

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Toshiyuki Kurita, et al. Attorney Docket No.:18768-0217IP8
U.S. Patent No.: 10,244,284
Issue Date: March 26, 2019
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Title: DISPLAY APPARATUS AND VIDEO PROCESSING APPARATUS

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES
PATENT NO. 10,244,284 PURSUANT TO 35 U.S.C. §§ 311–319,
37 C.F.R. § 42

TABLE OF CONTENTS

I.	REQUIREMENTS FOR IPR	1
A.	Grounds for Standing.....	1
B.	Challenge and Relief Requested.....	1
C.	Claim Construction	3
1.	“assignment”	3
2.	“a user issues an indication”.....	4
D.	Level of Ordinary Skill in the Art.....	5
II.	THE ‘284 PATENT	6
A.	Brief Description.....	6
B.	Prosecution History.....	8
III.	THE CHALLENGED CLAIMS ARE UNPATENTABLE.....	10
A.	[GROUND 1] – Honkanen-N95 Renders Obvious Claims 18-20	10
1.	Overview of Honkanen (LG-1004).....	10
2.	Overview of N95 (LG-1005).....	13
3.	Honkanen-N95 Combination	13
4.	Claim Analysis	17
(a)	Claim 18.....	17
(b)	Claim 19.....	35
(c)	Claim 20.....	36
B.	[GROUND 1A] – Honkanen-N95 in View of Bluetooth-Specification and IEEE 802.11g Standards Renders Obvious Claims 19 and 20	37
(a)	Claim 19.....	37
(b)	Claim 20.....	37
C.	[GROUND 2] – Dua-Barnes Renders Obvious Claims 18-20; [GROUND 2A] – Dua-Barnes-N95 Renders Obvious Claims 18-20....	38
1.	Overview of Dua (LG-1006).....	38
2.	Overview of Barnes (LG-1007)	41
3.	Dua-Barnes Combination.....	42
4.	Claim Analysis	46
(a)	Claim 18.....	46
(b)	Claims 19 and 20	76
D.	[GROUND 2A].....	77
(a)	Dua-Barnes-N95 Combination.....	77
(b)	Claims 18-20.....	78

E.	[GROUNDS 2B, 2C, 2C(a)]	79
1.	Kao (LG-1017)	79
2.	Dua-Barnes or Dua-Barnes-N95 Combination with Kao, Bluetooth-Specification, or IEEE 802.11g.....	79
3.	[GROUND 2B] – Dua-Barnes in View of Kao Render Obvious Claims 19 and 20.....	80
4.	[GROUND 2C] – Dua-Barnes in View of Kao and Bluetooth- Specification Renders Obvious Claims 19 and 20.....	80
5.	[GROUND 2C(a)] – Dua-Barnes-N95 in view of Kao and Bluetooth-Specification Renders Obvious Claims 19 and 20.....	80
IV.	PTAB DISCRETION SHOULD NOT PRECLUDE INSTITUTION.....	81
A.	<i>Fintiv</i>	81
B.	<i>Advanced Bionics</i> Test Favors Institution - 35 U.S.C. §325(d)	82
V.	CONCLUSION AND FEES	82
VI.	MANDATORY NOTICES UNDER 37 C.F.R § 42.8(a)(1).....	83
A.	Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1).....	83
B.	Related Matters Under 37 C.F.R. § 42.8(b)(2).....	83
C.	Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3).....	84
D.	Service Information	84

APPENDIX OF CLAIMS

Claim 18	
[18.pre]	A method for video processing, the method comprising:
[18.a]	transmitting, via a first radio communication circuit, digital video information by radio to an external apparatus;
[18.b]	connecting, via a second radio communication circuit, to an internet or a home network;
[18.c]	receiving digital information;
[18.d]	controlling each of the first and second radio communication circuits such that the first radio communication circuit transmits digital video information to the external apparatus and the second radio communication circuit connects to the internet or the home network simultaneously;
[18.e]	controlling assignment between the first radio communication circuit and the external apparatus, and assignment between the second radio communication circuit and the internet or the home network;
[18f.1]	controlling the assignment such that the assignment between the first radio communication circuit and the external apparatus is more than the assignment between the second radio communication circuit and the internet or the home network
[18f.2]	[controlling the assignment such that the first assignment between the first radio communication circuit and the external apparatus is more than the assignment between the second radio communication circuit and the internet or the home network] when a user issues an indication to transmit digital video information by the first radio communication circuit while acquiring information from the internet or the home network by the second radio communication circuit.
Claim 19	

[19]	The method of claim 18, wherein the first radio communication circuit and the second radio communication circuit are different from each other in frequency bandwidth.
Claim 20	
[20]	The method of claim 18, wherein the first radio communication circuit and the second radio communication circuit are different from each other in modulation/demodulation method.

EXHIBITS

- LG-1001 U.S. Patent No. 10,244,284 to Toshiyuki Kurita, et al. (“the ‘284 Patent”)
- LG-1002 Excerpts from the Prosecution History of the ‘284 Patent (“the Prosecution History”)
- LG-1003 Declaration and Curriculum Vitae of R. Michael Buehrer
- LG-1004 US. Pat. App. Pub. No. 2006/0135076A1 (“Honkanen”)
- LG-1005 Nokia N95-1 User Guide (“N95”)
- LG-1006 US. Pat. App. Pub. No. 2006/0258289 (“Dua”)
- LG-1007 US. Pat. App. Pub. No. 2005/0136949A1 (“Barnes”)
- LG-1008 Complaint, *Maxell, Ltd. v. LG Electronics Inc. et al*, 5-23-cv-00152, E.D. Tex., filed December 29, 2023
- LG-1009 Declaration and Curriculum Vitae of June Ann Munford
- LG-1010 Nokia N93 User Guide (“N93”)
- LG-1011 Specification of the Bluetooth System (“Bluetooth-Specification”)
- LG-1012 Appendix 4 of Maxell’s Infringement Contentions, 5:24-cv-04972-EKL, N.D.Cal., filed December 18, 2024
- LG-1013 US. Pat. App. Pub. No. 2006/0203758A1 (“Tee”)
- LG-1014 US. Pat. App. Pub. No. 2004/0125779A1 (“Kelton”)
- LG-1015 District Court Claim Construction Order for US11,445,241B2, *Maxell LTD. v. Samsung Electronics Co. et al*, 5:23-CV-00092-RWS
- LG-1016 IEEE 802.11g
- LG-1017 US. Pat. App. Pub. No. 2004/0264600A1 (“Kao”)

- LG-1018 R. Malyan and A Lenaghan, *A Multi-service Architecture to Support Mobile IP Applications over Heterogeneous Wireless Networks*, Eurocon, 313 (2003)
- LG-1019 Federal Court Management Statistics—Profiles (June 30, 2024)

LG Electronics, Inc. and LG Electronics USA, Inc. (“Petitioner” or collectively “LG”) petitions for *Inter Partes* Review (IPR) of claims 18-20 (Challenged Claims) of U.S. Patent No. 10,244,284 (the ‘284 Patent).

I. REQUIREMENTS FOR IPR

A. Grounds for Standing

Petitioner certifies the ‘284 Patent is available for IPR and LG is not barred or estopped from requesting review.

B. Challenge and Relief Requested

LG requests IPR of the Challenged Claims on the grounds below. *See* LG-1003, ¶¶1-226.

Ground	Claim(s)	35 U.S.C. § 103
1	18-20	Honkanen, N95
1A	19, 20	Honkanen, N95, Bluetooth-Specification, IEEE 802.11g
2	18-20	Dua, Barnes
2A	18-20	Dua, Barnes, N95
2B	19, 20	Dua, Barnes, Kao
2C	19, 20	Dua, Barnes, Kao, Bluetooth-Specification
2C(a)	19, 20	Dua, Barnes, N95, Kao, Bluetooth-Specification

Reference	Filing Date	Publication Date	Prior Art Basis
Honkanen	11/22/2005	6/22/2006	§102(b)
N95	N/A	4/23/2007 (LG-1009)	§102(b)
Bluetooth Specification	N/A	4/11/2004	§102(b)
IEEE 802.11g	N/A	6/27/2003	§102(b)
Dua ¹	5/12/2005	11/16/2006	§102(b)
Barnes	1/10/2005	6/23/2005	§102(b)
Kao	6/29/2004	12/30/2004	§102(b)

The '284 Patent claims priority to U.S. Application No. 12/260,410 filed 10/29/2008, and claims priority to JP Patent Application No. 2007-306750 filed 11/28/2007. LG-1001, code (30). Honkanen, N95, Dua, Barnes, Bluetooth Specification, IEEE 802.11g, and Kao published more than one year before the U.S. filing date of the '284 Patent and qualify as prior art under §102(b).

¹ Another Dua reference (US 8,572,257 B2) is cited on the face of the '284 Patent, but it's not related to Dua (LG-1006) used here.

C. Claim Construction

1. “assignment”

Claim 18 recites “*controlling assignment between the first radio communication circuit and the external apparatus, and assignment between the second radio communication circuit and the internet or the home network.*”

The '284 specification does not provide a definition for an “*assignment between*” (i) a radio communication circuit and (ii) an external apparatus or the internet or a home network. But based on the disclosure of the '284 Patent, *assignment between a radio communication circuit and an external apparatus or network* should be construed as ***assigning particular connection parameter(s) (such as bandwidth, modulation scheme, transmission rate/capacity and schedule) to the connection formed between the communication circuit and the external apparatus or network.*** LG-1003, ¶¶44-46; *see e.g.*, LG-1001, 2:13-15 (“The control unit ***assigns connection*** of the first radio communication unit with higher priority and controls the ***assignment of the transmission rate.***”), 13:7-16, 8:35-47 (“The controller 132 and the transmission rate assignment controller 1001 may variably control ***the radio transmission assignment to the modems 1002 and 1003*** For example, in a situation wherein the user issues an indication to transmit video information by radio via the modem 1002 to the display apparatus 200 while acquiring information from the Internet according to scheme 1 of FIG. 9 by use of the

modem 1003, the controller 132 *outputs a control signal to the assignment controller 1001 such that the transmission scheme of the modem 1003 is changed from scheme 1 to scheme 2* of FIG. 9 and that of the modem 1002 is set to scheme 1 of FIG. 9 conduct communications.”), FIG. 9 (where each of schemes 1 and 2 is associated with a respective *bandwidth, modulation scheme, transmission capacity*, etc.), 11:52-56.

2. “a user issues an indication”

Claim 18 recites: “controlling the assignment ... *when a user issues an indication* to transmit digital video information by the first radio communication circuit.”

While the '284 Specification is not explicit on the content of the user indication, Petitioner submits *the user indicates two things: (1) to transmit video information, and (2) to use the first radio communication circuit for such transmission*. LG-1003, ¶¶47-48; LG-1001, 13:4-16, 8:35-47 (“The controller 132 and the transmission rate assignment controller 1001 may variably control the radio transmission assignment to the modems 1002 and 1003 *in response to an indication from the user*. For example, in a situation wherein *the user issues an indication to transmit video information by radio via the modem 1002 to the display apparatus 200* while acquiring information from the Internet according to scheme 1 of

FIG. 9 by use of the modem 1003, the controller 132 outputs a control signal to the assignment controller 1001”).

This is in line with how a District Court construed a similar language in a child of the '284 Patent. LG-1015, 23 (in construing the claim language “*when an indication from [the/a] user indicates to transmit video information using the first radio communication circuit, the controller assigns a connection to the first radio communication circuit for transmitting the video*” in the child Patent 11,445,241, the Court found that the “language plainly requires the user to indicate two things: (1) to transmit video information, and (2) to use the first radio communication circuit in making that transmission.”); LG-1003, ¶49.

Petitioner submits the Challenged Claims otherwise do not require formal construction for the grounds in this Petition. *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011). Petitioner may respond to any constructions Patent Owner raises or the Board adopts. *Parkervision, Inc. v. Vidal*, 88 F.4th 969, 980 (Fed. Cir. 2023); *Axonics, Inc. v. Medtronic, Inc.*, 75 F.4th 1374, 1383 (Fed. Cir. 2023).

D. Level of Ordinary Skill in the Art

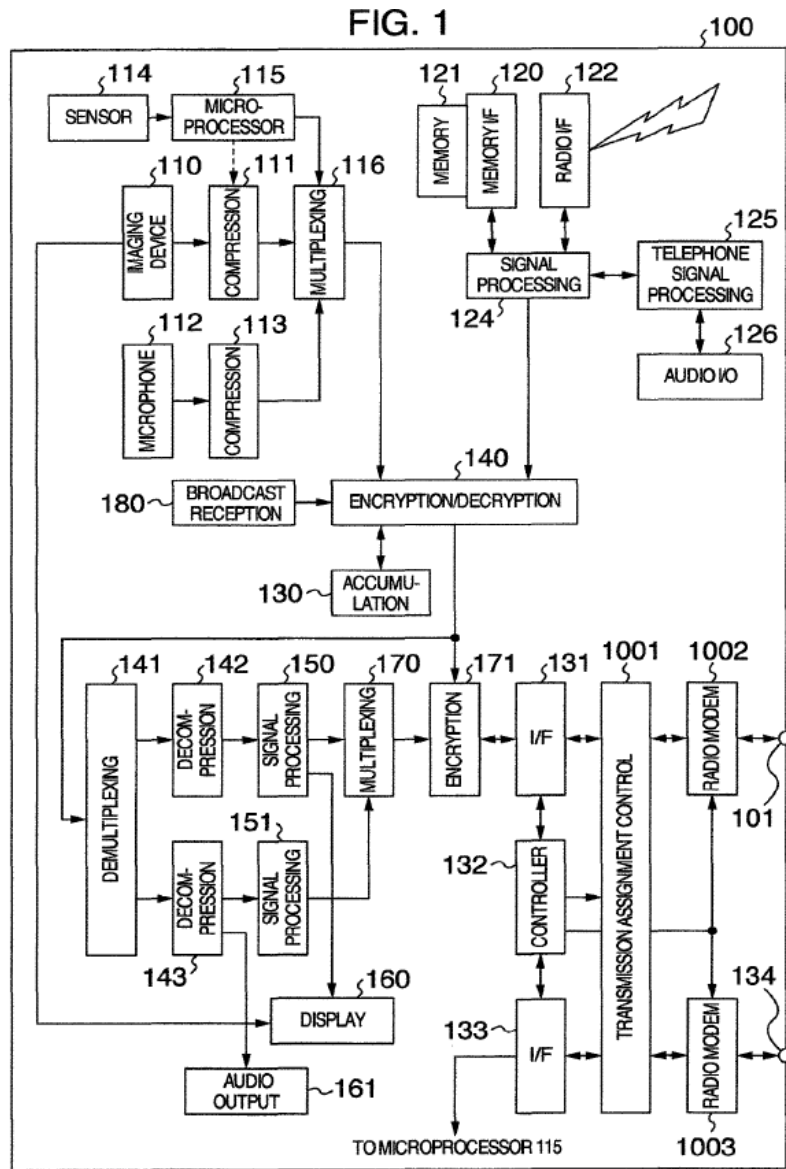
A person of ordinary skill in the art (POSITA) relating to the subject matter of the '284 Patent as of the alleged priority date (11/28/2007) would have had (1) a

Bachelor's Degree (or a similar Master's Degree, or higher degree) in electrical engineering, computer engineering, computer science, or related field, and (2) one to two years of practical experience in wireless digital data communication, wireless digital video transmission, or a related field. Additional education or industry experience may compensate for a deficit in one of the other aspects of the requirements stated above. LG-1003, ¶¶33-34.

II. THE '284 PATENT

A. Brief Description

The '284 Patent discloses apparatus 100 with example components shown in FIG. 1 (below). LG-1003, ¶¶50-51.



LG-1001, FIG. 1

“[I]n a situation wherein the user issues an indication to transmit video information by radio via the modem 1002 to the display apparatus 200 while acquiring information from the Internet according to scheme 1 of FIG. 9 by use of the modem 1003,” the assignment is controlled “such that the transmission scheme of the modem 1003 is changed from scheme 1 to scheme 2 of FIG. 9[,] and that of the

modem 1002 is set to scheme 1 of FIG. 9 [to] conduct communications.” LG-1001, 8:35-47; LG-1003, ¶52.

SCHEME	SCHEME 1	SCHEME 2
BANDWIDTH	6MHz	6MHz
CARRIER MODULATION SCHEME	64QAM	QPSK
CONVOLUTION CODE	3/4	2/3
GUARD INTERVAL	1/8	1/8
TRANSMISSION CAPACITY	17Mbps	5Mbps

LG-1001, FIG. 9

B. Prosecution History

On 2/7/2018, Patent Owner filed Application 15/891,085. LG-1002, 227-228. The Application received one rejection on 4/19/2018, rejecting all claims under §103. *Id.*, 98-110. In response, Applicant added the limitation “when a user issues an indication...” at the end of all independent claims. *Id.*, 69-75.

Applicant argued that in the cited art, “[t]he wireless network transceiver and the wireless telephone transceiver respectively connect to different objects,” or “[t]he WLAN circuit and Bluetooth circuit do not connect to the same external video processing apparatus, and do not communicate with the same apparatus.” *Id.*, 82. “In contrast, in Applicant’s disclosure, two radio communication units connect to the same apparatus.” *Id.*; LG-1003, ¶¶53-54.

To the contrary, Petitioner submits the claims do not require radio communication circuits to “connect to the same apparatus,” and this limitation cannot be imported into the claims. *Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875, 69 USPQ2d 1865, 1868 (Fed. Cir. 2004) (“Though understanding the claim language may be aided by explanations contained in the written description, it is important not to import into a claim limitations that are not part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment.”). The Specification of the ’284 Patent is not limited to such a configuration. The Specification discloses a scenario where “a higher transmission rate is assigned *to the communication [between]* the video processing apparatus 100” and a particular external display apparatus 200 than to a network communication. LG-1001, 12:43-67 (emphasis added). Had both radio communication circuits connected “to the same apparatus” (as Applicant asserted), assigning a higher transmission rate to the connection between the two apparatus (as disclosed in the Specification) would have no meaning. LG-1003, ¶55.

After issuance, Applicant filed a request for Certificate of Correction to insert “prioritized” to the last step of claim 18 so that the step reads as: “controlling the assignment such that the assignment between the first radio communication circuit and the external apparatus is prioritized more than the assignment between the

second radio communication circuit and the internet or the home network.” LG-1002, 2-4. This request was granted without any examination.² *Id.*, 1; LG-1003, ¶¶56-57.

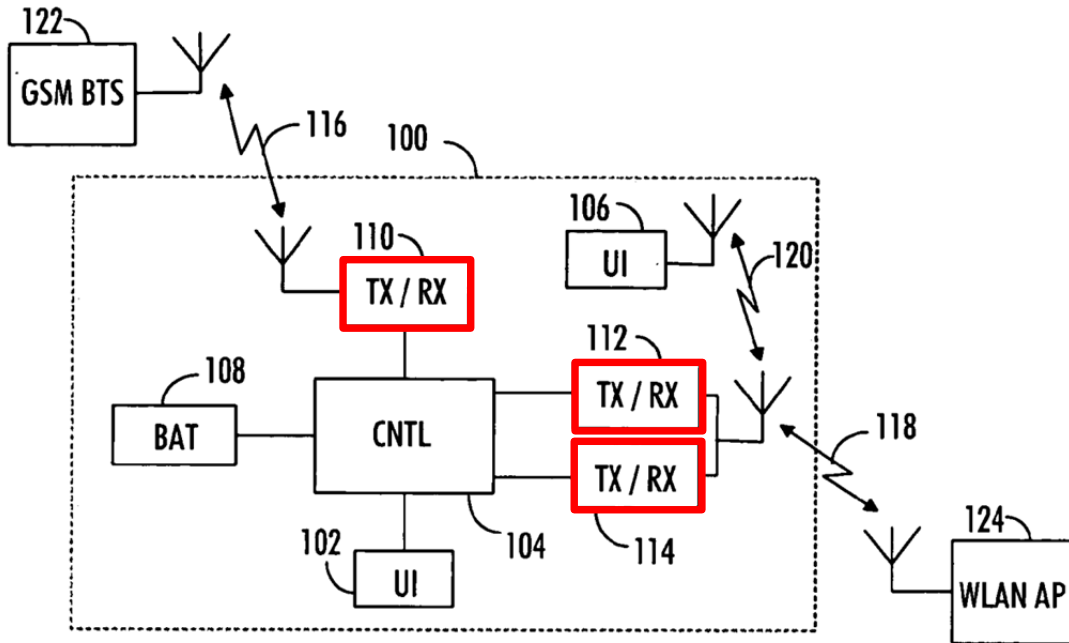
III. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. [GROUND 1] – Honkanen-N95 Renders Obvious Claims 18-20

1. Overview of Honkanen (LG-1004)

Honkanen describes communication device 100 designed to “control[] a number of simultaneous radio connections.” LG-1004, ¶¶1, 5, 26. Communication device 100 has multiple communication interfaces 110, 112, 114 to make respective radio connections 116, 118, and 120. *Id.*, ¶24; LG-1003, ¶58.

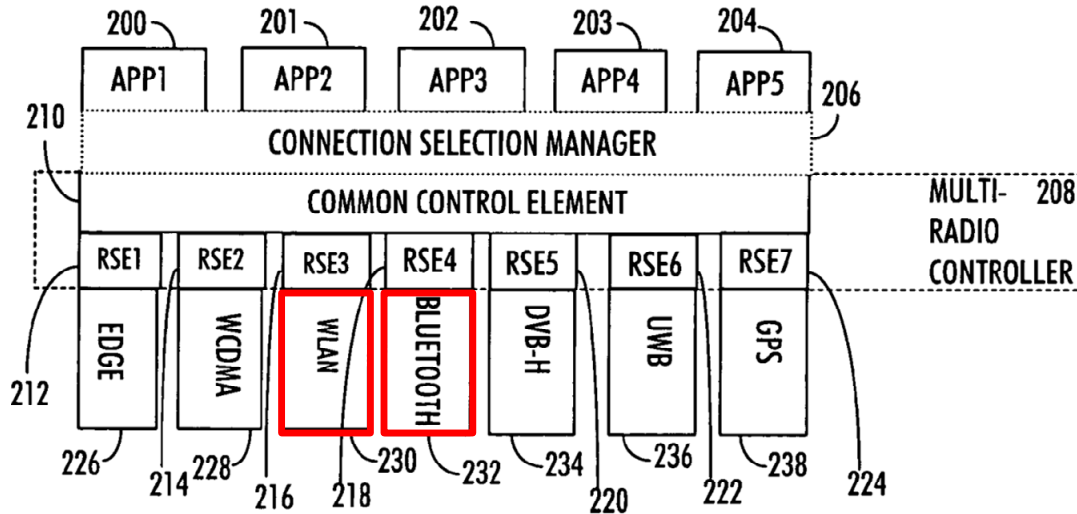
² Petitioner reserves the right to challenge the propriety of the Certificate of Correction in the co-pending litigation.



LG-1004, FIG. 1 (annotated)

Each of the communication interfaces has “its own components” and provides connections based on a respective technology. *Id.*, ¶¶24, 25. The technologies include Bluetooth, Wireless Local Area Network (WLAN), Digital Video Broadcasting for Handheld devices (DVB-H). *Id.*, ¶25. For example, communication interface 112 provides Bluetooth connection 120 to user interface 106, and communication interface 114 provides WLAN connection 118. *Id.*, ¶¶22-25; LG-1003, ¶59.

FIG. 2 depicts an example architecture for communication device 100, where applications 200-204 are in communication with lower layers 208, 210 to start radio connections. *Id.*, ¶¶30-33; LG-1003, ¶60.



LG-1004, FIG. 2 (annotated)

“Whenever an application 200 to 204 needs a radio connection to another communication device or network, the application sends a request to a lower layer to establish the connection.” *Id.*, ¶30; LG-1003, ¶¶61-63 (citing LG-1004, ¶¶34, 36). After receiving a connection request from an application, control element 210 “first check[s] whether or not an existing, operational connection exists that uses the same radio resources as the newly requested connection would use.” LG-1004, ¶¶44-45. “If an operational radio connection exists that uses the same radio resource(s) as the requested new connection,” the common control element 210 “define[s] the parameters for the new connection” or “adjust[s] the parameters of the existing connection in order to minimize the interference between the two connections.” *Id.*, ¶47; *see also id.*, ¶55, 49-53 (on techniques to define/adjust connection parameters).

2. Overview of N95 (LG-1005)

N95 is a user manual of Nokia N95-1 device (referred to as “N95 device” herein). LG-1005, 10³; LG-1003, ¶64.



LG-1005, 70

3. Honkanen-N95 Combination

Honkanen explains when an application on the communication device needs a radio connection, “the application sends a request [to control element 210 of the device] to establish the connection.” *Id.*, ¶¶30, 37-38. The request specifies the radio connection that the application needs to connect to. LG-1003, ¶¶76-77; LG-1004, ¶39 (“[element 210] processes *requests for a radio connection coming from an application* or from the connection selection manager. The connection request processing block 304 *checks at least the validity of a request and the availability of radio resources* related to the request. Checking the validity of a request comprises checking, whether or not *the requested radio connection* is available in the communication device. Checking the availability of the radio resources comprises

³ The citations are to the page numbers of the LG-1005 PDF document.

checking *which* and how many *radio connections are in operation* If *the requested connection* is available and if it is possible to establish it, the connection request processing block 304 sends a command message to create the connection.”), ¶31 (“*the applications* 200 to 204 may be designed to *define the suitable connections by themselves*”).

Honkanen, however, does not provide details on how the application’s connection request is formed. To get such details, a POSITA would have looked to example communication devices that similar to Honkanen, run applications capable of requesting particular radio connections; and N95 provides one of those devices. LG-1003, ¶78.

Like Honkanen, N95 device is capable of connecting to a variety of networks, including Bluetooth and WLAN. LG-1003, ¶¶76, 79 (citing LG-1005, 13, 25-31). An application on N95 can request transmitting data through a particular radio connection. LG-1005, 19 (“Use the access point for *applications that need to connect to the internet*”), *id.*, 29 (“To send text using Bluetooth connectivity, open *Notes [application]*, write the text, and select *Send > Via Bluetooth.*”), (“send an image to another [Bluetooth] compatible device [through a] *Gallery [application]*”). N95 allows the user to (1) “[o]pen the application where the item [the user] wants to send is stored,” (2) “[s]elect the item and Options > Send > *Via Bluetooth,*” (3) and “[s]elect the device which [the user] want[s] to connect;” and

“[w]hen the connection has been established,” the data is being sent. LG-1005, 29; *see also id.*, 60 (“**To send a video clip, select** Options > Send > ... **Via Bluetooth**”).

A POSITA would have been motivated to apply a similar procedure to communication device 100 in Honkanen to create an application request for data transmission through a Bluetooth radio connection. An application on a Honkanen-N95 device would allow the user to request a Bluetooth connection to transmit a particular type of data. LG-1003, ¶80.

A POSITA had multiple reasons to use the user input disclosed in N95 in the connection selection process of Honkanen (LG-1003, ¶81):

First, Honkanen is a Nokia patent application, focusing only on a particular aspect— i.e., communicating through different radio connections—of a communication device. A POSITA looking for details on other aspects of the device would have investigated other Nokia devices with similar features. N95 device is one of those. Like in Honkanen, N95 devices can communicate to multiple external devices and networks through different radio connections. LG-1003, ¶82; LG-1005, 13 (depicting graphical user interface indicators for different radio connections on the N95 device).

Second, the user’s direct involvement in Bluetooth connection improves the security of the device by allowing the user to control which external devices can

connect to the device. LG-1003, ¶83. By the priority date of the '284 Patent, it was well-known that direct device-to-device connections (such as Bluetooth) were prone to security breaches, and thus, the user's involvement in selecting the target device to connect to would reduce the chance of connecting to a malicious device. *Id.*; see also LG-1005, 29 (where N95 provides "**security tips**" such as (i) turning Bluetooth or keep the device "hidden" so that the user "**better control** who can find [the user's] device with Bluetooth wireless technology, and connect to it," (ii) "not pair[ing] with or accept connection requests from an unknown device" **so that the user "can better protect [the user] device from harmful content."**); *id.*, 30 (suggesting setting a device as "authorised" to pair for Bluetooth only for the user's "own devices" and "devices belong to someone [the user] trust[s]."); LG-1004, ¶23 and FIG. 1.

Third, Honkanen, too, contemplates receiving user input in selecting a radio connection. LG-1003, ¶84. Honkanen suggests that "a user or an operator" "define[s] connection profiles" that the communication device stores and later uses to "select an appropriate connection for an application." LG-1004, ¶31; see also *id.*, ¶27. While Honkanen discusses storing user inputs as "connection profiles" to be used by optional connection selection manager 206, a POSITA would have understood that the applications, too, could benefit from such profiles, or more generally, from user's input each time that an application needs to specify an appropriate

connection to transmit data. LG-1003, ¶84. And N95 provides an example of such scenario, where the user input specifies a particular connection, e.g., Bluetooth, upon opening the target application and selecting the item to be transmitted. *Id.*

Fourth, applying N95’s Bluetooth connection procedure to Honkanen is nothing more than utilizing a familiar known technique in selecting a radio connection to achieve a predictable result of improving security in connecting to reliable or known external devices rather than allowing a purely automatic Bluetooth connection with any external device. LG-1003, ¶85.

A POSITA would have reasonably expected success incorporating N95’s Bluetooth connection procedure into Honkanen given Honkanen’s teachings, N95’s practical application as a user device produced by Nokia (i.e., Honkanen’s assignee), and the well-known practice of requiring a user selection for Bluetooth connections. LG-1003, ¶86 (citing LG-1010, 85-86 , LG-1011, 1168, 1199-1200).

4. Claim Analysis

(a) Claim 18

[18pre]

To the extent the preamble is limiting, Honkanen-N95 renders it obvious. LG-1003, ¶87.

Claim 18 does not specify any aspect of a video processing method. It only goes as far as “transmitting” “digital video information.” LG-1003, ¶88.

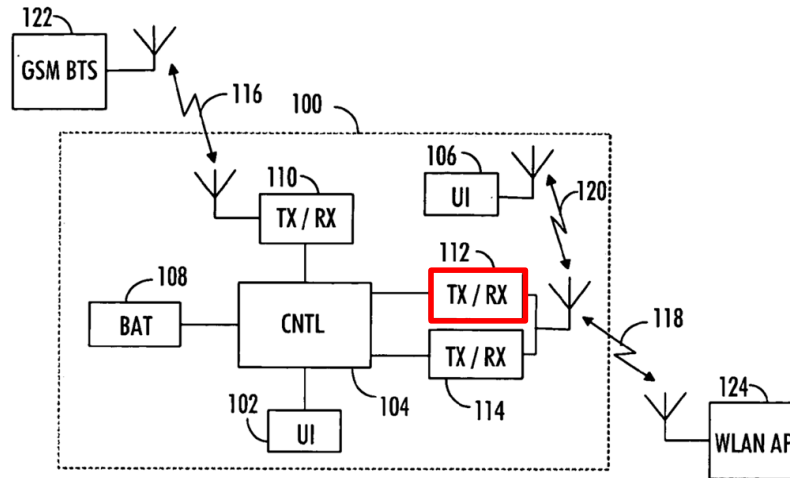
Honkanen-N95 renders obvious a method for video processing within the scope of claim 18.

Honkanen discloses examples of connections for digital video broadcasting. LG-1004, ¶25. Further, a Honaken-N95 device would have a Bluetooth communication interface 112 (LG-1004, ¶23) that could be used for transmitting digital video information (LG-1005, 28-29). LG-1003, ¶89; *see supra* §III.A.3.

[18a]

Honkanen-N95 renders obvious transmitting via a first radio communication circuit (e.g., via Bluetooth communication interface 112, 218), digital video information (e.g., video clips) by radio (e.g., radio transmission through wireless connection 120) to an external apparatus (e.g., user interface component 106, a computer, a phone). LG-1003, ¶90.

Honkanen discloses methods for “controlling a number of simultaneous *radio* connections in a communication device.” LG-1004, ¶1. To make such radio connections, Honkanen’s communication device 100 uses respective communication interfaces. *Id.*, ¶22. “[C]ommunication interface 112 provides *wireless connection 120*, using *Bluetooth®-technology*, with *a user interface component 106*.” *Id.*; *see also id.*, FIG. 2 (depicting Bluetooth communication interface 232); LG-1003, ¶91.



LG-1004, FIG. 1 (annotated to depict claimed “first radio communication circuit”)

Like claim 18’s “first radio communication circuit”, communication interface 112 is a radio communication circuit because it makes a *radio* connection (i.e., Bluetooth) to an external apparatus (e.g., to user interface component 106) to transmit digital data. LG-1003, ¶92. Communication interface 112 has a *circuit* that “takes care of encoding and decoding [digital] data” according to Bluetooth “radio access-specific standard.” LG-1004, ¶36.

While Honkanen provides only one example (i.e., a “headset”) for user interface component 106 (LG-1004, ¶23), connecting to other types of external devices with Bluetooth compatibility would have been obvious to a POSITA. LG-1003, ¶93. N95 provides other external devices such as “computer,” “phone,” “audio or video device” for Bluetooth connections. LG-1005, 29.

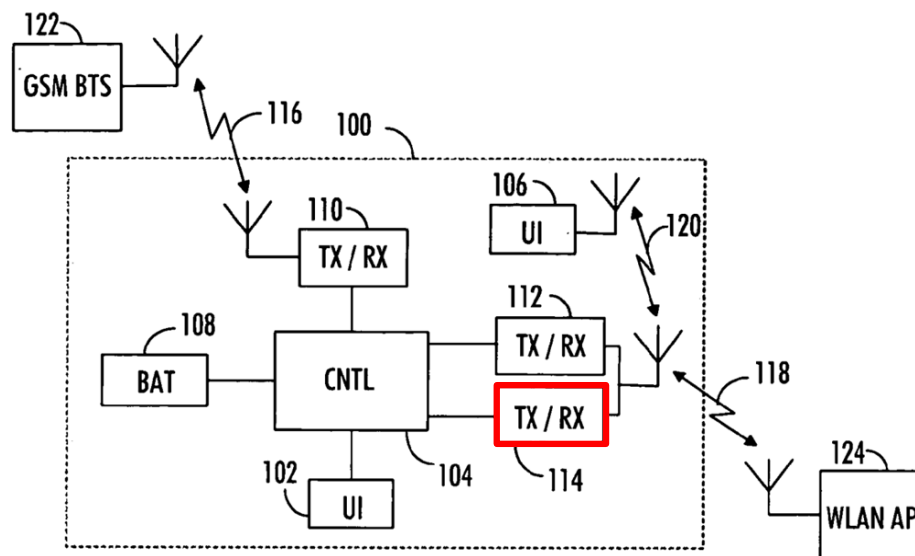
N95 also lists “video clips” as example digital content that can be transmitted through such Bluetooth connections. LG-1003, ¶94; LG-1005, 28, 60.

[18b]

Honkanen-N95 renders obvious connecting, via a second radio communication circuit (e.g., via WLAN communication interface 114, 230), to an internet or home network (e.g., to the Internet). LG-1003, ¶95.

Honkanen recognizes “users are willing to use different radios *at the same time*, like using a headset employing wireless *Bluetooth®* ... **and using a wireless local area network (WLAN) connection for Internet surfing.**” LG-1004, ¶2; LG-1003, ¶96.

“[C]ommunication interface 114 provides a WLAN (Wireless Local Area Network) connection 118 with a serving WLAN access point 124.” LG-1004, ¶22; *see also id.*, FIG. 2 (depicting WLAN communication interface 230); LG-1003, ¶97.



LG-1004, FIG. 1 (annotations depicting claimed “second radio communication circuit”)

Like claim 18's "second radio communication circuit," Honkanen's communication interface 114 is a radio communication circuit because it makes a *radio* connection (i.e., WLAN) to the internet (e.g., to surf the Internet). LG-1003, ¶98; LG-1004, ¶2. WLAN communication circuit 114 has a *circuit* that "takes care of encoding and decoding [digital] data" according to WLAN "radio access-specific standard." LG-1004, ¶36.

[18c]

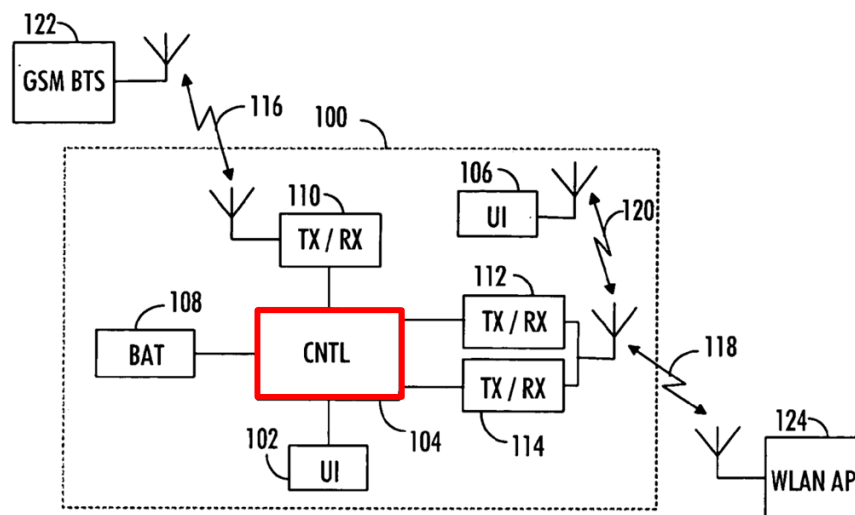
By the priority date, it was well-known that information (e.g., Internet-based information) received through WLAN included "digital" information. LG-1003, ¶99.

A POSITA would have understood that Honkanen-N95's communication device receives digital information through its WLAN interface, so the user can "surf the internet." LG-1003, ¶100; LG-1004, ¶2. Indeed, all devices that Honkanen lists as examples of communication device 100 were known to have capability of receiving and using digital information. LG-1004, ¶21 ("[C]ommunication device 100 may be for example ... *a mobile communication device, a computer, a laptop, or a PDA (Personal Digital Assistant)*"); see also *id.*, ¶25 ("the communication device may comprise several communication interfaces providing connections based on, for example, ... *DVB-H (Digital Video Broadcasting for Handheld devices)*").

[18d]

Honkanen-N95 discloses or renders obvious controlling each of the first and second radio communication circuits such that the first radio communication circuit (e.g., Bluetooth communication interface 112, 232) transmits digital video information (e.g., video clip) to the external apparatus (e.g., to user interface component 106, an external PC, phone, video device) and the second radio communication circuit (e.g., WLAN communication interface 114, 230) connects to the internet or the home network (e.g., connects to the Internet) simultaneously. LG-1003, ¶101.

As explained in §III.A.1 *supra*, communication device 100 includes “a control unit 104 [that] comprises means *for controlling a number of simultaneous radio connections in the communication device 100.*” *Id.*, ¶¶5, 26; LG-1003, ¶102.



LG-1004, FIG. 1 (annotated to depict control unit 104)

Since Honkanen's control unit 104 (or 210 in FIG. 2) controls the operations of Bluetooth and WLAN connection interfaces 112, 114 (or 230, 232) *simultaneously*, and since the Bluetooth connection interface is used to transmit video clips to external user interface 106 (*see supra* [18.a]) and WLAN connection interface is used for internet communications (*see supra* [18.b]), it would have been obvious that the control unit 104/210 controls the two communication interfaces such that the Bluetooth communication interface (*first radio communication circuit*) transmits video clips (*digital video information*) to the external apparatus and the WLAN communication interface (*the second radio communication circuit*) connects to the internet *simultaneously*. LG-1003, ¶¶103-104; *see also* LG-1004, ¶¶29, 32-33 (“multiradio controller 208 establishes, controls, and terminates radio connections according to the connection requirements from the higher layers.”).

[18e]

Honkanen teaches controlling assignment (e.g., assigning or adjusting connection parameters such as transmission frequency, transmission schedule) between the first radio communication circuit (e.g., Bluetooth communication interface) and the external apparatus (e.g., external computer or phone), and [controlling] assignment (e.g., assigning or adjusting connection parameters such as trans-

mission frequency, transmission schedule) between the second radio communication circuit (e.g., WLAN communication interface) and the internet or home network. LG-1003, ¶105.

As discussed *supra* in Claim Construction section, an assignment between a radio communication circuit and an external apparatus or network means ***assigning particular connection parameter(s) to the connection formed between*** the communication circuit and the external apparatus or network. LG-1003, ¶106.

Honkanen controls assignments by assigning particular connection parameters such as transmission bandwidth and transmission schedules to the respective connections formed by the WLAN and Bluetooth communication interfaces. LG-1003, ¶107; *see also* [18f.1] *infra* for the discussion regarding assigning “more than” to one connection as compared to the other. “If an operational radio connection exists that uses the same radio resource(s) as [a newly requested] connection,” the common control element in Honkanen “***may define the parameters for the new connection so that interference between the two connections is minimized,***” or “***may adjust the parameters of the existing connection in order to minimize the interference*** between the two connections using the same radio resource(s).” LG-1004, ¶47; *see also id.*, ¶45 (“These radio resources comprise a frequency band, time domain, and space domain, ¶33, FIG. 3.; LG-1003, ¶108.

Therefore, to minimize interference between radio connections Honkanen adjusts/assigns the connections parameters such as “frequency band, time domain, and space domain” of the existing and/or the newly requested connections. Such connection parameter adjustment of two connections renders obvious *controlling the first and second assignments* in [18e]. LG-1003, ¶109.

[18f.1]

Honkanen-N95 discloses or renders obvious controlling the assignment (e.g., adjusting/assigning connection parameters) such that the assignment between the first radio communication circuit and the external apparatus (e.g., the share of the Bluetooth connection in the overlapping transmission frequencies, or the priority in scheduling Bluetooth transmissions) is (prioritized) *more than* the assignment between the second radio communication circuit and the internet or the home network (e.g., is more than the share of the WLAN connection in the overlapping transmission frequencies, or has a higher priority in transmission time than in scheduling WLAN transmissions). LG-1003, ¶110.

While the claim is not explicit as to what it means to control one connection “assignment” to be (prioritized) “more than” another connection assignment, the ’284 Specification suggests that giving an assignment to a first connection “*more than*” an assignment to a second connection means giving a “*higher priority*” to the connection parameters of the first connection as compared to the connection

parameters of the second connection for the purpose of transmitting video. LG-1003, ¶111; *see e.g.*, LG-1001, 2:13-19, 2:32-36, 12:43-51, 8:7-24 (“... ***control the radio transmission assignment such that the radio transmission rate of the modem 1002*** to send the video information of high picture quality by radio to the video display apparatus 200 ***takes precedence over the radio transmission rate of the modem 1003*** to connect to a network for communication. That is, the radio transmission rate of modem 1002 ***is more than*** that of modem 1003. For example, in a situation wherein modem 1002 transmits video information to display apparatus 200 and modem 1003 simultaneously connects to the Internet to receive Internet information, controller 132 ***controls the operation to continuously supply videos with high picture quality*** to the user, specifically, ***to set the transmission scheme of the modem 1002 to***, for example, ‘***scheme 1***’ shown in FIG. 9. For the radio modem 1003, the controller 132 sets the transmission scheme thereof to ‘***scheme 2***’ of FIG. 9.”); *id.*, FIG. 9 (listing bandwidth, modulation scheme, and transmission capacity as example transmission/connection schemes).

In its Infringement Contentions, Patent Owner contemplated that assigning to a first connection “***more than***” to a second connection, means “***prioritizing***” the first connection to the second connection *for the particular purpose of video transmission*. *See e.g.*, LG-1012, 85 (“ ***prioritization is accomplished by determining which data is transmitted by which radio communication circuit, and favoring***

the prioritized circuit in this determination.”), 95 (“...the controller (e.g., CPU) of each of the 284 Accused Products *executes software to prioritize* using the cellular communication chip over Wi-Fi *for transmitting a video.*”); LG-1003, ¶112.

Similarly, Honkanen-N95 teaches that in a situation where two connections interfere, the connection that carries video data is prioritized over the other connection, for example, (i) by assigning the overlapping frequencies to the higher priority connection, or (ii) by prioritizing a transmission schedule of the higher priority connection. LG-1004, ¶¶47, 49-50. Either and both of these techniques render obvious [18f.1]. LG-1003, ¶¶113-114.

i. assigning the overlapping frequencies to a particular connection

When two connections have overlapping transmission frequencies, Honkanen suggests assigning the overlapping frequency to only one of the two connections to reduce communication interference. LG-1003, ¶115; LG-1004, ¶¶48-49. “For example, a Bluetooth® connection and a WLAN connection operate partially on the same 2.4 Gigahertz ISM-band.” LG-1004, ¶49. When a Bluetooth connection is newly requested while a WLAN connection already exists, Honkanen *prioritizes* one of the Bluetooth and WLAN connections to the other so that *the higher priority connection* uses the overlapping transmission frequency band. LG-1004, ¶49. For example, the device can *prioritize* the existing WLAN

over the new Bluetooth connection by “prevent[ing] the Bluetooth connection from hopping to the frequencies the WLAN connection is using.” *Id.*

Conversely, the communication device can prioritize the new Bluetooth connection over the existing WLAN connection so that the overlapping frequencies are assigned to the new Bluetooth connection. LG-1003, ¶116. In such a converse scenario, the device would prevent WLAN from using the frequency band over which Bluetooth would operate, and thus, would *prioritize* the Bluetooth connection over WLAN by narrowing WLAN bandwidth. *Id.*

Such prioritization would have been at least obvious to a POSITA because (i) it is in line with Honkanen’s goal of reducing communication interfaces, and (ii) Honkanen suggests adjusting the connection parameters of the existing connection. LG-1003, ¶117; LG-1004, ¶47, ¶33 (“controlling the simultaneous operation of multiple radio connections *by adjusting the parameters of an existing connection* whenever a new radio connection which would interfere with an existing radio connection is created.”). Further, implementing such prioritization would have been “obvious to try” because it constitutes “choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success”—i.e., choosing from two options of prioritizing one of the Bluetooth and WLAN connec-

tions over the other one by assigning the overlapping frequencies to one of the connections. MPEP §2143 (citing to *KSR*, 550 U.S. at 421); LG-1003, ¶117; LG-1004, ¶49.

Honkanen's assignment of the overlapping frequencies is in line with '284 patent's disclosure. LG-1003, ¶118. The '284 Patent explains when *the transmission rate* of a first communication circuit "takes precedence"—i.e., is prioritized—over that of a second communication circuit, "if the [frequency] band of signals [for the first communication circuit] is expanded, that of signals [for the second communication circuit] *narrows*." LG-1001, 11:52-12:10.

Similarly, Honkanen's assignment/adjustment of the operating frequency bands for the Bluetooth and the WLAN communication interfaces results in *narrowing* the bandwidth in the lower priority connection for *a higher transmission rate* in the higher priority connection. By preventing WLAN from using the frequencies that overlap with Bluetooth's frequencies, WLAN's frequency band would be narrowed; a result the '284 patent recognized. LG-1003, ¶119.

Therefore, Honkanen makes it obvious to a POSITA to (at least try to) prioritize the Bluetooth connection (*assignment between the first radio communication circuit and the external apparatus*) relative to the WLAN connection (*assignment between the second radio communication circuit and the internet*) by adjusting the operating bandwidth of the WLAN communication interface 114 and preventing it

from operating on the frequencies that the Bluetooth communication interface 112 uses. LG-1003, ¶120.

Further, a POSITA *would have been motivated to prioritize the Bluetooth* communication in Honkanen-N95 combination to achieve a smooth transmission of video clips with low interruptions. LG-1003, ¶121. As discussed *supra* in [18a], Honkanen-N95 uses its Bluetooth communication interface to transmit video clips. By the '284 Patent's priority date, it was well-known that transmitting video (particularly live video) clips require a high bandwidth and high transmission rate, for example, to avoid interruption in watching the video. *Id.* (citing LG-1007, ¶¶65-66; LG-1013, ¶¶3, 21 LG-1014, ¶118).

Since in a Honkanen-N95 device, the user selects Bluetooth to transmit a video clip, it would have been obvious to prioritize (i.e., *assign more*) Bluetooth over WLAN to give as much of the overlapping frequencies to the Bluetooth communication as needed to provide a smooth transmission of the video clip. LG-1003, ¶122.

ii. Assigning transmission schedules

Scheduling assignment is another technique that Honkanen provides to reduce interference. LG-1003, ¶123. To do so, Honkanen "check[s] whether it is possible to schedule the two connections so that the connection[s] will not be transporting data at the same time." LG-1004, ¶50.

While Honkanen does not specify prioritizing the schedule of transmitting video over transmitting the Internet-based data (e.g., email communications, audio downloads, etc.), it would have been obvious to a POSITA to make such prioritization to avoid interruptions in streaming video on the destination external display, for example, in a live broadcast. LG-1003, ¶124 (citing LG-1014, ¶118). Otherwise interruptions in video transmission would be expected for the duration of simultaneous transmissions in the two connections (through Bluetooth and WLAN).

Id.

Thus, Honkanen-N95 renders obvious assigning adjusting/assigning connection parameters such as frequency band and transmission schedule (*controlling the assignment*) by prioritizing the connection parameters for the Bluetooth connection over (*is (prioritized) more than*) the connection parameters for a WLAN connection to the Internet. LG-1003, ¶125.

[18f.2]

Honkanen-N95 renders obvious [controlling the assignment such that the first assignment is (prioritized) more than the second assignment (*see supra* [18f.1]) when a user issues an indication to transmit digital video information by the first radio communication circuit (e.g., user selects a video clip to transmit via Bluetooth) while acquiring information from the internet or the home network by

the second radio communication circuit (e.g., while the device is acquiring information from Internet through an existing WLAN connection). LG-1003, ¶126.

As discussed *supra* [18e] and [18f.1], Honkanen-N95 renders obvious ***controlling the assignment*** of an existing WLAN connection (*[the connection] between the second radio communication circuit and the internet*) and a new Bluetooth connection (*[the connection] between the first radio communication circuit and the external apparatus*) when the new connection is requested to be added ***while the existing connection is in operation*** (when [a request to initiate the new connection is received] *while ...the second radio communication circuit is in operation*). See *infra*, discussing that the existing connection in operation includes “*acquiring information from the internet.*” LG-1003, ¶127.

As discussed *supra* in [18f.1], assignments are controlled such that the first assignment (*the assignment between the first radio communication circuit and the external apparatus*) is more than the second assignment (*the assignment between the second radio communication circuit and the internet or the home network*). LG-1003, ¶128.

What remains in [18f.2] is a ***user indication*** “*to transmit digital video information by the first radio communication circuit.*” LG-1003, ¶130. In other words, limitation [18f.2] requires a user’s involvement in the formation of the request to initiate the new connection. LG-1003, ¶¶129-130.

Honkanen-N95 renders obvious receiving a user indication (*a user issues an indication*) of the selection of both a video clip (*digital video information*) and Bluetooth communication (*to transmit by the first radio communication circuit*) for transmission of the video clip. As discussed in §III.A.3 *supra*, to initiate a Bluetooth transmission of an item, a user of the Honkanen-N95 device makes a series of selections that is concluded by selecting the receiving device. LG-1005, 28-29. The series of selections requires indicating both the item (e.g., a video clip), and the radio connection (e.g., Bluetooth). Once the destination device is selected, the item is sent to it through Bluetooth. ***Selecting the destination device as the concluding step constitutes the “an indication to transmit”*** the selected item (*digital video information*) through the selected Bluetooth connection. LG-1003, ¶131; LG-1005, 28-29.

Since in Honkanen-N95 the Bluetooth connection is made through a particular communication interface 112 (*see* [18a] *supra*) the user’s selection of Bluetooth conveys user’s indication to transmit the selected item (*indication to transmit digital video information*) by communication interface 112 (*by the first radio communication circuit*). LG-1003, ¶132.

Honkanen-N95 also renders obvious receiving the user selection (*user indication*) while acquiring information by WLAN (*second radio communication cir-*

cuit). LG-1003, ¶133. Since Honkanen teaches adding Bluetooth as a new connection while an existing WLAN connection is already operating (*see* [18b] *supra*), it would have been obvious that in a Honkanen-N95 device, the user can cause the initiation of the Bluetooth connection (by selecting the Bluetooth connection and the item to be transmitted through Bluetooth), while the WLAN connection is already in operation. *Id.*; LG-1004, ¶¶39, 49 (explaining that the new connection is formed *when* a request to make the new connection is received *while* an existing connection is operating.)

As discussed *supra* with respect to [18b], Honkanen-N95 device uses communication interface 114 for WLAN connection the Internet. A POSITA would have recognized that connecting to the Internet renders obvious *acquiring information from the internet*. LG-1003, ¶134; *see also* [18e] *supra* (discussing “simultaneous” Bluetooth and WLAN connections). For example, Honkanen recognizes that a user can use WLAN to surf the Internet and at the same time, use Bluetooth to connect the user device to a headset. LG-1004, ¶2. It would have been obvious to a POSITA that users can initiate using a display or a headset (for example, to video call, or to watch a live video stream) through the Bluetooth connection while surfing the Internet through WLAN. LG-1003, ¶134. In all these examples, users

would submit their indication (e.g., through a call application, a web surfing application, or an audio play application) “*while acquiring information from the internet.*” *Id.*

Therefore, Honkanen-N95 renders obvious controlling the assignment as specified in [18f.1] when a user selects to transmit (1) a video clip (2) through Bluetooth communication interface 112 (*when a user issues an indication to transmit digital video information by the first radio communication circuit*) while the device is acquiring information through an existing Internet connection network through WLAN communication interface 114 (*while acquiring information from the internet or the home network by the second radio communication circuit*). LG-1003, ¶135.

(b) Claim 19

Honkanen-N95 in view of the knowledge of a POSITA by the priority date renders obvious the first radio communication circuit (e.g., Bluetooth communication interface 112) and the second radio communication circuit (e.g., WLAN communication interface 114) are different from each other in frequency bandwidth (e.g., Bluetooth bandwidth vs. WLAN bandwidth). LG-1003, ¶136.

As explained *supra* (e.g., [18f.1]) Honkanen avoids interference between the Bluetooth and WLAN connections by “preventing” one of the connections to use

the overlapping frequencies. LG-1004, ¶49. This means that the two communication interfaces (112 and 114) can keep operating on their non-overlapping frequencies, which suggests that the two communication interfaces *differ from each other in frequency bandwidth*. LG-1003, ¶137.

Further, by the priority date, it was well-known that Bluetooth and WLAN connections use different frequency bandwidths; WLAN uses 20MHz bandwidth (*see e.g.*, LG-1016, 46-48 ⁴; LG-1017, FIG. 1, ¶28), and Bluetooth uses 1MHz bandwidth (*see e.g.*, LG-1011, 198-200)—as these bandwidths were defined in the respective applicable standards (LG-1016 and LG-1011). LG-1003, ¶138.

(c) Claim 20

Honkanen-N95 in view of the knowledge of a POSITA by the priority date renders obvious the first radio communication circuit (e.g., Bluetooth communication interface 112) and the second radio communication interface (e.g., WLAN communication interface 114) are different from each other in modulation/demodulation method. LG-1003, ¶139.

As Honkanen discloses, Bluetooth uses frequency hopping within the 2.4 GHz frequency band that WLAN operates on, and thus, uses a different modulation/demodulation scheme than WLAN does. LG-1004, ¶49; LG-1003, ¶140.

⁴ Referring to the page number of the pdf document.

Further, by the priority date, it was well known that WLAN communication circuits use CCK/DSSS/OFDM modulation/demodulation methods while Bluetooth circuits use GFSK/ $\frac{\pi}{4}$ DQPSK/8DPSK modulation methods as defined in their respective applicable standards. LG-1003, ¶140; LG-1016, 46-48; LG-1011, 198-200; LG-1017, FIG. 1, ¶28.

B. [GROUND 1A] – Honkanen-N95 in View of Bluetooth-Specification and IEEE 802.11g Standards Renders Obvious Claims 19 and 20

While the specifics of Bluetooth and WLAN connections are inherent to those connections, and claims 19 and 20 are obvious over Honkanen-N95 (GROUND 1), to the extent that a POSITA would need to search for such specifics, the POSITA would have investigated standards—e.g., Bluetooth Specification (LG-1011) and IEEE 802.11g (LG-1016)—that define them. LG-1003, ¶141.

(a) Claim 19

See supra for the discussion under Ground 1 for claim 19. LG-1003, ¶142.

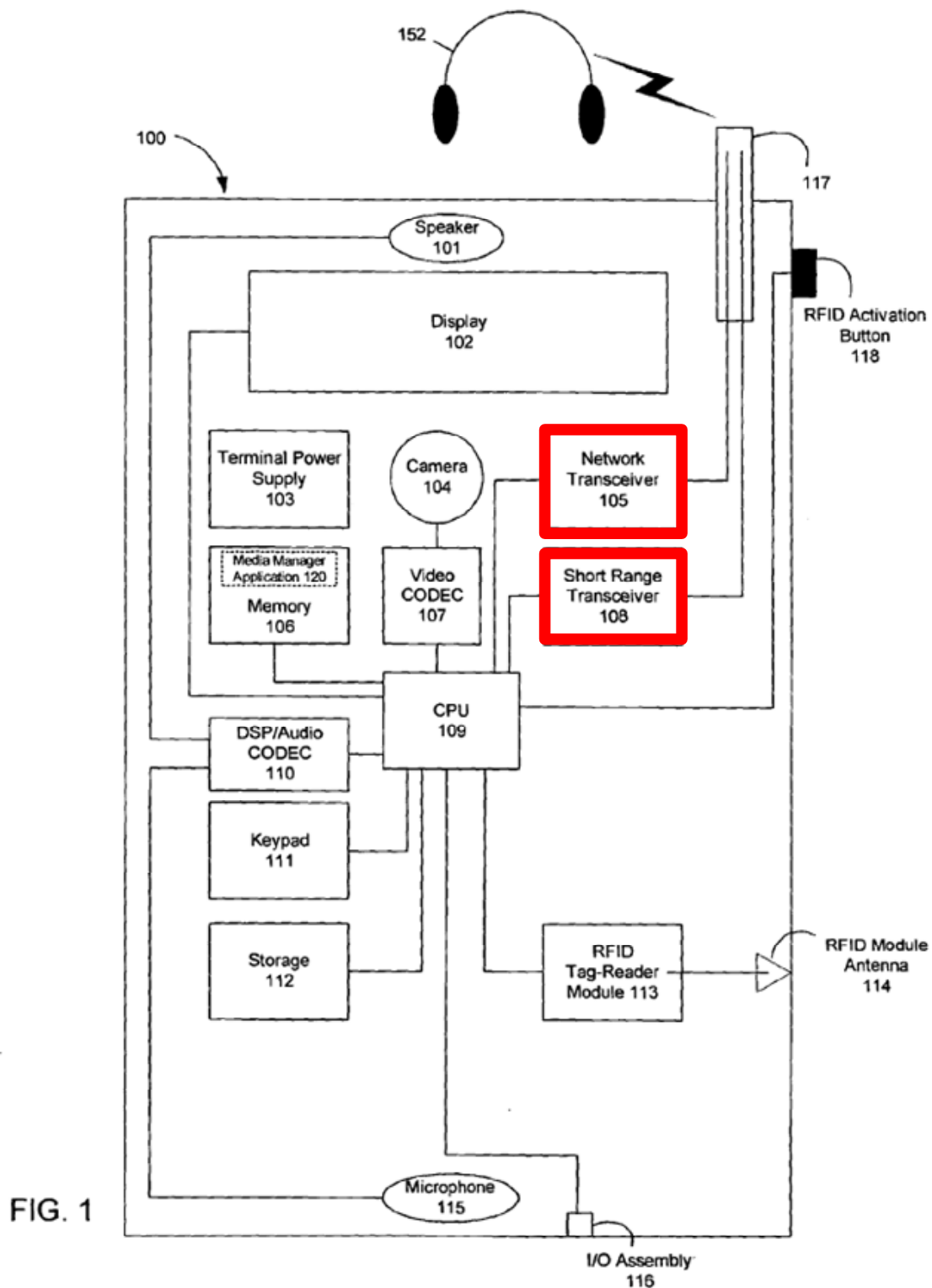
(b) Claim 20

See supra for the discussion under Ground 1 for claim 20. LG-1003, ¶143.

**C. [GROUND 2] – Dua-Barnes Renders Obvious Claims 18-20;
[GROUND 2A] – Dua-Barnes-N95 Renders Obvious Claims 18-20**

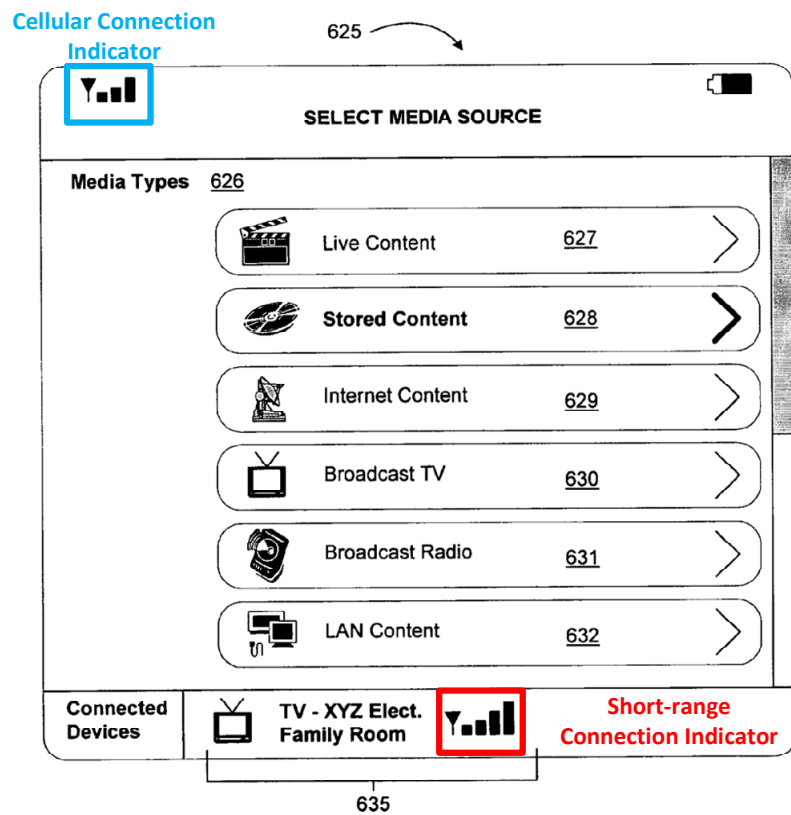
1. Overview of Dua (LG-1006)

Dua discloses a media player 100 that has two separate transceivers: short range transceiver 108 and network transceiver 105. LG-1006, ¶61; LG-1003, ¶67.



LG-1006, FIG. 1 (annotated)

Media player 100 uses short range transceiver 108 for exchanging messages with external devices within a RF range of the media player, e.g., through Bluetooth, WiFi, and network transceiver 105 “for interacting with cellular network” simultaneously, for example, to connect to the Internet. LG-1006, ¶¶ 62, 66; LG-1003, ¶68. For example, the media player can receive media from the Internet, and re-transmit it to an external device “to facilitate enhanced viewing, for example, on a large television with surround sound,” or “to share the incoming media with a friend in the vicinity that also has a wireless media player device.” LG-1006, ¶¶156, 168, 176, [18d] *infra*; LG-1003, ¶¶69-70.



LG-1006, FIG. 15 (annotated)

Dua presents an “improved” automated process, where device profiles of external devices that are within the short-range communication of the media player 100 are presented to the user so that the user can manually select a destination device for transmitting the media file through a short-range connection. LG-1003, ¶71; LG-1006, ¶¶115, 147, 163, 215, FIGs. 12-20 (depicting an example of the manual user selection and a subsequent device connection and data transmission between the two devices.). Dua also notes about a “normal Bluetooth session set-up procedure,” known in the art. LG-1006, ¶10, 123, 124.

2. Overview of Barnes (LG-1007)

Barnes discloses portable device 101 capable of making simultaneous communication connections with multiple external devices and networks. LG-1003, ¶72; LG-1007, ¶58 (“communication module 105 [of device 101] allows the user to *establish and maintain multiple communication links contemporaneously* (wired and wireless) *such as a wireless voice communication link (e.g., via a 3G network), multiple wireless data communication links (e.g., a wireless LAN and PAN link), and one or more wired links simultaneously.*”), ¶38 (listing Bluetooth).

Device 101 transmits/receives video files through a first communication link while also being connected to a second communication link. LG-1003, ¶73; LG-1007, ¶61 (“... the user can also *receive and transmit live audio/visual data ... while also transmitting and receiving computer data such as emails.*”).

Device 101 can “route certain data to remote devices during live or non-live presentation.” LG-1007, ¶63. “For example, a video transmission or computer data (e.g., web pages) received by the device 101 may be routed (e.g., as requested by the user) to a remote display device (e.g., via a wireless PAN to a display in an automobile) that may be large or of better quality than the display of the device.” *Id.*; LG-1003, ¶74.

3. Dua-Barnes Combination

Both Dua and Barnes focus on devices capable of making simultaneous connections to multiple external devices/networks. LG-1003, ¶144; *see also supra* §§III.C.1, III.C.2. Both user devices transmit video content through to an external device in the vicinity of the user device while also being connected to a cellular network. *See supra* §§III.C.1, III.C.2. Dua and Barnes recognize that transmitting video content to an external device (e.g., a TV) “facilitate[s] enhanced viewing” and provides “large[r or] better quality” presentation of the video content. LG-1006, ¶156; LG-1007, ¶63.

While Dua discloses a user’s selection of the external device (e.g., a particular display) for transmitting the video data to the external device, Dua does not provide details on how the device selects a proper connection for such transmission. LG-1003, ¶145; *see also* LG-1006, FIGs. 13 and 14 (depicting user’s selection of the external device, and the connection to that device forming subsequently). A

POSITA would have investigated similar references to learn how the device can determine and prioritize available connections for a smooth (and preferably uninterrupted) video transmission. And Barnes is one of those references. LG-1003, ¶145.

Barnes explains “when communications with the desired external system may be accomplished by more than one network, the device 101 must determine the available network with which to establish the communication(s).” LG-1007, ¶64. “[T]he determination of the available network with which to establish one [or] more communications *is based on* one or more of the available bandwidth of each available network (i.e., *the amount of data that can be communicated over a given time period*), *the anticipated bandwidth necessary*, *the available capacity* or relative available capacity (e.g., how full to capacity a network is), the historical (or anticipated) availability of bandwidth (which may include, for example, use, volume, capacity, and/or *speed data* for days of the week or times of the day), the communication capabilities of the device, *the amount of data to be transmitted*.” *Id.*, ¶65; LG-1003, ¶146.

Barnes recognizes video transmission requires “relatively high bandwidth,” and thus, suggests if a certain connection “does not provide enough bandwidth to receive the communication (e.g., movie data file) in a desired manner *without*

buffering, [a] higher speed network is selected” for the movie data file transmission. LG-1003, ¶147; LG-1007, ¶66; *see also id.* (“If the user desires *to download and watch a movie* ⁵..., *relatively high bandwidth can be anticipated as being needed.*”).

Reading Barnes, a POSITA would have been motivated to use a similar procedure in Dua and assign a connection with a “high bandwidth” (or a “high speed” connection as presented in Barnes) for video transmission. LG-1003, ¶148. A POSITA would have been motivated to do so for multiple reasons:

First, Dua and Barnes are directed to similar fields of technology (as explained above) and provide for re-transmitting received video content for presentation on another display “that may be large or of better quality than the display of the [communication] device” (LG-1007, ¶63), for example, “to facilitate enhanced viewing” (LG-1006, ¶156). LG-1003, ¶149.

Second, as Barnes recognizes, dedicating a high bandwidth connection to video transmission reduces a need to buffer the video data at the destination device (e.g., an external display), and thus, reduces interruptions in displaying the video at

⁵ Barnes’ disclosed constraints is not limited to downloading. Alternatively, it would have been obvious to account for those constraints when selecting the right connection for video transmission. LG-1003, ¶147.

the destination device. LG-1003, ¶150; LG-1007, ¶66. Barnes views high bandwidth as an indicator of “the amount of data that can be communicated over a given time period,” and thus, suggests selecting a “*higher speed network*” for video transmission.

Third, Dua recognizes video transmission constraints and suggests designing transceiver 108 “to support *the widest array of communication protocols and broadcast standards.*” LG-1006, ¶63. This disclosure suggests assigning the highest available short-range bandwidth to the connection between the communication device and the external device (e.g., the display). LG-1003, ¶151.

Fourth, applying Barnes’ suggestion (on prioritizing a high bandwidth connection for video transmission) to Dua is nothing more than utilizing a familiar known technique in selecting a proper radio connection to achieve a predictable result of reducing interruption in (a live) video presentation on an external device. LG-1003, ¶152.

A POSITA would have reasonably expected success applying Barnes’ suggestion to Dua given Dua’s teachings, Barnes’ explained benefit of reducing buffering, and the well-known need for a “high data rate” connection for video transmission. LG-1003, ¶153 (citing LG-1013, ¶¶3, 21 and LG-1014, ¶118).

4. Claim Analysis

(a) *Claim 18*

[18pre]

To the extent the preamble is limiting, Dua-Barnes renders it obvious. LG-1003, ¶154.

Media player in Dua-Barnes combination would be “capable of processing digital media such [as] video.” LG-1006, ¶4; LG-1003, ¶155; *see also* LG-1006, ¶57.

Claim 18 does not specify any particular aspect of a video processing method. It only goes as far as “transmitting” “digital video information.” LG-1003, ¶156. As discussed *infra* for [18a], Dua-Barnes media player 100 is capable of transmitting digital video information. *Id.*

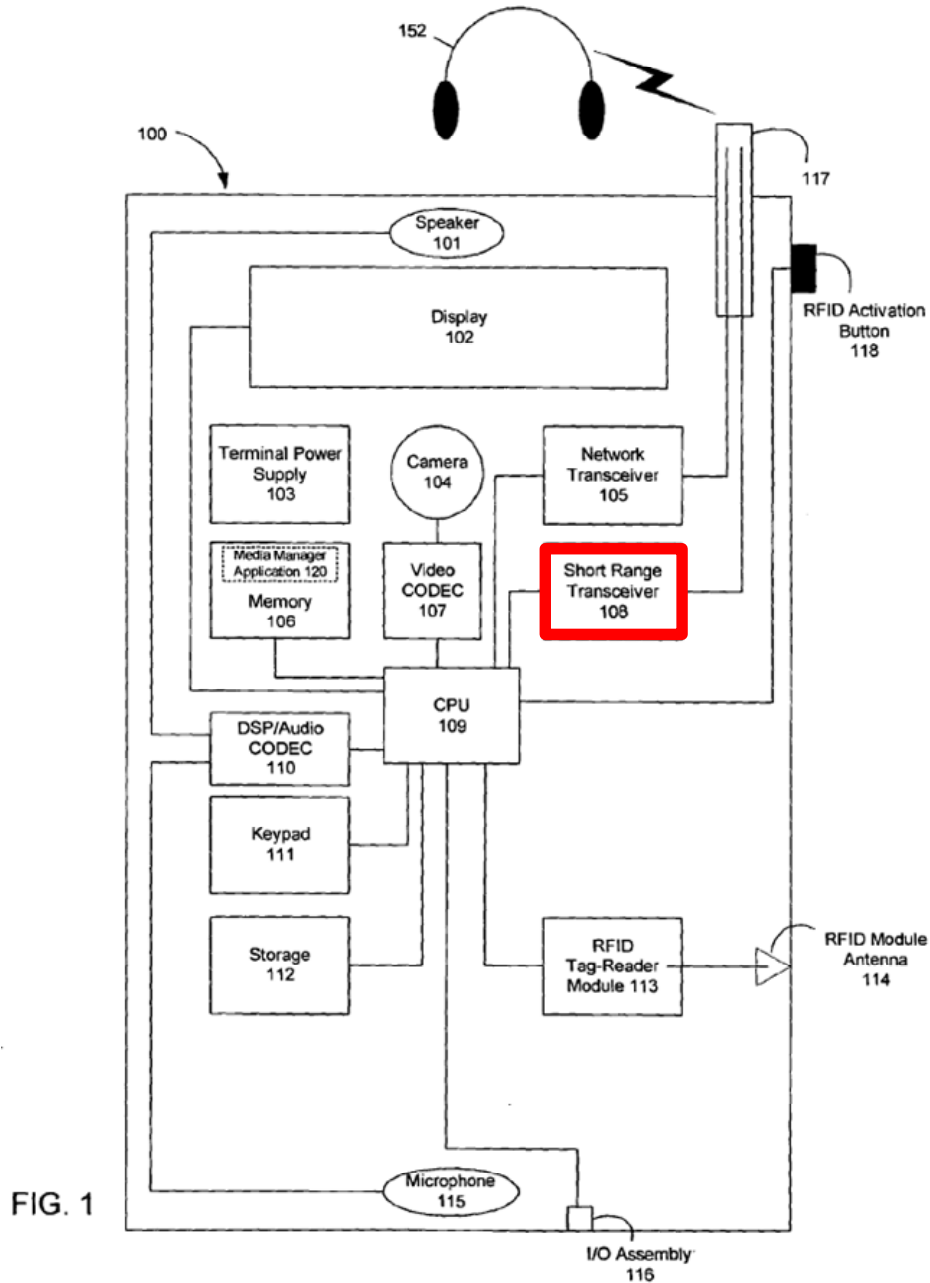
[18a]

Dua-Barnes discloses or renders obvious transmitting, via a first radio communication circuit (e.g., short range transceiver 108), digital video information (e.g., a video file) by radio (e.g., though short-range radio connections such as Bluetooth, WiFi) to an external apparatus (e.g., to an external TV, to a friend’s device). LG-1003, ¶157.

Dua’s media player 100 includes a “*short-range transceiver 108* and antenna 117 [that] provide wireless connectivity with *external devices* or access

points using supported communications protocols (e.g., Bluetooth, 802.11

a/b/g/n).” LG-1006, ¶62; LG-1003, ¶158.



LG-1006, FIG. 1 (annotated)

Dua teaches users can select a video file (*digital video information*) to send to the external device (*external apparatus*) through short-range transceiver 108

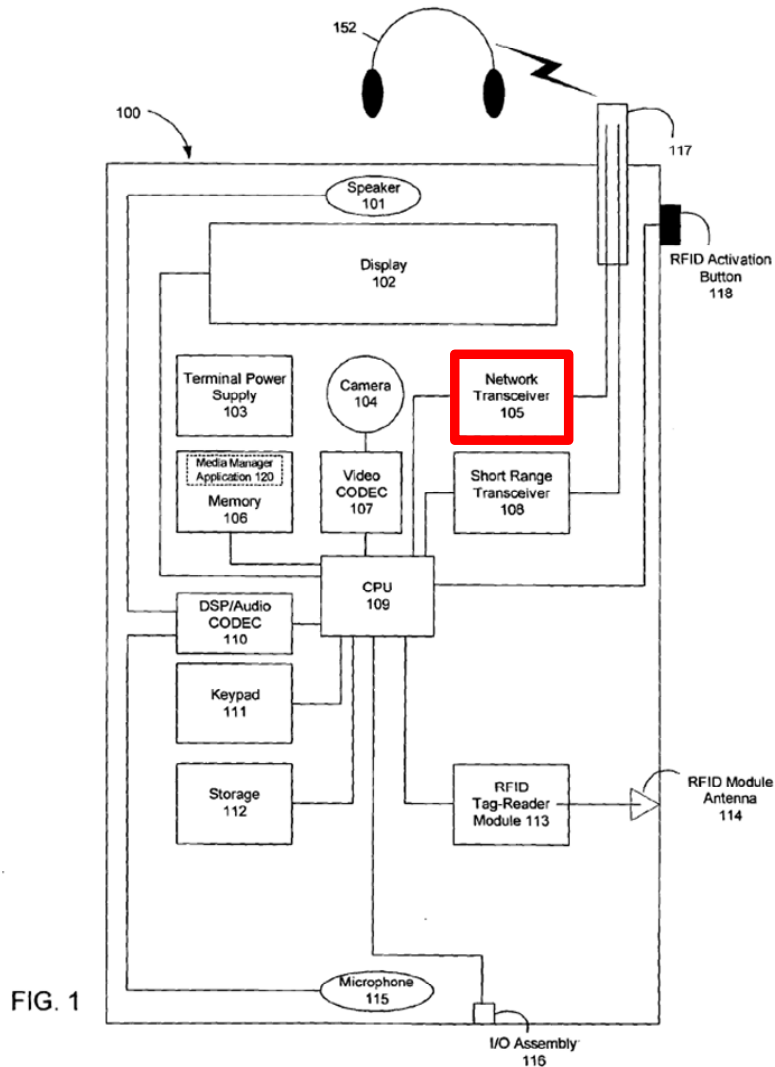
(via a first radio communication circuit). For example, “[a] user that is engaged in viewing incoming media or listening to music stored locally on the media player 100 [is] to automatically ***establish a wireless connection with a target device and transmit the same media*** for listening/viewing pleasure on the target device.” LG-1006, ¶158. As such, users would be able to get an “enhanced viewing, for example, on a large television with surround sound,” or “share the incoming media with a friend ***in the vicinity***.” *Id.*, ¶¶156, 168. Since the external device is “in the vicinity” of the user’s media player 100, it would be at least obvious that the media player uses its short-range transceiver 108 for re-transmitting the video file to that device. LG-1003, ¶159; *see also* [18f.1] *infra* (explaining reasons for prioritizing the short-range transceiver 108 over the network transceiver 105 for such video re-transmission).

[18b]

Dua-Barnes discloses or renders obvious connecting, via a second radio communication circuit (e.g., network transceiver 105), to an internet (e.g., to an internet through a cellular network connection). LG-1003, ¶160.

Dua’s media player 100 also includes network transceiver 105. LG-1006, ¶61. “[N]etwork transceiver 105 [is used] for interacting with a cellular network, such as a Global System Mobile (GSM) network and the like via antenna 117.”

Id., ¶66. “Media player 100 is able to access the Internet through the cellular network.” *Id.*; LG-1003, ¶161.



LG-1006, FIG. 1 (annotated)

[18c]

Dua-Barnes discloses or renders obvious receiving digital information (e.g., digital audio, video, email), for example, from the Internet. LG-1003, ¶162; *see also supra* [18b]. It was obvious to a POSITA that such Internet content consti-

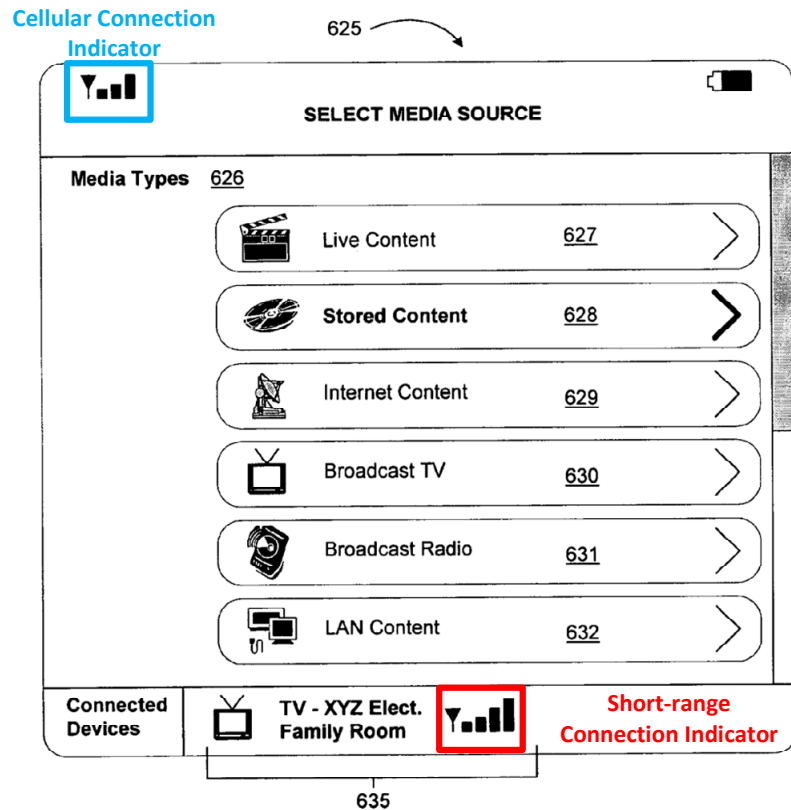
tutes “digital information.” LG-1003, ¶162; *see also* LG-1006, ¶168 (“The ‘*Internet content*’ option could, for example, allow a user to *browse movie trailers* on his wireless media player 100, *select a movie for download*”), ¶224 (explaining ‘Internet Content’ can include movies and *digital* music available for download), ¶¶201, 206. Barnes also discloses example digital content such as emails and downloadable video that are transmitted to the user device through the Internet. LG-1007, ¶61 (“*receive or send emails, transmit and receive data via the Internet, download audio or video files, upload and download data*”).

[18d]

Dua-Barnes discloses or renders obvious controlling each of the first radio communication circuit (e.g., short-range transceiver 108) and second radio communication circuit (e.g., network transceiver 105) such that the first radio communication circuit (e.g., short-range transceiver 108) transmits digital video information (e.g., video file) to the external apparatus (e.g., external display or another media player) and the second radio communication circuit (e.g., network transceiver 105) connects to the internet or the home network (e.g., connects to the Internet through a cellular network) simultaneously. LG-1003, ¶163.

In its Infringement Contentions, Patent Owner alleged that the claimed “simultaneous” controlling of the two connections is present in the accused device because “both icons” associated with the two connections are “available on the status

bar” of the device’s display. LG-1012, 73 (“cellular connections are preferred to provide MMS and E-mail services *to transmit video while simultaneously* the Wi-Fi communication chip is used to *connect to the Internet as shown by both icons being available on the status bar.*”). Similarly, media player 100 in Dua-Barnes presents an icon (blue in figure below) for cellular connection, and another icon (red in figure below) for short-range connection with an external device to send video content to that external device. LG-1003, ¶164.



LG-1006, FIG. 15 (annotated)

More specifically, the figure represented above shows “a cellular network signal indicator” (blue) indicating connection of network transceiver 105 to the Internet (*see supra* [18b]) (*the second radio communication circuit connects to the internet or the home network*), and a short-range connection signal indicator (red) that indicates *simultaneous* connection of media player 100 to a “peripheral” device (e.g., a particular TV as indicated by 635 in the figure) to facilitate transmission of video content to that peripheral device (*the first radio communication circuit transmits digital video information to the external apparatus*) (*see supra* [18a]). LG-1003, ¶165 (citing LG-1006, FIG. 12, ¶¶210-211, 213 regarding user’s election of a peripheral device while the media player is connected to a cellular network; ¶222 that refers to 635 as an indicator of the peripheral “***devices that are currently connected to the media player 100***, such as ***a TV***”; and FIG. 13, ¶215 noting media player’s detection of peripheral devices that are “within signal range,” which means within the short-range coverage of transceiver 108 of the media player 100). The presentation of two icons (blue and red) at the same time indicates a simultaneous connection that is consistent with how Patent Owner applied limitation [18d] in its Infringement Contentions. *Id.*

Barnes also notes users can transmit video content while receiving Internet content such as emails. LG-1007, ¶60 (“***transmit live audio/visual data—such as live video transmissions*** (e.g., a video telephone call, ... transmit video camera

data)...—*while also* transmitting and *receiving computer data such as emails.*”).

It would have been obvious to a POSITA to receive emails through Internet. LG-1003, ¶166. Thus, a Dua-Barnes device would be able to transmit video content through short range transceiver 108 (*see supra* [18a]) while being connected to the Internet through network transceiver 105 (*see supra* [18b]) to receive emails. *Id.*

Dua’s media player has CPU 109 that controls functionalities of both short-range transceiver 108 and network transceiver 105. LG-1003, ¶167; LG-1006, ¶66 (*“Short-range transceiver 108 interacts with a CPU 109 for implementing short-range communications protocols and processing messages exchanged between other electronic devices and the media player 100. ... CPU 109 [generally] provides instructions for managing and controlling the operating of media player 100. CPU 109 is also connected to network transceiver 105 for interacting with a cellular network.”*).

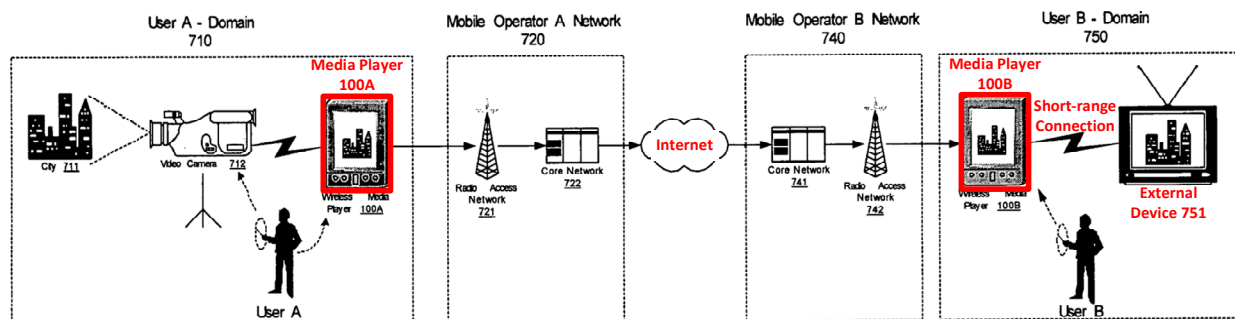
Therefore, Dua-Barnes renders obvious controlling each of short-range transceiver 108 (*the first communication circuit*) and network transceiver 105 (*the second communication circuit*) such that short-range transceiver 108 transmits video content to external device 751/851 (*the first communication circuit transmits digital video information to the external apparatus*) and network transceiver 105 connects to the Internet (*the second communication circuit connects to the internet simultaneously*). LG-1003, ¶168.

Additionally, Dua-Barnes goes even beyond simultaneous (i) video transmission through a first circuit and (ii) an Internet *connection* through a second circuit, and renders obvious *simultaneous reception and transmission* of the video content through the two connections. LG-1003, ¶169. Thus, to the extent that it's argued that the '284 Patent discloses simultaneous transmission and reception of the video data (which it does not), Dua-Barnes still render such feature obvious. *Id.*

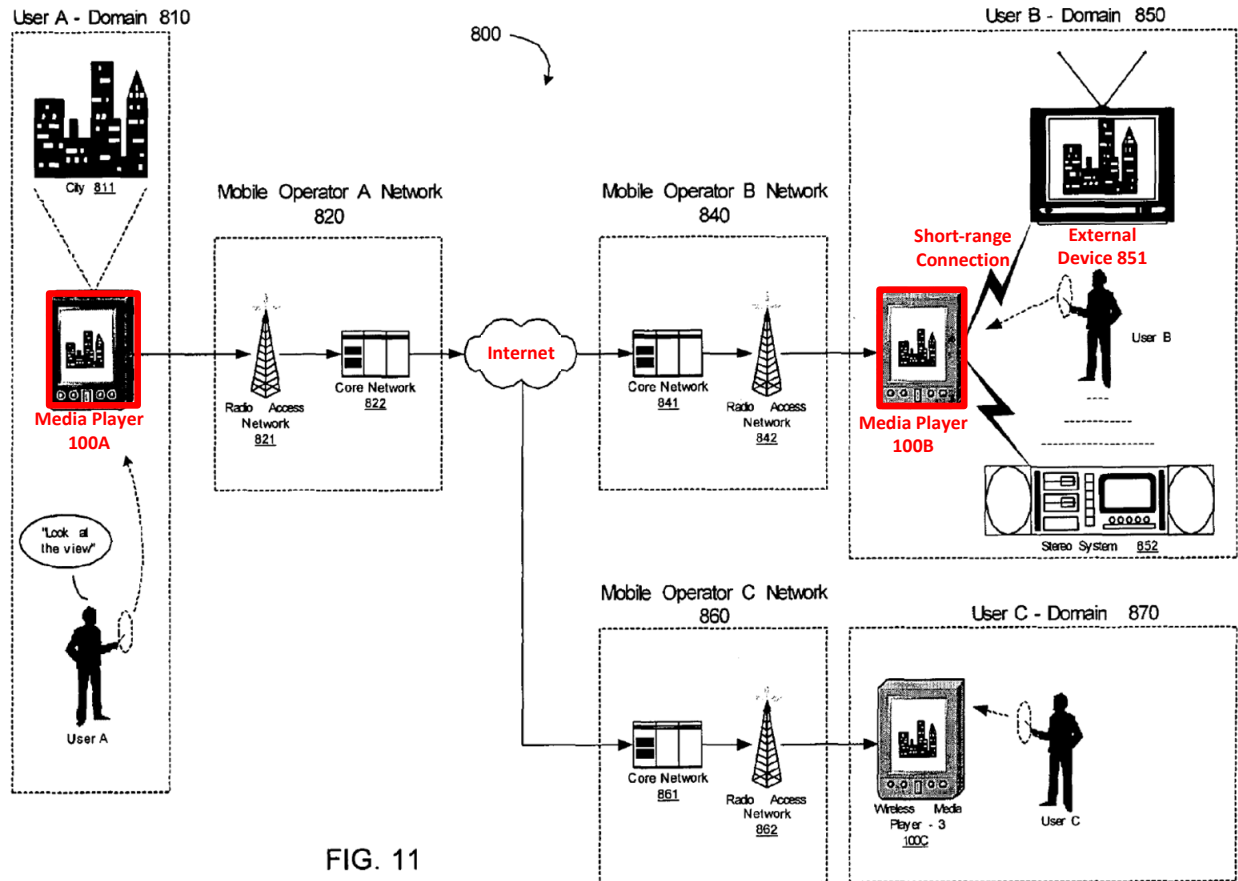
Dua's media player can receive media files from an external source and re-transmit the received file to an external device through a short-range connection. LG-1003, ¶170; *see also* LG-1006, ¶168 (“[F]or example, allows a user to browse movie trailers on his wireless media player 100, *select a movie for download*, pay for the movie, *and use the media player 100 to re-transmit the selected movie to a television in the vicinity.*”); *id.*, ¶156 (“the user of media player 100 may decide that he wants to wirelessly transmit the incoming media to another electronic device to *facilitate enhanced viewing, for example, on a large television with surround sound.* Alternatively, he may decide to *share the incoming media with a friend in the vicinity* that also has a wireless media player device.”).

Dua teaches a simultaneous video reception and re-transmission to an external display. LG-1003, ¶171. Dua recognizes that “*as User B watches the video feed* from User A's media player 100A on his media player 100B, *he may decide*

that he wants to watch the video feed on his television for an enhanced viewing experience and surround sound.” LG-1006, ¶195. FIGs. 10 and 11 of Dua convey that media player 100B allows the user to *simultaneously connect to the Internet* to receive/download the video content from media player 100A and *transmit* the video content to external device 751/851 (*to the external apparatus*). LG-1003, ¶171; *see also* LG-1006, ¶224, FIG. 17 (showing selection of Internet content for download and re-transmission to an external device.); ¶190 (describing FIG. 10); ¶¶201, 204 (describing FIG. 11);



LG-1006, FIG. 10 (annotated)



LG-1006, FIG. 11 (annotated)

Barnes also contemplates a “live” presentation of video content (e.g., live broadcasting, a video chat) on an external display device, where the video is received on the user device and is “immediately” routed to the external display device for presentation. LG-1003, ¶¶172-173; LG-1007, ¶¶60-61 (“The presentation of “live” audio/visual is meant to mean the process of *receiving an audio or video broadcast and immediately [and] presenting the audio and visual to the user on the* audio output device and/or *display device. The data that is received live may be transmitted as [being] captured from live events from the source.*”); ¶63 (“The communication module may also *route certain data to remote devices during live*

or non-live presentation to the user. For example, a video transmission ... received by the device 101 may be routed ... to a remote display device”).

It would have been obvious to a POSITA to use Barnes’ live video reception and transmission capability so users can get an enhanced (e.g., larger or better quality) presentation of live content (e.g., a live football game, a video chat) on an external display device. LG-1003, ¶174. Applying Barnes’ live video reception and transmission to Dua is nothing more than utilizing a familiar known technique in selecting video forwarding to achieve a predictable result of presenting the video on a larger, better quality, or just another display device. *Id.*

A POSITA would have reasonably expected success applying Barnes’ suggestion to Dua given Dua’s teachings and Barnes’ contemplated live video reception/transmission. LG-1003, ¶175.

Dua-Barnes’ live data reception and re-transmission constitute *connecting* to the external video source and *transmitting* the video content to the external device *simultaneously* because they are done to “enhance viewing” of an “internet content” or to “share the incoming media.” LG-1003, ¶¶176-177.

[18e]

Dua-Barnes renders obvious controlling assignment (e.g., controlling connection-assignment) between the first radio communication circuit (e.g., short-range transceiver 108) and the external apparatus (e.g., external display or media

player), and assignment (e.g., controlling connection-assignment) between the second radio communication circuit (e.g., network transceiver 105) and the internet or the home network (e.g., the internet). LG-1003, ¶178.

As explained *supra* in Claim Construction section, the '284 Patent suggests that an ***assignment between*** a radio communication circuit and an external apparatus or network means ***assigning particular connection parameter(s)*** to the connection *formed between* the communication circuit and the external apparatus or network, and the examples of such connection parameters include transmission rate/capacity, bandwidth, modulation scheme, and transmission schedule. LG-1003, ¶179.

In its Infringement Contentions, however, Patent Owner used “assignment” as assigning or making a connection by a radio communication circuit. LG-1003, ¶180. Specifically, Patent Owner asserted that limitation [18e] constitutes “execut[ing] software ***to control performing each one of the functions [made to form a connection] such as MMS/e-mail/connecting to the router/connecting to the Internet/Wi-Fi Direct.***” LG-1012, 82; *see, e.g., id.*, 22, 32, 50 (conveying that the “functions” are to form the connections). Patent Owner alleged that the asserted product meets limitation [18e] because the asserted product has the “***ability to transmit an indication to turn the Wi-Fi and cellular communication chips***

on/off and assign a connection accordingly.” *Id.*, 82; *see also id.*, 82-84 (showing the respective connection on/off indicators).

Thus, it appears that the Patent Owner’s position is to constitute “controlling assignment between the first radio communication circuit and the external device” as **assigning a connection** to the first radio communication circuit **by making the connection** between the first radio communication circuit and the external device for the purpose of transmitting content (e.g., video information). LG-1003, ¶181. Similarly, based on Patent Owner’s contentions, “controlling assignment between the second radio communication circuit and the internet or the home network” constitutes **assigning an internet connection** to the second radio communication circuit **by connecting** the second radio communication circuit **to the internet** for the purpose of transmitting information. *Id.*

Without conceding Patent Owner’s position, and solely to make sense of the claim language based on its contentions, Petitioner submits that the assignment and making a connection (i.e., *controlling the assignment*) under the Patent Owner’s contentions can be as simple as activating such connections. LG-1003, ¶182.

Even if that was an appropriate construction of “assignment,” assigning a connection is nothing more than assigning parameters associated with that connection because a connection is not separate from its parameters. LG-1003, ¶183. In-

deed, the '284 Patent, too, recognizes that a connection is not separate from its parameters. In preparation for a video transmission, the Patent assigns a particular connection "scheme" to the modem (i.e., *radio communication circuit*) responsible for the video transmission, where a scheme is nothing other than the connection parameters. *Id.* "For example, in a situation wherein the user issues an indication *to transmit video information by radio via the modem 1002* to the display apparatus 200 while acquiring information from the Internet according to scheme 1 of FIG. 9 by use of the modem 1003, the controller 132 *outputs a control signal to the assignment controller 1001 such that the transmission scheme of the modem 1003 is changed from scheme 1 to scheme 2 of FIG. 9 and that of the modem 1002 is set to scheme 1 of FIG. 9* conduct communications." LG-1001, 8:38-47.

SCHEME	SCHEME 1	SCHEME 2
BANDWIDTH	6MHz	6MHz
CARRIER MODULATION SCHEME	64QAM	QPSK
CONVOLUTION CODE	3/4	2/3
GUARD INTERVAL	1/8	1/8
TRANSMISSION CAPACITY	17Mbps	5Mbps

LG-1001, FIG. 9

The connection schemes presented in FIG. 9 are defined by respective *connection parameters* including bandwidth, carrier modulation scheme, and transmission capacity/rate. Therefore, assigning a connection to a communication circuit (as pursued by the Patent Owner) constitutes assigning a connection scheme (as presented in the Patent), which means assigning each parameter associated with that scheme (e.g., transmission rate) to that communication circuit. LG-1003, ¶184.

Dua-Barnes, renders obvious such connection assignment controlling feature. LG-1003, ¶185.

Dua discloses controlling connection-assignment to short-range transceiver 108 (*the first radio communication circuit*) by making a connection between media player 100 and an external device when that external device gets within the short-range coverage of media player 100. *See e.g.*, LG-1006, ¶20 (The device profile can be enabled at the user's option to automatically detect the target device when within a certain proximity to the media player. At that point wireless connectivity between devices can be automatically established. Alternatively, the profile could also be used to manually establish wireless connectivity with a target device at the user's discretion."); *see also id.*, ¶139 (regarding device profile creation and use); LG-1003, ¶186. Since short-range transceiver 108 oversees short-range communi-

cations with external devices (*see supra* [18a]), a POSITA would have found it obvious that the short-range connection is formed (or is offered to be formed) between short-range transceiver 108 and the external device when the external device is within the “proximity” of the media player. *Id.* And as explained above, the formation of such connection constitutes *assigning the connection* (and thus, the connection parameters) between short-range transceiver 108 (i.e., the first radio communication circuit) and external device. *Id.*

As discussed above, a connection assignment constitutes assigning connection parameters. As discussed *supra* in §III.C.3, a POSITA would have recognized to assign a connection with higher “speed” for video transmission in Dua-Barnes’s device. LG-1003, ¶187. Such assignment is in line with the ’284 Patent’s example with respect to FIG. 9, where scheme 1 with higher transmission capacity (i.e., speed) is assigned to modem 1002 designated for the video transmission. *Id.*; LG-1001, 8:38-47 *see also id.*, 8:24-27 (“As can be seen from FIG. 9, the transmission capacity of scheme 1 is 17 Megabits per second (Mbps) which is more than three times that of scheme 2 (5 Mbps).”).

Similarly, Dua discloses controlling connection-assignment to network transceiver 105 (*the second radio communication circuit*) by making an internet connection to transceiver 105 to receive digital information (e.g., digital video, audio). LG-1003, ¶188; LG-1006, ¶¶66-68 (“**CPU 109 is also connected to network**

transceiver 105 for interacting with a cellular network, such as a Global System Mobile (GSM) network and the like via antenna 117. *Media player 100 is able to access the Internet through the cellular network.*”); *see also supra* [18b].

CPU 109 (*see supra* [18d]) of Dua-Barnes’ media player controls the functionalities of both short-range transceiver 108 and network transceiver 105, including forming the connection (*controlling assignment*) between short-range transceiver 108 and the external device, and forming the internet connection by network transceiver 105. LG-1003, ¶189.

[18f.1]

As discussed *supra* [18f.1] under Ground 1, giving an “assignment” to a first connection “*more than*” an “assignment” to a second connection means giving a “*higher priority*” to the connection parameters of the first connection as compared to the connection parameters of the second connection. *See supra* discussion for [18f.1] under Ground 1 citing LG-1001, 2:13-19, 2:32-36, 12:43-51. Also discussed there that Patent Owner appears to construe assigning to a first connection “*more than*” to a second connection to mean “*prioritizing*” the first connection to the second connection *for the purpose of video transmission*. *See id.*; LG-1012, 85-102; LG-1003, ¶191.

Dua-Barnes renders obvious controlling connection-assignment such that assignment between the first radio communication circuit and the external apparatus

is (prioritized) ***more than*** (i.e., has a higher priority for transmitting video content than) the assignment between the second radio communication circuit and the internet. LG-1003, ¶¶190, 192.

By the priority date, it was well-known that transmitting video (particularly live video) clips require a high bandwidth and high transmission rate, for example, to avoid interruption in watching the video. LG-1003, ¶193 (citing LG-1013, ¶¶ 3, 21 and LG-1014, ¶118). Further, as discussed *supra* in §III.C.3, in Dua-Barnes, the media player assigns (or prioritizes) a connection with a higher bandwidth/transmission rate for video transmission, for example, to reduce buffering and streaming interruptions at the destination device. *Id.*; LG-1007, ¶66 (***If the user desires to download and watch a movie ... relatively high bandwidth can be anticipated as being needed, [and thus,] to receive the communication (e.g., movie data file) in a desired manner without buffering, the higher speed network is selected. ...Thus, in this example embodiment *the programmed rules will be based on bandwidth availability (anticipated, current).****”).

It would have been obvious to a POSITA to use the transceiver (from among transceivers 105 and 108 in Dua-Barnes) that supports the higher bandwidth/transmission rate for video transmission to the external device (e.g., to a peripheral display). LG-1003, ¶194. Dua recognizes video transmission constraints, and notes

that “[t]he *short-range transceiver 108* and antenna system 117 are *specially designed to support the widest array of communication protocols and broadcast standards*,” which suggests assigning the highest available short-range bandwidth to the connection between transceiver 108 and the external device. *Id.*; LG-1006, ¶63. Dua reinforces this suggestion by requiring the receiving display device (e.g., an external TV) to have a transceiver that supports “high bandwidth communication with other devices (such as the media player 100).” LG-1006, ¶215; LG-1003, ¶194.

Further, by the priority date, it was well-known that cellular networks generally have lower bandwidth compared to local area networks (that provide short-range communications). LG-1003, ¶195 (citing LG-2018, 313; LG-1007, ¶65). Therefore, a POSITA would have been motivated to *prioritize using* Dua-Barnes’ *short-range transceiver 108* over cellular network transceiver 105 *for transmitting video content* from the media player to a peripheral device (e.g., within the vicinity of the media player) because (i) transceiver 108 supports the widest available short-range bandwidth, (ii) the peripheral device (e.g., an external TV) supports high-bandwidth transmissions for receiving the video content, and (iii) short-range transceiver 108 was known to provide a higher bandwidth for a local network connection (e.g., WiFi, Bluetooth) than cellular network transceiver 105 would. LG-1003, ¶195. And as discussed earlier, such prioritization constitutes assigning

“more” to the connection between short-range transceiver 108 (*the first radio communication circuit*) and the external device *than* to the connection between network transceiver 105 (*the second radio communication circuit*). *Id.*

[18f.2]

Dua-Barnes renders obvious controlling the assigning “more” limitation [18f.1] when a user issues an indication (e.g., selects a transmission button 186/675) to transmit digital video information by the first radio communication circuit (e.g., when a user selects the transmit button 186/675 as a conclusion of a set of selections made for transmission of a video content to a particular peripheral device through short-range transceiver 108) while acquiring information from the internet or the home network by the second radio communication circuit (while acquiring information from the internet by network transceiver 105). LG-1003, ¶196.

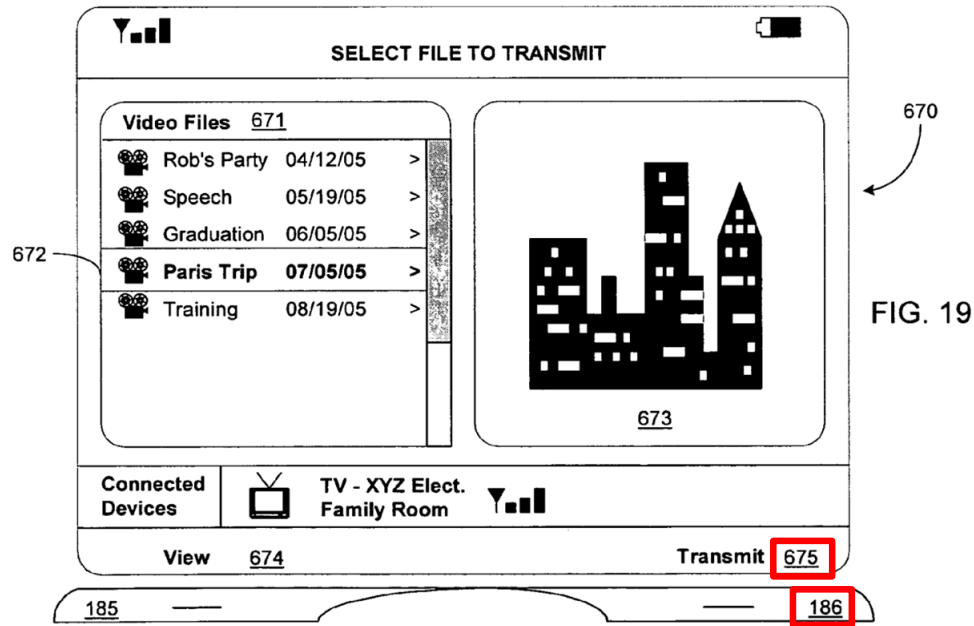
In its infringement contentions, Patent Owner applied the claimed user indication broadly to cover an indication that implies a selection of an (asserted) first radio communication circuit rather than the user’s explicit selection of the first radio communication circuit. *See e.g.*, LG-1012, 86 (***when ... the user issues a ‘Wi-Fi Direct’ transfer request*** while ... the user is using cellular data services), ***the controller*** (e.g., CPU) ... ***executes software to prioritize using the Wi-Fi communication chip for Wi-Fi Direct*** instead of using cellular services.”), 88-89 (“***when***

a user indicates to turn Wi-Fi on while acquiring information from the Internet using a cellular connection ... *or the user selects a particular Wi-Fi network* while using cellular data services[,] *the controller (... executes software to prioritize using the Wi-Fi communication chip over the cellular connection for receiving a video* (e.g., via MMS or email).”), 95 (*when a user indicates to turn cellular data on* while acquiring information from a home network ... *the controller ... executes software to prioritize using the cellular communication chip over Wi-Fi for transmitting a video.*”); LG-1003, ¶197.

While Petitioner does not concede to the appropriateness of Patent Owner’s use of this claim limitation in its Infringement Contentions, Petitioner notes that under Patent Owner’s interpretation, the user makes selections—such as issuing a ‘Wi-Fi Direct’ transfer request, turning Wi-Fi or cellular data on, or selecting a particular WiFi network—that only *imply* using the first communication circuit—e.g., merely turning on cellular but not selecting a specific radio, or merely indicating the application or the Wi-Fi communication protocol but not the specific radio (e.g., 2.4GHz or 5GHz WiFi radio)—for the video transmission, and it is the controller that selects the communication chip/circuit—e.g., by “execut[ing] software to prioritize using the Wi-Fi communication chip over the cellular connection for receiving a video.” LG-1003, ¶197.

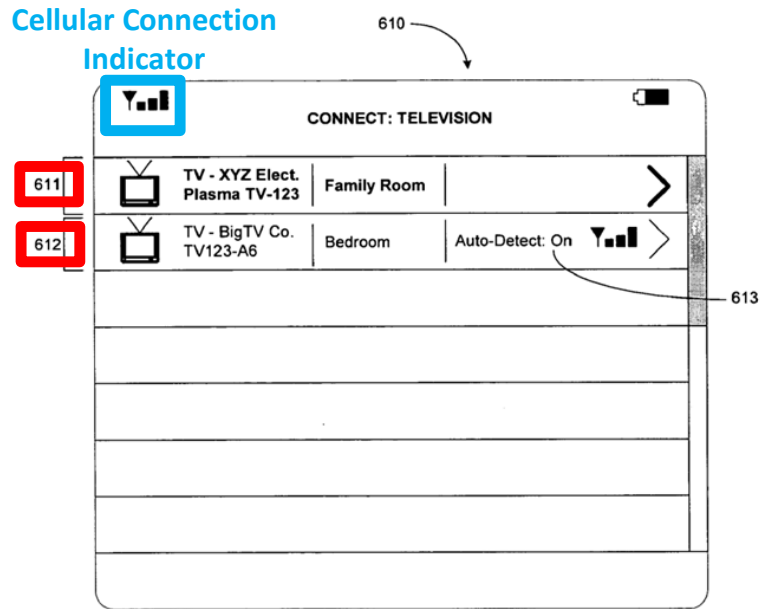
Similarly, Dua-Barnes render obvious limitation [18f.2] because the user selects the video to be transmitted, and the connection to be used for such transmission, which implies indicating the communication circuit that facilitates that connection. LG-1003, ¶198.

In its FIGs. 12-19, Dua provides details on a set of selections that a user makes to (i) choose a peripheral device to connect to through the short-range transceiver 108, and (ii) a video content for short-range transmission to the selected peripheral device. LG-1006, ¶¶12-50; LG-1003, ¶199. Once the user makes the set of selections, pressing final “transmit” button 186/675 (*user indication*) initiates transmission of the video content to the peripheral device. LG-1006, ¶227; LG-1003, ¶199. The following paragraphs further explain the set of selections and the user’s final transmission indication.



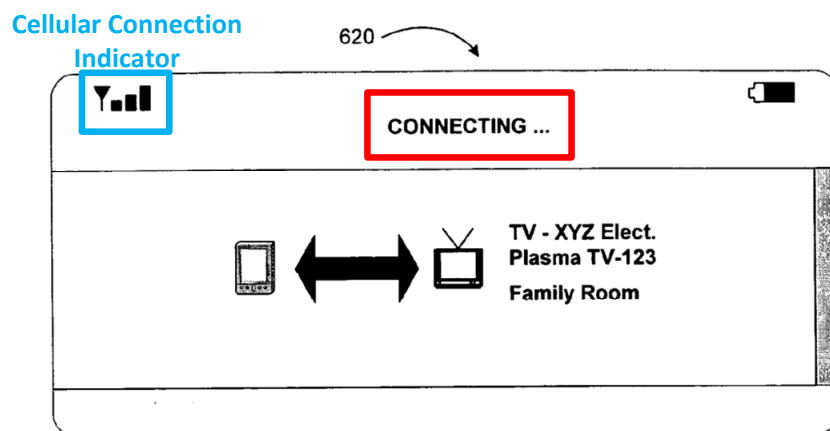
LG-1006, FIG. 19 (annotated)

First, the user in Dua selects (from a list of device profiles,) the external device (e.g., 611 in the figure below) that is to be connected to the media player through the short-range transceiver 108. LG-1003, ¶200. “Device profiles allow users to connect to the same device in the future either automatically [or] *manually by selecting the profile from a list (and when within range of the device’s RF signal)*.” LG-1006, ¶¶163, 215.



LG-1006, FIG. 13 (annotated)

Once the user selects the external device's profile, a connection is formed between the media player and the external device. LG-1006, ¶220; LG-1003, ¶201; *see also supra* [18d].

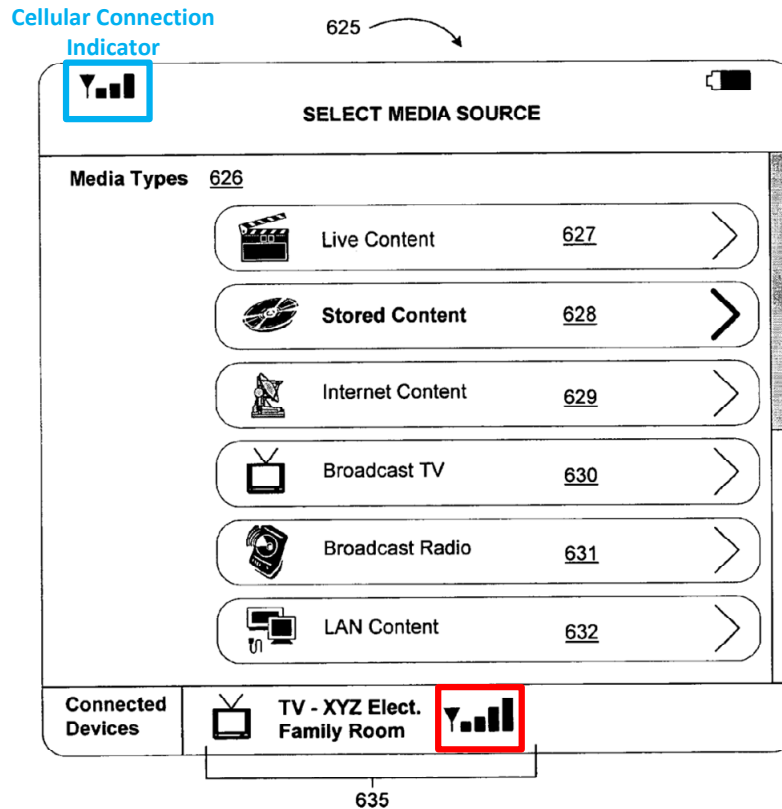


LG-1006, FIG. 14 (annotated)

Once the media player is connected to the external device, the connection is depicted by a new signal indicator (shown in red below) *in addition to* the already

existing cellular connection indicator (blue) on the media player's user interface.

LG-1003, ¶202. A POSITA would have recognized that the connection to the external device is other than the cellular connection, and thus, is a short-range connection formed by the short-range transceiver 108. LG-1003, ¶203.



LG-1006, FIG. 15 (annotated)

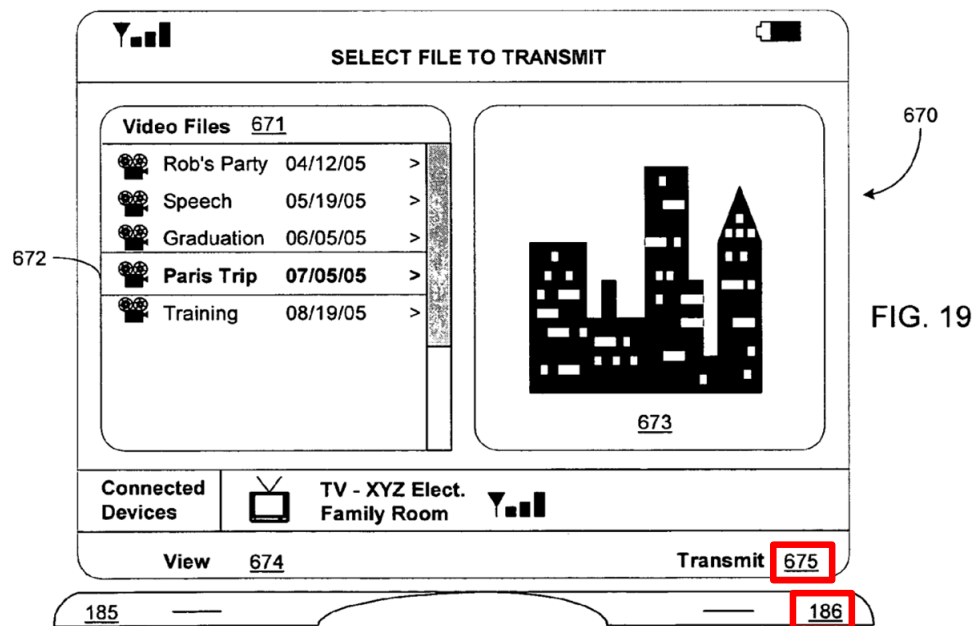
Alternatively, an indication of the short-range transceiver 108 (*first radio communication circuit*) for transmitting the video content would have been obvious to a POSITA because the user selects the destination device when the device is in the vicinity of the media player—i.e., “within range of [the external] device’s

RF signal.” LG-1003, ¶204; LG-1006, ¶163; *see also* LG-1006, ¶218 (noting that the connection would be “*dropped*” upon “*leaving the RF coverage area*” of the external device, which further reinforces that the connection to the external device is through a short-range connection). Indeed, a POSITA would have been motivated to use short-range transceiver 108 for such transmission because of the constraints in video transmission discussed *supra* in [18f.1], and the higher bandwidth and speed that the short-range transceiver 108 provides as compared to network transceiver 105 (*see supra* [18f.2]). LG-1003, ¶204.

Thus, Dua-Barnes renders obvious that *a user issues an indication to transmit by the first radio communication circuit (i.e., short-range transceiver 108) while being connected to the internet by the second radio communication circuit (i.e., network transceiver 105)*. LG-1003, ¶205.

Second, the user selects the video content that the user wants to send to the selected external device (that is connected to the short-range transceiver 108). LG-1003, ¶206. “Upon establishing wireless connectivity with the target device, the media player 100 prompts the user to select the content source from which he wants to select a media asset to transmit to the target device.” LG-1006, ¶165; *see also id.*, ¶¶168, 171, FIG. 19, ¶226 (“FIG. 19 is an illustration of an exemplary user interface screen 670 depicting ‘Video Files’⁶⁷¹ that can be selected for transmission to [the] target device.”).

Third, the user selects a transmission button 675/186 (user indication) to initiate transmission of the user's selected video content to the selected peripheral device connected to the user device through the short-range connection. LG-1003, ¶207. In FIG. 19 (below), for example, "[i]f the user decides to transmit the [selected] file 672 to [the selected] target device in accordance with the invention, he may simply press the right menu selection button 186 on the media player 100." LG-1006, ¶227. Since "the media player 100 is connected to the target device, ***pressing the right menu selection button 186, will initiate transmission [of the selected video file 672] to the target device.***" *Id.*; see also *id.*, ¶78.



LG-1006, FIG. 19 (annotated)

Therefore, by selecting button 186//675 in Dua-Barnes, the user *issues an indication to transmit* the selected video content (*digital video information*) to a selected external device that is connected to the user's media player through short-range transceiver 108 (*by the first radio communication circuit*). LG-1003, ¶208.

The above-explained process is in line with Patent Owner's interpretation of the user indication as an indication that implies the selection of the short-range transceiver 108 (e.g., by selecting "a particular WiFi network" or turning "WiFi on" to imply using a specific WiFi radio). LG-1012, 88-89. This is because the user's selection of the destination device for short-range communication in Dua-Barnes implies using the short-range transceiver 108, and thus, renders obvious the claimed user indication per Patent Owner's interpretation. LG-1003, ¶209.

Alternatively, Dua-Barnes in light of the knowledge of a POSITA renders obvious the user's selection of Bluetooth as a short-range connection for the video transmission. LG-1003, ¶210. Dua notes that media player 100 can connect to a peripheral device (e.g., a headset or display) through a "normal Bluetooth session set-up procedure" rather than through Dua's "improved method... for wirelessly connecting these devices." LG-1006, ¶¶10, 123. By the priority date, it was well-known that a "normal Bluetooth session set-up procedure" involved the user's selection of the item to be transmitted, the Bluetooth (as the selected form of communication), and the destination device. LG-1003, ¶210 (citing LG-1010, 85-86; LG-

1005, 29; LG-1011, 1168, 1199-1200); *see also* Ground 2A *infra*. Since in Dua-Barnes the Bluetooth connection is facilitated by short-range transceiver 108 (LG-1006, ¶62), the explicit selection of video content and Bluetooth as the chosen connection for transmission of the video content renders obvious the claimed user “*indication to transmit digital video information by the first radio communication circuit.*” Therefore, the Dua-Barnes combination in view of the well-known knowledge in the art renders the claimed user *indication* obvious. LG-1003, ¶210.

Dua also discloses receiving the user indication (e.g., the user selection of button 186/675) *while acquiring information from the internet by the second radio communication circuit*. LG-1003, ¶213. Dua provides the opportunity for the user to “wirelessly ***transmit the incoming media*** to another electronic device to facilitate enhanced viewing, for example, on a large television with surround sound, or to ***share the incoming media*** with a friend in the vicinity that also has a wireless media player device.” LG-1006, ¶156; *see also id.*, ¶168. Barnes discloses a similar scenario, where “***video transmission*** or computer data (e.g., web pages) ***received by the device 101 may be routed (e.g., as requested by the user) to a remote display device***” LG-1007, ¶63; *see also id.*, ¶60 (“the user can also ***receive and transmit live audio/visual*** data—such as live video transmissions (e.g., a video telephone call, receive a television transmission, transmit video camera data)...—***while also transmitting and receiving computer data such as emails.***”).

The “incoming media” discussed in Dua, and the video, email, or other computer data discussed in Barnes constitute “*acquiring information from the internet.*” LG-1003, ¶¶213-214.

Further, it would have been obvious to a POSITA that Dua-Barnes’ prioritization of short-range transceiver 108 over (cellular) network transceiver 105 to transmit video content (i.e., limitation [18.f.1] per Patent Owner’s contention) happens *when* the user submits such indication (limitation [18f.2]). This is because prior to the user’s indication, no video is selected for transmission/sharing, and thus, no prioritization of the two transceivers would be needed for the purpose of sending the video content. LG-1003, ¶215.

(b) Claims 19 and 20

Dua-Barnes in view of the knowledge of a POSITA renders obvious claims 19 and 20. LG-1003, ¶216.

Dua’s short-range transceiver 108 can operate on IEEE 802.11g, Bluetooth, etc. LG-1006, ¶¶62, 66. Network transceiver 105 works with “a cellular network, such as Global System Mobile (GSM) network and the like.” *Id.*, 66; LG-1003, ¶217.

By the priority date, it was well-known that IEEE 802.11g and Bluetooth use different frequency bandwidths and modulation/demodulation schemes than GSM does. LG-1003, ¶¶ 65-66, 218.

Communication Protocol	Modulation Scheme	Bandwidth
Bluetooth	GFSK/ $\frac{\pi}{4}$ DQPSK/8DPSK	1MHz
WLAN	CCK/DSSS/OFDM	20MHz
GSM	MSK	200KHz

LG-1011, 195 (Bluetooth); LG-1016 46-48, LG-1017, FIG. 1, ¶28 (WLAN); LG-1017, ¶31 (GMS).

Therefore, a POSITA would have recognized that in Dua-Barnes, short-range transceiver 108 (*first radio communication circuit*) and network transceiver 105 (*second radio communication circuit*) operate using different frequency bandwidths (*are different from each other in frequency bandwidth*) (**claim 19**) and use different modulation schemes (*are different from each other in modulation/demodulation method*) (**claim 20**). LG-1003, ¶¶219-221.

D. [GROUND 2A]

(a) *Dua-Barnes-N95 Combination*

To the extent a POSITA would seek details for a normal Bluetooth set-up process (as Dua suggests), a POSITA would turn to N95 as an example in the same field of technology—i.e., wireless communications—as Dua. LG-1003, ¶211. As discussed *supra* in §III.A.3, N95 explains that to transmit a video clip through Bluetooth, the user must select the video clip, as well as Bluetooth for transmitting the video clip. LG-1005, 29; *see also supra* §III.A.3. For the reasons discussed

above (in Ground 2, [18f.2]), such selections render obvious the claimed user indication. LG-1003, ¶211.

A POSITA would have been motivated to apply N95's Bluetooth set-up process to Dua-Barnes because (i) Dua discloses the normal Bluetooth session set-up process to set a short-range communication, (ii) user's involvement in setting a Bluetooth session was well-known and well-practiced, for example, because of the security concerns discussed *supra* in §III.A.3, and (iii) applying a Bluetooth session set-up according to N95 is nothing more than utilizing familiar techniques in selecting a radio connection to achieve a predictable result of improving security in connecting to reliable or known external devices rather than allowing a purely automatic Bluetooth connection with any external device. LG-1003, ¶212; *see also supra* §III.A.3. A POSITA would have reasonably expected success incorporating N95's Bluetooth connection procedure into Dua-Barnes given Dua's teachings, N95's practical application as a user device capable of forming short-range communications, and the well-known practice of requiring a user selection for Bluetooth connections. LG-1003, ¶212.

(b) Claims 18-20

See supra for the discussion under Ground 2 for claims 18-20. LG-1003, ¶¶216-221.

E. [GROUNDS 2B, 2C, 2C(a)]

1. Kao (LG-1017)

Kao discloses a radio transceiver capable of supporting multiple modulation formats. LG-1017, Abstract. Kao’s “primary reason for adopting [a] system supporting a plurality of modulation formats [is] that the data rates of ... different standards are not the same.” *Id.*, ¶28. Kao lists communication standards such as IEEE 802.11g and GSM, and their respective known parameters such as modulation schemes and bandwidth. *Id.*, ¶¶28, 31; LG-1003, ¶75.

2. Dua-Barnes or Dua-Barnes-N95 Combination with Kao, Bluetooth-Specification, or IEEE 802.11g

While the specifics of short-range communication protocols such as Bluetooth and WLAN are inherent to those connections, and thus, claims 19 and 20 are obvious over Dua-Barnes or Dua-Barnes-N95, to the extent that a POSITA would need to search for such specifics, the POSITA would have investigated the references that recite those specifics. LG-1003, ¶222. Examples of those references are Bluetooth Specification, IEEE 802.11g, and Kao for WLAN and GSM specifics. *Id.*

3. [GROUND 2B] – Dua-Barnes in View of Kao Render Obvious Claims 19 and 20

Kao notes that WLAN uses 20MHz bandwidth and OFDM (Orthogonal Frequency Division Multiplexing) modulation scheme under the IEEE 802.11g standard, and GSM uses 200KHz bandwidth and MSK (Minimum Shift Keying) modulation scheme. LG-1017, ¶¶28, 31; LG-1003, ¶223.

Therefore, Dua-Barnes-Kao render obvious that short-range transceiver 108 (*first radio communication circuit*) using WLAN, and network transceiver 105 (*second radio communication circuit*) using GSM, use different frequency bandwidths (*are different from each other in frequency bandwidth (Claim 19)*), and use different modulation schemes (*are different from each other in modulation/demodulation method*) (**Claim 20**). LG-1003, ¶224.

4. [GROUND 2C] – Dua-Barnes in View of Kao and Bluetooth-Specification Renders Obvious Claims 19 and 20

5. [GROUND 2C(a)] – Dua-Barnes-N95 in view of Kao and Bluetooth-Specification Renders Obvious Claims 19 and 20

According to Bluetooth-specification, operating bandwidth for Bluetooth is 1MHz. LG-1011, 198-200. As such, Dua-Barnes (alone or combined with N95) in view of Kao and Bluetooth-Specification renders obvious that a short-range transceiver 108 (*first radio communication circuit*) operating on 1MHz Bluetooth bandwidth uses a bandwidth different from the 200KHz that network transceiver 105

(*second radio communication circuit*) using GSM would use (**Claim 19**). LG-1003, ¶225. LG-1017, ¶¶28, 31; *see also supra* [19] under GROUND 2 for the table summarizing the corresponding bandwidths.

Dua-Barnes (alone or combined with N95) in view of Kao and Bluetooth-Specification renders obvious that short-range transceiver 108 (*first radio communication circuit*) using Bluetooth would use a modulation scheme (GFSK/ $\frac{\pi}{4}$ DQPSK/8DPSK) different from the MSK modulation scheme that network transceiver 105 (*second radio communication circuit*) connecting to GSM cellular network would use (**Claim 20**). LG-1011, 198-200; LG-1017, ¶31; LG-1003, ¶226; *see also supra* [19] under GROUND 2 for the table summarizing the corresponding modulation schemes.

IV. PTAB DISCRETION SHOULD NOT PRECLUDE INSTITUTION

A. *Fintiv*

The facts do not favor denial under *Apple v. Fintiv*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020). The merits of Petitioner’s arguments are compelling, and supporting evidence is substantial. That “alone demonstrates that the PTAB should not discretionarily deny institution under *Fintiv*.” LG-1010, 4-5.

Factor 1 is neutral; neither party has requested a stay.

Factor 2 favors institution; no trial date is set. The Board will issue its FWD around August 2026, approximately **1.5 years** before any projected trial date

(1/25/2028). LG-1019, 66. And while the asserted claims in the litigation and the Challenged claims here overlap, the remaining factors, including Factors 2 and 6 far outweigh *Factor 4* in the analysis.

Factor 3 favors institution; Petitioner filed this Petition before the one-year bar, and litigation is in early stages with claim construction not yet underway and initial invalidity contentions not yet served.

Factor 5: The parties in the litigation are the same.

Factor 6 favors institution; the merits of this Petition are compelling. *See supra* §IV.

B. *Advanced Bionics* Test Favors Institution - 35 U.S.C. §325(d)

The grounds advanced in this Petition are based on references and combinations that neither the Office nor the Board previously considered. Thus, discretionary denial is improper under *Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6, 8-9 (PTAB Feb. 13, 2020).

V. CONCLUSION AND FEES

The Challenged Claims are unpatentable. Petitioner authorizes charge of fees to Deposit Account 06-1050.

VI. MANDATORY NOTICES UNDER 37 C.F.R § 42.8(a)(1)

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

LG Electronics, Inc. and LG Electronics USA, Inc. are the real parties-in-interest.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

The ‘284 Patent is the subject of a civil action, *Maxell, Ltd. v. LG Electronics Inc. et al.*, 5-23-cv-00152 E.D. Tex. filed December 29, 2023 (transferred) and *Maxell, Ltd. v. LG Electronics Inc. et al.*, 5-24-cv-04972 N.D. Cal. filed August 9, 2024 (pending), *Certain Mobile Electronic Devices*; Inv. No. 337-TA-1324 (Violation), 337-TA-1324 (ITC) filed Jun. 16, 2022; *Certain Mobile Electronic Devices*; Inv. No. 337-TA-1312 (Violation), 337-TA-1312 (ITC) filed Mar. 30, 2022; and *Maxell, Ltd. v. Lenovo Group Limited et al.* 6-22-cv-00334 (WDTX) filed March 30, 2022.

Petitioner is not aware of any other disclaimers, reexamination certificates, or IPR petitions addressing the ‘284 Patent.

C. Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Petitioner provides the following designation of counsel.

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D. Service Information

Please address all correspondence and service to the address listed above.

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Respectfully submitted,

Date: January 21, 2025

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CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter Partes* Review totals 13,983 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Date: January 21, 2025

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on January 21, 2025, a complete and entire copy of this Petition for *Inter Partes* Review and all supporting exhibits were provided by Federal Express, to the Patent Owner, by serving the correspondence address of record as follows:

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