

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FACEBOOK, INC. and INSTAGRAM LLC,
Petitioner,

v.

SKKY, LLC,
Patent Owner.

Case IPR2017-00687
Patent 9,215,310 B2

Before KARL D. EASTHOM, WILLIAM V. SAINDON, and
CHRISTOPHER PAULRAJ, *Administrative Patent Judges*.

EASTHOM, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Facebook, Inc. and Instagram LLC (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–3 and 5–13 of U.S. Patent No. 9,215,310 B2 (Ex. 1001, “the ’310 patent”). Skky, LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”) to the Petition.

In our Institution Decision (Paper 9, “Inst. Dec.”), we instituted an *inter partes* review of claims 1, 3, 5–10, 12, and 13 of the ’310 patent (“the challenged claims”) on alternative grounds of obviousness over 1) Yukie, Gatherer, Prust, and Frodigh (ground 1), and 2) Yukie, Gatherer, Prust, O’Hara, Tagg, and Pinard (ground 3); and, claim 9 on alternative grounds based on each of those two grounds further in view of Chan (grounds 2 and 4). *See* Inst. Dec. 30.¹

A table of references and evidence relied upon in the Petition follows:

Reference or Declaration	Exhibit No.
Declaration of Tal Lavian, Ph.D. (“Lavian Declaration”)	Ex. 1002
Pinard et al., U.S. Patent No. 5,815,811 (filed Oct. 27, 1995, issued Sept. 29, 1998) (“Pinard”)	Ex. 1003
Yukie, U.S. Patent No. 6,956,833 B1 (filed April 4, 2000, issued Oct. 18, 2005) (“Yukie”)	Ex. 1004
Alan Gatherer et al., <i>DSP-Based Architectures for Mobile Communications: Past, Present and Future</i> , 38:1 IEEE COMMUNICATIONS MAGAZINE 84–90 (2000) (“Gatherer”)	Ex. 1005

¹ Prior to its Preliminary Response, Patent Owner filed a statutory disclaimer disclaiming claim 2 and 11 of the ’310 patent. Prelim. Resp. 6. Accordingly, we did not institute on claims 2 and 11. *See* 37 C.F.R. § 42.107 (“No *inter partes* review will be instituted based on disclaimed claims.”); Inst. Dec. 2.

Frodigh et al., U.S. Patent No. 5,726,978 (issued Mar. 10, 1998) (“Frodigh”)	Ex. 1006
Prust, U.S. Patent No. 6,714,968 B1 (filed Feb. 9, 2000, issued Mar. 30, 2004) (“Prust”)	Ex. 1013
Tagg, U.S. Patent No. 8,996,698 B1 (filed Nov. 3, 2000, issued Mar. 31, 2015) (“Tagg”)	Ex. 1060
Bob O’Hara and Al Petrick, IEEE 802.11 HANDBOOK, A DESIGNER’S COMPANION (1999) (“O’Hara”)	Ex. 1061
Terrence Chan, UNIX SYSTEM PROGRAMMING USING C++ (1997) (“Chan”)	Ex. 1069

See Inst. Dec. 4; Pet. 3, 9–15.

After institution, Patent Owner filed a Response (Paper 12, “PO Resp.”), and Petitioner filed a Reply (Paper 17, “Pet. Reply”). The parties did not request an oral hearing.

This Final Written Decision issues pursuant to 35 U.S.C. § 318(a). For the reasons set forth below, Petitioner has shown by a preponderance of the evidence that claims 1, 3, 5–10, 12, and 13 of the ’310 patent are unpatentable.

A. Related Proceedings

The parties indicate that the following district court case involves the ’310 patent: *Skky, LLC v. Facebook, Inc.*, No. 16-cv-00094 (D. Minn., filed Jan. 15, 2016). Pet. 1; Paper 3, 2–3. The following petitions for *inter partes* review or covered business method review relate to the instant proceeding:

Case No.	Involved U.S. Patent No.
IPR2014-01236	U.S. Patent No. 7,548,875
IPR2017-00088	U.S. Patent No. 9,124,718
IPR2017-00089	U.S. Patent No. 9,118,693
IPR2017-00092	U.S. Patent No. 9,124,717
IPR2017-00097	U.S. Patent No. 8,892,465
IPR2017-00550	U.S. Patent No. 9,037,502
IPR2017-00641	U.S. Patent No. 9,203,956
IPR2017-00685	U.S. Patent No. 9,203,870

IPR2017-00602	U.S. Patent No. 9,219,810
CBM2016-00091	U.S. Patent No. 9,037,502
CBM2017-00002	U.S. Patent No. 9,203,870
CBM2017-00003	U.S. Patent No. 9,219,810
CBM2017-00006	U.S. Patent No. 9,215,310
CBM2017-00007	U.S. Patent No. 9,203,956

See Paper 3, 2–3. The Board denied institution in each of the covered business method reviews after Patent Owner disclaimed claims having a financial component or disclaimed all claims. The Board also denied institution in IPR2017-00641 in view of Patent Owner’s disclaimer of the challenged claims. The Board issued final written decisions in IPR2014-01236, IPR2017-00088, IPR2017-00089, IPR2017-00092, and IPR2017-00097.²

B. The ’310 Patent

The ’310 patent discloses delivering audio or visual files, which may represent songs, films, or other recordings, from one or more servers wirelessly to an electronic device. Ex. 1001, [57]. The system may transmit the files in a compressed format, and the electronic device receives and plays the files on demand by a user. *Id.* The system employs a transmitter and receiver that use an orthogonal frequency-division multiplex (“OFDM”) modulation technique to transfer the files. *Id.* at 16:57–17:40, Fig. 5.

² The U.S. Court of Appeals for the Federal Circuit affirmed the Board’s decision in IPR2014-01236, finding claims 1–3, 5, and 15–23 of U.S. Patent No. 7,548,875 B2 unpatentable. *Skky, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014, 1016 (Fed. Cir. 2017).

C. Illustrative Claims

Independent challenged claim 1, from which challenged claims 3 and 5–9 depend, follows:

1. A method for wirelessly transmitting over a cellular network a data file between a cellular phone and a server, the server comprising a non-transitory virtual storage locker, the method comprising:

creating the virtual storage locker associated with the cellular phone;

receiving a data file from the cellular phone, said cellular phone including a receiver and a digital signal processor configured for receiving and processing data files transmitted by orthogonal frequency-division multiplex modulation;

storing, in the virtual storage locker, the data file received from the cellular phone;

receiving a request for the data file;

and providing for the transmission of the data file to the cellular phone using orthogonal frequency-division multiplex (OFDM) modulation in response to the received request from the cellular phone.

Ex. 1001, 32:62–33:12.

Independent challenged claim 10, from which challenged claims 12 and 13 depend, tracks claim 1 with similar limitations, as follows:

10. A system for wirelessly transmitting a digital data file to a cellular phone, the system comprising:

a server including a non-transitory virtual storage locker configured to store a plurality of data files; and

a cellular communication network operably coupling the server and the cellular phone, said cellular phone including a receiver and a digital signal processor configured for receiving and processing files transmitted by orthogonal frequency-division multiplex modulation wherein the server is configured to:

create the virtual storage locker associated with the cellular phone;

receive a data file from the cellular phone over the communication network, store, in the virtual storage locker, the data file received from the cellular phone,

receive a request for the data file over the cellular communication network, and

providing for the transmission of the data file over the cellular communication network using orthogonal frequency-division multiplex modulation in response to the received request.

Id. at 34:3–23.

D. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1, 3, 5–8, 10, 12, and 13 are unpatentable under 35 U.S.C. § 103(a) based on the following alternative grounds:

1) Yukie, Gatherer, Prust, and Frodigh; and 2) Yukie, Gatherer, Prust, O’Hara, Tagg, and Pinard. Pet. 3. Petitioner asserts that claim 9 is unpatentable under 35 U.S.C. § 103(a) based on the following alternative grounds: 1) Yukie, Gatherer, Prust, Frodigh, and Chan; and 2) Yukie, Gatherer, Prust, O’Hara, Tagg, Pinard, and Chan. *Id.*

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner’s declarant, Tal Lavian, Ph.D., states that a person of ordinary skill in the art would have had “at least a bachelor’s degree in computer science, computer engineering, or electrical engineering (or equivalent degree or experience) with at least four years of experience with wireless communications systems and at least two years of experience with the communication of digital media.” Ex. 1002 ¶ 15. Patent Owner does not provide a definition of the level of ordinary skill in the art. Patent Owner also does not dispute Dr. Lavian’s definition. Based on the evidence of record, including the types of problems and solutions described in the

'310 patent and the asserted prior art, we agree with and adopt Dr. Lavian's definition of the level of ordinary skill in the art. *Id.* ¶¶ 15–17.

B. Claim Construction

The Board interprets claims of an unexpired patent using the broadest reasonable interpretation in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–45 (2016). “Under a broadest reasonable interpretation, words of the claim must be given their plain meaning, unless such meaning is inconsistent with the specification and prosecution history.” *TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1062 (Fed. Cir. 2016). An applicant may provide a different definition of the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In the absence of such a definition, limitations are not to be read into the claims from the specification. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993). Regardless of the standard employed, nothing in this record indicates that a district court claim construction standard would alter the outcome here.

Constructions of “cellular network”/ “cellular communication network,” “virtual storage locker,” and “processing” follow. No other claim terms require express construction to resolve the parties' disputes regarding the asserted grounds of unpatentability. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

1. “cellular network”/“cellular communication network”

The preamble of claim 1 recites “[a] method for wirelessly transmitting over a cellular network a data file between a cellular phone and a server.” Claim 10, a system claim, recites “a cellular communication network operably coupling the server and the cellular phone.” The parties address “cellular network” and “cellular communication network” as meaning the same thing. *See* Pet. 6–7; PO Resp. 13.³

Petitioner asserts that a “cellular network” and “cellular communication network” each is a “network in which wireless communications are provided through a series of ‘cells,’ each cell providing network access for a particular geographic area.” Pet. 6–7. Effectively, Petitioner’s proposed construction seeks “cellular network” to include its “colloquial[]” meaning (the networks provided by “large scale commercial cellular telephone providers”) and its “technical definition” (which would include other radio wavelengths, such as specified under the IEEE 802.11 standard, more commonly known as “WiFi”). *Id.* Petitioner contends the ’310 patent neither defines nor limits the term. *Id.* at 6.

Petitioner relies, *inter alia*, on the testimony of its expert, Dr. Lavian (Ex. 1002 ¶¶ 63–64), and on one of Patent Owner’s related patents (Ex. 1074, U.S. Patent No. 8,892,465, claims 9–11). *Id.* at 6–7 & n.2. Dr. Lavian, in turn, cites to Pinard (Ex. 1003), which explicitly refers to a “cellular network” as relating to a “local area wireless network including a

³ In other words, the parties appear to assume a “cellular network” as recited in the preamble of claim 1 carries weight. The Institution Decision proceeds under the same assumption. *See* Inst. Dec. 5–6. Absent input on the issue by the parties, and given our holding of unpatentability, no good reason exists to deviate from that assumption at this late stage of the trial.

plurality of mobile units and plurality of access points.” Ex. 1003, 1:21–25; Ex. 1002 ¶ 65 (citing the IEEE 802.11 wireless access point standard). The Petition and Dr. Lavian also cite to a host of dictionaries supporting his position. Pet. 7 (citing Exs. 1055–59, 1067–68); Ex. 1002 ¶ 63 (same).

Patent Owner contends “Petitioners’ interpretation of ‘cellular network’ is unreasonably broad.” PO Resp. 12. Nevertheless, Patent Owner does not contend that the term “requires an explicit construction” “beyond the broadest reasonable interpretation.” *Id.* at 12. Patent Owner also does not provide an explicit claim construction for the term. *See id.*

Patent Owner contends Petitioner admits the term “cellular network” includes a colloquial meaning “understood by the lay public,” and contends further Petitioner improperly expands the colloquial meaning to include Wi-Fi and other types of communications. *Id.* at 10. Nevertheless, Petitioner does not rely on a colloquial meaning. Rather, Petitioner simply explains, as background, that “[t]he term ‘cellular network’ is often colloquially understood by the lay public as referring to large scale commercial cellular telephone providers, such as AT&T, [but] the term has a more precise and technical definition to persons of ordinary skill in the art.” Pet. 6 (emphasis omitted) (citing Ex. 1002 ¶ 63).

As Petitioner argues, the ’310 patent does not specify that a cellular network excludes a Wi-Fi or other similar “short-range” communications from being part of such a cellular network (see Pet. 6), and Patent Owner does not contend it does in a clear fashion (see PO Resp. 12 (not relying on the ’310 patent or any evidence), 32 (equating Wi-Fi and “short-range” wireless without specifically contending the ’310 patent excludes either one from being part of a cellular network)). Rather, the ’310 patent generally

describes extending the “playback capabilities of the present invention to existing landline and cellular telephones.” Ex. 1001, 2:54–55. It also describes as part of the invention, without limitation as to either short- or long-range wireless technology, generally downloading items that appear to be operable via short-range or long-range technology: “sound and/or image files by other electronic devices, such as home phones, computers, pagers, doorbells, alarms, palm pilots, watches, clocks, PDAs etc.” See *id.* at 3:11–14.

In general, the specification describes “an improved method for delivery and play back of sound and image files.” Ex. 1001, 1:63–64. The improvement involves files distributed to a cell phone, largely for use to be played in lieu of the traditional ringing sound. *Id.* at 1:22–60 (discussing ring tones), 2:22–39 (ring tone embodiment); see also, e.g., *id.* at 4:65–66 (“method . . . us[ing] . . . sound and or image clips as alerts”), 5:22–24 (“snippets . . . to be used for sound and/or image alerts in electronic devices”). A section describing the transmission system (*id.* at 12:32–14:11) generically describes a “cellular network infrastructure” (*id.* at 13:35).

An example of cellular phone transmission (*id.* at 14:11–16:28) concerns the ability of the phone to play sounds in conjunction with caller ID (*id.* at 14:28–16:29), consistent with the ’310 patent’s focus on ring tones. The specification addresses details for OFDM transmission of data over the *audio* channel of a wireless *landline* phone. *Id.* at 16:29–62 (describing use of OFDM for data transmission when sending data over an audio channel of landline). However, when discussing transmission for a cellular phone, the “server . . . uses a modulation protocol compatible with the protocol supported by the cellular network provider.” *Id.* at 18:66–19:1;

see also id. at 19:34–35 (“using one of the standard modulation protocols supported by the cellular provider”), 19:58–60 (same), 20:25–26 (same).

Accordingly, the ’310 patent does not direct itself to unique technical implementations for a cellular network, but rather relies upon the expected knowledge of the person of ordinary skill in the art. Similarly, the specification describes a cell phone in usual terms. *See id.* at 25:46–26:11. Taking into account the specification as a whole, it does not import or imbue a special meaning to the term “cellular network”; rather, the specification employs “cellular network” as a familiar term for a person of ordinary skill in the art. *See Paulsen*, 30 F.3d at 1480 (“Here, the specification . . . does not clearly redefine the term ‘computer’ such that one of ordinary skill in the art would deem it to be different from its common meaning.”).

As the Petition points out, claim 10 in a related patent bearing a common specification with the ’310 patent recites a limitation of “the server and the wireless telephone . . . further operably coupled by a WI-FI data channel,” and claim 11 of that related patent recites “wherein the WI-FI data channel utilizes . . . OFDM[] modulation.” *See* Pet. 7–8 n.2 (quoting claims 10 and 11 of U.S. Patent No. 8,892,465 (Ex. 1066)). Testimony by Dr. Lavian, citing the prior art of record and international standards, generally shows that artisans of ordinary skill knew that Wi-Fi connections occurred via cells at access points for wireless connections to cell phones. *See, e.g.*, Ex. 1002 ¶¶ 57–68; *infra* Section II.D.

In summary, the record supports Petitioner’s claim construction of a “cellular network.” *See* Pet. 6–7 & n.2 (citing Ex. 1002 ¶¶ 21, 63–64; Exs. 1055–59; Ex. 1066); Pet. Reply 8–9. Petitioner’s evidence demonstrates persuasively how a person of ordinary skill in the art would construe the

term “cellular network.” Petitioner also shows the ’310 patent does not define the term “or limit the term to a particular technology.” Pet. 6.

Accordingly, based on the respective positions of the parties and a review of the record, a “cellular network” is “network in which wireless communications are provided through a series of ‘cells,’ each cell providing network access for a particular geographic area.”⁴ See Pet. 6–7.

2. “virtual storage locker”

The preamble of claim 1 recites “the server comprising a non-transitory virtual storage locker.” The body of claim 10 recites “a server including a non-transitory virtual storage locker configured to store a plurality of data files.” Petitioner contends a “virtual storage locker” is a “storage area associated with a user.” Pet. 8–9 (emphasis omitted) (citing Ex. 1001, 8:33–44 to support its construction). The ’310 patent specification cited by Petitioner describes a “virtual personal locker or storage area for storing a selection of clips personal to a user.” Ex. 1001, 8:33–36. As Petitioner also argues, the “specification does not use the term ‘virtual storage locker’ or provide a definition.” Pet. 8.

Patent Owner asserts “Petitioners’ interpretation of ‘virtual storage locker’ is . . . unreasonably broad.” PO Resp. 13. Patent Owner contends “[a]s the specification explains, a storage locker has two physical components: a storage chip and a server.” *Id.* (citing Ex. 1001, 12:36–41). Patent Owner does not provide any further explanation as to how to construe a “virtual storage locker.” *Id.*

⁴ The claim construction of a “cellular network” only arises tangentially with respect to one of the grounds discussed below. See *infra* Section D.

In any event, contrary to Patent Owner’s characterization of the alleged disclosed storage locker as including server and chip components, the cited passage states “[t]he *system* is described in terms of two main components: a storage chip 104, and a server 106.” Ex. 1001, 12:36–37 (emphasis added). Also, claim 1 refers to “*the server* comprising a non-transitory virtual storage locker” (emphasis added), and claim 10 recites a similar limitation, whereas described chip 104 *attaches to* telephone 102. See *id.* at 12:33–41. Accordingly, the ’310 patent specification does not support Patent Owner’s characterization of a virtual storage locker as requiring a server and a chip. See also Pet. Reply 18–19 (making a similar point). Rather, the specification supports Petitioner’s construction as indicated above. See Ex. 1001, 8:33–36 (describing a “virtual personal locker or storage area for storing a selection of clips personal to a user”); Pet. 8 (quoting Ex. 1001, 8:33–44 and arguing “[t]he patent . . . describes a ‘virtual personal locker’ as a storage area associated with a particular user for storing files”).

Accordingly, based on the respective positions of the parties and a review of the record, a “virtual storage locker” is a “storage area associated with a user.”

3. “processing”

Claims 1 and 10 recite “a digital signal processor configured for receiving and processing data files transmitted by orthogonal frequency-division multiplex modulation.”

Patent Owner requests that the Board construe the claim term “processing” as “preparing a digital audio and/or visual file for storage in memory and playback.” PO Resp. 14. In the Institution Decision, we

determined the term “processing” does not require an express construction. *See* Inst. Dec. 5–7. Patent Owner presents the same arguments in its Response that we considered in the Preliminary Response. *Compare* PO Resp. 14–16, *with* Prelim. Resp. 8–10.

For example, Patent Owner cites a disclosed sound clip example to support its construction of “processing.” PO Resp. 15 (citing Ex. 1001, 18:45–49). Patent Owner also cites extrinsic evidence as supporting it and showing “[a]t the time of invention, it was common to transfer digital data on the Internet using TCP/IP.” *Id.* at 15 (citing Ex. 2003, 16 (“Transmission Control Protocol/Internet Protocol (TCP/IP) is a suite of protocols that enable networks to be interconnected. TCP/IP forms the basic foundation of the Internet.”)).

Contrary to the proposed construction, challenged claims 1 and 10 do not specify processing audio or visual files in particular, let alone any requirement for either storage or playback of audio or visual files. “[A]lthough the specifications may well indicate that certain embodiments are preferred, particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments.” *Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994). Accordingly, the record does not indicate that “processing” must be limited as argued by Patent Owner, even if a certain embodiment discloses certain features and processing covers those features.⁵ Also, Patent Owner does not explain how or why the use of

⁵ Construing “processing” as recited in similar claims of related patents having a common disclosure with the ’310 patent, other PTAB panels consistently have indicated what the claim may include without construing

TCP/IP, and other extrinsic evidence cited, relates to the ordinary meaning of processing in the context of the specification, the claims, and Patent Owner’s proposed construction. *See* PO Resp. 14–16.

As Petitioner persuasively argues, Patent Owner’s proposed construction would exclude other examples of processing in the ’310 patent specification. *See* Reply Br. 9–10 & n.3 (citing Ex. 1001, 14:8–61 (processor performs all manner of tasks)); Ex. 1001, 14:51–53 (“[P]rocessor 300 executes the device firmware, provides control for all other blocks and performs the computational tasks for the board 203.”), 14:53–63 (listing myriad processing functions, including, in general, “performance of other auxiliary functions”). Accordingly, the ’310 specification verifies that the ordinary meaning of the term “processing” includes many cell phone functions.⁶

C. Obviousness of Claims 1, 3, 5–8, and 10, 12, and 13 over Yukie, Gatherer, Prust, and Frodigh, Ground 1

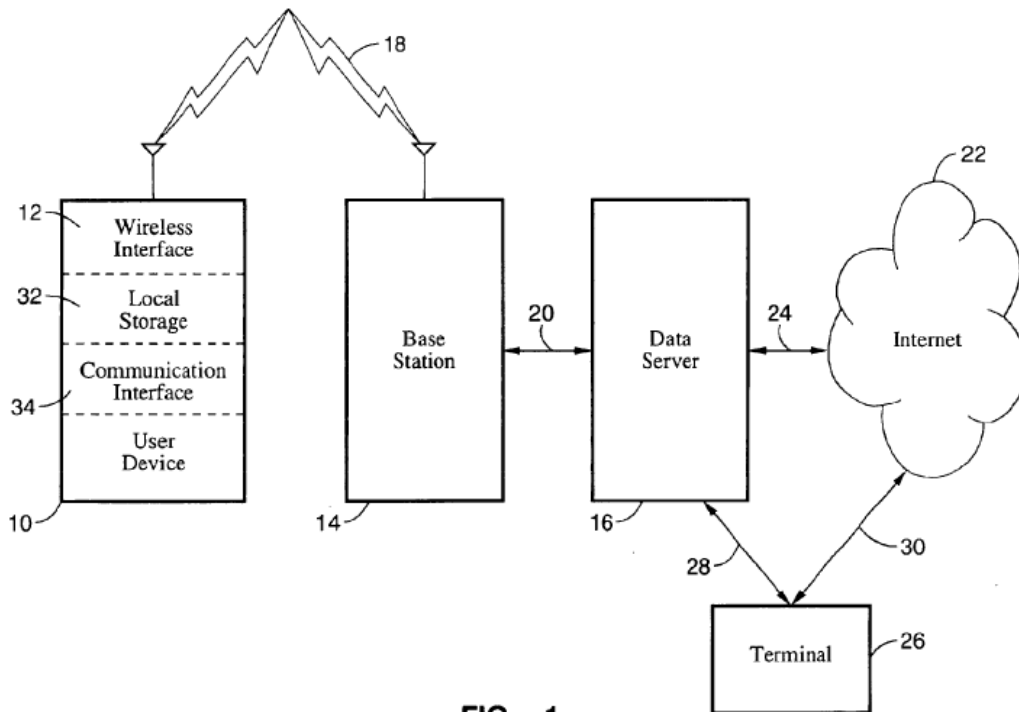
Petitioner argues that claims 1, 3, 5–8, 10, 12, and 13 would have been obvious over Yukie, Gatherer, Prust, and Frodigh pursuant to ground 1. *See* Pet. 3. For the reasons discussed below, Petitioner demonstrates a reasonable likelihood of prevailing in showing that claims 1, 3, 5–8, 10, 12, and 13 would have been obvious over Yukie, Gatherer, Prust, and Frodigh.

the term explicitly. *See, e.g., Facebook, Inc. v. Skky, LLC*, Case IPR2017-00602, slip op. at 7 (PTAB April 25, 2018) (“‘processing’ include[s] preparing a digital audio and/or visual file for storage in memory and playback,” “may include other functions,” and “further construction of the term ‘processing’ is not necessary”) (Paper 29).

⁶ As discussed further below, Petitioner also persuasively contends that the prior art teaches “processing” even under Patent Owner’s narrow construction. *See* Pet. Reply 10.

1. Overview of Yukie, Gatherer, Frodigh, and Prust

Yukie describes a method by which a “user device 10 establishes a wireless connection to data server 16 and sends data to data server 16 for storage and later access by user device 10.” Ex. 1004, 4:23–26. Figure 1 of Yukie follows:



Yukie’s Figure 1 illustrates user wireless device 10 with wireless interface 12 and local storage 32 for connecting to base station 14 to access server 16 and Internet 22. *See id.* at 10:40–11:6. Device 10 includes “a telephonic communication device such as a . . . cellular phone.” *Id.* at 10:41–42. User device 10 may include “audio input and output components, available for telephony functions for audio recording and playback.” *Id.* at 11:13–19. Yukie’s wireless connection can be “implemented in various ways,” including via “readily available wireless internet protocol (IP) networks,” using “an IP packet switch” connection type, “a high speed

broadband connection suitable for transmission of audio and video data,” and additional “different wireless systems suitable for the connection, such as analog cellular systems.” *See id.* at 5:14–29. Other types of data stored on “local storage media 32” include “directories, documents, or data downloaded from the Internet.” *Id.* at 10:64–66.

Gatherer discloses digital signal processors (“DSPs”). Ex. 1005, 4.⁷ Gatherer states “[p]rogrammable DSPs are pervasive in the wireless handset market for digital cellular telephony.” *Id.* at Abstract. Gatherer also explains “DSPs will continue to play a dominant, and in fact increasing, role in wireless communications devices.” *Id.*

Frodigh discloses “[a] method and system of adaptive channel allocation in a frequency division multiplexed system.” Ex. 1006, [57]. Frodigh teaches that frequency division multiplexing (“FDM”) applies to cellular systems, and that orthogonal frequency division multiplexing (“OFDM”) “is a particular method of FDM that is particularly suited for cellular systems.” *Id.* at 1:59–63. Frodigh also states “OFDM offers several advantages that are desirable in a cellular system.” *Id.* at 2:38–39. Specifically, Frodigh explains that using OFDM creates an “overall spectrum . . . close to rectangular,” which “results in efficient use of the bandwidth available to a system.” *Id.* at 2:40–42. Also, OFDM “reduc[es] intersymbol interference” due to multipath delays caused by scattering from buildings and other structures. *Id.* at 2:42–60.

Prust’s system provides “seamless access to remote data storage areas” with “a plurality of virtual storage areas.” Ex. 1013, [57]. Figures 2

⁷ Page citations refer to the page numbers added to the bottom of Exhibit 1005 by Petitioner. The Petition cites to original page numbers of Gatherer.

and 6 of Prust show a conventional web browser embodiment on client computer 205 with which “the user can browse the directories within virtual storage area 225 and can perform many common file management operations including uploading, downloading and deleting files, as well as creating and removing directories.” *Id.* at 7:3–6; *see id.* at 6:59–7:6, Fig. 2.

In Prust’s storage system,

[s]torage server 210 stores attached files 705 to the target directory within the appropriate virtual storage area 225 assigned to the user. In this manner, the user is able to email one or more files directly into a specified directory within virtual storage area 225 from any remote location via network 215.

Id. at 7:21–26; *see id.* at Fig. 2, Fig. 7.

2. Petitioner’s Initial Showing

The preamble of claim 1 recites “[a] method for wirelessly transmitting over a cellular network a data file between a cellular phone and a server, the server comprising a non-transitory virtual storage locker.” Claim 1 also recites “creating the virtual storage locker associated with the cellular phone” and “receiving the data file from the wireless device.”

Petitioner relies on Yukie’s disclosure of allowing a user to upload and retrieve data to and from a remote server wirelessly, using a “cellular phone” or telephonically enabled personal digital assistant (PDA). Pet. 16 (citing Ex. 1004, 2:31–41, 3:42–48, 10:41–43, 16:64–17:6). Petitioner also relies on Yukie’s disclosure of user wireless cellular device 10 sending different types of data to data server 16 for storage and later access by user device 10. *Id.* at 30 (citing Ex. 1004, 2:31–41, 4:23–26). For example, Petitioner identifies uploading and downloading audio and other file data types for storage at server 16. *See id.* at 16 (citing Ex. 1004, 11:16–22). As Petitioner shows, Yukie’s cellular device 10 performs various functions,

including storing and accessing different data on server 16, via a wireless cell network, including audio, video, and a combination of audio with video. *See* Ex. 1004, 10:64–11:30, Figs. 1, 2; Pet. 16, 30.

Regarding the non-transitory virtual storage locker limitations, Petitioner provides evidence that Yukie and/or Prust teach or suggest the limitation. Pet. 20–29 (citations omitted). Petitioner points out “Yukie discloses that data server 16 may be ‘a personal server of the user for storing a user’s personal data files,’ and ‘can be secure, such as by using encryption and/or password access, to protect the user’s data.’” *Id.* at 20–21 (quoting Ex. 1004, 4:1–4). Petitioner states Figure 6 of Prust “shows a web browser embodiment in which ‘the user can browse the directories within virtual storage area 225 and can perform many common file management operations including uploading, downloading and deleting files, as well as creating and removing directories.’” *Id.* at 22 (quoting Ex. 1013, 7:3–6, citing Ex. 1002 ¶ 87).

Petitioner provides persuasive reasons for combining Prust with Yukie to support its challenge, including allowing several users to store files on data server 16 while maintaining security and privacy of a personal server. *See id.* at 23–24 (citing Ex. 1002 ¶¶ 91–92; Ex. 1004, 4:1–4, 10. 50–51, 20:54–56; Ex. 1013, 1:20–22, 6:58–60). Supporting the showing, Petitioner contends “Yukie itself confirms that data server 16 may be ‘accessible to multiple users for storage’ (Yukie, 4:4–6), and that files stored on data server 16 may be organized by author or owner (*id.*, 20:54–56).” *Id.* at 24.

Claim 1 recites “said cellular phone including a receiver and a digital signal processor.” Petitioner relies on Yukie’s disclosure of cellular phone device 10, as a including a transmitter, receiver, and/or transceiver for bi-

directional communications, and further including a processor, but acknowledges “Yukie does not expressly disclose that the cell phone includes a ‘digital signal processor.’” *Id.* at 30–31 (emphasis omitted) (citing Ex. 1004, 3:56–57, 5:9–12, 10:41–49).

Addressing the recited digital signal processor (“DSP”), Petitioner contends

[d]igital signal processors (DSPs) were well-known to persons of ordinary skill in the art, and it was also known that cell phones of the sort disclosed in Yukie could include a digital signal processor. (Lavian, ¶ 110.)

This is confirmed by Gatherer, which explains that “[p]rogrammable digital signal processors (DSPs) are pervasive in the wireless handset market for digital cellular telephony.” (Gatherer, at p. 84, left column.) Gatherer identifies a number of cell phone functions that could be performed by a DSP, including basic phone functions such as voice coding. (*Id.*, at p. 84, right column; *id.*, p. 85, Figs 1 & 2 (listing a number of typical DSP functions including vocoding, speech coding, noise suppression, echo cancellation, demodulating, etc.).) Gatherer therefore discloses a cell phone including a DSP. *Id.* at 32 (emphasis omitted) (citing Ex. 1005, 4–5).⁸

Petitioner provides evidence supporting a number of rationales for suggesting the use of a DSP as a substitute for the more generic processor disclosed by Yukie, including flexibility in programming, cost, commercial availability, and ability to respond to evolving standards for a variety of applications, including MP3 and video decompression. *See id.* at 31–32 (citing Ex. 1002 ¶¶ 112–116; Ex. 1005, 4–6).

⁸ Page number citations herein refer to page numbers provided by Petitioner on the bottom of the pages of Exhibit 1005 (Gatherer). Petitioner cites to original pages in Gatherer (so that pages 4–9 as cited herein respectively correspond to original pages 84–89 as cited by Petitioner).

Claim 1 recites “configured for receiving and processing data files transmitted by orthogonal frequency-division multiplex modulation.” It also recites the following related OFDM clause: “providing for the transmission of the data file to the cellular phone using orthogonal frequency-division multiplex (OFDM) modulation in response to the received request from the cellular phone.” Acknowledging Yukie does not disclose OFDM modulation, Petitioner relies on Yukie for its teachings related to receiving, processing, and requesting data from server 16 via cellular device 10 (which includes a cellular phone embodiment). *See* Pet. 33 (citing Ex. 1004, 4:23–26, 2:31–41, 11:2–6, 13–22). Yukie teaches that user device 10 requests and downloads modulated data content from server 16 including video, audio, and generic data, for playback and other uses. *See* Ex. 1004, 3:42–48, 7:14–20, 8:2–7, 8:49–56, 10:41–43, 11:2–6; 16:64–17:6; Pet. 33 (citing Ex. 1004, 4:23–26, 2:31–41, 11:2–6, 13–22).

Petitioner identifies evidence indicating that Frodigh teaches using OFDM modulation to transmit voice and data to a mobile station in a cell system. Pet. 33–36 (citing Ex. 1006, 1:59–2:18, 7:51–63, 8:1–14, 8:33–63, Fig. 3C, Ex. 1002 ¶ 119), 46–47 (citing Ex. 1002 ¶¶ 90–95, 110, 125–126, 1006, 7:53–57). Petitioner provides a number of rationales for employing OFDM modulation, citing efficient use of bandwidth, reduction of multipath interference, reduction of intersymbol interference, and multiple access functionality (a known cell feature requirement). *See* Pet. 33–35 (citing Ex. 1002 ¶¶ 120–122; Ex. 1006, 2:38–60). Petitioner also provides persuasive rationale supporting its challenge that the combination suggests configuring Yukie’s cellular telephone to include a DSP and receiver to handle OFDM modulation. *See* Pet. 35–40 (citations omitted).

For example, Petitioner identifies evidence indicating that Yukie, Frodigh, and Gatherer all relate to delivering data wirelessly to cell phones. *Id.* at 33–40 (citing Ex. 1002 ¶¶ 34–37, 129–132; Ex. 1004, 4:23–26, 2:31–41, 8:34–35, 11:2–6, 11:13–22; Ex. 1005, 4, 5, Ex. 1006,); *see also* Ex. 1006, 1:13–29, 59–66, 2:38–50 (describing cellular systems with mobile stations implementing OFDM). Petitioner also identifies evidence indicating that DSPs were known to have provided flexibility and processing power to handle technology improvements in cell phones, including with respect to all manner of digital signal modulation types, including OFDM modulation, thereby motivating a person of ordinary skill in the art to implement the cellular phone and media player of Yukie using a DSP. *See* Pet. 33–44; Ex. 1002 ¶¶ 34–37 (citing references and patents showing OFDM as known for advantageous use in wireless and cellular systems), 129–130 (citing references showing DSPs employed with OFDM).

Petitioner also sets forth a detailed and persuasive analysis addressing the remaining claim limitations in independent claim 1, similar independent claim 10, and limitations in dependent claims 3, 5–8, 12, and 13. *See* Pet. 15–53. Petitioner’s showing with respect to claim 1 persuasively tracks its showing for similar claim 10. *Id.* at 49–52. Petitioner articulates reasons supporting its challenge, based on the combination of teachings, showing the obviousness of each of the challenged claims as a whole. *See id.*

An analysis of Petitioner’s showing with respect to dependent claims 3, 5–8, 12, and 13 reveals they recite additional features of cellular systems taught by the cited prior art. *See id.* For example, claim 3 recites the use of a second cellular phone—reciting “[t]he method of claim 1, wherein receiving the request for the data file comprises receiving the request from a

second cellular phone, and wherein transmitting the data file based on the received request comprises transmitting the data file to the second cellular phone using OFDM modulation.” Petitioner shows that Yukie discloses a user with multiple wireless devices, and shows that Yukie, as modified by Gatherer, Prust, and Frodigh would have rendered obvious using a second cellular phone by one or more users as claim 3 recites. *See* Pet. 43–44 (citations omitted).

Claims 5–7 add features related to displaying and listing data files in specified orders, for example, alphabetical and chronological order. Petitioner persuasively relies on Prust as suggesting these features in order to improve the interface of Yukie’s display for readily accessing the files, among other reasons. *See* Pet. 44–48 (citations omitted). Claim 8 recites storing at least a portion of the data file on the cellular phone. Petitioner contends Yukie discloses multiple embodiments wherein wireless device 10 stores a portion of a music file. Pet. 48 (citing Ex. 1004, 6:32–38).

Petitioner contends claims 12 and 13 add features similar to those addressed either in claim 1 or claim 3. *See* Pet. 53. Similar to its showing with respect to claims 1, 3, and 5–7, Petitioner shows persuasively that claims 8, 10, 12, and 13 would have been obvious. *See* Pet. 15–53.

3. Analysis of Parties’ Positions

In response to the Petition and Institution Decision, Patent Owner focuses on claim 1. *See* PO Resp. 26–38. Patent Owner contends “[c]laim 10 contains similar limitations to claim 1” and does not provide separate arguments related to Petitioner’s showing with respect to claim 10 or with respect to dependent claims 3, 5–8, 10, 12, and 13. *Id.* at 38.

Addressing claim 1, Patent Owner responds that Yukie's wireless device does not employ a DSP and receiver "configured to work with OFDM" and "does not utilize an OFDM network to access a website or request and receive an audio or audio-visual data file." See PO Resp. 21. Patent Owner similarly argues Gatherer and Prust do not disclose DSPs or a receiver using OFDM, and although Frodigh discloses an OFDM cellular system, Frodigh does not disclose "utilizing OFDM to access a website or request and receive an audio or audio-visual data file." See *id.* at 21–23. Patent Owner also contends "Gatherer does not explain the relationship between a digital signal processor and the remaining parts of the cell phone, or how a digital signal processor would be integrated into the 'user device' disclosed by Yukie." *Id.* at 30.

Patent Owner's arguments are not persuasive for several reasons. In general, the arguments imply bodily incorporation as a requirement for obviousness and address the references individually, instead of addressing what the combined teachings cited by Petitioner fairly suggest. In other words,

[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.

In re Keller, 642 F.2d 413, 425 (CCPA 1981). In addition, "one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references." *Id.* at 426.

Also, with respect to a DSP, Petitioner identifies evidence indicating that Gatherer discloses or suggests using a DSP in a cellular phone receiver like that of Yukie, with Yukie disclosing a receiver and processor in a cellular phone 10 for processing music, audio, and video files wirelessly from a server, suggesting a ready substitution for processing by a DSP. See Pet. 9–10, 16–18, 30–33 (citing Ex. 1004, 2:31–41, 3:32–35, 3:56–57, 4:23–26, 5:14–16, 5:25–57, 6:16–17, 6:19–20, 6:44–53, 10:41–49, 11:13–22, 16:64–7:6, Fig. 1; Ex. 1002 ¶¶ 110, 112–116; Ex. 1005, 4, 5, Figs. 1, 2). As one example supporting Petitioner, Gatherer states “[p]rogrammable DSPs are pervasive in the wireless handset market for digital cellular telephony.” Ex. 1005, Abstract; Pet. 31.

Regarding bodily incorporation, the challenged claims do not require integration of the DSP into a wireless device in any particular manner or with respect to any specific device elements. In any event, as indicated above, Petitioner generally proposes Gatherer’s flexible DSP system as a substitute for Yukie’s generic “processor” system, each of which controls similar functions of a cell phone. See Pet. 11, 30–32, 38–40; Pet. Reply 5. As Petitioner also shows, Gatherer discloses a functional block diagram of a cellular phone (Fig. 1), with a DSP at least controlling baseband functions, and states “[a]s DSPs became more powerful, they started to take on other physical layer 1 tasks,” and “mission creep” occurred as designers began using DSPs for a variety of functions. Ex. 1005, 4–5, Figs. 1, 2; see Pet. 31 (identifying several programmable DSP “basic phone functions” disclosed in Gatherer, including voice coding, demodulation, etc. (citing Ex. 1005, 4–5, Figs. 1, 2)), 31–32 (discussing pervasiveness of DSPs in cell phones, and motivation, including flexibility and processing power of DSPs), 39 (citing

Ex. 1002 ¶ 130, which in turn cites references supporting the known use of DSPs with OFDM, and arguing “it was well-known that DSPs could be programmed to handle OFDM signals”), 38–40 (citing Ex. 1002 ¶¶ 34–37, 129–132; Ex. 1005, 4–5 (discussing advantages of using DSPs generally and specifically for media processing and for OFDM’s mathematical programming requirements); Pet. Reply 6 (citing Ex. 1005, 5 and reproducing Gatherer’s Fig. 1).

As indicated in the previous paragraph and above (Section II.C.3), Petitioner identifies evidence indicating that DSPs were known to provide flexibility and processing power to handle technology improvements with respect to all manner of digital signals, including OFDM, thereby motivating a person of ordinary skill in the art to implement the cell phone and media player of Yukie using such a DSP. See Pet. 30–32 (citing Ex. 1002 ¶¶ 112–116 ; Ex. 1005, 4–6), 38–40 (citing Ex. 1002 ¶¶ 34–37, 129–132; Ex. 1005, 4–5; Ex. 1006, 8:34–35); Ex. 1002 ¶ 130 (citing Ex. 1015, 761; Ex. 1016, 4:26–4:44; Ex. 1017, 3:33–48). Toward that end, Gatherer states that “programmable DSPs are essential to provide a cost-effective, flexible upgrade path for the variety of evolving standards” in the cellular market. Ex. 1005, 85–86.

In addition, Dr. Lavian testifies that Gatherer describes “the presence of DSPs in cell phones as ‘pervasive’” at the time of the invention, and also testifies “it was well known that DSPs were designed and optimized to process signals transmitted using modulation techniques, including orthogonal frequency-division multiplexing (OFDM).” Ex. 1002 ¶ 26 (“By the time of the alleged invention, DSPs were standard components in cell phones.”). Relying further on Gatherer, Dr. Lavian also explains “DSPs

provided much of the processing required, such as modulation/demodulation and speech coding/decoding. . . . And as their processing power improved, DSPs were also considered for newer features provided by cell phones, including the processing of ‘audio and visual entertainment.’” *Id.* (citing Ex. 1005, 4, 9). Accordingly, Gatherer, Yukie, and other evidence cited by Petitioner indicates that an artisan of ordinary skill would have used DSPs in cellular phones for performing a wide variety of basic tasks, including OFDM processing, tasks well-known in the industry based on the known programming flexibility of DSPs. *See* Pet. 10–11, 16–18, 30–33; Ex. 1005, 4–5; Ex. 1004, 5:9–12, Fig. 2; Ex. 1002 ¶¶ 24–26, 34–37, 130–133.

As indicated above, Patent Owner contends “Yukie does not disclose files transmitted by OFDM” and “Frodigh does not teach a system for requesting and transmitting audio and audio-visual data files.” PO Resp. 30–31. Patent Owner adds “no . . . motivation exists” to combine the teachings, because the references teach different modulation schemes. *See id.* at 31.

Similar to the arguments regarding the DSP addressed above, this line of argument primarily address the references individually in an unpersuasive fashion. *See Keller*, 642 F.2d at 426. As also discussed above, Petitioner identifies evidence indicating that Yukie teaches requesting different types of data, including audio and video files, from a database using a cellular phone (Pet. 10, 16, 20, 30, 33 (citing Ex. 1004, 2:31–41, 3:42–48, 4:1–4, 4:23–26, 6:16–17, 6:19–20, 6:44–53, 10:41–49, 11:2–6, 11:13–22, 16:64–17:6, 17:27–30, 21:34–51)), and other evidence indicating that Frodigh teaches using OFDM advantageously (e.g., to provide bandwidth efficiency and minimize interference) in order to transmit data to a cellular phone

(Pet. 33–38 & n.5 (citing 1006, 1:13–16, 1:59–2:18, 2:38–60, 7:51–63, 8:1–14, 8:33–63; Ex. 1001 ¶¶ 119–122)).

Petitioner also shows it would have been obvious to implement Yukie’s cellular phone with Gatherer’s DSP to implement Frodigh’s OFDM and other functions because of the advantages offered by Gatherer’s DSP, such as increased flexibility and processing power. See Pet. 31–36, 38–40; Ex. 1002 ¶¶ 26, 50, 113–115, 130–133 (discussing Gatherer’s characterization of DSPs as pervasive in the cell phone market to provide flexible and powerful programming of a variety of cell phone functions); Ex. 1005, 4 (“flexibility is becoming more of an issue, and therefore the programmability offered by DSPs is even more desirable”), 5 (“this has led to an increase in the fraction of the DSP MIPS used by something other than physical layer 1”).

Petitioner also shows it would have been obvious to transmit files in Yukie’s system to Yukie’s cellular phone using Frodigh’s OFDM because of the advantages offered by Frodigh’s OFDM, such as increased efficiency and reduced interference. Pet. 34–36; Ex. 1002 ¶¶ 120–122; Ex. 1006, 2:38–60. Petitioner also shows it would have been obvious to transmit files for storage in Yukie’s wireless cellular server as supplemented by Prust’s virtual storage lockers to provide private and secure personal storage divided into virtual space for seamless access by at least one user, including via a password, authentication, and/or encryption. See Pet. 20–29, 40 (citing Ex. 1002 ¶¶ 84, 87, 88, 92, 93, 96; Ex. 1004, 4:1–4, 3:42–48, 17:27–30, 20:54–56, 21:34–51, Fig. 4; Ex. 1013, 1:32–45, 4:52–61, 6:22–24, 6:47–51, 7:59–8:7, Fig. 2). Further, Petitioner’s supporting evidence including citations to the record and Dr. Lavian’s testimony show a person of ordinary skill in the

art reasonably would have expected the asserted combination of Yukie, Gatherer, Frodigh, and Prust to work in a predictable fashion to provide the predictable benefits noted. *See* Pet. 15–42 (citations omitted).

With further respect to the modulation types disclosed by the references, Patent Owner contends that it would not have been obvious to combine the cited teachings in Yukie and Frodigh, because Yukie uses Space Division Multiple Access (“SDMA”), instead of OFDM. PO Resp. 32. Patent Owner points out that the Special Mobile Group (“SMG”) of the European Telecommunications Standards Institute (“ETSI”) chose CDMA over OFDM for use as the 3G standard. *Id.* at 32–33 (citing Ex. 2003, 7; Ex. 2004, 2; Ex. 2005, 23–25). According to Patent Owner, “from the time the SMG2 group, a collection of individuals of extraordinary skill, reached their conclusion, those skilled in the art would be discouraged from applying OFDM to cellular systems.” *Id.* at 33.⁹ Although Patent Owner contends “Frodigh teaches an allocation method specifically directed to OFDM and is not applicable to wireless communication networks such as SDMA or 3G,” Patent Owner does not state specifically that Yukie confines its teachings to 3G or even relates to 3G. *See id.* at 31–32.

⁹ Patent Owner also argues “Yukie did not seek to include OFDM in its claims—it instead noted that the claims encompassed a SDMA system.” PO Resp. 33. Contrary to this argument, to the extent it may be relevant in some tangential manner to Yukie’s teachings, Yukie’s independent claim 1 recites, *inter alia*, “a user terminal having a wireless communication interface” without any limitation directed to SDMA. *See* Ex. 1004, 22:24–42. On the other hand, Yukie’s claim 4 depends from claim 1 and narrows the scope to “SDMA,” indicating claim 1 embraces other modulation schemes. *Id.* at 22:49–50.

In any event, in relevant context, Yukie states that the invention “pertains generally to data storage methods . . . that provide for remote storage and retrieval of data that would otherwise be provided locally.” Ex. 1004, 2:7–11. Yukie discloses using a “wireless communication link to a remote data server” for such data retrieval (*id.* at 2:33) and states “[t]hose skilled in the art will appreciate that *the wireless connection* between user device 10 and base station 14 *can be implemented in a variety of ways*” (*id.* at 5:14–16 (emphases added)). Although Yukie lists SDMA as a “preferred form” of modulation, Yukie generally discloses “other forms of packet-based protocols,” including “mobile IP.” See *id.* at 5:29–31. Yukie also discloses typical wireless devices, including a “cellular phone” or “telephonically enabled personal digital assistant (PDA),” connected to the Internet or other networks through wireless interface 12. *Id.* at 10:41–49; Fig. 2.

Hence, contrary to Patent Owner’s arguments, Yukie does not suggest limiting its invention to a 3G network or to SDMA. See also *supra* note 9. Further, the evidence cited by Patent Owner regarding the SMG’s decision to use CDMA in the 3G standard indicates that skilled artisans would have recognized both advantages and drawbacks to OFDM (Ex. 2004, 1–2) and CDMA (*id.* at 3–4). See Pet. Reply 15 (“For example, one document cited by the Patent Owner states that OFDM modulation is ‘robust[]’ and ‘performs well in all kind [sic] of environments, and could be quite efficient in presence of large delay spread.’” (quoting Ex. 2004, 1)); Pet. 35–36, 39–40 (discussing known advantages of OFDM as a cellular technique including with DSPs); Ex. 1002 ¶¶ 26, 35–37, 119–122, 129–134 (similar); Ex. 1006, 2:38–60 (advantages of OFDM with cellular).

Contrary to the premise of one of Patent Owner's arguments, in its obviousness showing, Petitioner does not, and need not, propose "adopt[ing] the components of 2G into 3G." See PO Resp. 26. Rather, Petitioner proposes implementing Yukie's cellular wireless system using Gatherer's DSP and Frodigh's OFDM as supplemented by Prust's virtual storage lockers. See Pet. 15–41. As Petitioner points out, Gatherer and other record evidence indicates that a DSP would have worked in a variety of cell phone schemes, including with 3G networks and OFDM, providing flexibility for cell phones. See Pet. 35–36, 39–40 (discussing known advantages of OFDM as a cellular technique including with DSPs); Ex. 1002 ¶¶ 26, 35–37, 119–122, 130–134 (similar); Ex. 1006, 2:38–60 (advantages of OFDM with cellular); Pet. Reply 4–5; Ex. 1005, 7 ("In this section we discuss how coprocessors can complement the function of programmable DSPs in the implementation of a flexible 3G platform."), 9 ("We estimate that to support 240 3G voice channels . . . would require a 45K gate coprocessor and only 6 MHz of DSP processing on a C6x."); Ex. 1002 ¶¶ 32–35, 86, 103–106.

Dr. Lavian testifies "[t]he prior art . . . is replete with references describing the use of OFDM in cellular systems" (Ex. 1002 ¶ 35), and Dr. Lavian lists numerous references and patents supporting the statement (*id.* at ¶¶ 35–36). Dr. Lavian also specifies advantages including "superior performance in multi-path environments," and allows "the allocated communicated bandwidth (e.g., of a particular cell to be shared among multiple cell phone users" (*id.* ¶ 35). See also Pet. 59 (citing Ex. 1002 ¶¶ 32–37 and arguing Patent Owner's "arguments overlook the extensive prior knowledge of OFDM . . . disclosing use of OFDM in cellular networks").

Accordingly, a person of ordinary skill in the art reading the cited SMG documents, in light of known advantages, would not have been discouraged from using OFDM with Yukie's cellular system, where, as noted above, Frodigh also lists "several advantages" of using OFDM for a "cellular system." Ex. 1006, 2:38–60; Ex. 1002 ¶ 94 (quoting Frodigh). Patent Owner concedes Frodigh teaches OFDM would have been useful to "reduce the amount of interference" and to provide "better quality." PO Resp. 31 (citing Ex. 1006, 4:26–31, 6:30–33). Contrary to the arguments, however, Frodigh does not limit these advantages to "calls" to the exclusion of data transfers in cellular systems. *See id.*; Ex. 1006, 2:38–60 (discussing "several advantages" including reduction of interference of "symbols" in "cellular systems"); Ex. 1002 ¶ 121 (quoting Frodigh's teaching that "OFDM offers several advantages . . . in a cellular system"); Pet. 33–36; Pet. Reply 17 (arguing Frodigh motivates the use of OFDM for cellular data in addition to voice); Ex. 1002 ¶¶ 32–37 (OFDM's use in cellular systems provided known advantages).

Further, even if "persons of extraordinary skill" in the art in Europe "chose CDMA, and rejected OFDM, for use in the 3G standard," that group of artisans considered OFDM one of the "available options," according to Patent Owner. *See* PO Resp. 32. Although "a given course of action often has simultaneous advantages and disadvantages," that "does not necessarily obviate motivation to combine." *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006).

Also, the challenged claims do not require a specific standard such as the 3G standard. In addition, as Petitioner argues, Yukie's system does not teach or suggest a specific reliance on a chosen protocol as a standard, and in

any case, as noted above, implementing OFDM into the 3G standard involved tradeoffs considered by artisans of ordinary skill. See Pet. Reply 14–15 (citing Ex. 2004, 1 (describing robustness and efficiency for OFDM, including for “high bit rate services”)). As Petitioner also notes, artisans of “extraordinary skill,” upon whom Patent Owner relies, including those who determined a telephone standard for use in Europe based on many factors, typically do not provide a proper framework for ascertaining obviousness. See *id.* at 14–15 (discussing Inst. Dec. 15) (emphasis by Petitioner); PO Resp. 32.

Patent Owner also generally asserts “Petitioners break the elements of claim 1 into several subparts and, in doing so, ignore the context of the claim.” PO Resp. 28 (citing Pet. 30). In context, Petitioner does address claim elements individually, but also addresses the challenged claims as a whole as summarized herein. See *supra* Sections II.C.2–3; Pet. 15–41.

Patent Owner also contends “Yukie alone does not disclose a virtual storage locker or render it obvious. As the specification explains, a storage locker has two physical components: a storage chip and a server.” PO Resp. 36 (citing Ex. 1001, 12:36–41). Similarly, Patent Owner contends

Prust does not disclose a virtual storage locker. Prust teaches a data storage system and method that allows a user to access remote storage areas via a global computer network. . . . Prust does not explicitly disclose a storage chip and Petitioners have not shown that the user computers in Prust would satisfy the storage chip element.

Id. at 29 (citing Ex. 1013, 1:32–42).

Contrary to these claim construction arguments, the challenged claims do not require a storage chip element as part of a virtual storage locker. See *supra* Section II.B.2 (construing a “virtual storage locker” as a “storage area

associated with a user”). Although Patent Owner argues “*the [S]pecification explains . . . a storage locker has two physical components: a storage chip and a server,*” the Specification indicates “storage chip 104” stores downloads and “*attaches to the phone*”—i.e., apart from server 104. Ex. 1001, 12:37–40 (emphasis added). Therefore, the cited chip disclosure has nothing to do with the claimed “virtual storage locker,” because claim 1, similar to claim 10, recites “*the server comprising a non-transitory virtual storage locker.*”

Patent Owner also contends no motivation exists to combine Prust and Yukie because “Yukie focuses on storing data files for a single user.” *Id.* at 37. This argument improperly attacks the references individually rather than looking at the combination of references. Moreover, as discussed above, Patent Owner acknowledges Yukie discloses well-known modulation systems such as SDMA. See PO Resp. 31. Such a standard system implies or suggests a system standardized for multiple users. As other examples, Yukie discloses “files organized by data author or owner” and discloses basing access to the storage on a number of user profile data types, including “user settings for electronic devices” and “[b]illing information such as a user name,” further implying or suggesting access by multiple users. See Ex. 1004, 21: 14–23; Pet. 23–24 (citing Ex. 1005 4:4–6, 20:54–56; Ex. 1002 ¶ 91 (discussing Yukie’s disclosure of multiple cellular devices), 21–23 (explaining why the combination of Yukie and Prust renders obvious multiple user virtual storage lockers)).

As examples of motivation, Petitioner points out “[o]ne of the benefits touted by Prust was the ability to allow a device to ‘seamlessly’ access a personal storage area on a remote server without having to modify the

software on the device.” Pet. 24 (citing Ex. 1002 ¶ 93; Ex. 1013, 1:24–26, 1:32–37, 6:47–51, 6:22–24). Petitioner also explains both Prust and Yukie contemplate mobile hand-held wireless devices used to transmit files for storage on a server and “both describe techniques for accessing remotely-stored content using a web browser.” *Id.* (citing Ex. 1002 ¶ 92, Ex. 1005, 10:50–51 Ex. 1013, 3:38–41, 4:12–15, 6:58–60, Fig. 6). Petitioner also shows it would have been obvious to combine the references in order to provide separate virtual storage areas for storage of personal files by multiple users in a seamless and secure fashion. *See* Pet. 22–23, 27–29 (citations omitted).

Patent Owner also argues “the method of claim 1 . . . requires a receiver and processor configured to receive and process files transmitted by OFDM,” and “Yukie, alone or in combination with any of Petitioners’ prior art, does not disclose such a configuration.” PO Resp. 34. Patent Owner contends “when ‘processing’ is properly construed,” “playing a file is not processing it,” and “[b]y relying on playback as processing, Petitioners fail to meet their burden.” *Id.*

Petitioner replies that “[t]he Petition . . . identified the processing of received files in modulated form (which is separate from and occurs before playback) as satisfying the ‘processing’ limitation.” Pet. Reply 8; *see also id.* at 7 (citing Pet. 36–38, and contending “[t]he Petition further explained that when the Yukie cell phone was obviously used with OFDM modulation, the claimed ‘processing’ could take place through the receipt and demodulation of OFDM signals by the OFDM receivers taught by Frodigh”). Petitioner also points out “as the Board observed, the Patent Owner admitted that Yukie’s cell phone receives modulated signals carrying

the data files, which would need to be processed (demodulated) in order to obtain the transmitted data.” Pet. Reply 8 (citing Inst. Dec. 17; Ex. 1005, 5:30–35, 10:50–54, 10:64–66).

Accordingly, Petitioner does not rely solely on playback of files, contrary to Patent Owner’s arguments. *See id.* at 7 (citing Ex. 1001, 18:38–42 (arguing “[t]he ’310 patent itself confirms that ‘processing’ encompasses demodulation”). Alternatively, as Petitioner also explains, even under Patent Owner’s narrow construction, “[g]iven that Yukie discloses a cell phone that can receive an audio file and play it, the phone must have first prepared that file for storage in memory and playback.” *Id.* at 10 (citing Ex. 1004, 3:42–53, 4:40–64, 5:8–12, 10:64–66, 11:2–6, 11:17–22 (further noting Yukie discloses a local memory for storing audio)). Patent Owner’s arguments do not rebut Petitioner’s showing that Yukie as combined with Frodigh, Prust, and Gatherer satisfy the processing limitation under the plain and ordinary meaning of processing in light of the ’310 patent specification and also under Patent Owner’s narrower claim construction of the term.

In summary, Petitioner persuasively relies on applying the known OFDM technique for a cellular system, as suggested by Frodigh, using known devices, such as DSPs, as suggested by Gatherer, for their known purposes, including for the transfer and storage of data files for seamless access using known wireless cellular techniques, as Prust and Yukie teach. Petitioner also shows persuasively that a person of ordinary skill in the art would have had valid reasons to combine the cited teachings of Gatherer, Prust, and Frodigh, with Yukie to reach the challenged claims.

Based on the foregoing discussion and a review of the record, Petitioner shows by a preponderance of evidence that the combination of

Yukie, Gatherer, Prust, and Frodigh would have rendered claims 1, 3, 5–8, 10, 12, and 13 obvious.

*D. Obviousness of Claims 1, 3, 5–8, 10, 12, and 13 over
Yukie, Gatherer, Prust, O’Hara, Tagg, and Pinard, Ground 3*

1. Petitioner’s Initial Showing

Petitioner argues that claims 1, 3, 5–8, 10, 12, and 13 would have been obvious over Yukie, Gatherer, Prust, O’Hara, Tagg, and Pinard. Pet. 3 (ground 3). According to Petitioner, this alternative ground substitutes O’Hara, Tagg and Pinard in place of Frodigh with respect to the OFDM and cellular network limitations recited in challenged claims 1 and 10. *See* Pet. 57–58. With respect to all other limitations of challenged dependent claims 3, 5–8, 12, and 13, according to Petitioner, the mapping provided in the first ground “remains applicable” to the third ground. *See id.*

Petitioner contends the third ground

cites O’Hara, Tagg, and Pinard for three propositions: that (1) prior art IEEE 802.11a wireless networking transmits digital information to mobile devices using OFDM (O’Hara), that (2) IEEE 802.11 wireless networking functionality could have been incorporated into a cell phone (Tagg), and that (3) a “cellular network” could have been built based on IEEE 802.11 wireless access points (Pinard). It therefore would have been obvious, as shown below, to adapt the user device **10** of Yukie to transmit and receive digital files using OFDM through the use of IEEE 802.11a wireless networking.

Pet. 60 (citing Ex. 1001 ¶¶ 200–219, Ex. 1003 (Pinard), Ex. 1060 (Tagg), Ex. 1061 (O’Hara)).

As indicated in the preceding paragraph, Petitioner relies on O’Hara for its explicit OFDM teachings: “O’Hara clearly confirms that the IEEE 802.11a variant of IEEE 802.11 uses OFDM to wirelessly transmit data,” and O’Hara discloses using OFDM on mobile devices. *See* Pet. 60 (citing

Ex. 1061, 37–39); Ex. 1061, 11 (describing “two major components of the WLAN described by IEEE 802.11, the mobile station and the access point (AP)”).¹⁰ Petitioner similarly describes O’Hara as showing “it was well-known and understood that IEEE 802.11a, one of the two variants of IEEE 802.11 introduced in the late 1990s, used OFDM.” Pet. 65 (citing Ex. 1002 ¶¶ 217–218); Ex. 1061, 33 (“The IEEE 802.11a PHY is one of the physical layer (PHY) extensions of IEEE 802.11 and is referred to as the orthogonal frequency division multiplexing (OFDM) PHY.”).

As also indicated above, Petitioner relies on Tagg to provide evidence that mobile devices, including cell phones, employed digital data transmission over a cellular network using the IEEE 802.11 standard. *Id.* at 61–62 (citing Ex. 1060, 7:63–8:2). For example, the “Petition cites Tagg for the more straightforward proposition that a cell phone can incorporate IEEE 802.11 wireless networking, and can use that capability to receive data such as media files.” *Id.* at 61 (citing Ex. 1002 ¶¶ 202–206). Petitioner relies on Pinard for its teaching of cellular network access points based on IEEE 802.11, with similar access points as required in Yukie’s and Tagg’s cellular systems (*id.* at 60–61 (annotating Ex. 1060, Fig. 1), 63–64 (citing Ex. 1003, 2:16–22, 2:45–47)).

Regarding reasons to combine the reference teachings, according to Petitioner,

[i]t would have been obvious to a person of ordinary skill in the art to combine Yukie with O’Hara, Tagg, and Pinard, predictably resulting in a user device 10 of Yukie configured to handle digital

¹⁰ Page citations herein refer to pages provided by Petitioner in Exhibit 1061. In future papers, the parties must cite to these page numbers instead of original page numbers.

files transmitted over an IEEE 802.11a-based cellular network using OFDM modulation. (Lavian, ¶211.) The system in Yukie is fully consistent with this combination. Figure 1 of Yukie discloses that transmissions between user device 10 and data server 16 are facilitated through an intermediate base station 14:

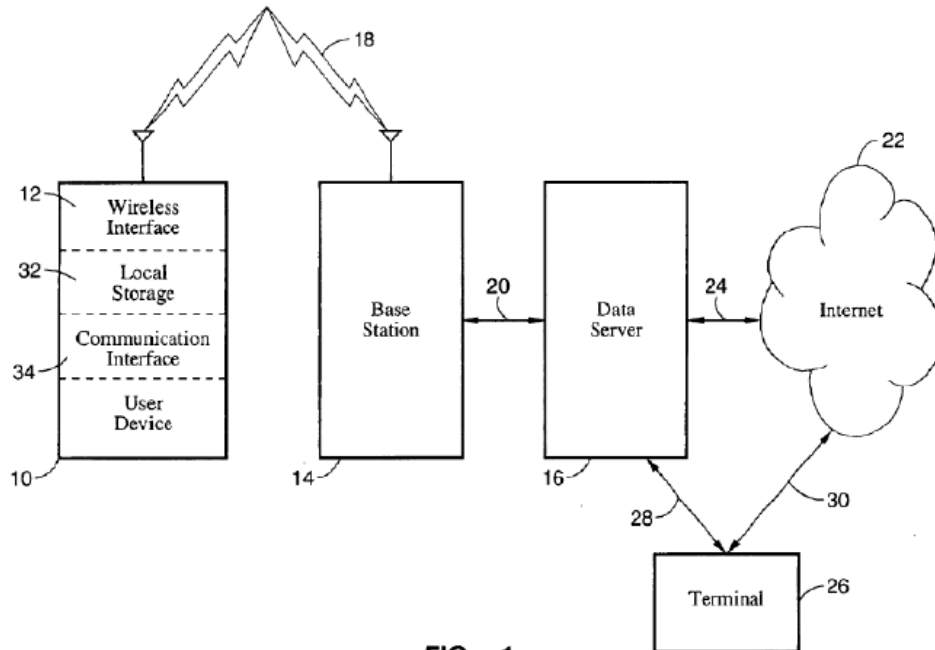


FIG. 1

As [depicted in Figure 1 and] explained in Yukie, “[u]ser device 10 communicates with base station 14 over a wireless connection 18, and base station 14 communicates with data server 16 over a landline, wireless, or other communications link 20.” (Yukie, 3:32–35.)

One of ordinary skill in the art would have found it obvious that base station 14 could have been an IEEE 802.11 access point. (Lavian, ¶213.) Yukie does not limit the type of wireless connection provided by base station 14, and in fact, states that “the wireless connection between user device 10 and base station 14 can be implemented in various ways.” (Yukie, 5:14–16.)

Id. at 64 (citing Ex. 1002 ¶ 211).

Petitioner also provides evidence of benefits associated with implementing IEEE 802.11 and using OFDM for cellular data

transmission—performance, cost, and the ability to provide a hand-off to different access points. *See id.* at 65 (citing Ex. 1002 ¶¶ 214–216); Ex. 1002 ¶¶ 61–62 (hand-off to different access points); Ex. 1060, 5:27–33 (cost and speed), 11:24–46 (variable access points); Ex. 1061, 33 (describing vendor products starting to emerge with the standards). Similar to Frodigh, O’Hara also discloses that OFDM overcomes intersymbol interference. Ex. 1061, 37 (“Intersymbol interference is generally not a concern for lower speed carrier, however the subchannels may be subjected to frequency selective fading. Therefore, bit interleaving and, convolutional encoding is used to improve the bit error rate performance.”). O’Hara also teaches “[t]his OFDM method chosen is similar to the modulation technique adopted in Europe by ETSI-HIP-ERLAN II 5 GHz radio PHY specification.” *Id.*

2. Analysis of Parties’ Positions

In response to the Petition and Institution Decision, Patent Owner groups claims 1 and 10 together in attempting to rebut Petitioner’s initial showing. *See* PO Resp. 40–44. Similar to its arguments presented with respect to the first ground and addressing claim 1, Patent Owner contends “[a]s in Ground 1, Petitioners admit that Yukie does not disclose files transmitted by OFDM.” PO Resp. 39. Patent Owner also responds that OFDM had “drawbacks,” and “a group of industry leaders” at the European Telecommunications Standards Institute (“ETSI”) advanced a different cellular standard after examining OFDM. *Id.* at 41. According to Patent Owner, using OFDM would not have been obvious because Yukie relies on “a cellular standard,” “a wireless SDMA network, not OFDM.” *Id.* Patent Owner contends “O’Hara, Tagg, and Pinard . . . relate to [an] industry standard for short-range wireless working technology (or Wi-Fi) which is a

non-cellular standard and is inapplicable to 3G. Thus, a person of ordinary skill would not be motivated to combine the . . . references.” *Id.* Patent Owner further contends “the IEEE 802.11a standard, a short-ranged non-cellular transmission scheme, was not even an option for consideration by the [ETSI] group.” *Id.* at 42.

Patent Owner also points out “[a] prior art reference may teach away from another reference ‘when a person of ordinary skill upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.’” *Id.* (quoting *Pozen Inc. v. Par Pharm., Inc.*, 696 F.3d 1151, 1164–65 (Fed. Cir. 2012)).

Patent Owner explains “[t]ogether, O’Hara and Tagg disclose that a mobile device could use ‘the best available standards’ to send and receive data, including the short-range IEEE 802.11a standard that uses OFDM.” *Id.* at 40 (citing Ex. 1061, 143; Ex. 1060, 7:67–8:2). Patent Owner further explains “[e]ven though Pinard discusses the use of a ‘cellular network . . . conforming to the IEEE 802.11 draft specification,’ Pinard ‘[i]n particular . . . relates to a local area Wireless Network including a plurality of mobile units and a plurality of access points.’” *Id.* (citing Ex. 1003, 2:50–53, 1:22–24). Based on these assertions Patent Owner summarizes as follows: “Thus, consistent with Tagg and O’Hara, Pinard does not discuss the IEEE 802.11 standard as applied to 2G, 3G, LTE, or any other cellular transmission.” *Id.* at 31–32.

These arguments do not rebut Petitioner’s showing. Claims 1 and 10 encompass employing a Wi-Fi OFDM scheme to connect to, or form part of, Yukie’s cellular network at access points so that a cellular device could

“transmit and receive digital files using OFDM.” See Pet. 59–60 (“Grounds 3 and 4 describe an OFDM cellular wireless connection that could have been built with routers or access points specified according to a standard that has already been accepted by the industry.”), 60 (arguing a “‘cellular network’ could have been built based on IEEE 802.11 wireless access points” according to Pinard), 62 (citing Ex. 1060, 7:63–66, 11:60–66) (arguing the “circles shown in Figure 1 (107–110) [of Tagg] show the range of wireless access for ‘cellular telephones’ and discussing Figure 9 of Tagg as illustrating ‘the handoff’ to a ‘cellular system’), 61–62 (citing Ex. 1003, 1:21–24, 2:16–22, 2:30–55) (showing Pinard discloses a cellular network with groups of selectable access points based on signal strength per the IEEE 802.11 wireless standard).

Patent Owner contends the claims pertain to transferring files to and from a cellular phone using OFDM: “As described by claims 1 and 10, the claimed method requires a cellular phone containing at least one digital signal processor and must be configured to receive and process files transmitted by orthogonal frequency-division multiplex modulation (‘OFDM’).” PO Resp. 10. Despite Patent Owner’s claim construction argument (*supra* Section II.B.1) that a cellular network does not include Wi-Fi, Patent Owner does not provide an explicit claim construction, and Patent Owner’s characterization of claims 1 and 10 supports the determination that transferring files via Wi-Fi OFDM to a cellular network satisfies claims 1 and 10, with the Wi-Fi transfer constituting part and parcel of Yukie’s cellular network (as modified by Gatherer’s DSP, Prust’s storage lockers, and Tagg’s, Pinard’s, and O’Hara’s teachings related to wireless access connections using Wi-Fi OFDM per the IEEE 802.11 standards).

In addition, Patent Owner’s argument that “the IEEE 802.11a standard, a short-ranged non-cellular transmission scheme, was not even an option for consideration by the [ETSI] group” (PO Resp. 42), reveals that the ETSI group’s findings do not teach away from the claimed invention, because according to Patent Owner, the ETSI group did not consider the Wi-Fi option. *See id.* In other words, not considering the IEEE 802.11a option does not teach away from that option as a mechanism to form part of a cellular network.

In any event, the evidence shows that well-known wireless modulation schemes that generally involve OFDM simply would have presented trade-offs for an artisan of ordinary skill to consider as discussed above. *See supra* Section II.C.3; *see also* Pet. 59 (citing Ex. 1002 ¶¶ 32–37 and arguing “patent owner’s arguments overlook the extensive prior knowledge of OFDM . . . and the wealth of prior art references specifically disclosing use of OFDM in cellular networks”); Ex. 1002 ¶¶ 32–37 (testifying about, and listing references showing, advantages of known cellular systems using OFDM).

As also indicated above, Petitioner shows that Yukie generally discloses or suggests a wireless cellular network using access points applicable to OFDM access points, because Yukie discloses a base station access point and cellular phone embodiments. *See supra* Sections II.C.2–3; Pet. 10–11 (citing Ex. 1004, 10:41–43 (“cellular phone”), Fig. 1 (base station 14)), 64 (citing Ex. 1002 ¶ 213 and arguing “[o]ne of ordinary skill in the art would have found it obvious that base station 14 [of Yukie] could have been an IEEE 802.11 access point”). Petitioner notes Yukie states “the

wireless connection between user device 10 and base station 14 can be implemented in various ways.” Pet. 65 (quoting Ex. 1004, 5:14–16).

Tagg similarly discloses a cell phone using the IEEE 802.11 standard as the basis for a “mobile network.” See Ex. 1060, 11:20–36 (describing “hand offs” for a typical “mobile Internet user” including via “a public Bluetooth node” and/or via “a different LAN node”). Further regarding Wi-Fi, O’Hara discloses OFDM as providing a multimedia benefit for mobile stations as part of the IEEE 802.11a standard—i.e., providing “data rates up to 54Mbps for WLAN networks where transmission of multimedia content is a consideration.” Ex. 1061, 11, 33.

As Petitioner maintains, the cited references sufficiently suggest using OFDM modulation to provide wireless connection to cellular and other existing systems in order to transfer multimedia data files between access points and cell phones and through the cellular network. See Pet. 60–66; Ex. 1060, 11:20–36. The challenged claims as analyzed under grounds 3 and 4 do not require OFDM modulation necessarily to be used throughout a whole cell system. See Inst. Dec. 17. Even if the challenged claims require relaying OFDM files throughout greater portions of a cellular system (e.g., not merely between access points (with servers) and cell phones), as discussed further below, the record shows that artisans of ordinary skill knew “OFDM[] is a particular method . . . that is particularly suited for cellular systems” as Frodigh and other evidence shows. See Ex. 1006, 6:61–63; Pet. 59; Ex. 1002 ¶¶ 32–37 (showing multiple prior art references and patents employing cellular OFDM and advantages of same).

Patent Owner acknowledges Yukie employs a “cellular standard.” PO Resp. 41. Patent Owner also acknowledges “O’Hara and Tagg disclose

IEEE standards accepted by the industry for wireless data transmission.” *Id.* at 40. Patent Owner also concedes Pinard discusses the use of a “cellular [communications] network . . . conforming to the IEEE 802.11 draft specification,” and “relates to a local area [w]ireless [n]etwork including a plurality of mobile units and a plurality of access points.” *Id.* (quoting Ex. 1003, 2:51–53, 1:22–24) (bracketed information supplied to conform to Pinard). Therefore, contrary to Patent Owner’s conclusion that that the references do not “discuss the IEEE 802.11 standard as applied to . . . any other cellular transmission” (*id.*), Pinard explicitly describes a “cellular communications network . . . conforming to the IEEE 802.11 draft specification” (Ex. 1003, 2:51–53).

Petitioner’s relied-upon prior art references fairly suggest that a finite number of versions of IEEE 802.11 point to the OFDM IEEE 802.11a standard version, and thereby apply as a cellular standard. *See* Pet. 60–66. Dr. Lavian explains credibly that the IEEE 802.11 standard as disclosed by Pinard would have included or suggested the well-known IEEE 802.11a standard. *See* Ex. 1002 ¶¶ 200–219. Patent Owner agrees that “O’Hara discloses a variant of IEEE 801.11—IEEE 802.11a—that uses OFDM to transmit information to ‘stations.’” PO Resp. 23 (citing Ex. 1061, 22).

Patent Owner’s argument that an artisan of ordinary skill would not combine IEEE 801.11 standards with a cellular network (PO Resp. 43), and related argument that a Wi-Fi connection would not be considered as part of a cellular network (*see* PO Resp. 13, 40–41), do not account for the above-discussed teachings, including Pinard’s teachings of employing “a local area wireless network including a plurality of mobile units and a plurality of access points” based on cellular IEEE 802.11 standards, Tagg’s similar

teachings, and O'Hara's Wi-Fi teachings based on a variant of IEEE 802.11 (i.e., IEEE 802.11a). See Ex. 1003, 1:22–24, 2:50–53; Pet. Reply 11 (arguing cellular networks do not exclude short-range (Wi-Fi) communications or access points); Pet. 13–14 (discussing OFDM as a version of IEEE 802.11, and discussing Pinard, Tagg, and O'Hara); Ex. 1002 ¶¶ 32–37, 129–133, 200–219.

The preamble of method claim 1 recites “[a] method for wirelessly transmitting over a cellular network a data file between a cellular phone and a server,” but the body of claim 1 does not refer back to the “cellular network” or the “server.” The body of claim 1 recites “providing for the transmission of the data file to the cellular phone using orthogonal frequency-division multiplex (OFDM) modulation in response to the received request from the cellular phone.” Claim 1 also recites “said cellular phone . . . configured for receiving and processing data files transmitted by orthogonal frequency-division multiplex modulation.” In essence, claim 1 requires downloading files using OFDM to a cellular phone. Nothing in claim 1 specifies the source of an OFDM transmission.

Claim 10, a system claim, recites similar but slightly narrower limitations, as it specifies the server as “configured to . . . provid[e] for the transmission of the data file over the cellular communication network using [OFDM],” with a “cellular communication network operably coupling the server and the cellular phone.” Nevertheless, claim 10 also implies downloading of the data file (albeit over the cellular communication network) without further specifying the extent of the cellular network. Tracking claims 1 and 10, the '310 patent describes downloading data. See Ex. 1001, 3:12–14 (describing downloading data, including for “home

phones, computers, pagers, doorbells, alarms, palm pilots, watches, clocks, PDAs etc.”), 18:65–67 (describing downloading from a server).

As set forth above in the claim construction of a “cellular network”/ “cellular communications network,” the Petition presents persuasive evidence that the ordinary meaning of the two terms in light of the ’310 patent specification is a “network in which wireless communications are provided through a series of ‘cells,’ each cell providing network access for a particular geographic area.” See Pet. 6–8 (citing Ex 1002 ¶¶ 21, 63–64; Exs. 1055–59, 1066–68); *supra* Section II.B.1. Contrary to Patent Owner’s claim construction arguments that a cellular system precludes short wave or Wi-Fi connections as part of the cellular network, the record shows, as Petitioner argues, that cellular systems may be connected to cell phones via Wi-Fi access points or cells, and the collective teachings of Pinard, Tagg, and O’Hara suggest that feature as recited in the challenged claims. See Pet. 6–7, 60–66; Pet. Reply 10–12; Inst. Dec. 17–18; Ex. 1003, 1:21–24, 2:50–53; Ex. 1002 ¶¶ 20–23 (discussing background of cellular phone technology), ¶¶ 32–37 (citing numerous prior art references and patents showing OFDM in cellular systems and advantages of same), ¶¶ 63–64 (citing numerous sources to support the meaning of a cellular system).

In addition, or alternatively, as explained initially in the Institution Decision,

even if the challenged claims require relaying OFDM files throughout a generic cellular system (i.e., in addition to a Wi-Fi or WLAN network connection), the record shows that artisans of ordinary skill knew “OFDM[] is a particular method . . . that is particularly suited for cellular systems,” as Frodigh evidences. See Ex. 1061, 6:61–63. As noted above, Yukie discloses cellular phones, while Pinard discloses cellular roaming, which would

provide flexibility via network access, pursuant to a “draft standard IEEE 802.11” “[i]n order to achieve inter-operability of the various proprietary systems,” and for providing other benefits, such as “increased capacity,” and “decreased interference.” See Ex. 1003, 21–55. Tagg teaches connecting cell phones to all types of networks using customer cellular information data to facilitate the connection and network routing (as noted above), thereby at least suggesting connection to generic cellular systems, as explained above. See Ex. 1060, 5:50–56, 11:24–38, Fig. 9.

Inst. Dec. 25–26. Patent Owner does not respond this preliminary determination. After further consideration, the record supports this preliminary determination by a preponderance of evidence.

In summary, Petitioner sufficiently shows it would have been obvious to implement OFDM at least to connect to existing cellular networks like those describe by Yukie as suggested by the collective teachings of Gatherer, Prust, O’Hara, Tagg, and Pinard, in order to provide selectable access points at cell sites, cost effective data speeds, low intersymbol interference, and other benefits, including multimedia transmission. See Pet. 62–63, 64–66 (citing cost and improved access and network performance).

As indicated (in this section) above, Petitioner relies on its showing for dependent claims 3, 5–8, 12, and 13 as set forth in the first ground. Pet. 57–58. That showing primarily involves relying on Yukie and Prust to disclose or suggest the added claim limitations of the dependent claims. See Pet. 42–53. The showing also relies on the combination of Yukie, Gatherer, and Prust to suggest some features of claims 1 and 10 that may not be disclosed in Yukie (e.g., DSP, virtual storage locker), as discussed above. See Pet. 15–42, 49–52.

After a review of the record, and for the reasons discussed herein, Petitioner demonstrates by a preponderance of evidence that claims 1, 3, 5–8, 10, 12, and 13 would have been obvious over Yukie, Gatherer, Prust, O’Hara, Tagg, and Pinard.

*D. Obviousness of Claim 9 over
Yukie, Gatherer, Prust, Frodigh, and Chan (Ground 2), or
Yukie, Gatherer, Prust, O’Hara, Tagg, Pinard, and Chan (Ground 4)*

Petitioner asserts that claim 9 is unpatentable under 35 U.S.C. § 103(a) based on the following alternative grounds: 1) Yukie, Gatherer, Prust, Frodigh, and Chan (ground 2); and 2) Yukie, Gatherer, Prust, O’Hara, Tagg, Pinard, and Chan (ground 4). Pet. 3, 53–57, 57–65. Claim 9 depends from claim 1, as follows:

9. The method of claim 1, further comprising:
 - associating, in response to receiving the data file from the cellular phone, a unique identifier with the data file and a user of the cellular phone;
 - evaluating the unique identifier; and
 - identifying the data file based on the unique identifier in response to receiving the request for the data file.

Ex. 1001, 33:41–34:2.

Addressing claim 9 (in Grounds 2 and 4), Petitioner relies on Chan to supplement its showing with respect to claim 1 (in Grounds 1 and 3). See Pet. 53–57. In summary, according to Petitioner, Yukie does not disclose explicitly associating its data file with a unique identifier as claim 9 recites, but Chan describes a UNIX system, which includes an inode table with separate inode records and numbers for each file or directory, wherein an inode number may be associated with a user and a user’s file. See Pet. 54–

56 (citing Ex. 1069, 43–46; Ex. 1002 ¶¶ 193–194).¹¹ At one of the cited pages of Chan, Chan teaches associating various attributes to files, including “file access permission for owner, group, and others.” Ex. 1069, 44. Chan states such attributes “are essential for the kernel to manage files. For example, when a user attempts to access a file, the kernel matches the user’s UID and GID against those of the file to determine which category (user, group, or others) of access permission should be used for the access privileges of the user.” *Id.*

Petitioner also relies on Chan to teach evaluating the unique identifier and identifying the data file based on the identifier in response to a request for the file. *See* Pet. 56–57 (citing Ex. 1069, 45). Petitioner contends it would have been obvious to implement Chan’s system in order to help track and access Yukie’s data files stored in data server 16, resulting in a straightforward, well-known, predictable file tracking and accessing system that includes known and portable features. *Id.* at 55–56 (citing Ex. 1002 ¶¶ 192–194).

In addition to relying on arguments presented with respect to claim 1 (see PO Resp. 38), Patent Owner responds as follows:

Of all the prior art references, only Chan discloses “assign[ing] a unique inode number to the file.” Ex. 1069 at 137. But the existence of an inode number does not “associat[e], **in response to** receiving the data file from the cellular phone,” as required by claim 9. Further, a person of ordinary skill in the art will not combine Chan with Yukie, Gatherer, Prust, and Frodigh. As discussed in Section III.B.6, Chan relates to computer programming language; it contains no discussion of transmitting data over a network.

¹¹ Citations refer to page numbers provided by Petitioner in Exhibit 1069 (Chan). The Petition cites original page numbers in Chan.

PO Resp. 38–39.

These arguments do not rebut Petitioner’s showing. The argument that Chan’s system does not discuss transmitting data fails to address what an artisan of ordinary skill would have recognized with respect to the disclosed capabilities of Chan’s data system, and also, attacks Chan individually. *See id.* As summarized above, Petitioner relies on the combination of references to suggest transmission of files over a network. *See* Pet. 55–56; Ex. 1002 ¶ 193 (relying on Chan, Yukie, and Prust). With respect to other arguments, Petitioner does not rely on the mere existence of Chan’s inode number or any specific programming language, to suggest the limitations of claim 9.

Patent Owner’s argument regarding the claim 9 phrase “associat[e], ***in response to*** receiving the data file from the cellular phone” (*see id.*), does not explain sufficiently what the combination fails to teach or suggest (as also noted in the Institution Decision). *See* Inst. Dec. 29. As summarized above, Petitioner relies, *inter alia*, on the combination of Yukie and Chan to teach or suggest the well-known concept of associating files with users for the purpose of providing a user a mechanism to access a user’s requested files, where Yukie itself teaches accessing “data supplied by a user” from data server 16, storing “[p]ersonal information, such as . . . verification information,” and using “a serial number or other identifier transmitted by the user device to the server, or based on a user profile,” so “that the server can determine what type of content to provide” after a user requests data. *See* Ex. 1004, 21:4–10, 21:28–33.

Based on a review of the record and the foregoing discussion, Petitioner shows by a preponderance of evidence that claim 9 would have

been obvious based on the following alternative grounds: 1) Yukie, Gatherer, Prust, Frodigh, and Chan (ground 2); and 2) Yukie, Gatherer, Prust, O'Hara, Tagg, Pinard, and Chan (ground 4).

E. Petitioner's Motion to Exclude Exhibits 2004 and 2005

Petitioner filed a Motion to Exclude (Paper 18, "Pet. Mot. Excl."), Patent Owner filed an Opposition (Paper 19, "PO Opp. Excl."), and Petitioner filed a Reply (Paper 20, "Pet. Reply Excl."). For the reasons discussed below, Petitioner's Motion to Exclude is *dismissed* as moot.

As discussed above, we consider Exhibits 2004 and 2005 in connection with Patent Owner's argument that it would not have been obvious to combine the cited teachings advanced in the Petition, but Patent Owner's arguments that rely on Exhibits 2004 and 2005 do not rebut Petitioner's showing. As a result, Petitioner does not suffer any prejudice based on reliance in this record on Exhibits 2004 and 2005. Therefore, Petitioner's Motion to Exclude is *dismissed* as moot.

F. Constitutionality of Inter Partes Review

Patent Owner argues that we should "vacate its institution decision" (PO Resp. 1) because this *inter partes* review proceeding is unconstitutional. See PO Resp. 1–8. Contrary to the arguments presented, the Supreme Court recently held in *Oil States Energy Services, LLC v. Greene's Energy Group, LLC*, No. 16-712, 2018 WL 1914662, at *12 (Apr. 24, 2018), that "inter partes review does not violate Article III or the Seventh Amendment" of the Constitution.

III. CONCLUSION

Petitioner has shown by a preponderance of the evidence that claims 1, 3, 5–10, 12, and 13 of the '310 patent are unpatentable based on the following grounds:

1. Claims 1, 3, 5–8, 10, 12, and 13 as obvious over Yukie, Gatherer, Prust and Frodigh;
2. Claims 1, 3, 5–8, 10, 12, and 13 as obvious over Yukie, Gatherer, Prust, O'Hara, Tagg, and Pinard;
3. Claim 9 as obvious over Yukie, Gatherer, Prust, Frodigh, and Chan; and
4. Claim 9 as obvious over Yukie, Gatherer, Prust, O'Hara, Tagg, Pinard, and Chan.

IV. ORDER

In consideration of the foregoing, it is hereby

ORDERED that claims 1, 3, 5–10, 12, and 13 of the '310 patent are unpatentable;

FURTHER ORDERED that Petitioner's Motion to Exclude is *dismissed*; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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