

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC., and APPLE INC.,
Petitioner

v.

SMART MOBILE TECHNOLOGIES LLC,
Patent Owner.

IPR2022-01248
Patent 8,842,653 B1

Before HYUN J. JUNG, GARTH D. BAER, and
AARON W. MOORE, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
Granting Petitioner's Motion to Submit Supplemental Information
35 U.S.C. § 318(a)

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	Background and Summary.....	1
B.	Related Matters.....	1
C.	The '653 Patent.....	2
D.	Illustrative Claim.....	3
E.	Asserted Grounds.....	6
II.	ANALYSIS.....	7
A.	Motion to Submit Supplemental Information.....	7
B.	Level of Ordinary Skill in the Art.....	7
C.	Claim Construction.....	8
D.	Obviousness Analysis.....	8
1.	The Cited Prior Art.....	9
a.	Yegoshin.....	9
b.	Johnston.....	9
c.	Billström.....	10
d.	Bernard.....	11
2.	Claims 1–13 and 27–30: Multiplexing.....	14
a.	Petitioner’s “Multiplexing” Contentions.....	14
b.	Multiplexing in Yegoshin Alone.....	18
c.	Multiplexing as Obvious in View of Yegoshin Alone..	18
d.	Multiplexing Being “Well-Known”.....	20
e.	Obviousness in Combination with Bernard.....	21
3.	Claims 14–16: Multiple IP Addresses or Interfaces.....	26
4.	Claims 17–21 and 23–26: Single Transmission Interface....	30
III.	CONCLUSION.....	38
IV.	ORDER.....	39

I. INTRODUCTION

A. *Background and Summary*

Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Apple Inc. (collectively, “Petitioner”) filed a Petition (Paper 3, “Pet.”) requesting institution of an *inter partes* review of claims 1–21 and 23–30 of U.S. Patent No. 8,842,653 B1 (Ex. 1001, “the ’653 patent”). Smart Mobile Technologies LLC (“Patent Owner”) filed a Preliminary Response (Paper 8).

On January 24, 2023, we instituted an *inter partes* review of all challenged claims. *See* Paper 13 (“Inst. Dec.”), 63.

Patent Owner filed a Response on May 19, 2023 (Paper 29, “PO Resp.”), Petitioner filed a Reply on September 1, 2023 (Paper 37, “Reply”), and Patent Owner filed a Sur-reply on October 13, 2023 (Paper 46, “Sur-reply”).

An oral hearing was held on October 24, 2023, and a transcript of the hearing is included in the record, as are the demonstratives. *See* Paper 52 (“Tr.”); Ex. 1100 (Petitioner Demonstratives); Ex. 2036 (Patent Owner Demonstratives).

We issue this Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 and, for the reasons that follow, determine that Petitioner has shown, by a preponderance of the evidence, that claims 14–21 and 23–26 are unpatentable but has not shown that claims 1–13 and 27–30 are unpatentable.

B. *Related Matters*

The parties identify *Smart Mobile Techs. LLC v. Apple Inc.*, 6:21-cv-00603 (W.D. Tex.) and *Smart Mobile Techs. LLC v. Samsung Elecs. Co., Ltd.*, 6:21-cv-00701 (W.D. Tex.) as related. *See* Pet. 85–86; Paper 4, 1.

IPR2022-01222, IPR2022-01223, and IPR2022-01249 involve related patents.

C. *The '653 Patent*

The '653 patent describes an unfulfilled need for multiple transmitters and receivers (“T/R”) in a cellular telephone or mobile wireless device (“CT/MD”). *See* Ex. 1001, 1:48–51. Figure 5A of the patent is reproduced below.

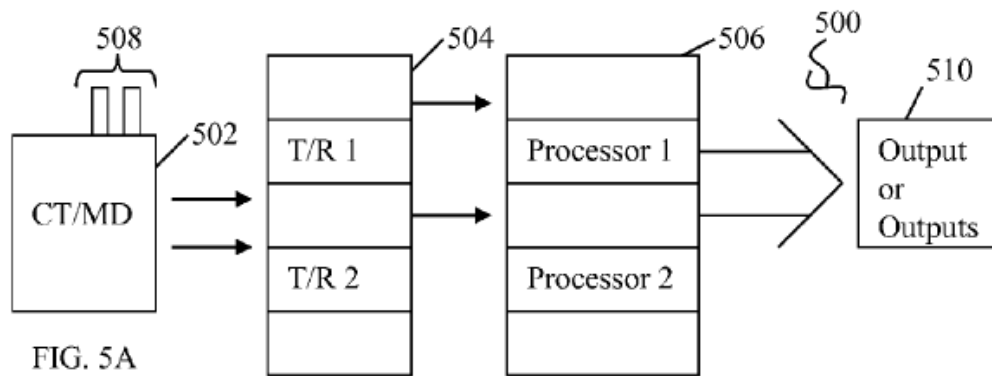


Figure 5A shows a “a dual antenna, dual T/R unit in a CT/MD interfacing with a dual processor.” Ex. 1001, 2:15–17.

Dual antenna 508 and dual T/R unit 504 interface with dual processor 506 in dual band system 500. *See id.* at 4:37–39. System 500 can communicate through outputs 510, which can be “fibre optic channel, ethernet, cable, telephone, or other.” *Id.* at 4:42–45.

“The multiple processors 506 allow for parallel and custom processing of each signal or data stream to achieve higher speed and better quality of output.” Ex. 1001, 4:51–53. Processors 506 include “DSP, CPU, memory controller, and other elements essential to process various types of signals.” *Id.* at 4:55–58.

“The processor contained within the CT/MD 502 is further capable of delivering the required outputs to a number of different ports such as optical,

USB, cable and others” and is “capable of taking different inputs, as well as wireless.” *Id.* at 4:60–64. “Thus the CT/MD 502 has universal connectivity in addition to having a wide range of functionality made possible through the features of multiple antennas, multiple T/R units 504 and processors 506.” *Id.* at 4:67–5:3.

“[T]he CT/MD may use one or more transmission protocols as deemed optimal and appropriate,” and “the CT/MD determines the required frequency spectrum, other wireless parameters such as power and signal to noise ratio to optimally transmit the data.” Ex. 1001, 11:5–11. The CT/MD has “the ability to multiplex between one or more transmission protocols such as CDMA, TDMA to ensure that the fast data rates of the optical network or matched closely in a wireless network to minimize the potential data transmission speed degradation of a wireless network.” *Id.* at 11:12–17. “Thus it is possible that various optical and wireless protocols can co-exist in a network.” *Id.* at 11:29–30.

D. Illustrative Claim

The ’653 patent includes 30 claims, of which Petitioner challenges all but claim 22. Claims 1, 14, 17, and 27 are independent, and claim 1 is reproduced below.

1. An Internet-enabled mobile communication device comprising:
 - a memory;
 - display electronics;
 - at least two or more antennas;
 - at least one or more processors; and
 - a plurality of wireless transmit and receive components including a first wireless transmit and receive component

and a second wireless transmit and receive component, wherein each wireless transmit receive component is configured to communicate using one or more protocols; wherein the device is configured for multi-band wireless communication; wherein the device is enabled for communication using Internet Protocol (IP); wherein the device is enabled for wireless communication on a wireless local area network; wherein the first wireless transmit and receive component is configured to communicate using a plurality of antennas; and wherein a transmission interface is created and wherein said transmission interface uses a plurality of IP enabled interfaces on the mobile device which utilize the plurality of wireless transmit and receive components on the mobile device to enable a single interface comprised of multiplexed signals from the plurality of wireless transmit and receive components.

Ex. 1001, 11:56–12:16.

As seen above, claim 1 is directed to “an Internet-enabled mobile communication device” that includes memory, display electronics, at least two antennas, and a processor. There are a plurality of wireless transmit and receive components (TX/RX), including a first wireless transmit and receive component (TX/RX1) and a second wireless transmit and receive component (TX/RX2), each configured to communicate using one or more protocols. The device is configured for multi-band wireless communication, and enabled for communication using both Internet Protocol (IP) and wireless communication. TX/RX1 is configured to communicate using a plurality of antennas. There is a “transmission interface” that is created using “a

plurality of IP enabled interfaces,” which, in turn, use TX/RX1 and TX/RX2 to enable a single interface comprised of “multiplexed” signals from TX/RX.

Claim 14 is similar to claim 1, but does not require multiplexing. It adds that the mobile device maintains multiple IP addresses, where TX/RX1 is accessible on a first IP address and TX/RX2 is accessible on a second IP address. The device operates using a plurality of ports.

Claim 17 is also similar claim 1, but also omits “multiplexing.” TX/RX1 is configured to communicate over IP with a remote system over a first network path, TX/RX2 is configured to communicate with a remote system using a second network path, and the processor is configured to combine the data paths into a single transmission interface to one or more applications on the mobile device.

Finally, claim 27 includes the “multiplexing” of claim 1. It recites a plurality of wireless communication units and that the device supports multiple frequencies and wireless protocols. A first wireless communication unit (WCU1) is coupled to a first set of antennas on a first network, and a second wireless communication unit (WCU2) is coupled to a second set of antennas on a second network. The “at least one” wireless communication unit¹ is configured for radio frequency communication. WCU1 is configured to operate at a lower frequency than WCU2, “such that the first wireless communication unit and second wireless communication unit operate as complementary systems.” The device is capable of voice, data,

¹ The claim does not specify whether this is WCU1 or WCU2, or both.

and Internet connectivity. WCU1² operates on a first network path to a remote server and WCU2 communicates to the remote server on a second network path at the same time, where a plurality of signal[s] are “multiplexed” to increase throughput and enable simultaneous multi path communication.

E. Asserted Grounds

Petitioner asserts that claims 1–21 and 23–30 are unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	References/Basis
14–16	103(a)	Yegoshin, ³ Johnston, ⁴ Billström ⁵
1–11, 17–21, 23	103(a)	Yegoshin, Johnston, Billström, Bernard ⁶
12	103(a)	Yegoshin, Johnston, Billström, Bernard, Farber ⁷
13, 24–26	103(a)	Yegoshin, Johnston, Billström, Bernard, Sainton ⁸
27–30	103(a)	Yegoshin, Johnston, Billström, Bernard, Preiss ⁹

² The last limitation of the claim recites “the first wireless transmit and receive unit” and “the second wireless transmit and receive unit,” which apparently are intended to refer to the earlier recited “first wireless communication unit” and “second wireless communication unit.”

³ US 6,711,146 B2, issued Mar. 23, 2004 (Ex. 1004).

⁴ US 5,784,032, issued July 21, 1998 (Ex. 1005).

⁵ US 5,590,133, issued Dec. 31, 1996 (Ex. 1006).

⁶ US 5,497,339, issued Mar. 5, 1996 (Ex. 1007).

⁷ WO 98/27748, published June 25, 1998 (Ex. 1008).

⁸ US 5,854,985, issued Dec. 29, 1998 (Ex. 1009).

⁹ US 6,031,503, issued Feb. 29, 2000 (Ex. 1010).

See Pet. 1. Petitioner also relies on Declarations of Dr. Michael Allen Jensen, filed as Exhibits 1003 and 1051. Patent Owner relies on Declarations of Todor V. Cooklev, filed as Exhibits 2002 and 2019.

II. ANALYSIS

A. *Motion to Submit Supplemental Information*

Petitioner moves to submit a Supplemental Declaration of Dr. Michael A. Jensen. *See* Paper 23. Petitioner contends that the motion is timely, that the declaration is relevant to the challenged claims, and cites Board cases support granting the motion. *See id.* at 3–8.

Patent Owner filed an opposition to the motion. *See* Paper 24. Patent Owner contends that the declaration is untimely and unfairly prejudicial because it circumvents our word count limitations and amounts to an additional brief because it analyzes claim construction and includes new cites to the record. *See id.* at 2–10.

Having reviewed the parties’ positions, we grant the Motion. We note, however, that in view of the full record, and for the reasons below, our determination would not change even if we denied the motion.

B. *Level of Ordinary Skill in the Art*

Petitioner asserts that one of ordinary skill in the art “would have had a Bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and at least two years of experience related to the design or development of wireless communication systems, or the equivalent.” Pet. 3 (citing Ex. 1003 ¶¶ 27–28). Petitioner also states that “[a]dditional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal

education.” *Id.* (citing Ex. 1003 ¶¶ 27–28). Patent Owner does not propose a level of ordinary skill and does not dispute Petitioner’s proposal.

As Patent Owner does not dispute Petitioner’s characterization of the level of skill in the art, and because we find it generally consistent with the disclosures of the ’653 patent and the cited prior art, we adopt it.

C. Claim Construction

Petitioner states that “no formal claim constructions are necessary in this proceeding.” Pet. 2. Patent Owner does seek an express construction of any claim term, and we thus conclude that we need not expressly construe any terms to resolve the issues before us. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

D. Obviousness Analysis

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious to a person having ordinary skill in the art to which said subject matter pertains. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations, including commercial success, long-felt but unsolved needs, failure of others, and unexpected results. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

1. *The Cited Prior Art*

We first summarize the pertinent aspects of the principal prior art cited in the Petition.

a. *Yegoshin*

Yegoshin describes a “dual-mode communication device,” one embodiment of which includes a “microphone and speaker apparatus including converters for rendering audio data as audible speech, and for rendering audible speech as audio data.” Ex. 1004, 3:18–21. The device includes “a first communication interface comprising circuitry for receiving and sending the audio data on a cell-phone network” and “a second communication interface comprising circuitry for connecting to a local area network (LAN), and for receiving and sending the audio data on the LAN.” *Id.* at 3:22–27. “In some embodiments the dual-mode communication device is implemented in the form of a cell phone.” *Id.* at 27–29.

Yegoshin’s device “allow[s] a user to switch modes from cellular to IP communication, and perhaps to switch from differing types of networks using known protocols.” Ex. 1004, 5:33–54. Yegoshin states that the device is “capable of taking some calls via cellular path while receiving other calls via IP path,” and also that it is capable of “taking all cellular calls in IP format.” *Id.* at 5:55–65; 8:47–56.

b. *Johnston*

Johnston describes “diversity antennas” that can “simultaneously receive or transmit two or three components of electromagnetic energy.” Ex. 1005, 1:5–7. In the embodiment cited by Petitioner—shown in Johnson’s Figure 29B—there are three “[a]ntennas 300” connected to transceiver 309 “through feed circuit 302, tuning and matching circuit 304

and combiner 306 or 307 respectively.” *Id.* at 11:9–23. Johnston states that diversity antenna arrangements have a number of advantages, including improved radio communication in a “multipath fading environment,” improved signal reliability, and reduced power requirements. *See id.* at 1:11–29.

c. Billström

Billström “relates to digital TDMA (Time Division Multiple Access) cellular radio mobile telecommunications systems” and “is directed towards apparatuses and mobile stations for providing packet data communications services in current TDMA cellular systems.” Ex. 1006, 1:7–12.

Billström states that “[p]roviding the packet data services on a cellular system platform offers potential advantages in terms of widespread availability, possibility of combined voice/data services, and comparatively low additional investments by capitalizing on the cellular infrastructure.” Ex. 1006, 1:54–58. According to Billström, “[o]f particular interest are current TDMA cellular systems,” and the reference identifies “GSM (Global System for Mobile communication)” as an example of a TDMA platform. *Id.* at 1:58–62.

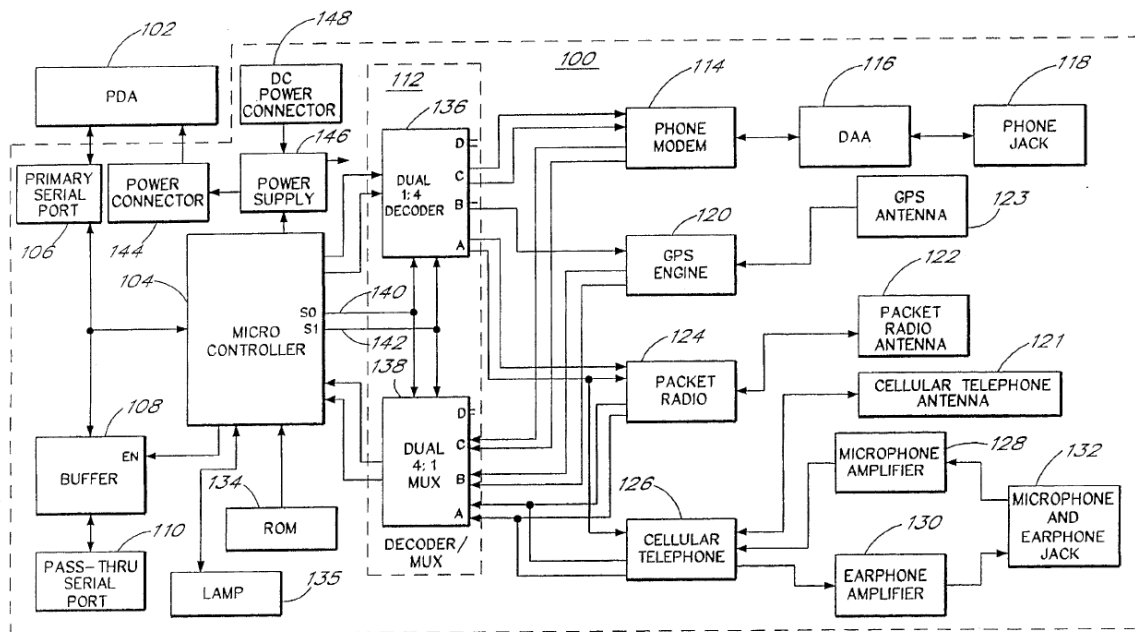
Billström provides “general purpose packet data communication services in current digital TDMA cellular systems, based on providing spectrum efficient shared packet data channels optimized for packet data and compatible with cellular requirements” with GSM as a target system and “a mobile station for packet data communication over digital TDMA cellular shared packet data channels.” Ex. 1006, 3:53–59, 4:59–61. Billström also provides “new packet data services in a closely integrated way, utilizing the current TDMA cellular infrastructure” and “with minimum impact on the

current TDMA cellular infrastructure.” *Id.* at 3:63–65, 4:5–8. “The basic packet data network service provided is a standard connectionless network (datagram) service based on a standard connectionless IP protocol.” *Id.* at 7:58–61.

d. Bernard

Bernard describes a device that “connects to and interfaces with a PDA to dramatically increase the functional capabilities of the PDA,” adding “multiple integrated communication media to the resources currently available to the PDA.” Ex. 1007, 1:39–43. “[T]he combination of the . . . invention with a PDA can be used to place or receive a cellular telephone call or a land line telephone call, to transmit or receive packet radio data, to obtain three-dimensional location data from the Global Positioning System (GPS) and to send or receive data over a telephone cellular link or over a land line using a built in phone modem.” *Id.* at 1:43–50.

As shown in Figure 4, reproduced below and described at column 5, lines 9–45, Bernard’s device includes a phone modem, a packet radio, and a cellular telephone, all of which communicate with a micro controller through a “decoder/multiplexer 112.”



“FIG. 4 is a general functional block diagram of a first embodiment of [Bernard’s] communication device . . . connected to a palm computer.” Ex. 1007, 2:27–29.

Bernard also includes a second embodiment, shown in Figures 10 to 15C, the first of which is reproduced below.

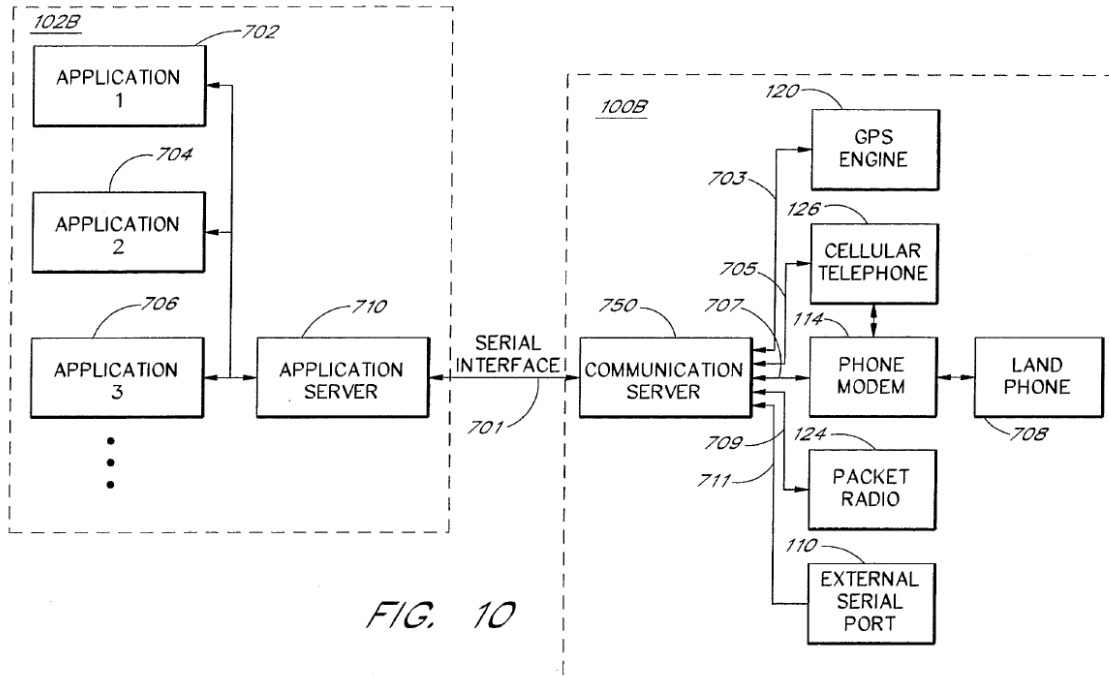


FIG. 10

FIG. 10 is a functional block diagram of a second embodiment of [Bernard's] communication device . . . connected to a palm computer." Ex. 1007, 2:43–45.

In this embodiment, “the program executed in the PDA 102B to interface with the communication device 100B is different in some respects from the program executed in the PDA 102 to interface with the communication device 100” of the first embodiment. Ex. 1007, 17:29–32. However, “the communication circuits 114, 120, 124, 126, as well as the external serial port 110 are utilized for the same purposes as in the first embodiment communication device 100,” such that “[e]ach application program 702, 704, 706 can generally utilize any of the functions of the communication circuits 114, 120, 124, 126.” *Id.* at 17:61–66.

Petitioner cites Bernard’s explanation that, although the second embodiment allows “only one of the four . . . connections [to] be established at a time,” “a person of skill in the art will understand that an alternative interconnection could be used that would allow multiple connections to be established simultaneously.” Ex. 1007, 26:56–60. The reference states that “[f]or example, an alternative embodiment can allow data to be transferred over a cellular system using the phone modem 114 and the cellular telephone 126, while a user talks over a land-based telephone line using an attached microphone and earphone and the land phone 708.” *Id.* at 26:60–65. This is accomplished by use of “arbitrator 716,” as described in connection with Figures 15A–C. *See id.* at 26:67–29:13.

2. *Claims 1–13 and 27–30: Multiplexing*

Petitioner argues that independent claim 1 would have been obvious in view of Yegoshin, Johnston, and Billström, and that independent claim 27 would have been obvious in view of Yegoshin, Johnston, Billström, Bernard, and Preiss. Essentially, Petitioner relies on Yegoshin for most of the limitations of these claims, but adds Johnston for the use of multiple antennas, Billström for the use of a processor, Bernard for multiplexing, and Preiss for an antenna for a different network. *See* Pet. 26–45, 72–81.

a. *Petitioner’s “Multiplexing” Contentions*

Claim 1 recites “enabl[ing] a single interface comprised of *multiplexed* signals from the plurality of wireless transmit and receive components,” and claim 27 recites that “a plurality of signal[s] are *multiplexed* to increase throughput and enable simultaneous multi path communication.”

Petitioner asserts that “Yegoshin’s phone enables a single interface comprised of multiplexed signals from its first and second communication interfaces for cellular and WLAN (first and second wireless transmit and receive components).” Pet. 31 (citing Ex. 1003 ¶ 122). For “multiplexing” specifically, Petitioner argues that “Yegoshin’s phone switches between cellular and IP-LAN modes, and [is] also ‘capable of taking some calls via cellular path while receiving other calls via IP path.’” Pet. 31–32 (citing Ex. 1004, 5:33–65).

Petitioner asserts that the device of the combination “communicates on cellular and WLAN selectively or simultaneously (as taught by Yegoshin) using IP-enabled cellular and WLAN communication interfaces (as taught by Yegoshin and Billström),” and that the artisan “would have found it obvious that, to receive calls on both cellular and WLAN simultaneously or to switch between two networks, the phone multiplexes the signals communicated on two network paths.” Pet. 32 (citing Ex. 1003 ¶ 123; Ex. 1004, 5:33–65; Ex. 1006, 1:6–12, 1:54–60, 3:53–61).

In the alternative, Petitioner argues that “[t]he known multiplexing features are further confirmed by Bernard,” and that one of ordinary skill in the art “would have found it obvious to implement or modify Yegoshin-Johnston-Billström’s phone based on Bernard’s features in a way that further renders [this limitation] obvious.” Pet. 33 (citing Ex. 1003 ¶ 126).

In this connection, Petitioner refers to Bernard’s Figure 10, which, Petitioner argues, discloses “‘communication server 750’ that handles each data packet coming into/from each of the multiple communication circuits based on the packet’s destination address.” Pet. 33 (citing Ex 1007, 18:9–19:2; Ex. 1003 ¶ 127). Petitioner asserts that “[a] POSITA would have

understood or found obvious that, in Bernard, each individual data packet can be communicated on any of the multiple communication networks accessible by cradle 100B, and that packet interface 752 in cradle 100B includes or operates as a multiplexer for combining the data packets coming from such different networks.” Pet. 36–37 (citing Ex. 1003 ¶ 129; Ex. 1007, 3:59–4:15; Figure 4, 17:10–25).

Petitioner argues that “[a] POSITA would have found it obvious to modify Yegoshin-Johnston-Billström’s phone based on Bernard’s teachings in at least two alternative ways.” Pet. 38 (citing Ex. 1003 ¶ 132). “In a first scenario, the phone in the combination would have been modified to be used with Bernard’s cradle to provide multiple network connections,” and, “[i]n a second scenario, it would have been obvious to implement or modify the internal circuitry of Yegoshin-Johnston-Billström’s phone to include the multiplexing features of Bernard, so that the phone integrally contains the functionality executed in Bernard’s cradle.” *Id.* at 38–39.

Petitioner contends that “when the phone communicates with both cellular and WLAN simultaneously (as taught in Yegoshin . . . , Bernard’s packet interface 752, as implemented in the combination, would receive packets from both cellular and WLAN networks and interleave these into a single output to the processor of the connected phone via the single interface.” Pet. 40–41. Petitioner further argues that “in Bernard, an application on the connected PDA can utilize two of the communication circuits together, thereby supporting Yegoshin’s idea of the simultaneous use of cellular and WLAN” and that “Bernard also presents an example of using two communication circuits simultaneously.” Pet. 41 (citing Ex. 1007, 17:64–18:2, 26:56–65; Ex. 1003 ¶ 136).

For a reason to make the combination, Petitioner contends that one of skill in the art “would have looked at other references like Bernard, which teaches an actual device (e.g., cradle) that can be connected to Yegoshin’s phone for enabling multi-purpose functionality (e.g., connectivity to multiple network services including cellular and WLAN for data packet services), or teach the hardware and software that can be implemented in Yegoshin’s phone.” Pet. 42 (citing Ex. 1003 ¶ 139). Petitioner further argues that “[t]he combination would have improved Yegoshin’s purpose of supporting roaming users (e.g., visitors, mobile employees, etc.) by allowing them to connect to different available network services as taught in Bernard.” Pet. 42 (citing Ex. 1003 ¶ 140; Ex. 1004, 2:42–3:15).

Petitioner also asserts that one of skill in the art “would have recognized that the benefits offered by Yegoshin-Johnston-Billström and Bernard were compatible, and the combination would have accomplished those benefits in the same or similar way that each reference achieves.” Pet. 42–43 (Ex. 1003 ¶ 141). According to Petitioner, one of skill in the art “would have appreciated that the Yegoshin-Johnston-Billström-Bernard combination does not change the hallmark aspects of the references, and the respective teachings would work in combination similar to how they did apart, with Bernard’s suggestions merely adding multiple network connectivity to Yegoshin’s system and providing implementation details related to multiplexing in Yegoshin’s dual-mode phone.” Pet. 42.

Petitioner also argues that “a POSITA would have had a reasonable expectation of success in combining Yegoshin-Johnston-Billström and Bernard.” Pet. 44 (citing Ex. 1003 ¶ 142).

b. Multiplexing in Yegoshin Alone

We agree with Patent Owner that “Petitioner does not contend that Yegoshin expressly teaches ‘multiplexing.’” PO Resp. 5. As we preliminarily determined in the Institution Decision, “[t]he [cited portion] does not teach expressly multiplexed signals, as Petitioner implicitly acknowledges by arguing that one of ordinary skill in the art would have understood that Yegoshin includes multiplexed signals.” *See* Inst. Dec. 21–22. Petitioner does not dispute our preliminary determination that Yegoshin does not expressly teach the required “multiplexed signals,” and we thus conclude that Yegoshin does not teach “multiplexed signals” of claim 1.

c. Multiplexing as Obvious in View of Yegoshin Alone

Petitioner argues that the mobile device of the combination would “communicate[] on cellular and WLAN selectively or simultaneously (as taught by Yegoshin) using IP-enabled cellular and WLAN communication interfaces (as taught by Yegoshin and Billström).” Pet. 32 (citing Ex. 1003 ¶ 123; Ex. 1004, 5:33–65; Ex. 1006, 1:6:12, 1:54–60, 3:53–61). According to Petitioner, one of ordinary skill in the art “would have found it obvious that, to receive calls on both cellular and WLAN simultaneously or to switch between two networks, the phone multiplexes the signals communicated on two network paths.” *Id.* (citing Ex. 1003 ¶ 123).

The cited portion of Yegoshin describes how “client software suite 19 enables a user to *select a type of network for communication*, to select a protocol for voice communication and to set-up a temporary IP address on a network for the purpose of identifying and registering the device for normal operation on the network.” Ex. 1004, 5:33–35 (emphasis added). Yegoshin also describes “[a] series of selection buttons such as 15 and 17 [that] allow

a user to *switch modes from cellular to IP communication*, and perhaps to *switch from differing types of networks* using known protocols that are made available via client software 19.” *Id.* at 5:40–44 (emphases added).

Yegoshin further states that “[s]election of the network could be according to an order of preference, by availability.” Ex. 1004, 5:53–54; *see also id.* at 5:63–65 (stating that “[i]n a preferred embodiment, phone 9 may be switched from one network capability to another at the user’s discretion”).

Based on the above-quoted portions of Yegoshin cited by Petitioner, we find that an ordinarily skilled artisan would not have understood or found obvious that calls are received on both cellular and WLAN simultaneously. The cited portion of Yegoshin does not relate to receiving calls on both cellular and WLAN at the same time and does not support the argument that “to receive calls on both cellular and WLAN simultaneously or to switch between two networks, the phone multiplexes the signals communicated on two network paths.” *See* Pet. 32. Yegoshin makes clear that a “user” or “an order of preference” causes a switch between networks without mentioning anything else, such as multiplexing.

Petitioner also cites a portion of Yegoshin that states “cell phone 9 is capable of taking some calls via cellular path while receiving other calls via IP path” and that “[i]n such a situation, integrating software is provided to coordinate activity between the two paths.” Ex. 1004, 5:55–59. Yegoshin explains that “[f]or example, if engaged with an IP call, an incoming cell call would get a busy signal and so on, or it would be redirected to the IP call point, where it would then be presented as a call-waiting call, if that feature set is available and enabled.” *Id.* at 5:59–63. This description taken together with what is described before it would not be understood and would

not have rendered obvious that “to receive calls on both cellular and WLAN simultaneously or to switch between two networks, the phone multiplexes the signals communicated on two network paths,” as Petitioner argues.

Pet. 32. Instead, it simply indicates that the phone can receive calls from different paths and that the user can switch between them, engaging in one at a time. We thus find that Yegoshin’s integrating software only coordinates activity between cellular and IP calls, and that such coordination would not be understood to involve multiplexing. Ex. 1004, 5:55–65.

In the Reply, Petitioner points to a portion of Yegoshin that describes “an instance of a cellular call 55 placed to cell phone 9 [that] assumes that the user is taking all cellular calls in IP format while logged-on to IP network 27” and that “[a]ll such calls would then be routed via PSTN 25 to IP network 27.” Pet. Reply 21 (citing Ex. 1004, 8:47–56). This additionally cited description also does not support the argument that it would have been obvious that, “to receive calls on both cellular and WLAN simultaneously or to switch between two networks, the phone multiplexes the signals communicated on two network paths.” Pet. 34. It simply explains that if the user was talking all calls of their calls in the IP format, a cellular call would be routed to the phone over the IP network.

We find that Yegoshin’s descriptions of providing a busy signal and forwarding a cellular call to the IP network do not show that Yegoshin uses multiplexed signals or render “multiplexed signals” obvious.

d. Multiplexing Being “Well-Known”

Petitioner additionally argues that multiplexing techniques were well-known. See Pet. 34; Pet. Reply 18. Even if that is correct, however, it is insufficient because Petitioner must show that it would have been obvious to

modify Yegoshin to add multiplexing, and merely establishing that multiplexing was known in other contexts is insufficient to show how or why Yegoshin should be modified.

e. Obviousness in Combination with Bernard

Petitioner argues that Bernard “confirms” “known multiplexing features,” relying on Bernard’s second embodiment. *See* Pet. at 33–36 (citing Ex. 1003 ¶¶ 126–128; Ex. 1007, 17:40–19:2, 19:37–21:54, 24:19–25:24, Figs. 10, 12). Petitioner contends that Bernard’s second embodiment “includes or operates as a multiplexer for combining the data packets.” *Id.* at 37 (citing Ex. 1003 ¶ 129; Ex. 1007, 3:59–4:15, 17:10–25, Fig. 4; Ex. 1012, 133–134, Figs. 2–36; Ex. 1014, 230, 254–256). Petitioner also argues that Bernard teaches “multiplexing multiple packets from multiple communication networks onto a single channel (e.g., serial interface 701).” *Id.* at 37 (citing Ex. 1003 ¶ 130; Ex. 1011, 14–17, 284; Ex. 1012, 506–508, 543–545; Ex. 1013, 32–33, 382).

Patent Owner responds that the cited portions of Bernard do not teach multiplexing and that Petitioner fails to show a motivation to combine Yegoshin and Bernard. *See* PO Resp. 17–37.

Petitioner replies that the combination of Yegoshin and Bernard would have rendered obvious “multiplexed signals,” arguing that Bernard’s second embodiment aligns with the well-known use of multiplexing because several applications utilize several communication circuits through serial interface 701 and that Bernard can establish multiple connections simultaneously. *See* Reply 18–24. Petitioner also argues that sufficient motivation existed to modify Yegoshin to satisfy the multiplexing limitations. *See* Pet. Reply 24–27.

We find that the portions of Bernard cited by Petitioner, like Yegoshin, do not teach expressly that data packets from its cellular phone, phone modem, or other sources are multiplexed. In particular, we find Bernard's Figure 13 to show that, in the second embodiment, microcontroller 772 uses serial interfaces 703, 705 to communicate with the same GPS engine 120 and cellular telephone 126 and uses quad UART 776 to communicate via parallel interface 771 with the same phone modem 114, packet radio 124, and external serial port 110. But the cited portions of Bernard do not support "that packet interface 752 in cradle 100B includes . . . a multiplexer for combining the data packets coming from such different networks." Pet. 38. Instead, Bernard expressly describes that the second embodiment does not include a multiplexer. *See* Ex. 1007, 17:40–19:2, 19:37–21:54, 24:19–25:24, Figs. 10, 12.

Despite the express disclosure of a multiplexer in another embodiment, Petitioner contends that one of ordinary skill in the art would have understood or found obvious "that packet interface 752 in cradle 100B . . . operates as a multiplexer for combining the data packets coming from such different networks." Pet. 38. Petitioner's reference to decoder/multiplexer 112 from Bernard's first embodiment only highlights that Bernard's second embodiment does not operate as a multiplexer and does not include multiplexed signals. *See* Pet. 38 (citing Ex. 1007, 3:59–4:15, 17:10–25, Fig. 4). We find Figure 4 of Bernard to show that, in the first embodiment, decoder/multiplexer 112 connects microcontroller 104 to phone modem 114, GPS engine 120, packet radio 124, and cellular telephone 126. *See also* Ex. 1007, 3:59–6:19 (describing the block diagram shown in Fig. 4). Although Bernard states that "[m]any of the

implementation details that have been described above with respect to the first embodiment 100 also apply to the second embodiment 100B” (Ex. 1007, 17:12–15), Bernard does not describe or show in its second embodiment a decoder/multiplexer between its microcontroller and phone modem, GPS engine, packet radio, and cellular telephone.

Instead of decoder/multiplexer 112 connecting microcontroller 104 to phone modem 114, GPS engine 120, packet radio 124, and cellular telephone 126, the second embodiment of Bernard uses quad UART 776 between microcontroller 772 and phone modem, GPS engine, packet radio, and cellular telephone in communication server 750. *Compare* Ex. 1007, 3:59–6:19, Fig. 4, *with id.* at 23:60–25:24, Fig. 13. We find no description in Bernard that the second embodiment using UART 776 provides an output similar to decoder/multiplexer 112 to send over serial interface 701. *See id.* at 17:10–25:24. Petitioner does not explain why quad UART 776 would need to multiplex signals when “[i]n this second embodiment, only one of the four above-described connections can be established at a time.” *See* Pet. 35–46; Ex. 1007, 24:23–27, 26:56–57, Fig. 13. Petitioner, thus, does not argue sufficiently that UART 776 of Bernard’s second embodiment operates as a multiplexer and provides multiplexed signals.

Petitioner points to a brief passage in the description of the second embodiment stating that “an alternative interconnection could be used that would allow multiple connections to be established simultaneously.” *See* Pet. 41 (citing Ex. 1007, 26:56–65). Petitioner, however, fails to identify the “alternative interconnection” or explain how it could be incorporated into the combination. To the extent Petitioner is intending to rely on the

technique shown in Figures 15A–C, we find that to be inadequately supported in the Petition.

Bernard shows multiplexer/decoder 780 in its Figure 14, and this additional description further reinforces that, when Bernard requires multiplexed signals, Bernard uses a multiplexer, and that one of ordinary skill in the art thus would have understood that the second embodiment does not include or operate as a multiplexer, as argued by Petitioner. *See also* Ex. 1007, 25:25–26:65 (describing the block diagram shown in Fig. 14 and stating that “[i]n this second embodiment, only one of the four above-described connections can be established at a time”).

Based on Bernard’s description of alternative embodiments, one of ordinary skill in the art would have understood that a UART is not a multiplexer. *See* Ex. 1007, 3:59–6:19, 23:60–25:24, 25:25–26:65, Figs. 4, 13. The fact that a UART can operate as an alternative to a multiplexer does not lead to the conclusion that the UART is operating as a multiplexer in Bernard or that the UART provides multiplexed signals like a multiplexer. Bernard instead explains that “[i]n this second embodiment, only one of the four above-described connections can be established at a time.” Ex. 1007, 26:56–57. Bernard’s description also does not fall within the proposed interpretation of “multiplex” and its variants from related litigation (“to interleave or simultaneously transmit two or more messages on a single communications channel”), because Bernard expressly describes it is establishing, and therefore transmitting from, only one of the four connections at a time. *See id.*; Ex. 1099, 7; Ex. 2023, 7. Based on our findings above, we determine that Petitioner has not shown that the second embodiment of Bernard “interleave[s] two or more messages on a single

communications channel” and “simultaneously transmit two or more messages on a single communications channel.”

We find Petitioner’s supporting testimonial evidence unpersuasive because Bernard does not support the opinions and contradicts that “cradle 100B includes . . . a multiplexer for combining the data packets coming from such different networks.” Ex. 1003 ¶¶ 133–134. Rather than describing a multiplexer in the second embodiment, Bernard describes how only one of the four connections can be established at a time. Petitioner has not shown that one of ordinary skill in the art would have understood that the relied-upon embodiment of Bernard simultaneously uses communication circuits 114, 120, 124, 126. *See* Ex. 1007, 17:64–18:2, 26:56–57. Bernard describes an alternate arrangement of components with no indication that signals from packet interface 752 are multiplexed. *See id.*

We further find that Bernard provides insufficient detail regarding another “alternative embodiment [that] can allow data to be transferred over a cellular system using the phone modem 114 and the cellular telephone 126, while a user talks over a land-based telephone line” to meet Petitioner’s burden. Ex. 1007, 26:61–64. This description also confirms that the second embodiment of Bernard would not have been understood to have simultaneous connections. Ex. 1007, 26:61–64.

For these reasons, we find that Petitioner has not shown “multiplexing” in the combination and, thus, has not proven claim 1 unpatentable over the combination of Yegoshin, Johnston, Billström, and Bernard or claim 27 unpatentable over the combination of Yegoshin, Johnston, Billström, Bernard, and Preiss. For the same reasons, we find that Petitioner has not shown dependent claims 2–13, all of which depend

directly or indirectly from claim 1, and claims 28–30, all of which depend directly or indirectly from claim 27, unpatentable over these combinations.¹⁰

3. *Claims 14–16: Multiple IP Addresses or Interfaces*

Petitioner argues that claims 14–16 would have been obvious in view of Yegoshin, Johnston, and Billström. *See* Pet. 8–25. Petitioner argues that Yegoshin discloses most of the features of the claims, but adds Johnston for multiple antennas and Billström for multiple IP addresses. *See* Pet. 8–23.

Regarding the claim language “multiple IP addresses,” Petitioner argues that “when a user, via [Yegoshin’s] dualmode device 9, logs onto network 27 via LAN 38 or 39 of FIG. 2, he or she will, during configuration, obtain a new and temporary IP address (DN 2).” Pet. 17. Petitioner thus argues that “Yegoshin’s “second communication interface for WLAN” is the claimed “second wireless transmit and receive component” that is accessible on an IP address, which would be the claimed “second IP address.” Pet. 18 (citing Ex. 1003 ¶ 81). Petitioner also argues that because “Yegoshin’s phone uses IP for cellular communication,” as shown by the fact that it is “capable of ‘taking all cellular calls in IP format,’” it would have been “obvious to assign another IP address to Yegoshin’s phone for cellular connection.” Pet. 18 (citing Ex. 1004, 8:47-56; Ex. 1003 ¶ 82).

Petitioner further argues that one of skill in the art “would have been motivated to modify Yegoshin’s cellular phone based on Billström’s teachings to operate using IP and “provid[e] packet data communication

¹⁰ Because we find that Petitioner has not proven these claims unpatentable due to the failure to show multiplexing in the combination, we do not reach Petitioner’s argument about the claim 1 language “a plurality of IP interfaces.” *See* PO Resp. 47–60. We address the claim 14 language “multiple IP addresses” in the next section.

services” in the cellular system.” Pet. 18 (citing Ex. 1006, 1:6–12; Ex. 1003 ¶ 83). Petitioner asserts that, because Billström’s “mobile stations . . . are designed ‘for providing packet data communications services in current TDMA cellular systems,’” and store an IP address “such that [a mobile stations]’s IP address identifies the [mobile station] as belonging to a particular public land mobile network,” it “would have been predictable and obvious to modify Yegoshin’s phone to maintain another IP address for access to the cellular network, as taught by Billström, so that Yegoshin’s “first communication interface” for cellular (first wireless transmit and receive component) is accessible on that IP address (first IP address).” Pet. 18–19 (citing Ex. 1006, 5:60–6:2, 21:26–24:28, Figs. 2–3, 14–15; Ex. 1003 ¶ 84; Ex. 1030; Ex. 1031; Ex. 1032; Ex. 1033).

Patent Owner argues that “Yegoshin and Billström each teach a device with only a single IP address,” that “[b]ecause each reference only has a device with a single IP address, each reference only teaches how to route using one IP address, not two,” and that “Petitioner does not recognize this disconnect much less address how a POSITA could resolve it such that Yegoshin’s phone decides and enforces which IP address to use to route each data packet and consequently fails to demonstrate how a POSITA would be able to implement two IP addresses in Yegoshin’s phone.” PO Resp. 50. Patent Owner asserts that “unlike Yegoshin’s single IP address structure, it would not be possible for the Yegoshin-Billström system to merely assign which IP address to use for each data packet based on the user’s phone number.” *Id.* at 51. Dr. Cooklev testifies in support that “the system in Petitioner’s proposed combination needs to decide, for data packets, which IP address should be used to transmit each and every data

packet” and that he does “not see any suggestion in Yegoshin of how its device would choose between a first IP address and a second IP address when determining how to route a data packet.” Ex. 2019 ¶¶ 112–115.

Petitioner responds that “[t]o the extent any selection is required . . . , the selection would be simple and straightforward—use the first IP address when communicating over the cellular network and use the second IP address when communicating over the WLAN.” Reply 1. According to Petitioner, “[b]y referencing Billström’s disclosure of an IP address used in cellular communication, a POSITA would have found it predictable to use an IP address for IP-based cellular communication in Yegoshin.” Reply 3 (citing Ex. 1051 ¶ 6).

We agree with Petitioner. The combination contemplates that the device would have two IP addresses, one for use on a local area network as described in Yegoshin, and one for use over cellular, as described in Billström. *See* Pet. 17–19. The use of packets that are addressed to a specific destination is a central concept of the IP protocol, and we see no difficulty in the device maintaining two different IP addresses to which appropriate packets are routed using the destination address of the packet over the respective networks. *See* Ex. 1003 ¶ 85; Ex. 1016, 6:42–56 (describing how “an IP address used when the mobile station is linked to the macro cell base station is different from an IP address used when the mobile station is connected to the micro cell base station”).

Patent Owner also argues that one of ordinary skill in the art, “as defined by Petitioner, would not have been able to combine Yegoshin and Billström with a reasonable expectation of success for the additional reason that the unspecified modifications required to implement Billström’s IP

address on a traditional cellular network” would be beyond the level of ordinary skill. PO Resp. 54. Patent Owner contends that Petitioner’s expert “admitted” as much at his deposition. *See id.* (citing Ex. 2020, 102:12–103:2, 101:15–18). The core problem, according to Patent Owner, is that “Billström makes clear that its invention requires not only modification of the mobile stations, but also requires modification of the TDMA cellular system.” *Id.* 57. Patent Owner relies on Dr. Cooklev, who asserts that “[m]odifying the mobile stations to receive packet data communication would be pointless unless the TDMA system were also altered to send packet data communication.” Ex. 2019 ¶¶ 120–122.

Petitioner responds that “Patent Owner requires Petitioner’s demonstration of how to modify Yegoshin’s system to incorporate Billström’s entire infrastructure for providing packet data communication services over cellular systems” but that “Petitioner’s combination simply modifies Yegoshin’s phone to use Billström’s IP address for IP-based cellular communication.” Reply 4 (citing Ex. 1051 ¶ 8). Petitioner further argues that Patent Owner’s arguments “improperly require[] bodily incorporation from Billström into Yegoshin, which is not the law.” Reply 5. Petitioner additionally argues that “implementing IP-based cellular communication using an IP address (Billström’s or generally) was well-known and within the skill of a POSITA.” *Id.* (citing Ex. 1051 ¶¶ 9–10; PO Resp. 54–60; Ex. 1053, 28:14–16, 29:10–12). Petitioner also observes that “the ’653 patent has limited disclosure of implementing IP, which indicates that a POSITA would have had the requisite skill needed to implement IP-based technologies.” *Id.* at 5–6 (citing Ex. 1051 ¶ 11).

We side with Petitioner on this issue. We do not agree that Dr. Jenson admitted that one of ordinary skill in the art would not have been able to combine Yegoshin and Billström with a reasonable expectation of success. Because the claims are directed to a device with two IP addresses, not “modify[ing] an existing GSM type architecture system,” the line of questioning that Patent Owner cites as an admission was not commensurate with the scope of the claims. *See Ex. 2020, 102:12–103:2, 101:15–18.* Moreover, even if this testimony suggests that the device would not be usable without necessary modifications to the GSM system by others, that would not show that making a dual IP device would have been beyond the ordinary skill level. The testimony might suggest that the ordinary worker would not have desired to make the combination, because there would not have been a system that would support it, but that goes to a possible lack of motivation to combine, not an inability to implement the combined teachings, which is the argument Patent Owner making.

For these reasons, we find Patent Owner’s arguments unpersuasive and, thus, conclude that Petitioner has shown claim 14 unpatentable over the combination of Yegoshin, Johnston, and Billström. For the same reasons, we find that Petitioner has shown dependent claims 15 and 16, which Patent Owner does not separately argue, unpatentable over these combinations.

4. *Claims 17–21 and 23–26: Single Transmission Interface*

As noted above, claim 17 is similar claim 1, but omits “multiplexing” and requires that “the processor on the mobile device is configured to combine the data paths into a single transmission interface to one or more applications on the mobile device.” Petitioner’s argument mirrors that

which it provides for claim 14, adding that Bernard provides the single transmission interface. *See* Pet. 53–56.

Petitioner argues that, “Yegoshin’s phone includes first and second communication interfaces for cellular and WLAN” and that, “in the combination, both interfaces communicate over IP.” Pet. 54 (citing Ex. 1004, 3:17–34). Petitioner argues that “Yegoshin’s ‘first communication interface’ (first wireless transmit and receive component) communicates over the IP-enabled cellular network” and that “Yegoshin’s ‘second communication interface’ (second wireless transmit and receive component) communicates over IP-enabled WLAN.” Pet. 55 (citing Ex. 1003 ¶¶ 79–80). Petitioner then argues that Yegoshin’s “phone multiplexes¹¹ (combines) the signals received over cellular and WLAN into the single interface (e.g., the serial interface) (single transmission interface) connected/integral to the phone, which routes the received signals to ‘appropriate applications’ running on the phone as taught in Bernard.” Pet. 56 (citing Ex. 1003 ¶ 181; Ex. 1007, 17:33–19:2, 19:37–21:54, 23:60–25:25).

Patent Owner argues that, in Yegoshin, “the data paths are never combined into a ‘single transmission interface’ to one or more applications” but instead “are always separate and distinct.” PO Resp. 40. Patent Owner illustrates this with the annotated figures reproduced below:

¹¹ Petitioner uses the term “multiplexing” here, but that is not a requirement of claim 17.

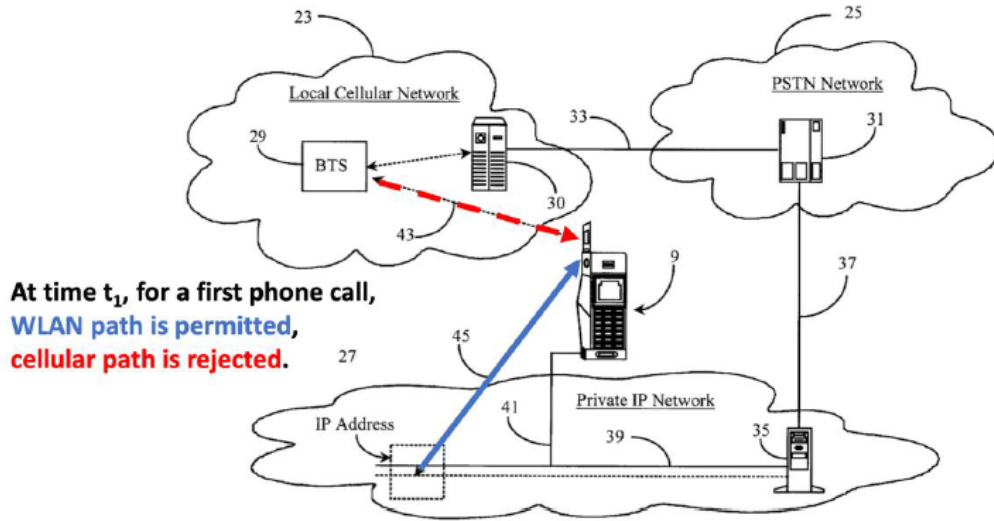


Fig. 2

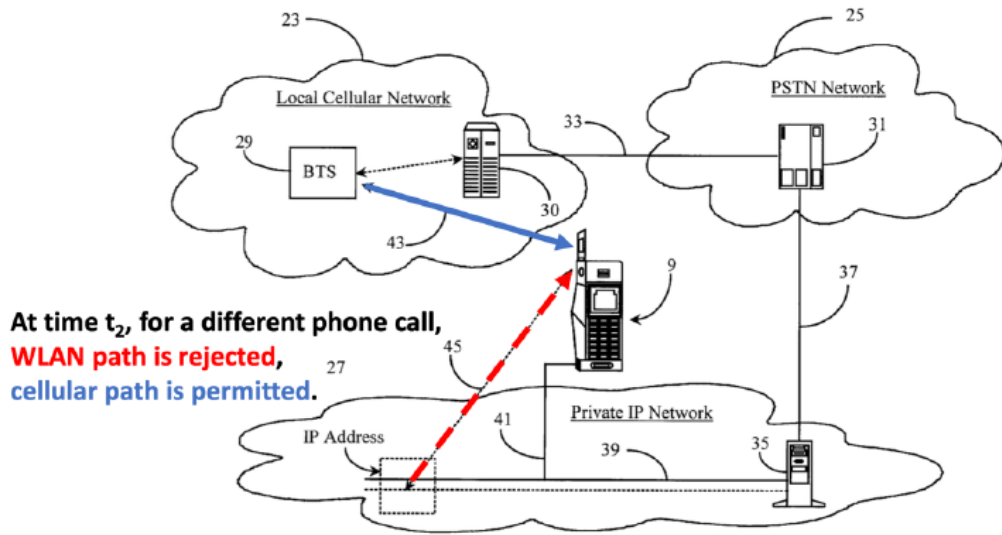


Fig. 2

Patent Owner Annotated Versions of Yegoshin's Figure 2

According to Patent Owner, "[i]n the first annotated version of Yegoshin's Figure 2, for a first phone call, the cellular path is not selected, and the phone application only uses the WLAN path," and "[i]n the second annotation, for a different call, the WLAN path is not selected, and the

phone application only uses the cellular path,” meaning that “the two paths are never combined for any call.” PO Resp. 40–41.

Patent Owner also argues that Petitioner cannot rely on Bernard because (a) Petitioner has not provided a motivation to modify Yegoshin and (b) “Bernard does not disclose this limitation to begin with” because “Petitioner relies on Bernard’s routing mechanism” but “packet routing has nothing to do with the claimed invention.” PO Resp. 42–43. Patent Owner quotes Dr. Cooklev: “That in Bernard, because of connection to an external cradle, a serial connection happens to be used, and therefore, the data that is transmitted at different times all happen to pass through the same connection, albeit never at the same time, has no relevance to the claimed invention.” *Id.* at 43. Dr. Cooklev further asserts that “Bernard explains that a user can utilize the phone application with only one of the landline or cellular networks . . . thus never ‘combining’ the two paths to an application.” *Id.* at 43–44.

Dr. Cooklev also argues that Bernard does not “combine the data paths into a single interface to one or more applications” because “the different data paths are separated upon arrival at the mobile device,” as “[d]epending on whether the received packet is GPS, cellular, land phone, packet radio or from an external connection, the packet distributor causes the packets to be distributed for processing to each packet type’s respective interface.” Ex. 2019 ¶¶ 100–103.

Petitioner replies that “Patent Owner assumes that ‘combin[ing]’ in claims 6 and 17 requires simultaneous communication of data over two networks” but “Patent Owner’s assumption is incorrect because the actual language of the claims is not so narrow.” Reply 9 (citing Ex. 1051 ¶ 14).

Petitioner argues that “the plain language of claims 6 and 17 requires ‘data paths’ (not ‘data’) to be combined” and that “[s]imultaneous communication of ‘data’ over different networks is not required.” *Id.* Petitioner asserts that “because Yegoshin’s cellular and WLAN paths combine into a single interface, an application on Yegoshin’s phone (e.g., a call handling application) operates in the same way, regardless of whether data is received by the cellular path or the WLAN path.” *Id.* at 9.

Regarding Bernard’s serial interface 701, Petitioner argues that it would be sufficient because “the claims do not require ‘data paths’ . . . to be delivered or connected ‘to one or more applications on the mobile device.’” *Id.* at 11. According to Patent Owner, “Bernard clearly describes an instance where data from multiple networks are combined through Bernard’s serial interface 701 and then delivered to a single application.” *Id.* at 11–12.

Patent Owner responds, with respect to Yegoshin, that the application cannot be the “single transmission interface” because the claim requires that the “processor . . . is configured to combine the data paths into a single transmission interface *to* one or more applications on the mobile device.” *Id.* at 19. In other words, because “the application must receive the already combined data paths,” it “cannot itself be the ‘transmission interface.’” *Id.*

With respect to Bernard, Patent Owner argues that “[e]ven if . . . the data paths from the different networks pass through the serial interface 701, that still does not satisfy the claim” because “the data paths are subsequently separated before they are sent to their respective application, and thus, there is no ‘single transmission interface to’ the application.” Sur-reply 20.

Patent Owner illustrates this with the annotated figure reproduced below:

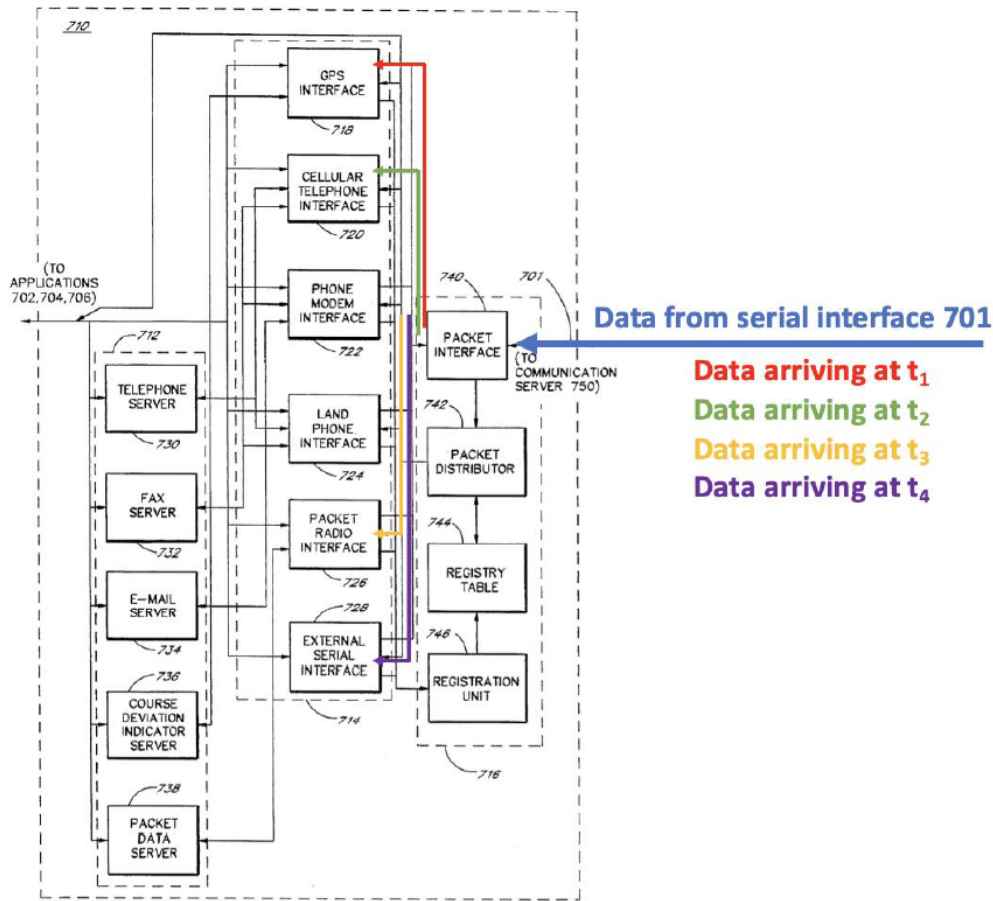


FIG. 11

Petitioner's Annotated Version of Barnard's Figure 11

Sur-reply 21.

We agree with Patent Owner that Petitioner has not shown the recited “single transmission interface” in Yegoshin. An inspection of the Petition reveals that Petitioner relied only on the “serial interface” of Barnard for that limitation. *See* Pet. 56 (“the phone multiplexes (combines) the signals . . . into the single interface (e.g., the serial interface) . . . connected/integral to the phone, which routes the received signals to ‘appropriate applications’ running on the phone as taught in Barnard”) (citing only Ex. 1007, 17:33–19:2, 19:37–21:54, 23:60–25:25). We thus find that Petitioner may not now

rely on Yegoshin for the single interface. But we also find that, although the Reply refers to Petitioner’s annotated version of Yegoshin’s Figure 2, Petitioner fails to specifically identify what might be the “single interface” in Yegoshin. Petitioner argues that “the cellular and WLAN paths combine into a single interface,” but Petitioner never actually identifies a specific thing that would be single interface in Yegoshin. *See* Reply 9–10.

However, we find that Petitioner *has* shown a “single transmission interface” in Bernard’s serial interface 701, which is a single interface that sits between the communication server 750 and the application server 710, receiving and transmitting data between the cellular telephone and packet radio, for example, and the applications. *See* Ex. 1007, Figs. 10, 11.

Dr. Cooklev briefly argues that “even if the concept of ‘combining’ two data paths ‘into a single transmission interface to one or more applications’ [was] known in the art . . . Petitioner has not explained why or how to implement that in Yegoshin, particularly as Yegoshin’s principle of operation does not work in this fashion.” Ex. 2019 ¶¶ 97–98. This cursory argument is not persuasive. The Petition explains that “[i]n a first scenario, the phone in the combination would have been modified to be used with Bernard’s cradle to provide multiple network connections,” and that “[i]n a second scenario, it would have been obvious to implement or modify the internal circuitry [of the] phone . . . so that the phone integrally contains the functionality executed in Bernard’s cradle.” Pet. 38–39. Petitioner argues that “a POSITA would have seen benefits to implementing Bernard’s cradle functionality internal to the mobile device to avoid the need for a separate cradle device and/or to achieve the benefits of Bernard’s multi-network connectivity without requiring the mobile device to be connected to the

cradle.” *Id.* at 39. Neither Petitioner nor Dr. Cooklev addresses that explanation, and we agree that it would have been obvious and predictable to include, in a device like that of Yegoshin, a single serial interface, as in Bernard, to carry data traversing multiple paths, either in the cradle configuration or internally in the PDA.

We also find unpersuasive Patent Owner’s argument that data “transmitted at different times [that] all happen[s] to pass through the same connection, albeit never at the same time, has no relevance to the claimed invention.” PO Resp. 43. This misses the mark because nothing in claim 17 requires that the data be transmitted at the same time. The claim simply requires that the “data paths” are combined into a single interface, which is the case where the data paths between, for example, (a) the cellular telephone and an application and (b) the packet radio and an application both pass through the same serial interface.

Finally, Patent Owner’s argument that the different data paths are separated within the mobile device is not persuasive because the claim does not require that the data paths never separate, but only that they pass through a single transmission interface at some point.

Because we find that Petitioner has shown the limitations of claim 17 in the asserted combination, along with a sufficient reason to combine, and that Patent Owner’s arguments are unpersuasive, we conclude that Petitioner has shown claim 17 unpatentable over the combination of Yegoshin, Johnston, Billström, and Bernard. We also find that Petitioner has shown the combination of Yegoshin, Johnston, Billström, and Bernard to include the limitations of claims 18–21 and 23, for which Patent Owner does not offer separate arguments. *See* Pet. 56–59. We further find that Petitioner

has shown the combination of Yegoshin, Johnston, Billström, Bernard, and Sainton to be sufficiently supported with a motivation to combine and to include the limitations of claims 24–25, which also are not argued separately by Patent Owner. *See id.* at 65–72.

III. CONCLUSION

Petitioner has met its burden of showing that claims 14–21 and 23–26 of the '653 patent are unpatentable but has not met its burden of showing that claims 1–13 and 27–30 are unpatentable. The results are summarized below:

Claim(s)	35 U.S.C. §	Reference(s)	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
14–16	103(a)	Yegoshin, Johnston, Billström	14–16	
1–11, 17–21, 23	103(a)	Yegoshin, Johnston, Billström, Bernard	17–21, 23	1–11
12	103(a)	Yegoshin, Johnston, Billström, Bernard, Farber		12
13, 24–26	103(a)	Yegoshin, Johnston, Billström, Bernard, Sainton	24–26	13
27–30	103(a)	Yegoshin, Johnston, Billström, Bernard, Preiss		27–30
Overall Outcome			14–21, 23–26	1–13, 27–30

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 14–21 and 23–26 of U.S. Patent 8,842,653 B2 have been shown to be unpatentable and that claims 1–13 and 27–30 of U.S. Patent 8,842,653 B2 have not been shown to be unpatentable;

FURTHER ORDERED that Petitioner’s Motion to Submit Supplemental Information is granted; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.¹²

¹² Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

IPR2022-01248
Patent 8,842,653 B1

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