permission information to terminate a connection to the UPnP device/media renderer. *See* EX1006, ¶¶ [0019], [0037], [0045]; EX2014 at ¶¶ 136-138. When the media renderer uses the Leave() action to leave the multicast group, the media renderer transmits information to the control point and the control point invokes the Leave() action to stop the data reception. EX1006, ¶ [0037]; *see also* FIGs. 2-3.

Kim describes the ***use*** of the Leave() action is based on use by the media renderer and not the control point. EX1006, ¶ [0045] ("Afterwards, in order to leave the multicast group, the corresponding media renderer uses 'Leave()' action received from the control point 110."). In other words, Kim discloses a system in which the media render (the alleged "communication device") is the device that determines to leave by using the 'Leave()' action. *See id.* In Kim, the information to terminate comes from the media renderer itself and is not received from the control point (the

alleged "first communication terminal"). EX2014 at ¶¶ 136-138.

Further, Kim fails to disclose that "***when*** the communication device receives information to terminate the permission from the first communication terminal, ***the communication device is configured to terminate the connection with the second communication terminal*** in accordance with the information to terminate permission received from the first communication terminal." However, when Kim's control point sends the Leave() action to the media renderer, the communication device must ***use*** the Leave() action; Kim fails to disclose that the media renderer (the alleged "communication device") is configured to terminate the connection. EX1006, ¶ [0045]. This is evident from the goal purported by Kim – to enable the UPnP device to join and leave the multicast group, such that it is the media renderer (*i.e.*, the UPnP device) that determines when to leave the multicast group by using the Leave() action; information received from the control point fails to trigger termination of the connection. *See* EX1006, ¶¶ [0016], [0018], [0032], [0033]; EX2014 at ¶¶ 138-139.

In addition, Kim fails to disclose to "receive[] information to terminate the permission…" because, as explained herein, Kim is directed to a system facilitating a display device (media renderer) that wants to join or leave a multicast group, which can be performed regardless of "permissions" granted by the control point or another

device. EX1006, ¶¶ [0016], [0018], [0046]; EX2014 at ¶¶ 138-139. Petitioner's expert, Dr. Paradiso, admitted during his deposition that "[b]eyond just the ability to send the information [to grant or deny access to media renderers] to the renderers to join or to leave, there's nothing that talks about permission in Kim as such." EX2015, 164:9-15. The role of a control point in Kim is to facilitate the joining and leaving of a media renderer by giving address information to a media renderer that wants to play contents of the multicast group. EX1006, ¶ [0042] ("At this time, the control point 110 informs a plurality of media renderers 131 to 136 wanting to play the contents of the RTSP URL provided from the media server 120 through SetAVTransportURI action."); *see also* EX1006, ¶ [0046] ("If the user wants to view the existing contents again after the contents are over, the user has to rejoin the multicast group after leaving the multicast group."). Therefore, Kim fails to cure the deficiencies of Iwami (admitted by Petitioner). EX2014 at ¶¶ 138-140.

For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that Claim Elements [1f], [14e], and [15f] would have been rendered obvious based on Iwami and Kim.

### 7. Petitioner Fails to Establish That Claim 5 Would Have Been Obvious Based on Iwami and Kim

Because claim 5 depends from claim 1, it includes all of the limitations that Iwami and Kim fails to teach with regard to claim 1, as detailed *supra* §VI(A)(1)-

(6); EX2014 at ¶¶ 89-141.

In particular, claim 5 recites "the first communication terminal displays information whether to terminate the permission on a display screen, receives an input operation for terminating the permission, and transmits the information to terminate the permission to the communication device in accordance with the input operation for terminating the permission." However, as explained in detail *supra* §VI(A)(6), Iwami and Kim both fail to disclose or render obvious terminating permission, as claimed.

For at least the foregoing reasons (including *supra* §VI(A)(6)), Petitioner fails to show by a preponderance of the evidence that claim 5 would have been rendered obvious based on the combination of Iwami and Kim.

### 8. Petitioner Fails to Establish That Claim 13 Would Have Been Obvious Based on Iwami and Kim

Because claim 13 depends from claim 1, it includes all of the limitations that Iwami and Kim fails to teach with regard to claim 1, as detailed *supra* §VI(A)(1)-(6); EX2014 at ¶¶ 89-141.

For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that claim 13 would have been rendered obvious based on the combination of Iwami and Kim.

### B. Ground 2: Petitioner Fails to Establish That Claims 2 and 12 Would Have Been Obvious Based on Iwami, Kim, and Liansky

Because claims 2 and 12 both depend from claim 1, they include all of the limitations that Iwami and Kim fail to teach with regard to claim 1, as detailed with respect to Ground 1 *supra* §VI(A)(1)-(6); EX2014 at ¶¶ 89-146.

Further, claim 2 (and similarly claim 12) recites "wherein for the permission, the first communication terminal transmits, to the second communication terminal, connection information necessary for a connection through short range communication with the second communication terminal, and the second communication terminal connects to the communication device by using the connection information." Although Claims 2 and 12 recite separate required elements, the errors in the Petitioners' invalidity grounds for claims 2 and 12 overlap and will be discussed together for purposes of conciseness and ease of explanation herein. The Petition fails to establish that the combination of Iwami, Kim, and Liansky would have rendered obvious these claim elements.

The Petition primarily relies on Liansky for barcode-based short-range transmission of connection parameters. EX1012, 5:3–37, FIG. 2. Liansky describes role assignments that are the opposite of the claim's roles. Liansky describes a receiving screen device that displays a QR code and a mobile device captures it. EX1012, 5:3–37, FIG. 2. In other words, Liansky's screen device may be considered

to perform the role of the claimed communication device (only for purposes of claims 2 and 12 here) and Liansky's mobile device may be considered to perform the role of the claimed second terminal (only for purposes of claims 2 and 12 here), not to the claimed first terminal that transmits/displays connection information. Liansky therefore does not disclose or render obvious the first communication terminal transmitting or displaying connection information for the second communication terminal as required by Claim Elements [2a] and [12a], nor does it disclose the second terminal receiving that information from the first terminal as required by Claim Elements [2b] and [12b]. EX2014 at ¶¶ 142-146. Iwami and Kim do not cure these deficiencies of Liansky.

For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that claims 2 and 12 would have been rendered obvious based on the combination of Iwami, Kim, and Liansky.

### C. Ground 3: Petitioner Fails to Establish That Claims 7, 8, and 10 Would Have Been Obvious Based on Iwami, Kim, Liansky, and Weiser

Because claims 7, 8, and 10 each depend from claim 1, they include all of the limitations that Iwami and Kim fail to teach with regard to claim 1, as detailed with respect to Ground 1 *supra* §VI(A)(1)-(6); EX2014 at ¶¶ 89-140, 147-151.

The Petition relies primarily on Weiser's whitelists/blacklists as a purported

"permission list" recited in claims 7, 8, and 10. *See* EX1008, ¶¶ [0191], [0194], [0200], FIGs. 6B, 6D. Weiser teaches whitelist/blacklist mechanisms are implemented at a proxy/video conference bridge and/or firewall that act as infrastructure intermediaries, not at an endpoint display/communication device as required by the claims. EX1008, ¶¶ [0190]–[0195], [0200]–[0206]. Weiser's device "serves as an end point for the first client 602-proxy communication, both on the signaling path and the media path" and maintains access-control lists to allow/deny requests, which is not a permission list stored and enforced by the claimed communication device. EX1008, ¶ [0191]; *see also* EX1008, ¶¶ [0194], [0200]–[0206]; EX2014 at ¶¶ 147-151.

The Petition does not show the first terminal transmitting the second terminal's address information to the communication device for registration in a permission list at that communication device as Claims 7, 8, and 10 recite; rather, Weiser describes bridge-managed lists populated via client registration events and firewall policy, not via instructions from a separate first terminal to a sink device. EX1008, ¶¶ [0190]–[0194], [0200]–[0206], FIGs. 6B, 6D; EX2014 at ¶¶ 147-151. Nor does the Petition show the claim-specific confirmation loop for termination, in which the communication device "communicates with the first communication terminal for confirmation of termination of the permission" prior to deletion, and

then terminates the second-terminal connection when the second terminal's address is not registered in the communication device's permission list. *See* EX1008, ¶¶ [0191]-[0194], [0200]–[0206]. Weiser's connection allow/deny occurs at the bridge/firewall level, not by a sink device enforcing its own permission list against a second terminal. EX1008, ¶¶ [0191]–[0195], [0200]–[0206]. Iwami, Kim, and Liansky do not cure these deficiencies of Weiser. *See* EX2014 at ¶¶ 147-151.

For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that claims 7, 8, and 10 would have been rendered obvious based on the combination of Iwami, Kim, Liansky, and Weiser.

### D. Ground 4: Petitioner Fails to Establish That Claims 9 and 11 Would Have Been Obvious Based on Iwami, Kim, Liansky, and Kato

Because claims 9 and 11 both depend from claim 1, they include all of the limitations that Iwami and Kim fail to teach with regard to claim 1, as detailed with respect to Ground 1 *supra* §VI(A)(1)-(6); EX2014 at ¶¶ 89-140, 152-155.

The Petition primarily relies on a combination of Liansky and Kato to attempt to show the OTP and short-range workflow requirements recited in Claims 9 and 11. Kato is directed to an apparatus-centric OTP login and verification, not a three-device workflow, as claimed, in which a first terminal requests an OTP from a communication device, relays it by short-range communication to a second terminal,

and the second terminal then uses it to connect with the communication device. *See* EX1009, [0082]-[0094]. Liansky's inversion of roles persists for claims 9 and 11 because the screen device presents the code and the mobile device passively captures it, rather than the first terminal presenting to the second terminal or the second terminal using short-range communication to request it from the communication device as claims 9 and 11 recite. *See* EX1012, 5:3–37; FIG. 2; EX2014 at ¶¶ 152-155.

For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that claims 9 and 11 would have been rendered obvious based on the combination of Iwami, Kim, Liansky, and Kato.

### E. Ground 5: Petitioner Fails to Establish That Claim 6 Would Have Been Obvious Based on Iwami, Kim, and Dowling

Because claim 6 depends from claim 1, it includes all of the limitations that Iwami and Kim fail to teach with regard to claim 1, as detailed with respect to Ground 1 *supra* §VI(A)(1)-(6); EX2014 at ¶¶ 89-140, 156-159.

The Petition relies primarily on Dowling's cluster "heartbeat" signals to argue termination when the communication device is unable to receive information. EX1021, 19:13–48. Dowling's heartbeat mechanism detects switch presence/absence in a cluster at periodic intervals; it does not disclose a supervisory relationship in which, when the communication device is able to receive information

from the first terminal, it controls itself in accordance with that information, and when it is unable to receive such information, it terminates the connection with the second terminal. *Id*. Dowling describes a commander switch and member switches exchanging "ICC 'heartbeat' packets" and marking a member inactive when heartbeats are not received, which is not the claimed permission / command-based supervisory control over a second-terminal connection at a display device. *Id*.; EX2014 at ¶¶ 156-159.

Iwami and Kim fail to cure these deficiencies of Dowling. For example, Iwami does not supply the missing supervisory relationship because, as explained, it does not disclose the sink receiving display-control commands from the first terminal and, in response, controlling how it displays the second terminal's data while maintaining that connection. *See* EX1004, ¶¶ [0437]–[0455]; EX2014 at ¶¶ 156-159.

For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that claim 6 would have been rendered obvious based on the combination of Iwami, Kim, Liansky, and Dowling.

## VII. CONCLUSION

For at least the foregoing reasons, Petitioner has failed to establish by a preponderance of the evidence that any of the Challenged Claims are invalid, and therefore the Director should confirm the patentability of all Challenged Claims.

Dated: April 8, 2026

Respectfully submitted,

/*Robert G. Pluta*/
Robert G. Pluta (Reg. No. 50,970)
Amanda S. Bonner (Reg. No. 65,224)
MAYER BROWN LLP
71 S. Wacker Drive
Chicago, IL 60606
Telephone: (312) 701-8641
Fax: (312) 706-8144

Saqib J. Siddiqui (Reg. No. 68,626)
Matthew A. Stanford (Reg. No. 74,391)
MAYER BROWN LLP
1999 K Street NW
Washington, D.C. 20006
Telephone: 202-263-3000
ssiddiqui@mayerbrown.com
mstanford@mayerbrown.com

*Counsel for Maxell, Ltd.*

## CERTIFICATE OF SERVICE

I hereby certify that on this 8th day of April, 2026, a copy of the attached **PATENT OWNER'S RESPONSE** was served by electronic mail to the attorneys of record, at the following addresses:

James Heintz
jim.heintz@us.dlapiper.com

Nicholas Panno
nicholas.panno@us.dlapiper.com

Dated: April 8, 2026

Respectfully submitted,

/*Robert G. Pluta*/
Robert G. Pluta (Reg. No. 50,970)

*Counsel for Maxell, Ltd.*

**CERTIFICATION PURSUANT TO 37 C.F.R. § 42.24(d)**

Pursuant 37 CFR 42.24(d), the undersigned certifies that this Patent Owner's Response complies with the type-volume limitation of 37 CFR § 42.24(a). The word count application of the word processing program used to prepare this Patent Owner's Response indicates that it contains 13,992 words, excluding the parts of the brief exempted by 37 C.F.R. § 42.24(a).

Respectfully submitted,

/*Robert G. Pluta*/

Robert G. Pluta (Reg. No. 50,970)

*Counsel for Maxell, Ltd.*