

**IN UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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

Petitioners,

v.

MAXELL, LTD.,
Patent Owner

Case: IPR2024-00907

U.S. Patent No. 10,129,590

**PATENT OWNER RESPONSE
TO PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 10,129,590**

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

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PATENT OWNER’S EXHIBIT LIST

Exhibit	Description
2001	1st Amended Docket Control Order from District Court Litigation
2002	Original Docket Control Order from District Court Litigation
2003	Maxell’s Supplemental Preliminary Election of Asserted Claims
2004	Defendants’ Preliminary Election of Prior Art
2005	U.S. Patent Publication No. US 2006/0203758 (Tee)
2006	U.S. Patent Publication No. US 2006/0135076 (Honkanen)
2007	Petitioner’s invalidity contentions chart in District Court—Tee
2008	Petitioner’s invalidity contentions chart in District Court—Honaken
2010	L2CAP-Based Prototype Media Streaming via Bluetooth Technology
2011	https://www.nytimes.com/2009/10/19/technology/companies/19nokia.html
2012	https://www.codeproject.com/Articles/9357/Symbian-OS-design-faults
2013	https://www.engadget.com/2010-10-21-nokia-refines-development-strategy-adopts-html5-in-qt-and-ends-s.html
2014	https://www.businessinsider.com/ios-5-over-the-air-updates-2011-7
2015	https://support.apple.com/en-us/102998
2016	Conference Transcript
2017	Declaration of Bruce McNair, dated March 26, 2025
2018	Claim Construction Order
2019	https://time.com/4837176/iphone-10th-anniversary/
2020	https://sites.suffolk.edu/jhtl/2014/09/30/nfc-technology-makes-first-appearance-in-apple-devices/
2021	https://www.nfcw.com/2010/12/07/35385/google-unveils-first-android-nfc-phone-but-nexus-s-is-limited-to-tag-reading-only-for-now/
2022	https://news.samsung.com/us/samsung-announces-launch-dates-for-groundbreaking-mobile-payment-service-samsung-pay/
2023	https://www.theregister.com/2008/08/13/iphone_not_very_3g/
2024	https://www.wsj.com/articles/SB118306134626851922
2025	https://blogs.windows.com/devices/2012/09/19/circuit-training-the-amazing-evolution-of-smartphone-processors/
2026	Essentials of Mobile Handset Design
2027	https://9to5mac.com/2012/06/02/new-iphone-to-debut-with-dual-band-40nm-bcm4334-broadcom-wifi-significant-power-savings-and-wifi-directios-airdrop/
2028	https://community.arubanetworks.com/browse/blogs/
2029	blogviewer?blogkey=5c9cb0f9-a77e-4f1f-95de-4aac6fa7b262

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2030	SAM-MAX-00388464
2031	Creusere Deposition Transcript
2032	https://www.wired.com/2007/06/why-the-iphone-2/
2033	https://www.comms-express.com/infozone/article/802-11n/
2034	https://support.apple.com/en-us/102587
2035	https://www.ezurio.com/resources/blog/ota-over-the-air-updates-for-iiot-devices
2036	https://www.theregister.com/2007/02/06/nokia_update_updated/

I. INTRODUCTION

Patent Owner Maxell, Ltd. (“Patent Owner”) respectfully requests that the Board confirm the patentability of claims 1, 4-5, 8-12, and 14-25 (“challenged claims”) of U.S. Patent No. 10,129,590 (“the ’590 Patent”) (EX1004). Petitioners have failed to show by a preponderance of the evidence that the challenged claims are unpatentable. The ’590 Patent has been examined not once but twice by the Patent Office. During the reexamination, the claims were confirmed in the face of the same or similar art. Petitioner’s grounds simply repackage the same or similar flawed arguments presented during reexamination. Consistent with the prosecution history and previous findings of the Patent Office, Petitioners cannot demonstrate that any claim is obvious in view of the asserted prior art.

II. BACKGROUND AND SCOPE OF THE PROCEEDING

A. U.S. Patent No. 10,129,590

The ’590 Patent is entitled “Display Apparatus and Video Processing Apparatus.” It was filed on July 13, 2016 and issued on November 13, 2018 to inventors Toshiyuki Kurita and Hitoaki Owashi. The patent claims priority to U.S. Patent Application No. 12/260,410 and Japanese patent application JP 2007-306750, filed November 28, 2007. EX1004 at 1.

The '590 Patent is directed to a “multi circuit wireless communication and techniques to establish multiple wireless connections between a plurality of apparatuses and networks.” EX2017 ¶46; EX1004 Abstract.

Conventional techniques prior to this patent connected video processing apparatuses with each other by establishing analog connections to transmit video and audio signals. EX2017 ¶48; EX1004 1:19-34, 1:41-67. The inventors realized a need for simultaneous video transmission and connection to the Internet or a home network using multiple radio communication circuits that would not interfere. EX2017 ¶49; EX1004 1:19-34, 1:41-67. Thus, the '590 Patent disclosed and claimed techniques whereby a video processing apparatus can include multiple radio communication circuits implementing different transmission schemes, such that these circuits could be controlled to transfer video to another apparatus via one of the circuits, while another circuit could be used to allow the apparatus to connect to the Internet or a home network. EX2017 ¶¶49-50; EX1004 Fig. 4. The patent also teaches that a controller is used to “variably control the radio transmission assignment” for the multiple radio communication circuits “in response to an indication from [a] user.” EX2017 ¶57; EX1004 8:35-38. The '590 Patent discloses an embodiment where a display apparatus and/or video processing apparatus with a first radio communication unit that can communicate video information with an external video processing apparatus, a second radio communication unit that can

connect by radio to the internet or a home network, and a controller, which together allow the display apparatus and/or video processing apparatus to display high quality videos while also communicating with a network. EX1004 7:48-67.

B. The '590 Patent Family Prosecution History

U.S. Application No. 15/208,886 (the "'886 Application"), which issued as the '590 Patent, was filed on 7/13/2016. The '886 Application claimed priority to a series of continuation applications, (1) U.S. Application No. 12/260,410, filed on October 29, 2008, now U.S. Patent No. 9,420,212, and (2) J.P. Application No. 2007/306750, now J.P. Patent No. 503,359.

The '590 Patent was subject to reexamination No. 90/014,651, filed January 12, 2021. On November 15, 2021, the USPTO confirmed the patentability of the '590 Patent.

C. Person Of Ordinary Skill In The Art

A POSITA would have at least a Bachelor's degree in Electrical Engineering, Computer Engineering, Computer Networking, or a related technical field, with at least one year of experience in the field of wireless communications. EX2017 ¶60.

III. CLAIM CONSTRUCTION

A. "wherein . . . 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"

Since the filing of the Petition, the District Court found that this term should be given its “plain and ordinary meaning” and stated 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.” EX2018 at 23. Accordingly, this term should be interpreted as set forth by the District Court.

IV. GROUNDS 1, 2, 4 AND 5 FAIL BECAUSE PETITIONER HAS FAILED TO SHOW THAT N93, BT-SPEC, AND 3GPP-SPEC CONSTITUTE PRIOR ART

For public accessibility, the “ultimate question is whether the reference was ‘available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it.’” *Voter Verified, Inc. v. Premiere Election Solutions*, 689 F.3d 1374, 1380 (Fed. Cir. 2012).

Dr. Creusere was provided these references by Petitioners, and Dr. Creusere provided no opinion on the public accessibility of the documents. EX2030 12:11-14.

Petitioners rely on the purported archival of N93, BT-Spec, and 3GPP-Spec using the Wayback Machine and a Wayback Affidavit. EX1007 ¶1. However, Petitioner provides no evidence that N93, BT-Spec, or 3GPP-Spec were disseminated to the interested public before the critical date. For example, the Affidavit only states that the Wayback Machine is searchable by web address (or URL) but Petitioners fail to offer any evidence or argument that a POSITA would

know of N93 or its specific URL (http://nds1.nokia.com/phones/files/guides/Nokia_N93-1_UG_en.pdf). See EX1007 ¶¶3, 7. Further, the Petition fails to offer any evidence or argument that the N93 webpage was indexed through search engines or otherwise locatable by a search engine. Petitioner offers speculation that a URL may have been momentarily available on April 23, 2007, and no evidence that this URL was available for more than a moment in time to be able to searched and found by a POSITA. See EX1007 (stating that “each file [is] preserved as it existed at a particular point in time.”). Petition’s failure to provide this evidence or argument is critical. See *Samsung Elecs. Co. v. Infobridge Pte. Ltd.*, 929 F.3d 1363, 1372 (Fed. Cir. 2019) (“[A] work is not publicly accessible if the only people who know how to find it are the ones who created it.”).

The Board has found a nearly identical situation (including use of the same standard Wayback affidavit), to be insufficient for showing public access in *First Solar, Inc. v. Rovshan Sade*, IPR2023-00881, Paper 13 at 19 (PTAB Nov. 16, 2023). Just like in *First Solar*, Petitioners provide no evidence that a POSITA would know or be able to find the web address and the reference on the website. See EX1007 ¶¶3, 7. Further, the Petition fails to offer any evidence or argument that the N93, BT-Spec, and 3GPP-Spec webpages were indexed through search engines or otherwise and thus locatable by a search engine. See, e.g., *Acceleration Bay, LLC v. Activision*

Blizzard Inc., 908 F.3d 765, 774 (Fed. Cir. 2018) (stating test for public accessibility is determined based on whether reference was “meaningfully indexed such that an interested artisan exercising reasonable diligence would have found it); *see also* *Samsung Elecs. Co.*, 929 F.3d at 1372.

Additionally, the Affidavit states the following:

The date indicated by an extended URL applies to a preserved instance of a file for a **given URL**, but **not necessarily to any other files linked therein**. Thus, in the case of a page constituted by a primary HTML file and **other separate files** (e.g., files with images, audio, multimedia, design elements, or **other embedded content**) linked within that primary HTML file, the primary HTML file and the **other files** will each have their own respective extended URLs and **may not have been archived on the same dates**.

EX1007 ¶5 (emphasis added). Thus, the Affidavit itself calls into question whether the “.pdf” user manual that was embedded within the HTML file was archived on April 23, 2007. At most, nds1.nokia.com is the HTML file and may have been indexed on April 23, 2007, but the .pdf file would fall into “embedded content” and may not have been archived on the same dates, as the declaration itself states. This is further strengthened by the fact that there is no evidence of this URL being available from after April 2007 through Dec 2011.

For 3GPP-Spec, Petitioner further fails to provide evidence of public access because it relies on a different document than the one purportedly authenticated through the Affidavit. *Compare, e.g.,* EX1007 at 165 *with* EX1015 at 1.

Petitioners provide additional exhibits that should not be admitted into evidence. Paper 17. However, these documents further fail to establish accessibility. For example, the Bhattarai declaration states that the Nokia website included an “inoperable link to pdf of N93.” EX1034 at 2. An inoperable indicates that the user manual was not actually accessible via the Nokia website such that a POSITA could locate the N93 prior to November 28, 2007. EX2017 ¶79.

Petitioners’ resort to Wikipedia fares no better (EX1034):

One of the key aspects of Wikipedia is that it allows anyone with internet access to create and edit articles.... The dynamic nature of the site ensures that Wikipedia remains current, but it also means that some content may only be accessible for a brief period. Therefore, there is no evidence provided that this link was up for a more than a moment of time for a POSITA to be able to locate the reference. Nor is there any evidence that it was publicly accessible prior to the critical date.

EX2017 ¶80. There is also no evidence showing which link was embedded in the text “Online copy of the N93 Manual (PDF)” on the Wikipedia website.” EX1032 at 5. This also indicates that there was no public accessibility. EX2017 ¶81.

For example, due to the “dynamic nature of webpages,” there is no evidence that the link on the Wikipedia page would actually lead to EX1010 and not a different version or inoperable link. *Id.* ¶82.

Petitioners also rely on a very preliminary working document by 3GPP. EX1015 at 1; EX2017 ¶83. This preliminary working document was **not** publicly accessible to a POSITA during at the time of the invention. EX2017 ¶83.

Mr. McNair notes that there are numerous indications on the document itself that teaches that it is very preliminary and “shall not be implemented”:

[T]he document version is 0.2.1. The fact that it is a version 0 document means that (according to the Foreword on page 5 of the document) it has not even been presented to the Technical Specification Group (“TSG”) for information (that would be a version 1.x.x), let alone approval (2.x.x) or is under change control (3.x.x or greater). EX1015 at 5. The document is very preliminary. The bottom of the cover page says “The present document has not been subject to any approval process by the 3GPP Organization Partners and **shall not be implemented**. This Specification is for future development work within the 3GPP only. The Organization Partners accept no liability for any use of this Specification.” EX1015 at 1.

EX2017 ¶84. Mr. McNair further notes that a POSITA would not have the means to locate the document based on the provided evidence:

Since this was a preliminary document at the time, a POSITA would need to know by other means that it existed to go looking for it. I saw no evidence that a POSITA would know of this document. Unless I was already familiar that this document existed and was looking specifically for the document, I probably would not be able to locate where it exactly was.

Typically, those working on such documents were senior researchers, fully engaged in developments in 3GPP and other standards. However, a POSITA based on the definition set forth by Dr. Creusere, would not have the inclination or skill to do the digging to find such a document. A POSITA in our case is an individual with a Bachelor of Science degree in Electrical Engineering, Computer Engineering, Computer Networking, or a related technical field, with at least one year of experience working in the field of wireless communications.

Without knowing of the document already, POSITA would not be able to locate the 3GPP-Spec on the 3GPP FTP server. There is a zip file under the name of “36211-021.zip” which is not descriptive in a way that an interested party could find it. The 3GPP-Spec is located in a zip file that is neither catalogued nor indexed. Thus, without knowing of the document already, the document lacks any other identifiers that would allow a POSITA to locate the document.

EX2017 ¶¶85-88. “[A] work is not publicly accessible if the only people who know how to find it are the ones who created it.” *Samsung Elecs.*, 929 F.3d at 1372.

V. GROUND 1

Petitioners have failed to show by a preponderance of evidence that N93, Dua, and Herle, whether taken alone or in reasonable combination, disclose or render obvious each and every limitation of claims 1, 4-5, 8-12, and 14-25.

Additionally, as set forth further below, none of N93, Dua, or Herle—alone or in combination—enable POSITA to make and use the claimed invention. To render a claim obvious, the prior art, taken as a whole, must enable a skilled artisan to make and use the claimed invention. *See In re Kumar*, 418 F.3d 1361, 1368 (Fed. Cir. 2005). Here, the relied-upon prior art fails to enable one of ordinary skill to make and use the claimed invention. *Raytheon Techs. Corp. v. GE Co.*, 993 F.3d 1374, 1381 (Fed. Cir. 2021).

A. Limitation [1a]

Petitioners concede that N93 and Dua do not disclose a “first modulation scheme and a first transmission frequency band” and state that these were either inherent or obvious based on standards. Pet. 20. Both reasons are incorrect.

Regarding **inherency**: “A claim limitation is inherent in the prior art if it is **necessarily present** in the prior art, **not merely probably or possibly present**.” *Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.*, 344 F.3d 1186, 1192 (Fed. Cir. 2003). Standards for a wireless communication technology are associated with multiple **possible** modulation schemes and frequencies. EX2017 ¶¶183-84.

The Bluetooth standard is associated with multiple modulation schemes that **may** be present in a Bluetooth-enabled device, but are not necessarily present. For example, $\pi/4$ -DQPSK and 8DPSK are modulation schemes associated with Bluetooth 2.0+EDR. and devices that did not support Bluetooth 2.0 + EDR would not have these modulation schemes. EX2017 ¶188; EX1014 at 41, 48, 4135. N93 and supporting documents state that the N93 device was **not** associated with Bluetooth 2.0+EDR and would not support these modulation schemes. EX2017 ¶188; EX1010 84; EX2029 at 1.

The modulation schemes, $\pi/4$ -DQPSK and 8DPSK therefore cannot be inherent because they are only possibilities and not inevitabilities. EX2017 ¶¶184-185, 188.

Regarding **obviousness**: Petitioners fail to provide any rationale regarding modifying or combining a device with the claimed features to include different modulation schemes for its alleged “obviousness” combination. Pet. 21; EX2017 ¶186. The relevant inquiry is not whether a certain modulation scheme was generally known, but whether a device implementing a transmission scheme having the modulation scheme, in view of the other claimed limitations, is obvious. EX2017 ¶186. It would not be obvious to use the knowledge of a POSITA with existing Bluetooth standards to modify or update devices to support different Bluetooth modulation schemes due to the technical limitations of the time. EX2017 ¶¶187-188.

B. Limitation [1b]

Petitioners concede that N93 and Dua do not disclose a “second modulation scheme and a second transmission frequency band” and states that its mapped modulation schemes and frequencies are either inherent or obvious based on standards. Pet. 23. This is incorrect.

Petitioners map the second radio communication circuit to **UMTS** and explicitly make distinctions between a different type of cellular network (GSM). Pet. 8; EX2017 ¶194. The distinction was also made clear by Dr. Creusere, who stated that it is only “approximately correct” to refer to UMTS as 3G because there were many variations and standards as GSM within the 2G and 3G standards that were not GSM and UMTS. EX2030 13:7-16.

The UMTS network is not associated with either QAM or OFDM modulation schemes.¹ EX2017 ¶194. Petitioner’s own reference states that QAM is a modulation scheme associated with a **different** technology from UMTS—HSDPA. EX1011 ¶[0010]; EX2017 ¶194. Similarly, OFDM was associated with LTE, not UMTS and LTE is “considered to be a different generation of cellular network than UMTS.” EX2017 ¶194.

¹ Petitioner does not allege “OFDM” as a modulation scheme in its earlier mappings but then asserts it here. Pet. 8.

Petitioners do not provide any rationale for how or why a POSITA would implement additional hardware to support different modulation schemes or combine with different mappings than alleged. Pet. 21-22. Additionally, a POSITA would not turn to 3GPP-Spec or be motivated to implement a modulation scheme that was not approved. EX2017 ¶¶195-196. Further, technical limitations at the time would have made it difficult for a mobile device to support another modulation scheme, such as the modulation schemes of OFDM and QAM. *Id.* It therefore would take more than ordinary skill to implement other modulation schemes associated with higher data rates in resource-constrained devices at the time of the invention. *Id.*

C. Limitation [1c]

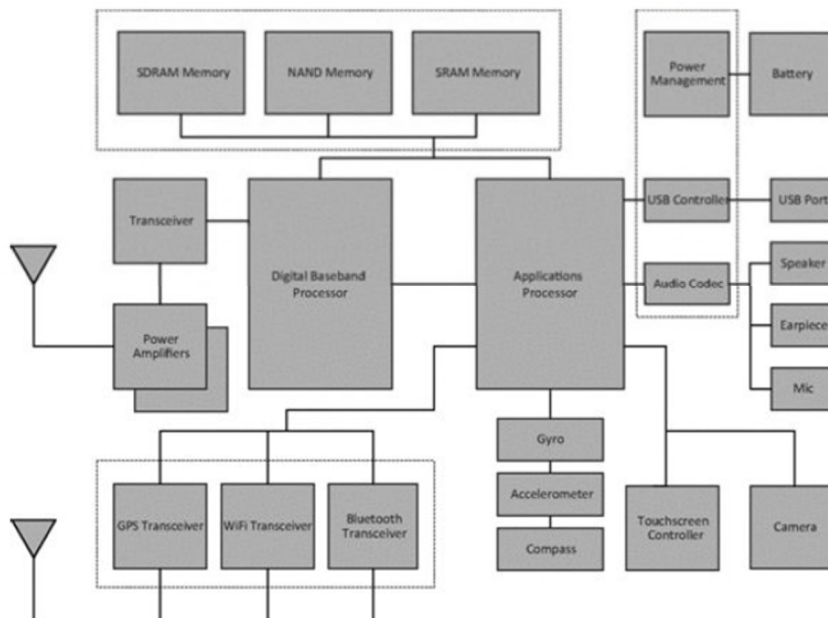
1. A POSITA would not consider UMTS and GSM as separate radio communication circuits

A POSITA would not consider UMTS and GSM to be second and third radio communication circuits. EX2017 ¶¶173-179, 200. UMTS and GSM are types of cellular networks that a mobile device could connect to using a cellular radio communication circuit. EX2017 ¶175. The functionality of a cellular radio communication circuit is to connect to a cellular network, and possibly switch between different cellular networks by changing modulation schemes. EX2017 ¶¶173-179. This operation of a cellular radio communication circuit aligns with the '590 claims, as both the claims and the specification envision a radio communication circuit capable of altering modulation schemes. EX2017 ¶177; EX1004 at 8:38-57.

Petitioners' references also reflect this function. EX2017 ¶176. Dua maps cellular functionality into a single network transceiver and describes that the network transceiver is "for interacting with a cellular network." *Id.*; EX1008 ¶[0066], Fig. 1. N93 similarly describes functionality of switching between cellular networks. EX1010 at 113. Kao also states that "a cell phone needs to receive or transmit signals of only one standard at a time," reflecting the function of a cellular radio communication circuit to switch between modulation schemes to establish a connection. EX1013 ¶[0005]; EX2017 ¶176.

Mr. McNair also notes that this rationale is in line with other documentation of mobile devices, which separates out "Bluetooth," "Wi-Fi," and cellular transceivers, but do not further separate out the cellular transceiver into discrete radio communication circuits of "GSM" or "UMTS." EX2017 ¶178; *see* EX2026 at 98.

Figure 3.2. Hardware block diagram of a mobile handset.



EX2026 at 98. Therefore, a POSITA would not consider UMTS and GSM to be separate “radio communication circuits” and thus “UMTS” and “GSM” each on its own is not a radio communication circuit.

2. Mapping B (Wi-Fi)

As described above in relation to claim limitations [1a] and [1b], standards do not inherently disclose or render obvious specific modulation schemes and frequencies that may be supported in a device. EX2017 ¶201. While standards may disclose frequencies that are possibly present in a device, those frequencies are not necessarily present in the device. EX2017 ¶201. The Wi-Fi standard is associated with both 2.4GHz and 5GHz frequency bands, but mobile devices around the time of the invention did not implement hardware that could operate on both frequency

bands, only the 2.4GHz band. EX2017 ¶202. Actual hardware implementations need to be considered to determine whether a device implements a transmission scheme having the specific modulation scheme. EX2017 ¶202-05.

Implementing the 5GHz band, especially in combination with 2.4GHz, on mobile devices was not obvious at the time of the invention. EX2017 ¶203. Adding 5GHz functionality for Wi-Fi was beyond ordinary skill because it required different antennas, power management chip, and other considerations into a resource-constrained device. EX2017 ¶¶202-203. Further, there would be no motivation to add additional frequency band support if the device already supported functionality on the 2.4GHz frequency band and all relevant devices at the time used this frequency band. EX2017 ¶204. Mobile devices did not include dual-band Wi-Fi until years after the '590 Patent's invention. Wi-Fi 4 (IEEE 802.11n), which introduced dual-band capability, was not available until 2009. EX2017 ¶203. The disadvantages of adding 5GHz outweighed the benefits, because 2.4GHz was widely supported at the time while 5GHz was not. EX2017 ¶204. Petitioners identify no rationale for adding 5GHz support or using 5GHz instead of 2.4GHz. Pet. 25.

D. Limitation [1h]

N93, Dua, and Herle fail to disclose or render obvious limitation [1h]: “a controller controlling assignment of connection of each of the first, second, and third radio communication circuits.”

1. N93

N93 does not disclose or render obvious that a controller controls assignment of connection of each of the first, second, and third radio communication circuits.

Petitioners present evidence solely regarding N93 user indications related to this limitation. Pet. 29-31. But N93 lacks details on how components, such as a “controller,” would respond to these user indications to execute actions like “controlling the assignment of connections for the first, second, and third radio communication circuits.” EX2017 ¶¶210-212. *In re Kumar*, 418 F.3d 1361 at 1368.

Because N93 is a user manual for a closed-system, proprietary device, it lacks information on how to enable the device it describes and does not provide implementation details to understand its internal workings (*e.g.*, controller in relation to radio communication circuits). EX2017 ¶211. Petitioners even highlight this absence of implementation details in N93 as the reason for combining other references. Pet. 11.

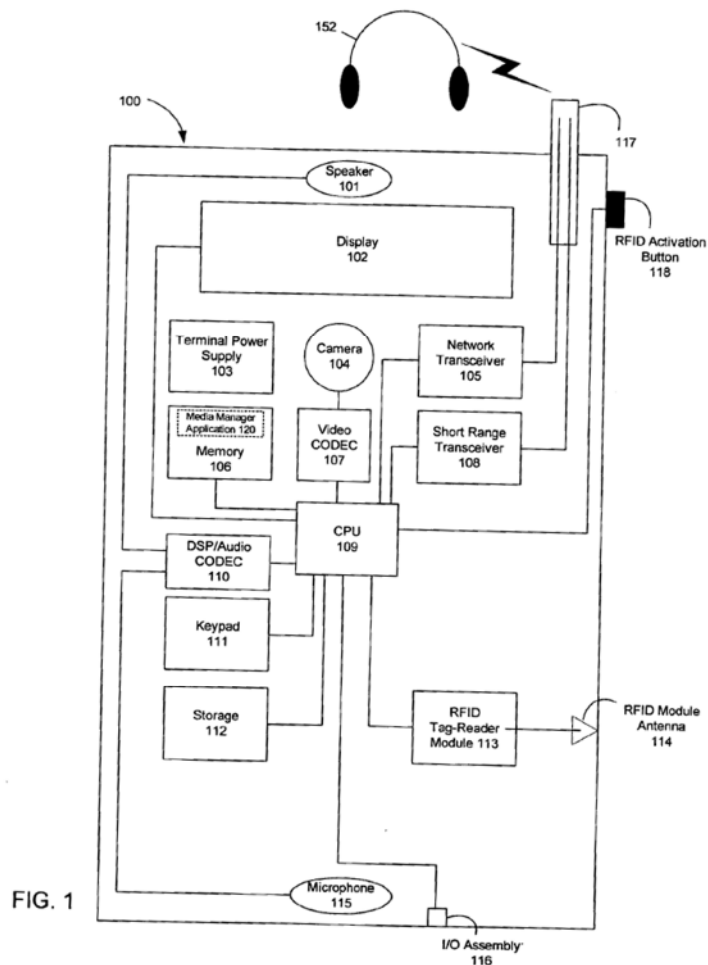
Additionally, it is unlikely a mobile device like the N93, prior to November 2007, would have had a controller such as a CPU controlling assignment of connections related to Bluetooth, UMTS, and GSM or Wi-Fi. A POSITA would understand that modems typically handled cellular processing independently from a CPU. EX2017 ¶ 212. Since N93 only provides high-level details on certain functionalities, it does not reveal the internal workings, such as a CPU, modem, or

radio communication circuits, or how they manage the assignment of a Bluetooth connection versus a UMTS connection. *Id.* ¶212.

2. Dua

Dua also fails to disclose this limitation. Dua fails to discuss the ability to connect to specific networks and is non-enabling regarding this limitation. EX2017 ¶213.

Petitioners claim that CPU 109 serves as the “controller” for limitation [1h] and rely on Figure 1 of Dua to assert that CPU 109 manages the assignment of connections for each of Dua’s radios. Pet. 31.



EX1008 Fig. 1. This figure is a high-level functional representation of a media player terminal interface. EX2017 ¶215. Although it shows lines connecting each component, this figure does not describe the actual processes executed by CPU 109 to control the assignment of Bluetooth, Wi-Fi, GSM/UMTS, or NFC functions. *Id.* It also lacks details on which processes are executed by which components in relation to controlling the assignment of specific radio communication circuits. *Id.*

A mobile device capable of connecting to either GSM or UMTS networks at the time of the invention likely had a modem that managed connections to these networks. EX2017 ¶216. Modems typically handled cellular functionality instead of the CPU of a device. Since Dua does not address connecting to UMTS and GSM networks, it does not disclose the internal workings of the network transceiver in Dua, such as how CPU 109, rather than the modem, would control the assignment of connection to UMTS or GSM networks. *Id.*

Dua's written description of CPU 109 is equally vague. EX2017 ¶217. For instance, Dua states that “**In most instances**, microprocessor 109 executes instructions under the control of an operating system or other software (e.g., media manager).” EX1008 ¶[0060]. The general statement that a microprocessor executes instructions in most instances does not clarify that microprocessor 109 actually executes instructions to control the assignment of Bluetooth, Wi-Fi, GSM/UMTS, or NFC connections and instead explicitly states that there are instances in which microprocessor 109 does **not** execute instructions under the control of an operating system. EX2017 ¶217.

Additionally, Petitioners have not demonstrated that CPU 109 controls the assignment of cellular radio connections. EX2017 ¶218. Dua merely states that “CPU 109 is also connected to network transceiver 105 for interacting with a cellular network.” EX1008 ¶[0066]. This general statement does not provide details about

the CPU's processing to control the assignment of cellular radio connections to specific **networks**, such as GSM or UMTS networks. EX2017 ¶218.

Petitioners also assert that “Dua discloses CPU 109 controls the assignment of cellular radios (UMTS, GSM) based on the SIP protocol and target information stored in a buddy list for the buddy indicated by the user.” Pet. 31. Yet, there is no explicit language in Dua indicating that the CPU executes code in response to such user indications to control the assignment of a cellular radio, or to specific cellular networks. *Id.* The cited paragraphs do not mention microprocessor/CPU 109 in relation to any of the actions being performed. EX2017 ¶218.

Instead, Dua provides only general details and fails to disclose or render obvious that CPU 109 would demonstrate its control over the assignment of connections for the first, second, and third radio communication circuits. EX2017 ¶219. Petitioners even discuss the lack of “implementation details” of Dua and states that a POSITA would turn elsewhere for “lower level implementation details.” Pet. 54. Therefore, Dua is non-enabling with respect to this limitation and fails to disclose or render obvious this limitation. EX2017 ¶¶165-166, 220.

None of the references describe a CPU controlling connections to Bluetooth, UMTS, and GSM/Wi-Fi. EX2017 ¶221. The references only depict parts of the system (*e.g.*, Dua only shows a “network transceiver”). Conversely, other documentation demonstrates the use of a controller to manage connection to

Bluetooth and Wi-Fi, and then a separate modem that controls cellular connections. EX2017 ¶¶221-22; EX2026 at 240. Petitioners’ references also confirm that a modem or baseband processor, not a CPU that runs the main operating system, controls operation of cellular functionality. EX2017 ¶221; EX1011 Fig. 3d (displaying “baseband processor” in relation to radio frequency front end). There is no support for a CPU that controls assignment of Bluetooth, UMTS, and GSM/Wi-Fi connections. EX2017 ¶221.

3. Combination

Dua cannot provide internal hardware implementation details of N93 because it does not address N93's capabilities and is non-enabling of the claimed features. EX2017 ¶¶130-38, 223.

Dua fails to discuss many capabilities of N93, such as switching between GSM and UMTS networks or any settings allegedly related to selecting “GSM” or “UMTS” that Petitioners allege are discussed in N93. *Id.* ¶¶223-24. Consequently, Dua does not disclose or make obvious the internal hardware implementation details of these settings. *Id.* Contrary to Petitioners’ assertions, a POSITA would not be motivated to look to Dua for implementation details of how a controller operates in relation to these settings, as Dua is silent regarding the specific settings. *Id.* ¶¶130-38, 223-24.

B. Limitation [1j]

This limitation depends on the same “controller” mentioned in limitation [1h], and therefore fails for at least the same reasons asserted in relation to limitation [1h]. Section **Error! Reference source not found.**; EX2017 ¶227. There is no evidence that shows how any alleged controller operates in response to user indications to control connection assignments of Bluetooth, UMTS, and GSM/Wi-Fi. *Id.* ¶227. Both N93 and Dua are too high-level to reveal the internal workings when a user inputs a user indication. *Id.* ¶227. Additionally, Dua does not address the user indications of N93 related to cellular radios that connect to GSM and UMTS networks, and thus cannot disclose N93's specific implementation details. *Id.* ¶227. None of the cited references enable this limitation. EX2017 ¶¶156-67, 227.

Petitioners assert that selecting “Options>Share video>Live” triggers the assignment of connection to the UMTS network, utilizing the video sharing capability. Pet. 33. However, Petitioners fail to provide that there is “controlling assignment of connection” to the UMTS network **in response to** the alleged indication. EX2017 ¶232. The N93 user manual explicitly states that video sharing options are only available when there is **already an active connection** to the UMTS network: “To receive share invitations, you must be registered to the service, have an active UMTS connection, and be within the UMTS network coverage.” EX1010 at 61; EX2017 ¶232. Therefore, N93 indicates that the N93 device has already

assigned a connection to the UMTS network, and therefore the user indications can initiate a video link based on this existing connection. EX2017 ¶232.

Additionally, N93 states that if the receiving device is “not within UMTS network coverage,” it will “not know” that it received a video share invitation. EX1010 at 62. This further indicates that user indications are only relevant **after** a connection to the UMTS network, using the cellular radio communication circuit, has been established. *Id.* ¶232-33. Therefore, there is no evidence that the assignment of connection occurs in response to the “Options>Share video>Live” indication as alleged by Petitioners. *Id.*

Petitioners cite several additional user indications that allegedly cause the controller to assign a connection to the alleged UMTS radio. Pet. 35. However, these indications also appear to occur after a connection to the UMTS network has already been assigned, rather than assigning a connection **in response to** the user indications. For example, Petitioners allege a “key press to receive UMTS video call” as the user indication. Pet. 35. Again, a connection to the UMTS network must already be assigned for N93 to receive a video call. EX2017 ¶233. Therefore, there is no controlling assignment of connection in response to these indications. EX2017 ¶233.

Petitioners also allege, with no explanation, that various other user actions cause “the controller to assign a connection to the UMTS radio to receive video.” EX1002 ¶128. However, N93 does not disclose that these user actions cause the

controller to assign a connection **in response to** the user actions. EX2017 ¶235. For example, N93 states that “Send MMS” can occur “in UMTS networks only,” indicating that sending MMS requires an existing UMTS connection. *Id.*; EX1010 at 64. N93 also contains no explanation of how a specific component (such as a CPU) operates in response to user actions to control the assignment of a specific radio communication circuit. EX2017 ¶235; EX1010 at 48, 59, 63, 106.

C. Limitation [1k]

Petitioners claim that N93 discloses this limitation by listing a variety of different features from the user manual that fail to disclose or render obvious limitation [1k] either alone or in combination.

First, N93’s discussion of using the N93 as a modem for a PC does not disclose or make obvious limitation [1k]. There is no discussion of video information in this section of N93 or any indication that N93 supports or enables video information transfer to a computer over a Bluetooth connection while using the N93 as a modem. EX1010 at 83; EX2017 ¶241. Also, using a mobile device as a modem implies that the N93 would first connect to the internet via the UMTS network, and any information transfer would occur after this connection is established, using the N93 as a pass-through device. EX2017 ¶241. Therefore, there is no simultaneous transmission of video information over Bluetooth while connecting to the internet via the UMTS network. *Id.* Further, N93 explicitly excludes the Bluetooth profile

(video distribution profile) needed to support video streaming. EX1010 at 84; EX2017 ¶263.

Furthermore, Mr. McNair notes various technical limitations that would render this alleged feature non-obvious, *e.g.*, because it was beyond ordinary skill to implement, or would require undue experimentation. EX2017 ¶¶241-50. Mobile devices had limited hardware resources and were not optimized for simultaneous communication across multiple wireless interfaces. *Id.* Many UMTS-capable devices handled Bluetooth data and UMTS/GPRS traffic in a time-multiplexed fashion, switching between the two rather than running them simultaneously. *Id.* Even when used as a modem, Bluetooth data transfers were typically paused or deprioritized when UMTS/GPRS was actively transmitting. *Id.*

There is no evidence that the Symbian S60 software stack in the N93 included an “advanced networking stack capable of full-duplex operation across multiple wireless interfaces.” *Id.* ¶243. If the N93 could connect a PC via Bluetooth and send video and connect to UMTS/GPRS networks to fetch internet data, it likely did so in an alternating manner, not a simultaneous manner, meaning one connection had to wait while the other was active. *Id.*

Further, prior to November 2007, radio frequency coexistence between Bluetooth and UMTS technologies was a major issue, as both used adjacent frequency bands. UMTS operates at 1900/2100 MHz and Bluetooth at 2.4 GHz.

EX2017 ¶244. This required the Bluetooth and UMTS transceivers to operate at nearby RF frequencies without interference. *Id.* “Without sophisticated RF filtering, simultaneous use of UMTS and Bluetooth could cause significant interference, leading manufacturers to implement sequential transmission rather than true concurrency.” *Id.*

Additionally, Bluetooth tethering was constrained by low bandwidth and high latency prior to November 2007. EX2017 ¶246. While the maximum practical and theoretical data rates for Bluetooth 2.0+EDR were 2 and 3 Mbps, the N93 did not support these higher data rates, instead being linked to Bluetooth 1.1, 1.2, or 2.0, and could not support the higher speeds linked to Bluetooth 2.0+EDR. *Id.*; EX1010 at 84; EX2035 at 1. The Bluetooth PAN profile was not optimized for high-speed, full-duplex data transfer. EX2017 ¶247.

Even if the N93 could theoretically act as a modem over Bluetooth, the connection would not have been true simultaneous operation—it would have been alternating or heavily constrained to the point it could not support simultaneous video transfer over Bluetooth while connecting to the Internet via UMTS. EX2017 ¶248. Petitioners fail to provide any evidence that the N93 device was designed for full-duplex modem functionality over Bluetooth and UMTS/GPRS. EX2017 ¶248.

Industry practice at the time was to allow Bluetooth modem functionality via sequential data handling, not full parallel transmission. EX2017 ¶249. Many mobile

devices required the Bluetooth PAN connection to be paused or throttled while UMTS was in use. *Id.*

Petitioners' other arguments regarding N93 also fail:

Next, the fact that "A PC can be a target Bluetooth external device for video transfer" only describes an isolated action of transferring video information and does not disclose the simultaneous transfer of video information over Bluetooth while connecting to the internet using a cellular radio.

Dr. Creusere's statement that "N93 also explicitly teaches there can be simultaneous Wi-Fi and UMTS data packet connections" includes several problems. EX1002 at 24. First, Dr. Creusere's citations do not support this assertion at all—page 18 does not show that there is simultaneous Wi-Fi and UMTS data packet connections. Next, this statement bears no relevance to the simultaneous transfer of video information via Bluetooth while connecting to the Internet using a cellular radio via the UMTS network.

EX2017 ¶¶251-52. Petitioners also depend on the absence of disclosure in the references to somehow positively disclose or render obvious the simultaneous operation of different features together (with no clarity on which features allegedly would operate together). Pet. 36. "This is essentially an alleged combination of different embodiments with no explanation or rationale on how to combine them except for the fact that there is nothing explicitly prohibiting it." EX2017 ¶254. There is nothing that supports or enables simultaneous functionality of any of these

different features and a POSITA would not expect a user manual to explicitly prohibit every impossible or inoperable action on a device. *Id.*

Additionally, other supporting documentation for the N93 device submitted by Petitioners indicates that there was no simultaneous use of Bluetooth to transmit video information while connecting to a UMTS network. EX1017 at 16; EX2017 ¶254. The limited capabilities of mobile devices at the time would also suggest to a POSITA that these actions were not possible. EX2017 ¶254. Prior art must be enabling, but as discussed previously, a user manual would not enable a POSITA to make this claimed feature (or any other claimed feature). *Id.* And here, Petitioners cannot rely on the **absence** of information to enable a POSITA to make such a device with such a feature. *Id.*

Petitioners also state that “N93 discloses Bluetooth can be used while running other applications.” Pet. 36. This mischaracterizes N93 because N93 only mentions that “features using Bluetooth technology, or allowing such features to run in the background while using other features, increase the demand on battery power and reduce battery life.” EX1010 at 84; EX2017 ¶255. N93 does not disclose that Bluetooth features to transmit video information can be used while running other applications that require the Internet, and fails to specify which “features” can run with Bluetooth in the background. EX2017 ¶255; EX1010 at 84. There is no discussion of using Bluetooth alongside other wireless communication technologies,

such as using the cellular radio to connect to the Internet. EX2017 ¶255; EX1010 at 84.

The fact that features are described in isolation in the N93 fails to disclose or render obvious that these features can occur simultaneously with other features in a resource-limited device. EX2017 ¶256. None of these actions support simultaneous functionality and as stated previously, technical limitations and resource constraints of mobile devices at the time would not have rendered this type of simultaneous functionality obvious. *Id.*

Dua also fails to disclose or render obvious limitation [1k]. Petitioners cite Figures 8a-11 and accompanying descriptions in Dua to claim live video streaming over Bluetooth while simultaneously connecting to the internet to receive video data. Pet. 36-37. Figure 10 of Dua is shown below for reference:

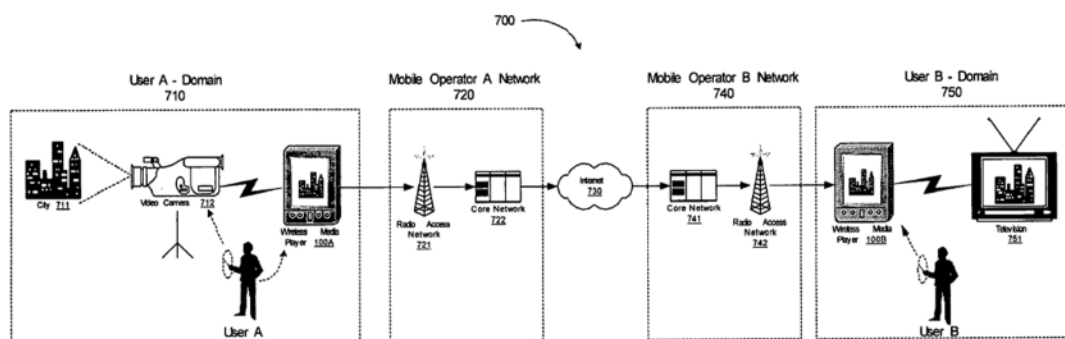


FIG. 10

EX1010 Fig. 10. Using this section, Petitioners allege that Dua discloses “player 100A receiving video via Bluetooth and transmitting the video via UMTS to internet 730.” Pet. 36-37.

Petitioners fail to map these actions to a controller controlling each of the first and second radio communication circuits. Pet. 36-37; EX2017 ¶260. For instance, Dua does not explain how its CPU would control any alleged circuits within the network transceiver to control connections to GSM or UMTS networks. EX2017 ¶260. It also does not account for how to control assignment of UMTS connections, because a POSITA would know that due to complex timing requirements, a modem separate from the CPU would be used and Dua fails to account for this or provide information of how the CPU would control both Bluetooth and UMTS connections. *Id.*

Additionally, Petitioners assume that Dua discloses or renders obvious video streaming occurs over Bluetooth, instead of a different wireless protocol, without evidence. EX2017 ¶261. Figure 10 is directed to a video **streaming** scenario (real-time play of video) versus a video **file transfer** (requires entire file transfer before playback). *Id.*; EX1008 Fig. 10. These are distinct methods of video delivery. EX2017 ¶261. It was non-obvious and beyond ordinary skill to support **video streaming** over Bluetooth in devices like the media player in Dua or the N93 mobile device prior to November 2007. EX2017 ¶261.

Dua itself fails to suggest that Bluetooth can be used to stream live video. EX1008 ¶[0192]; EX2017 ¶262. Dua mentions a video camera recording a city landscape and transmitting the feed to a wireless media player but does not specify that **Bluetooth** is used to transfer video. EX1008 ¶[0192]. Both N93 and Dua exclude the Bluetooth Video Distribution Profile needed for video streaming. EX2017 ¶263. N93 lists supported Bluetooth profiles like Basic Printing Profile, Generic Access Profile, Headset Profile, and Hands-Free Profile, but not profiles needed for video streaming. EX1010 at 84; EX2017 ¶263. Dua discusses Bluetooth only for audio streaming, listing profiles like handsfree and handset, and whenever Dua mentions Bluetooth, it relates to audio scenarios, such as pairing a media player with a headset or transmitting music between media players. *See, e.g.*, EX1008 ¶¶[0126], [0128], [0159]; EX2017 ¶263. When discussing video streaming, Dua discusses use of a broadcast technology instead of Bluetooth. EX2017 ¶263. Therefore, Dua does not suggest or enable Bluetooth video streaming. Therefore, there is nothing in Dua that would suggest implementing Bluetooth **video** streaming or enable it. *Id.*

Further, implementing video streaming over Bluetooth while connecting to the Internet, as proposed by Petitioners, would not be obvious in light of N93 or Dua due to technical limitations at the time and would require more than ordinary skill to implement, particularly in combination with Petitioners' other alleged features.

EX2017 ¶264. Streaming video requires high data transfer rates and low latency, and was beyond ordinary skill to implement prior to November 2007. *Id.*; see EX2010 at 225 (“Bluetooth wireless technology is a hot research topic....Unfortunately, It is not suitable for traditional media encoding and real time transition [] due to limited bandwidth[], high degree of error rates[,] and the time varying nature of radio link.”).

The difficulty of implementing Bluetooth streaming would be beyond ordinary skill and would require undue experimentation, especially in consideration of implementing Bluetooth streaming in conjunction with the other claimed features, such as simultaneous connection with UMTS to connect to the Internet during the time of the invention. EX2017 ¶264; see EX2010 at 225. Multiple sources have contemplated the difficulty in implementing streaming video over Bluetooth. EX2017 ¶264; see EX2010 at 225.

Petitioners’ argument on video streaming over Bluetooth appears to be based on a misunderstanding of the difficulty in implementing video streaming over Bluetooth during the time of the invention. EX2017 ¶266. For example, Dr. Creusere believes contemporary technology such as AirPlay implements streaming over Bluetooth, but this in fact occurs over Wi-Fi, not Bluetooth. EX2017 ¶266; see EX2030 56:7-21. Neither expert is aware of any product, then or now, that has enabled streaming video over Bluetooth. EX2017 ¶266; EX2030 56:7-21.

To support simultaneous video information transfer over Bluetooth while connecting to the Internet via UMTS, video data must be heavily compressed to fit into Bluetooth's bandwidth. EX2017 ¶267. The compression required to transmit video over Bluetooth would tax the processing capabilities of the processor doing the video compression, precluding real-time streaming. *Id.* The Bluetooth circuitry of Dua and N93 also has higher latency than other wireless communication technologies, such as Wi-Fi, that would cause delays, synchronization issues, etc. with video streaming. *Id.* Therefore, a POSITA would not be motivated to arrive at the proposed combination of simultaneous communication using Bluetooth for video streaming and UMTS for cellular communication, as such exchanges come with many challenges. *Id.* Although many devices support Bluetooth technology, it requires an enhancement in the buffering scheme. EX2010 at 236. "It would be beyond ordinary skill to include the feature of Bluetooth streaming while simultaneously connecting to the Internet via UMTS, particularly in combination with other claimed features." EX2017 ¶259. A POSITA would stream video non-simultaneously and over a different wireless protocol (*e.g.*, Wi-Fi) rather than arriving at the alleged feature set. Early 3G and GPRS-capable phones handled Bluetooth data and UMTS/GPRS traffic in a time-multiplexed fashion, switching between the two in an alternating manner rather than running them simultaneously. EX2017 ¶¶269-271. Further,

Petitioner also alleges a “combination” of N93 and Dua to disclose this limitation. Pet. 13, 38. Petitioner relies on the fact that there is no explicit prohibition in N93 and Dua against simultaneous transfer of video information via Bluetooth while connecting to the Internet via UMTS to positively disclose that this was in fact possible. Pet. 14. But:

This type of circular reasoning cannot be enough to establish a finding of obviousness. In addition, the absence of information cannot enable such a device to be made. As stated above, neither N93 nor Dua disclose or render obvious simultaneous technology. Further, given technological limitations at the time, Petitioners’ and Dr. Creusere’s arguments of what was possible during the time of the invention were not technically possible, beyond the level of ordinary skill, and/or not enabled by the prior art.

EX2017 ¶272.

D. Limitation [11]

Claim limitation [11] requires at least: (a) receiving a signal from the internet indicating that an update for an operating system of the video processing apparatus is available; (b) executing an update process such that an updated operating system of the video processing apparatus is stored in the video processing apparatus after execution of the update process; and (c) executing the update process by the video processing apparatus itself. EX2017 ¶275. N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim limitation [11].

N93 fails to disclose any of these three sub-elements and further, Petitioners fail to provide any evidence or arguments to the contrary. Petitioners only assert that N93 discloses application downloads. *See* Pet. 38. Regarding applications, N93 discloses updating applications using a “pull type system.” *See* EX1010 at 115 (“You can use Nokia Application Installer in Nokia PC Suite to install an application to your device.”). Therefore, N93 only discloses pulling updates (rather than “receiving a signal from the internet indicating that an update” is available) for applications and not its operating system.

N93 further discloses both memory concerns and security concerns with updates. EX2017 ¶278. To wit:

After you install applications to a compatible memory card, installation files (.sis) remain in the device memory. The files may use large amounts of memory and prevent you from storing other files. To maintain sufficient

 **Important:** Only install and use applications and other software from trusted sources, such as applications that are Symbian Signed or have passed the Java Verified™ testing.

See EX1010 at 22, 72.

N93 also discloses a system using tethering to a computer and using a specific program “Nokia PC Suite” for file installation. EX2017 ¶278; EX1010 at 115. Tethered updates offered greater control, reliability, and offline capability compared to OTA updates, which was advantageous during the ’590 Patent's invention period

due to less reliable cellular networks. EX2017 ¶278. Frequent wireless connectivity issues during this time period could interrupt updates and render devices inoperable, discouraging the use of OTA operating system updates. *Id.*

Additionally, implementing OTA operating system updates on devices like the N93 was challenging and beyond ordinary skill during the time of the invention. *Id.* The N93 was inherently unstable, making it difficult to implement updating capabilities at all, including through tethered methods. EX2017 ¶279; EX2036 at 1. Due to these disadvantages, a POSITA would not be motivated to use OTA updates for such devices based on Herle's updating methodology. EX2017 ¶¶279-80. Dr. Creusere failed to evaluate[] the relative strengths and weaknesses specifically of using a delta-based update process versus using some other non-delta-based update process." EX2030 63:21-64:1. But with respect to motivation to combine, the **"benefits, both lost and gained, should be weighed against one another."** That is consistent with the longstanding principle that the **prior art must be considered for all its teachings, not selectively.** *Henny Penny Corporation v. Frymaster LLC*, 938 F.3d 1324, 1331-32 (Fed. Cir. 2019) (citations omitted).

N93 also wholly lacks any mention of **operating system** updates. EX2017 ¶282. Unlike applications, which can be easily updated with minimal impact, the operating system is crucial. *Id.* If it fails, the entire device becomes inoperable. *Id.*

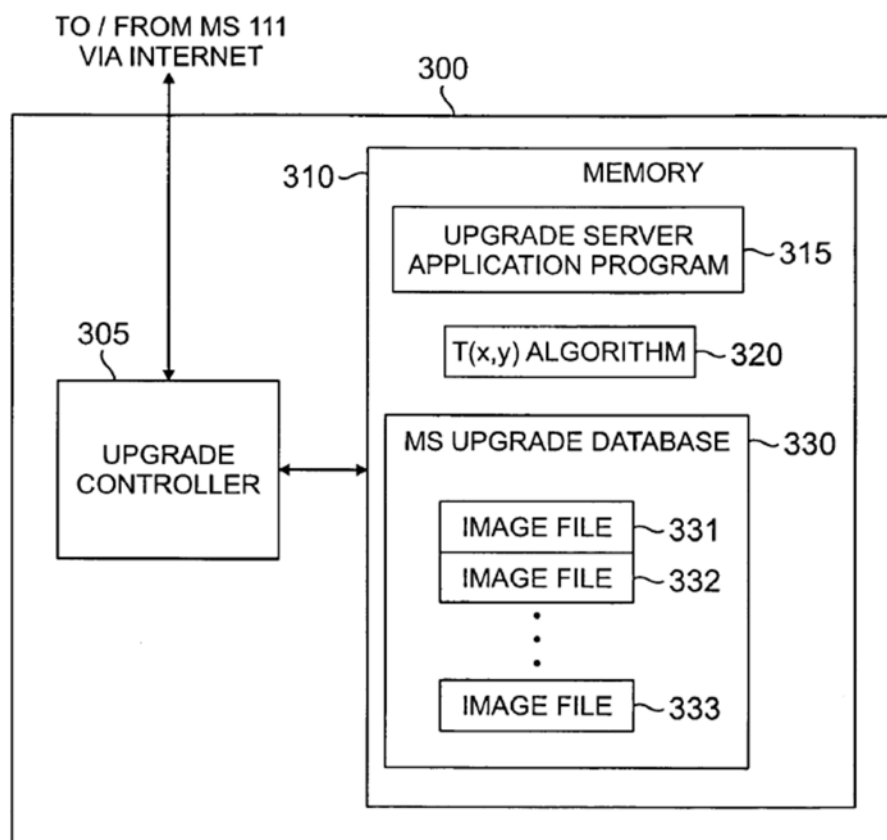
OS updates require reliable data transfer and safe code switching to avoid rendering the device unusable. *Id.*

Dua also fails to disclose [11] with Petitioner failing to provide any evidence or arguments to the contrary. Petitioner merely asserts that Dua's "devices may be 'updated' with new [media processing] capabilities." See Pet. 15-16. Dua discloses updating media capabilities, RFID tags, and data stored in "device profile." EX1008 ¶¶[0143], [0151], [0154]. Dua is completely silent regarding receiving any indication over the internet or updating the **operating system**. Dua further discloses "[k]nown over-the-air techniques for configuration between two devices have also proven to be generally **insecure**." *Id.* ¶[0009].

Based on this, Petitioner fails to establish that it would have been obvious to combine N93, Dua, and Herle, because the Petition fails to map the rationale towards actual claim elements, which are directed to updates to an **operating system**. See Pet. 16. There is no disclosure or any suggestion in N93 or Dua of **updating an operating system**. Instead, they both teach a "secure" environment and teach away from over the air upgrades. See EX1008 ¶[0009]; EX1010 at 72.

Petitioners only allege that N93 and Dua disclose "updating or repairing an existing application" or that Dua's "devices may be 'updated' with new [media processing] capabilities." Pet. 15-16. There is no evidence regarding whether the operating systems in N93 and Dua could be updated at all. In particular, Herle

discusses a device that is much less complex than the devices in N93 and Dua. In this case, “it is unclear why a POSITA would look to Herle to incorporate delta-based over-the-air updates for operating systems for two devices that do not support updates for operating systems...Herle describes improving mobiles devices already capable of performing operating system upgrades.” EX2017 ¶142. Herle also discloses “specific requirements to enable OTA delta updates, including the creation of an ‘upgrade server 300’ with specific software, hardware, and network capabilities. EX2017 ¶¶141, 286; see EX1009 Fig. 3.



EX1009 Fig. 3. “At a minimum, Herle requires provisioning of a specially designed server having an upgrade server application program 315, T(x,y) algorithm 320 to generate change files, an upgrade database 330, and an upgrade controller 305....Next, Herle requires that each mobile station be equipped with a specially programed upgrade control program 262, which requires additional memory resources, and an algorithm program 263 to be able to handle a delta file.” EX2017 ¶142.

“Beyond improper hindsight, there is no motivation to overhaul N93 or Dua’s system to add the option of OTA updates. For example, N93 was a consumer device from Nokia being sold worldwide....In order to have a uniform customer experience, Nokia would need to have servers all over the world to be able to support updates to its operating system. Adding such servers would increase the costs and require a significant infrastructure investment. In addition, given the high number of phones sold, the MS upgrade database 330 would need to have numerous verisons of ‘image files’ 331-333 to be able to accurately generate delta files for a particular device that needs to be updated.” EX2017 ¶143.

“N93 specifically instructs against downloading software that are not Symbian Signed or have passed the Java Verified™ testing, meaning Nokia was averse to having third-party servers host such upgrade programming. Further, Symbian was not an open source operating system until after 2009....Instead, it was

a proprietary operating system with a very complex file structure and features.” *See* EX2017 ¶144; EX2011; EX2012 (“a large OS, containing hundreds of classes and thousands of member functions”).

Servers would need “large amounts of processing resources and memory just to be able to implement Herle’s system and generate delta files. Petitioner has also not explained whether the limited bandwidth of the UMTS/GSM systems of N93 and Dua will be able to handle receiving such delta files over cellular networks.” *See* EX2017 ¶145.

“Similarly, significant computing resources would be needed on the devices of N93 and Dua to determine the differences between the received delta file and the existing operating system, compare them, then execute a process whereby the phone is reimaged with a completely new operating system. N93 specifically recites limited memory resources....There is no explanation by Petitioner how N93 or Dua’s limited memory and/or processor resources would handle such a significant reimaging of the operating system. Additionally, Petitioner fails to reconcile the fact that Dua specifically calls over the air configurations ‘generally insecure.’” EX2017 ¶146; *see* EX1008 ¶[0009].

“Further, historical evidence shows it was not obvious to implement OTA operating system updates for specialized devices like N93 or Dua in light of systems like Herle. For example, development history of the Symbian operating system (the

operating system of N93) refutes Petitioner’s contention that it would have been obvious to combine N93’s teachings with Herle’s teaching of OTA updates for operating system.” EX2017 ¶147; *see* EX2013. “All of this evidence supports my opinion that adding OTA updates to the operating system of Herle into N93 or Dua was not a matter of routine skill. To the contrary, the state of the art at that time shows that updates to closed and proprietary operating systems were not supported at that time in view of memory constraints, network bandwidth concerns, and the desire of entities to limit access to their proprietary operating systems.” EX2017 ¶149.**Error! Hyperlink reference not valid.**

Mr. McNair notes that other specialized devices “also had delays in implementing OTA operating system updates, even in light of delta-based update technology of Herle.” EX2017 ¶148. For example, Apple did not support OTA operating system updates until the release of iOS 5.0 in 2011. *Id.*

Therefore, a POSITA would not find implementing OTA updates to operating system of Herle into N93 or Dua to be a matter of routine skill. EX2017 ¶149. “To the contrary, the state of the art at that time shows that updates to closed and proprietary operating systems were not supported at that time in view of memory constraints, network bandwidth concerns, and the desire of entities to limit access to their proprietary operating systems.” *Id.* Mr. McNair notes

This is confirmed by Herle’s own disclosures because just to achieve

OTA updates, Herle discloses a specialized system with significant investments in network infrastructure that requires specialized servers working in conjunction with specialized software on each device to accomplish this task. To accomplish Herle's disclosure, a system would need to be designed from the start to comply with all of Herle's requirements, which is not something that can be achieved retroactively in a proprietary and close-ended device like N93 or Dua. Petitioner fails to address this evidence or the state of the art of implementing OTA updates in operating systems of proprietary systems, instead just providing a conclusory and hindsight driven analysis.

Id.

Therefore, a POSITA would not have considered it obvious to combine N93, Dua, and Herle.

E. Claim 4

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 4. Claim 4 depends from claim 1. Therefore, claim 4 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 1.

F. Claim 5

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 5. Petitioners rely on the same rationale asserted

for claim 1 in relation to claim limitations [5a]-[5c], [5f]-[5i]. Pet. 42-45. Therefore, claim 5 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 1.

1. [5d]

Further, N93, Dua, and Herle, whether taken alone or in reasonable combination, fails to disclose or render obvious [5d]: “a compression circuit capable of implementing a plurality of compression schemes including a first compression scheme, the compression circuit compressing the video information received by the first radio communication circuit using the first compression scheme.”

Petitioners fail to establish N93 or Dua can compress video that has been “received by the first radio communication circuit” because they only provide evidence in relation to conversion and fail to establish that conversion is the same as compression. EX2017 ¶312. Also, Petitioners fail to provide any evidence that compression would occur for a video received via Bluetooth. *Id.*

“While compression requires conversion, conversion does not require compression. In fact, conversion could result in a new file that requires more bandwidth than the original file.” *Id.*

Petitioners state that N93 that a video “might need to be converted **prior** to sharing.” Pet. 62. This is directed to transmitting a video and fails to describe

converting a video that has been received via Bluetooth. If the video was converted prior to being received by the N93 device, it is unclear why the N93 device would need to convert the video again once the video was received by the N93 device. EX2017 ¶308.

Dua suffers from similar issues. For example, Dua explicitly discusses that a system of exchanging compatibility information that allows the devices to communicate only **supported** media assets to each other. EX1008 ¶¶[0142]-[0143]. For example, Dua states that “[t]his type of information allows media player 100 to **only** transmit assets which are supported by the target device(s).” EX1008 ¶[0143]. Thus, Dua explicitly teaches against converting video files received via Bluetooth, because the exchange of communication prevents the exchange of unsupported file formats. EX2017 ¶310. Dua further states that this “information allows either or both of the target device and media player 100 to convert media assets into supported formats **before transmission to the other** when required.” EX1008 ¶[0143]. Here, Dua teaches that the format of a file is converted **before** transmission, negating a necessity to convert the format of the file after it is received. EX2017 ¶310.

2. [5h]

Petitioners rely on the same rationale for limitation [5h] as [1k]. Pet. 45. Limitation [5k] is therefore non-obvious for the same reasons provided in relation to limitation [1k].

In addition, limitation [5h] specifically recites that “the first radio communication circuit **receives** video information,” which is different from limitation [1k] (where the first radio communication circuit **transmits** video information). EX2017 ¶314. These differences are not appropriately addressed by Petitioners. *Id.* For example, Petitioners do not establish that its proposed examples would work for both transmitting and receiving video information via Bluetooth. EX2017 ¶314. For example, Petitioners state that the use of N93 as a modem to allow a PC to access the internet would disclose or render obvious this limitation. Pet. 36. But Petitioners provide no explanation of how using N93 as a modem would allow for the N93 device to **receive** video information from the PC via Bluetooth. EX2017 ¶315. “The use of the N93 modem is directed to flow of information using the N93 device as a pass-through device towards the PC and does not explain how video information would be transmitted over Bluetooth to the N93 device.” EX2017 ¶315.

Therefore, N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 5.

G. Claims 8-10

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claims 8-10. Petitioners rely on the same rationale asserted above in relation to claims 1 and 5 in relation to claims 8-10. Pet. 45-47.

Therefore, claims 8-10 are non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claims 1 and 5.

H. Claim 11

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claims 8-10. Claim 11 depends from claim 1. Therefore, claim 11 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 1.

Additionally, because claim 11 recites a fourth radio communication circuit, including a fourth transmission frequency band that is different from the first, second, and third transmission frequency bands, and a controller that controls assignment of connection of each of the first, second, third, and fourth radio communication circuits, additional rationale regarding Petitioners' mappings is addressed below.

1. NFC

The specific combination of capabilities in one mobile device during the time of the invention was non-obvious according to the mappings: Bluetooth + UMTS + GSM + NFC (Mapping A), or Bluetooth + UMTS + Wi-Fi + NFC (Mapping B). EX2017 ¶327.

Dua does not disclose or render obvious a device with all these capabilities. Dua was drafted to be as applicable as possible to potential combinations and forward-looking with potential technologies but does not actually enable a device with the specific combination of technologies alleged by Petitioners. EX2017 ¶328. This is reflected by the development history of mobile devices--it was not until 2011 when Samsung had a product with four radio communication circuits that included NFC support. *Id.* If a mobile device did include NFC capability, it did not include the specific combination of other capabilities argued by Petitioners, such as Wi-Fi capability or the ability to connect to UMTS networks. *Id.*

In addition, for the reasons set forth above in relation to limitation [1h], the N93-Dua-Herle combination fails to disclose or render obvious that a controller controls assignment of all four circuits. EX2017 ¶329.

2. GSM

The specific combination of capabilities in one mobile device during the time of the invention was non-obvious according to the Petition's mappings: Bluetooth + UMTS + Wi-Fi + GSM (Mapping B). EX2017 ¶330.

For the reasons set forth above in relation to limitation [1h], the N93-Dua-Herle combination fails to disclose or render obvious that a controller controls assignment of all aged four circuits. EX2017 ¶330.

I. Claim 12

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 12: “The video processing apparatus of claim 1, wherein the third transmission frequency band is different from the first and second transmission frequency bands.” Claim 12 depends from claim 1. Therefore, claim 12 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 1.

Also, Petitioners fail to provide any rationale in relation to its Mapping B. Pet. 49. Therefore, Petitioners have conceded that Mapping B does not disclose or render obvious claim 12.

J. Claims 14-15

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claims 14-15. Claims 14-15 depend from claim 1. Therefore, claims 14-15 are non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 1.

K. Claim 16

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 16. Claim 16 depends from claim 1. Therefore, claim 16 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in

reasonable combination, for at least the same reasons asserted above in relation to claim 1.

Further, claim 16 discusses an **application** update instead of an operating system update. However, Petitioners cite the same rationale as limitation [11]. Pet. 49. Petitioners' rationales are insufficient for the reasons set forth above in relation to limitation [11] and also for the additional reasons below.

N93 only discloses "install[ing] a file that contains an update or repair to an existing application" via using the Nokia Application Installer on a PC. EX2017 ¶343; EX1010 at 115. Therefore, N93 only discloses pulling a file with an update to an application rather than receiving a signal from the internet indicating that an update is available. N93 also discloses that installation is executed by **another** device ("You can use Nokia Application Installer in Nokia PC Suite to install an application to your device") and fails to disclose that the N93 device is executing the application update process itself. EX2017 ¶343; EX1010 at 115.

Dua similarly fails. Petitioner only asserts that Dua only discusses that "devices may be 'updated' with new [media processing] capabilities." See Pet. 15-16. Dua is silent regarding receiving any indication over the internet about an application update. See, e.g., EX1008 ¶¶[0143], [0151], [0154]; EX2017 ¶344. Dua fails to disclose any details about the application update process, such as whether the updated application of the video processing apparatus is stored in the video

processing apparatus after execution of the application update process or whether the multimedia player executes the application update process itself. *See* EX1008 ¶¶[0143], [0151], [0154]; EX2017 ¶344. Also, “Dua does not disclose that the media device of Dua is executing an update process versus using another device to flash Dua, rather than the media device of Dua executing an update process itself.” EX2017 ¶344; EX1008 ¶¶[0143], [0151], [0154].

Further, “[i]t was non-obvious to implement application updates by combining N93, Dua, and Herle. N93, Dua, and Herle could not be combined based on the difficult nature implementing updates in complex devices such as N93, Dua, and Herle.” EX2017 ¶345.

L. Claim 17

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 17. Claim 17 depends from claim 1. Therefore, claim 17 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 1. EX2017 ¶346.

M. Claim 18

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 18: “wherein the second modulation scheme comprises quadrature amplitude modulation (QAM).” Claim 18 depends from claim

1. Therefore, claim 18 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 1.

Additionally, N93, Dua, or Herle do not disclose or render obvious that a mobile device with all the claimed capabilities would use a QAM modulation scheme. As stated above in relation to limitation [1b], Petitioners and Dr. Creusere assert a mapping that applies specifically to **UMTS** networks. Pet. 8. The references cited by Petitioners confirm that QAM is a modulation scheme associated with a **different** technology from UMTS—HSDPA. EX1011 ¶[0010]; EX2017 ¶351. Petitioners have not asserted a combination that involves the modification or combination based on implementing other wireless communication technology (such as support for HSDPA) or account for integrating hardware components that support other wireless communication technology in combination with other claimed features. EX2017 ¶351.

N93 discusses an ability to connect to UMTS networks, but does **not** discuss HSPA (HSDPA or HSUPA) capability. EX1010 at 8. The SAR report further supports that N93 did not have HSPA capability. EX1017 at 4. Just because a modulation scheme was possible in general does not mean that a specific device would be capable of implementing the modulation scheme, particularly in

combination with a plethora of other features due to the limited nature of mobile devices during the time of the invention. EX2017 ¶352.

Dua also does not disclose HSPA capability and as stated previously, HSPA networks are different from UMTS network. EX2017 ¶353. Dua only discloses that in a **preferred** embodiment, a multimedia device would be compliant with all 3GPP and 3GPP2 standards. EX1008 ¶[0069]. Dua was forward looking and attempted to account for different possibilities of technologies that may arise in the future, but failed to enable actual implementation of a device with that technology, particularly in integration with other features. EX2017 ¶353.

Petitioners do not allege a combination of implementing additional technology, such as a cellular modem capable of HSPA. Therefore, QAM would not be obvious in an alleged “UMTS radio communication circuit” in light of N93, Dua, and Herle, as alleged by Petitioners. EX2017 ¶354; Pet. 50.

N. Claim 19

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 19. Claim 19 depends from claim 1. Therefore, claim 19 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 1.

Further, as described above in relation to claim 18, N93, Dua, and Herle do not render obvious use of the QAM modulation scheme. EX2017 ¶357. A POSITA would find it non-obvious to change schemes between QAM and QPSK using a mobile device based on N93, Dua, and Herle's teachings, because there is no QAM modulation scheme disclosed in the first place. *Id.*

O. Claim 20

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 20. Claim 20 depends from claim 1. Therefore, claim 20 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 1.

P. Claim 21

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 21: "The video processing apparatus of claim 1, wherein the second and third radio communication circuits conduct demodulation through Orthogonal Frequency Division Multiplexing (OFDM)." Claim 21 depends from claim 1. Therefore, claim 21 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 1.

Further, Petitioners concede that N93, Dua, and Herle do not disclose or render obvious via its Mapping A theory and only provides rationale in relation to its Mapping B theory. Pet. 50. Petitioners previously excluded OFDM as a modulation scheme for UMTS, but then asserts the theory in relation to this dependent claim. *See, e.g.*, Pet. 8.

It would not be obvious to implement OFDM modulation schemes during the time of the invention in the combination asserted by Petitioners. EX2017 ¶363. OFDM is associated with LTE, a wireless communication standard that was not finalized until late 2008. EX2017 ¶363. Actual LTE base stations and mobile devices implementing LTE technology were not released until years later. *Id.* There was no motivation for a POSITA to create mobile devices for a standard that was not finalized and only based on modulation schemes disclosed in a very preliminary working document during the time of the invention. *Id.*

Additionally, as noted previously, Petitioners explicitly mapped the second radio communication circuit to **UMTS**, not **LTE**. Pet. 8. Dr. Creusere explicitly noted the distinction in his deposition, stating that UMTS does not refer to all 3G network capabilities because and it would only be “approximately correct” to refer to it as such because “[t]here were many variations as the standard progressed from, say, GSM, which is often thought of as 2G to UMTS, which is often thought of as 3G.” EX2030 13:7-16. If there is a distinction between GSM and UMTS from other

enhancements made, such as EDGE, and also other technologies, there is also a distinction with UMTS and LTE. EX2017 ¶364. LTE is even thought of as a different generation than 3G. *Id.* None of N93, Dua, and Herle disclose or render obvious LTE technology. *Id.* N93 discloses only connection to GSM and UMTS networks, while Dua does not contemplate LTE capabilities or OFDM modulation schemes because it only refers to 3G standards and does not enable the implementation of such changes. *Id.* Herle is completely silent regarding LTE. EX2017 ¶364.

As stated by Mr. McNair:

UMTS and LTE are completely different radio access technologies (*e.g.*, OFDM in downlink + SC-FDMA in uplink for LTE versus DS-CDMA for UMTS/W-CDMA), with different frame structures, slot structures, and signal processing. Based on the references cited by the Petitioners and Dr. Creusere, it would be non-obvious to add OFDM mapper and/or OFDM signal generation from LTE into a UMTS device, *e.g.*, a device that complies with TS 25.211. There is no enablement from any of the references on how to implement such features.

A POSITA would have no expectation of success of combining the UMTS system of N93 with the OFDM modulation scheme disclosed in TS 36.211. The following diagrams show the different frame structures, slot structures, and signal processing needed for UMTS versus LTE. A POSITA would have no expectation of success of combining the

UMTS system of N93 with the OFDM modulation scheme disclosed in TS 36.211.

EX2017 ¶¶365-67. Therefore, N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 21.

Q. Claim 22

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 22. Claim 22 depends from claim 1. Therefore, claim 22 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 1.

R. Claim 23

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 23. In relation to this claim, Petitioners rely on rationales provided in relation to claims 1 and 5 for claim limitations [23pre]-[23f], and [23i]-[23m]. Pet. 51, 53. Therefore, claim 23 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claims 1 and 5.

S. Claim 24

N93, Dua, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claims 24-25. Claim 24 depends from claim 23.

Therefore, claim 24 is non-obvious in view of N93, Dua, and Herle, whether taken alone or in reasonable combination, for at least the same reasons asserted above in relation to claim 23.

VI. GROUND 2

A. Combination Rationale

A POSITA would not be motivated to use van Rooyen's and Desai's implementation details and have a reasonable expectation of success in making the combinations. EX2017 ¶377. The references themselves highlight the complexities of combining even two radio communication circuits and describe innovations to implement just two technologies of Petitioners' combination. EX2017 ¶378; *see* EX1012 ¶¶[0007]-[0008]; EX1011 ¶[0017]. Petitioners' proposed combination involves integrating even more multiple radio circuits, along with controller features and other functionality. EX2017 ¶378.

Van Rooyen describes mobile receiver architecture for EU band cellular and broadcasting. EX2017 ¶379; EX1011 ¶[0005]. Van Rooyen focuses on integrating receivers for broadcasting channels in cellular devices and discusses the complexities of integrating multiple wireless technologies and innovation needed to properly integrate channels associated with specific frequencies. EX2017 ¶379. However, van Rooyen does not address Bluetooth communication or simultaneous use of two different radio circuits and therefore does not account for the complexities

in integrating those features or having one controller control assignment in relation to Bluetooth, UMTS, and GSM/Wi-Fi connections. *Id.*

Additionally, Desai also has limited applicability. EX2017 ¶380. Desai is irrelevant to enabling a device that operates on anything other than 2.4GHz frequencies. EX2017 ¶380. Desai is directed to “collaborative coexistence between Bluetooth and IEEE 802.11g with both technologies integrated onto a SOC device.” EX1012 at Abstract. Specifically, Desai is directed to “scheduling transmission of WLAN and Bluetooth signals and not on implementation of ‘radio communication circuits,’ or controlling assignment of ‘radio communication circuits.’ EX2017 ¶380; see EX1012 at Abstract. Desai only addresses coexistence of two transceivers in a single frequency range (2.4 GHz) and fails to address the integration of Bluetooth, UMTS, and GSM/Wi-Fi capabilities all on one device. EX1012 ¶[0004].

The combination of van Rooyen and Desai do not disclose or render obvious how to combine the two systems together to result in the combination alleged by Petitioner. EX2017 ¶382. “Both references discuss the difficulty in integrating specific wireless communication technologies and do not account for integration with each other, especially in relation to a controller that controls assignment in relation to the specific wireless communication technologies.” *Id.*

Further, Petitioners’ combination involves combining references that teach against the combination. For example, Kao teaches against Petitioner’s combination

and support of simultaneous functionality, because it discloses that “in a user terminal supporting multiple standards or multi-mode standards, only one signal modulation format needs to be handled at one time.” EX2017 ¶385; *see, e.g.*, EX1013 ¶¶[0012], [0029]. Kao further teaches against one controller to control three or four radio communication circuits, because it describes that processing for a “mobile phone supporting both GSM-1800 and FDD WDCMA standards” occurs in two different modules. EX2017 ¶385; *see* EX1013 ¶¶[0010], [0011], Figs. 2, 3. “This reflects that one controller does not control any alleged Bluetooth, UMTS, GSM/Wi-Fi circuits because these alleged circuits are controlled separately by different modules.” EX2017 ¶385.

The use of standards such as BT-Spec and 3GPP-Spec to describe characteristics of the specific hardware implementations recited in N93, Dua, Van Rooyen, or Desai is also non-obvious. EX2017 ¶388.

3GPP-Spec was not publicly accessible to a POSITA and further did not disclose or render obvious actual implementations in mobile terminals to support the technologies supported in the general standard, especially in consideration of integration with other features. EX2017 ¶¶388, 394. Furthermore, 3GPP-Spec was an unapproved document that includes an explicit statement against implementation. EX1015 at 1 (“The present document has not been subject to any approval process by the 3GPP Organizational Partners and shall not be

implemented.”). This was a very preliminary working document that a POSITA would not turn to in order to implement the invention. EX2017 ¶394.

Further, “general knowledge of a standard will not disclose the specific frequencies and modulation schemes used for a specific hardware implementation of UMTS, GSM, Bluetooth, or Wi-Fi. EX2017 ¶390. Standards also do not disclose how to make a device compliant with the standards, particularly a device that must be compliant with multiple different standards while including the other alleged features.” EX2017 ¶389.

Further, general standards cannot disclose the inherent properties of a device. Devices are designed in consideration for specific standards and it would not be obvious to replace a device that had different capabilities. Petitioners fail to even argue this type of combination. EX2017 ¶395.

B. Claim Limitations [1d]-[1l] and Claims 4-5, 8-12, 14-21, and 23-25

N93, Dua, Herle, van Rooyen, Desai, BT-Spec, 3GPP-Spec, and Kao, whether taken alone or in reasonable combination, fail to disclose or render obvious claim elements [1d]-[1l] and claims 4-5, 8-12, 14-21, and 23-25. In relation to these elements, Petitioners cite to Ground 1 and Ground 2([1a]-[1c] for circuits). Pet. 59.

Therefore, for at least the same reasons provided for Ground 1 and the combination rationale for Ground 2, N93, Dua, Herle, van Rooyen, Desai, BT-Spec, 3GPP-Spec, and Kao, whether taken alone or in reasonable combination, fail to

disclose or render obvious claim limitations [1d]-[1l] and claims 4-5, 8-12, 14-21, and 23-25.

C. Claim 22

N93, Dua, Herle, van Rooyen, Desai, BT-Spec, 3GPP-Spec, and Kao, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 22. In relation to these elements, Petitioners cite to Ground 1.

Therefore, for at least the same reasons provided for Ground 1, N93, Dua, Herle, van Rooyen, Desai, BT-Spec, 3GPP-Spec, and Kao, whether taken alone or in reasonable combination, fail to disclose or render obvious claim 22. In addition, claim 22 depends from claim 1. Therefore, claim 22 is not disclosed or rendered obvious by N93, Dua, Herle, van Rooyen, Desai, BT-Spec, 3GPP-Spec, and Kao, whether taken alone or in reasonable combination, for at least the same reasons provided above in relation to claim 1.

II. GROUND 3

A. Combination Rationale

For the same reasons asserted above in relation to Ground 1, which address the combination of N93, Dua, and Herle, a POSITA would not combine Dua and Herle. EX2017 ¶401.

B. Claim Limitations [1pre]-[1i], [1k]-[1l]

Dua and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim limitations [1pre]-[1i] and [1k]-[1l]. In relation to these limitations, Petitioners and Dr. Creusere just cite back to Ground 1 and relies on the same rationale applied in Ground 1. Pet. 60. Therefore, for at least the same reasons provided for Ground 1, Dua and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim limitations [1pre]-[1i] and [1k]-[1l].

C. Claim Limitation [1j]

Dua and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim limitation [1j]. A POSITA would not be motivated to combine the two to include “normal user indications.” EX2017 ¶404. Dua explicitly teaches against such “user configuration” and states that these normal user indications “make data exchange between the media devices **insecure** and **time consuming**” and that “[k]nown over-the-air techniques for configuration between two devices have also proven to be generally **insecure**.” EX1008 ¶[0009]. Therefore, Dua **teaches away** from manual user indications and instead teaches a method replacing normal user indications with automatic communication between devices. EX2017 ¶402.

D. Claims 4-5, 8-12, 14-25

Dua and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claims 4-5, 8-12, and 14-25. In relation to most of these claims, Petitioners and Dr. Creusere just cite back to Ground 1. Pet. 63-66. Therefore, for at least the same reasons provided for Ground 1, Dua and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claims 4-5, 8-12, and 14-25.

III. GROUND 4

A. Combination Rationale

For the same reasons asserted above in relation to Ground 1, which combines the same references, a POSITA would not combine Dua, N93, and Herle.

B. Claim Limitations [1pre]-[1i], [1k]-[1l]

Dua, Herle, and N93, whether taken alone or in reasonable combination, fail to disclose or render obvious claim limitations [1pre]-[1i] and [1k]-[1l]. In relation to these limitations, Petitioners just cite back to Ground 1 and rely on the same rationale applied in Ground 1. Pet. 70-71. Therefore, for at least the same reasons provided for Ground 1, Dua, Herle, and N93, whether taken alone or in reasonable combination, fail to disclose or render obvious claim elements [1pre]-[1i] and [1k]-[1l].

C. Claim Limitation [1j]

Dua, N93, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claim limitation [1j]. In relation to this limitation, Petitioners cite back to Ground 1, Ground 3, and states that in addition to Dua's improved user indications, it would have been obvious to a POSITA to implement N93's teachings regarding the normal user indications to transfer video using Dua's video transfers and N93's video transfers. However, this was previously addressed in Grounds 1 and 3—it would not have been obvious to combine Dua's teachings and N93's teachings. EX2017 ¶409.

D. Claims 4-5, 8-12, 14-25

Dua, N93, and Herle, whether taken alone or in reasonable combination, fail to disclose or render obvious claims 4-5, 8-12, 14-25. In relation to most of these claims, Petitioners just cite back to Ground 1. Pet. 71-73. Therefore, for at least the same reasons provided for Ground 1, Dua, Herle, and N93, whether taken alone or in reasonable combination, fail to disclose or render obvious claims 4-5, 8-12, 14-25.

For claim limitations [5g], [9j], [10h], [23k], and claim 17, Petitioners also cite to Ground 3. Therefore, for at least the same reasons provided for Ground 1 and Ground 3, Dua, Herle, and N93, whether taken alone or in reasonable combination,

fail to disclose or render obvious claim elements [5g], [9j], [10h], [23k], and claim 17.

IV. GROUND 5

A. Combination Rationale

For the same reasons asserted above in relation to Grounds 1 and 2, which combines the same references, a POSITA would not combine Dua, Herle, N93, Van Rooyen, Desai, BT-Spec, 3GPP-Spec, and Kao.

B. Claims 1, 4-5, 8-12, 14-25

In relation to these claims, Petitioners state that “Ground 5 relies on the order of combination of the references and evidence set forth in Grounds 3-4. The secondary references added in Ground 5 are relied on for the same reasons they are relied on in Ground 2, which is incorporated herein by reference.” Pet. 73.

Therefore, for the same reasons asserted above in relation to Grounds 1-4, Dua, Herle, N93, van Rooyen, Desai, BT-Spec, 3GPP-Spec, and Kao, whether taken alone or in reasonable combination, fail to disclose or render obvious claims 1, 4-5, 8-12, 14-25.

VII. CONCLUSION

For at least the foregoing reasons, the Board should confirm the patentability of Claims 1, 4-5, 8-12, 14-25.

Patent No. 10,129,590
Patent Owner Response

Dated: March 26, 2025

Respectfully submitted,

/Robert G. Pluta /
Robert G. Pluta (Reg. No. 50,970)
MAYER BROWN LLP
71 S. Wacker Drive
Chicago, IL 60606
Telephone: (312) 701-8641
Fax: (312) 706-8144
rpluta@mayerbrown.com

Amanda S. Bonner (Reg. No. 65,224)
Nicholas H. Ciulla (Reg. No. 78,409)
Saqib J. Siddiqui (Reg. No. 68,626)
Sora Ko (Reg. No. 78,801)
MAYER BROWN LLP
1999 K Street NW
Washington, D.C., 20006
ssiddiqui@mayerbrown.com

Counsel for Maxell, Ltd.

CERTIFICATE OF SERVICE

I hereby certify that on this 26th day of March, 2025, a copy of the attached
PATENT OWNER RESPONSE TO PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 10,129,590, together with all exhibits was served by electronic
mail to the attorneys of record, at the following addresses:

Brian Erickson
Brian.Erickson@us.dlapiper.com

Gianni Minutoli
Gianni.Minutoli@us.dlapiper.com

Roshan K. Bhattarai
Roshan.Bhattarai@us.dlapiper.com

With a courtesy copy by electronic mail to:

dla-samsung-maxell@us.dlapiper.com

Respectfully submitted,

Date: March 26, 2025

By: /Robert G Pluta Reg No 50970/
Robert G. Pluta (Reg. No. 50,970)

Counsel for Maxell, Ltd.

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

Pursuant 37 CFR 42.24(d), the undersigned certifies that this Preliminary Response and complies with the type-volume limitation of 37 CFR §42.24(a). The word count application of the word processing program used to prepare this Preliminary Response indicates that the Preliminary Response contains 13,788 words, excluding the parts of the brief exempted by 37 C.F.R. § 42.24(a).

Respectfully submitted,

/Robert G Pluta Reg No 50970/

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