

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZTE CORPORATION, ZTE (USA), INC., and ZTE (TX), INC.,
Petitioner,

v.

WSOU INVESTMENTS, LLC
d/b/a BRAZOS LICENSING AND DEVELOPMENT,
Patent Owner.

IPR2021-00698
Patent 7,203,505 B1

Before BRIAN J. McNAMARA, JOHN A. HUDALLA, and
JOHN D. HAMANN, *Administrative Patent Judges*.

HUDALLA, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Claims Unpatentable
35 U.S.C. § 318(a)

ZTE Corporation, ZTE (USA), Inc., and ZTE (TX), Inc. (collectively, “Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–45 (“the challenged claims”) of U.S. Patent No. 7,203,505 B1 (Ex. 1001, “the ’505 patent”). Petitioner filed a

Declaration of Stephen Gray (Ex. 1003) with its Petition. Patent Owner, WSOU Investments, LLC d/b/a Brazos Licensing and Development (“Patent Owner”), filed a Preliminary Response. Taking into account the arguments presented by Patent Owner in the preliminary record, we determined that the information presented in the Petition established that there was a reasonable likelihood that Petitioner would prevail with respect to its unpatentability challenges. Pursuant to 35 U.S.C. § 314, we instituted this proceeding on October 18, 2021, as to all challenged claims and all grounds of unpatentability. Paper 10 (“Dec. on Inst.”).

During the course of trial, Patent Owner filed a Patent Owner Response (Paper 13, “PO Resp.”), and Petitioner filed a Reply to the Patent Owner Response (Paper 14, “Pet. Reply”). Patent Owner also filed a Sur-reply. Paper 16 (“PO Sur-reply”).

An oral hearing was held on July 19, 2022, and a transcript of the hearing is included in the record. Paper 24 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–45 of the ’505 patent. For the reasons discussed below, Petitioner has not demonstrated by a preponderance of the evidence that claims 1–45 of the ’505 patent are unpatentable.

I. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies ZTE Corporation, ZTE (USA), Inc., and ZTE (TX), Inc., as the real parties-in-interest. Pet. 79. Patent Owner identifies

WSOU Investments, LLC d/b/a Brazos Licensing and Development as the real party-in-interest. Paper 4, 1–2.

B. Related Proceedings

The parties identify the following proceedings related to the '505 patent (Pet. 1 n.1, 79–80; Paper 4, 2; Paper 9, 1):

WSOU Invs., LLC v. ZTE Corp., No. 6:20-cv-00497 (W.D. Tex. filed June 3, 2020) (“the underlying litigation”);

WSOU Invs., LLC v. ZTE Corp., No. 6:20-cv-00255 (W.D. Tex. filed Mar. 31, 2020); and

ZTE (USA) Inc. v. WSOU Invs., LLC, No. 3:21-cv-02128 (N.D. Tex. filed Sept. 7, 2021).

We additionally note that Petitioner has challenged other patents owned by Patent Owner in IPR2021-00694, IPR2021-00695, IPR2021-00696, IPR2021-00697, and IPR2021-00699.

C. The '505 patent

The '505 patent is directed to transferring Synchronization Markup Language (SyncML) messages from a source device via a mobile terminal device to a third device. Ex. 1001, 1:9–12. Figure 1 of the '505 patent is reproduced below.

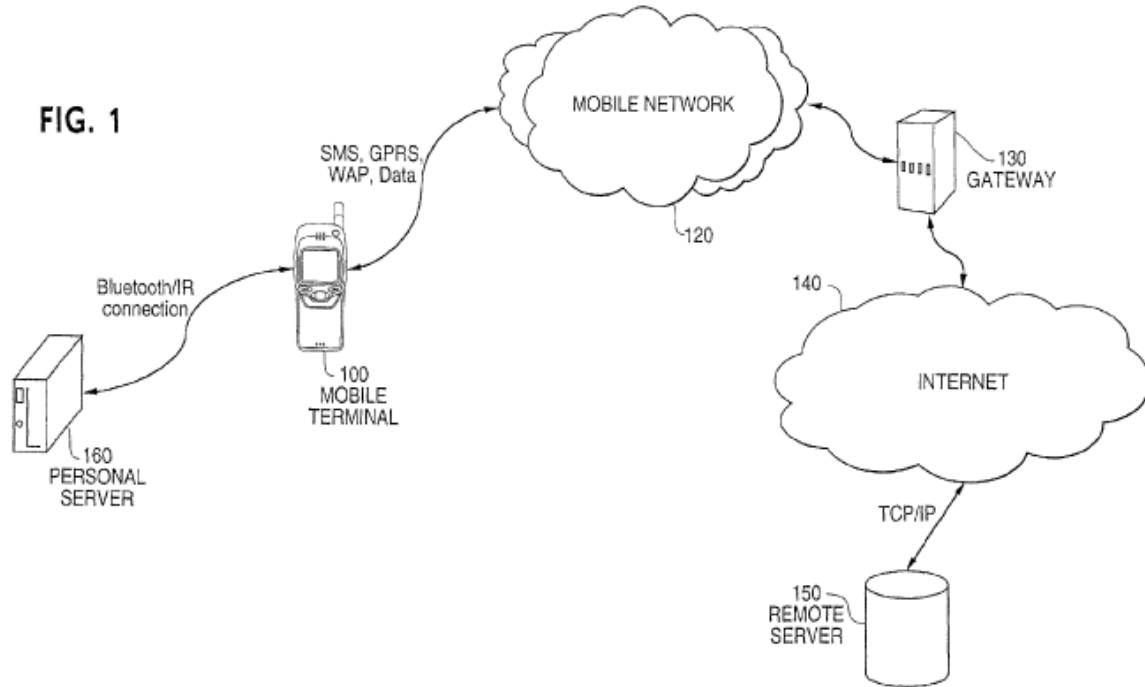


Figure 1 is a block diagram of a system including mobile terminal 100, such as a cell phone, connected to mobile network 120. *Id.* at 1:61–66. Data in various formats, e.g., Short Message Service (SMS), General Packet Radio Service (GPRS), and Wireless Application Protocol (WAP), may be transmitted between mobile terminal 100 and mobile network 120. *Id.* Mobile network 120 is connected via gateway 130 and Internet 140 to remote server 150 for bidirectional communications. *Id.* at 2:66–3:4. Personal server 160 is connected to mobile terminal 100 via a short range connection such as Bluetooth or infrared (IR). *Id.* at 3:4–6. Mobile terminal 100 operates as a modem for personal server 160 insofar as personal server 160 forwards messages, including data to be synchronized, to remote server 150 via mobile network 120, gateway 130, and Internet 140. *Id.* at 3:1–4.

SyncML messages may be inserted in SMS messages so that synchronization may occur via an SMS network without the use of a

continuous data connection. *Id.* at 3:45–50, 3:54–57. If necessary, longer SyncML messages may be broken up into two or more SMS messages. *Id.* at 4:4–10. Moreover, WBXML (Wireless Application Protocol Binary Extensible Markup Language) encoding creates a compact binary representation of XML (Extensible Markup Language), which sometimes allows a SyncML message to fit within SMS message size limitations. *Id.* at 3:59–4:1. Other data compression techniques can also be used to reduce the size of a SyncML message. *Id.* at 4:1–3. The SyncML standard additionally includes two different MIME (Multipurpose Internet Mail Extensions) types, i.e., vcal, a format for synchronizing calendars, and vcard, a format for synchronizing business cards/address book entries. *Id.* at 4:11–15.

D. Illustrative Claim

Of the challenged claims of the '505 patent, claims 1, 14, 23, 36, and 41 are independent. Claims 2–13 depend directly or indirectly from claim 1; claims 15–22 depend directly or indirectly from claim 14; claims 24–35 and 40¹ depend directly or indirectly from claim 23; claims 37–39 depend directly or indirectly from claim 36; and claims 42–45 depend directly or indirectly from claim 41. Claim 1 is illustrative of the challenged claims and recites:

1. A method for data synchronization between a first terminal device and a second, remotely located, terminal device via an intermediate terminal device, the method comprising:
obtaining, at the first terminal device, data to be synchronized with the second remotely located terminal device;

¹ See *infra* § II.E.4.

transmitting the data from the first terminal device to the intermediate terminal device through a short-range connection;

formatting the data to be synchronized into at least one SMS (Short Message Service) message in the intermediate terminal device; and

transmitting the at least one SMS message from the intermediate terminal device to the second remote located terminal device through cellular network connection.

Ex. 1001, 4:55–5:4.

E. Prior Art

Petitioner relies on the following prior art:

U.S. Patent No. 7,295,532 B2, filed Aug. 17, 2001, issued Nov. 13, 2007 (Ex. 1005, “Haller”);

U.S. Patent No. 7,058,036 B1, filed Feb. 25, 2000, issued June 6, 2006 (Ex. 1006, “Yu”);

U.S. Patent No. 6,925,481 B2, filed May 3, 2001, issued Aug. 2, 2005 (Ex. 1007, “Singhal”); and

U.S. Patent No. 7,191,250 B1, filed Mar. 19, 2001, issued Mar. 13, 2007 (Ex. 1008, “Oueslati”).

F. The Instituted Grounds

We instituted *inter partes* review of claims 1–45 of the ’505 patent on the following grounds (Dec. on Inst. 42), which are all the grounds presented in the Petition (Pet. 16):

Claims Challenged	35 U.S.C. §	Reference(s)
1, 3, 10–12, 14, 20, 21, 23, 25, 32–34, 38, 39, 43, 44	102(e) ²	Haller

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102, 103, and 112.

Claims Challenged	35 U.S.C. §	Reference(s)
4, 5, 13, 22, 26, 27, 35–37, 40–42, 45	103(a)	Haller, Yu
2, 6–8, 15–18, 24, 28–30	103(a)	Haller, Singhal
9, 19, 31	103(a)	Haller, Singhal, Oueslati

II. ANALYSIS

A. Legal Standards

A claim is anticipated if a single prior art reference either expressly or inherently discloses every limitation of the claim. *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 975 (Fed. Cir. 2010). Although the elements must be arranged or combined in the same way as in the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (citing *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990)).

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007).

The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level

Because the ’505 patent was filed before March 16, 2013 (the effective date of the relevant amendments), the pre-AIA versions of §§ 102, 103, and 112 apply.

of skill in the art; and (4) where in evidence, so-called secondary considerations.³ *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We also recognize that prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

B. Level of Ordinary Skill in the Art

Citing testimony from Mr. Gray, Petitioner contends a person of ordinary skill in the art (or “POSITA”) “would at least have [had] a bachelor’s degree in electrical engineering, computer engineering, or a related engineering discipline and two or more years of industry experience in the field of telecommunications, or equivalent experience, education, or both” and “knowledge or familiarity with telecommunication.” Pet. 13 (citing, *inter alia*, Ex. 1003 ¶ 41). Patent Owner does not propose an alternative definition. *See* PO Resp. 4.

We adopt Petitioner’s definition of the level of ordinary skill in the art without the qualifiers “at least” and “or more,” which introduce ambiguity. Based on the full trial record, we are satisfied that this definition comports with the level of skill necessary to understand and implement the teachings of the ’505 patent and the asserted prior art.

³ The trial record does not include any evidence of secondary considerations of nonobviousness.

C. *Claim Interpretation*

In an *inter partes* review, we construe each claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). Accordingly, our claim construction standard is the same as that of a district court. *See id.* Under the standard applied by district courts, claim terms are generally given their plain and ordinary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). “There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

Construing a claim term under 35 U.S.C. § 112 ¶ 6 involves two steps: identifying the claimed function and then determining what structure, if any, disclosed in the specification corresponds to the claimed function. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1351 (Fed. Cir. 2015). To determine whether § 112 ¶ 6 applies to a claim limitation, the essential inquiry is “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Id.* at 1348. If the limitation uses the word “means,” “there is a rebuttable presumption that § 112, para. 6 applies; if not, there is a rebuttable presumption that the provision does not apply.” *Diebold Nixdorf, Inc. v. Int’l Trade Comm’n*, 899 F.3d 1291, 1298 (Fed. Cir. 2018).

In our Decision on Institution, we determined that 35 U.S.C. § 112 ¶ 6 did not apply to the limitation in claim 14 that recites “a formatter to format the received data into at least one SMS (Short Message Service) message.” Dec. on Inst. 11 (citing *Diebold Nixdorf, Inc. v. Int’l Trade Comm’n*, 899 F.3d 1291, 1298 (Fed. Cir. 2018); Ex. 1001, 1:66–2:1, 4:26–27, 4:46–51). Neither party addressed this determination after institution. We maintain our determination that § 112 ¶ 6 does not apply to this limitation, and we instead apply the plain and ordinary meaning.

Thus, we determine that no terms require explicit construction. *See, e.g., Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Anticipation Ground Based on Haller

Petitioner contends claims 1, 3, 10–12, 14, 20, 21, 23, 25, 32–34, 38, 39, 43, and 44 are anticipated by Haller. Pet. 16–43; Pet. Reply 2–19. Patent Owner disputes Petitioner’s contentions. PO Resp. 5–14; PO Sur-reply 2–20.

1. Haller

Haller is a U.S. patent directed to “[a] hand held device for providing communication between a wide area network and a wireless local area

network.” Ex. 1005, 1:61–63. Figure 1 of Haller is reproduced below.

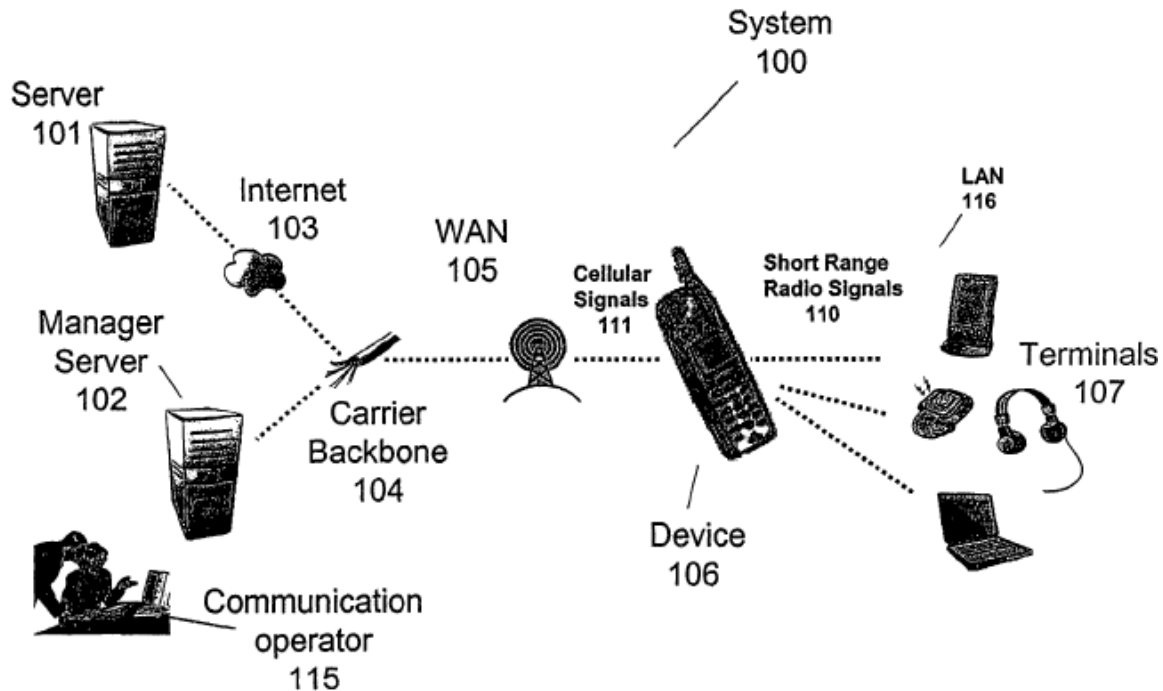


Fig. 1

Figure 1 depicts a system with wireless device 106 and one or more terminals 107 communicating via short-range radio signals 110 to form local area network (LAN) 116. *Id.* at 4:55–56, 5:30–35. Terminals 107 may include a desktop computer, a laptop computer, a personal digital assistant (PDA), a headset, a pager, a printer, a watch, a thin terminal, and a digital camera. *Id.* at 5:37–41. Figure 1 also shows wide area network (WAN) 105 coupled to device 106; WAN 105 includes a cellular network transmitting and receiving cellular signals 111. *Id.* at 5:52–55. WAN 105, carrier backbone 104, and manager server 102 are, singly or in combination, a telecommunication network managed and monitored by operator 115. *Id.* at 5:62–65. WAN 105 is shown as being coupled to wireless carrier internal network or carrier backbone 104; carrier backbone 104 may be coupled to manager server 102 or Internet 103. *Id.* at 6:20–25. Servers 101 and 102

provide information to terminals 107 by way of device 106. *Id.* at 6:26–29. In addition, manager server 102 provides microrouter 404 (not shown) and/or network service plug-ins 406a–k (not shown) to device 106, as discussed directly below. *Id.* at 6:29–32; *see also id.* at 7:35–36, Fig. 4 (showing service plug-ins 406 to be a part of “a software architecture 500 for device 106”).

Figure 5 of Haller is reproduced below.

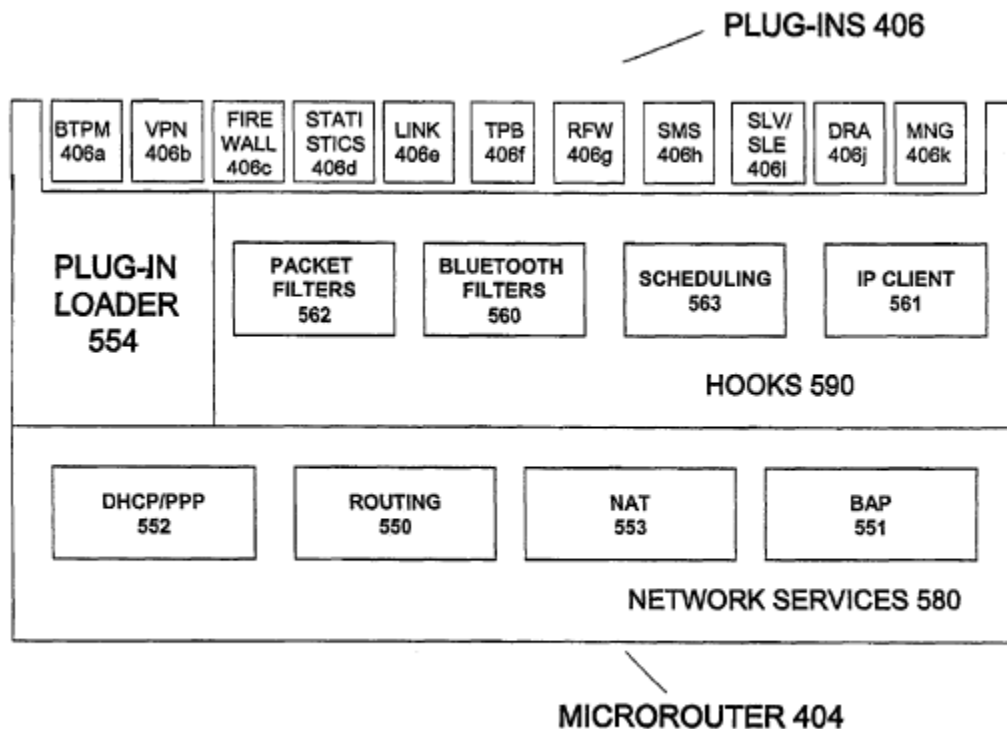


Fig. 5

Figure 5 illustrates software components for microrouter 404. *Id.* at 8:39–40. Microrouter 404 “enables an IP based network between the device 106 and terminals 107.” *Id.* at 8:29–30. Network service plug-ins 406 may be added to microrouter 404 using software components called hooks 590. *Id.* at 8:33–36, 8:46–49. Among plug-ins 406 is SMS software component plug-in 406h, which enables standard legacy SMS or Instant Messaging over SMS. *Id.* at 13:16–23. In this way, SMS software component plug-in 406h

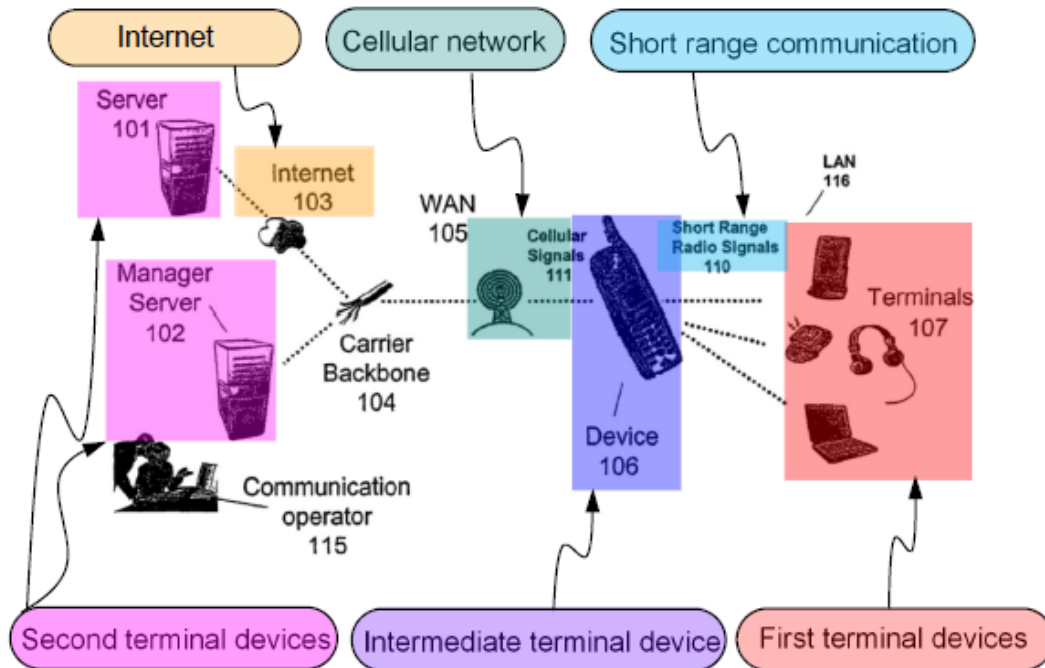
acts as an SMS server for terminals 107 and an SMS termination for device 106. *Id.* at 13:24–26. For example, terminals 107 may send a packet to SMS software component plug-in 406h with a destination device phone number and message text for transmission as an SMS message to a cellular network. *Id.* at 13:26–29. Another service plug-in 406 is virtual private network (VPN) software component plug-in 406b, which enables a secure link to a private corporate network. *Id.* at 11:60–61.

Haller also describes a usage scenario where a user is a traveling professional with a PDA who synchronizes the PDA with a corporate exchange server while on the road. *See id.* at 14:24–60.

2. *Independent Claim 1*

a. Petitioner's Contentions

The preamble of claim 1 recites “[a] method for data synchronization between a first terminal device and a second, remotely located, terminal device via an intermediate terminal device.” Ex. 1001, 4:55–57. In support of its analysis for claim 1, Petitioner provides an annotated and color-coded version of Haller’s Figure 1, which is reproduced below.



Pet. 17. In this version of Haller’s Figure 1, Petitioner has annotated and color-coded the figure to show its mapping of the preamble and claim limitations to Haller’s disclosure. *See id.*

For the preamble of claim 1, Petitioner contends that Haller discloses synchronizing data in system 100 “between terminals 7 [sic, 107] (the claimed first terminal device) and a server 101 or 102 (the claimed second terminal device) via a device 106 (the claimed intermediate terminal device).” Pet. 16–17 (citing Ex. 1003 ¶¶ 63–65; Ex. 1005, Fig. 1). In particular, Petitioner cites Haller’s disclosure of terminals 107 (e.g., a desktop computer, laptop computer, or PDA) being coupled to device 106 by short-range radio signals 110. *Id.* at 17 (citing Ex. 1005, 5:29–47). Petitioner further notes that Haller’s servers 101 and 102 are coupled to device 106 via Internet 103, wireless carrier backbone 104, and wide area networks (WAN) 105. *Id.* at 17–18 (citing Ex. 1005, 5:29–47, 5:52–55, 6:20–35). Petitioner also cites Haller’s disclosure that system 100 “addresses the problem that ‘a user is a traveling professional who has a

PDA [personal digital assistant] and needs to synchronize it against a corporate exchange server while on the road.” *Id.* at 18 (quoting Ex. 1005, 14:26–31) (alteration by Petitioner).

Claim 1 further recites “obtaining, at the first terminal device, data to be synchronized with the second remotely located terminal device.” Ex. 1001, 4:60–61. Petitioner cites Haller’s disclosure of a “usage scenario” where a PDA loads synchronization software to synchronize with a corporate exchange server, which “opens a TCP connection to the IP address of the corporate network” and then sends IP packets “across the Bluetooth™ air interface to the cellular telephone using a PPP [point-to-point] protocol and PPP [component] 552.” Pet. 19 (quoting Ex. 1005, 14:40–60). Petitioner contends that this describes obtaining, at the PDA, data packets to be synchronized with server 101 or 102. *Id.* at 18 (citing Ex. 1003 ¶¶ 66–70).

Claim 1 further recites “transmitting the data from the first terminal device to the intermediate terminal device through a short-range connection” (“first ‘transmitting’ limitation”). Ex. 1001, 4:62–64. Petitioner again cites Haller’s disclosure of PDA synchronization software, which causes data packets to travel from terminals 107 (e.g., the PDA) to device 106 (e.g., the cellular telephone) via short range radio signals 110 (e.g., a Bluetooth connection). Pet. 20 (citing Ex. 1003 ¶¶ 71–73; Ex. 1005, 14:47–51, Fig. 1).

Claim 1 further recites “formatting the data to be synchronized into at least one SMS (Short Message Service) message in the intermediate terminal device.” Ex. 1001, 4:65–67. Petitioner cites Haller’s software architecture 500 for device 106, which includes service plug-ins 406. Pet. 21 (citing Ex. 1005, 6:31, 7:35–36, Fig. 4). Petitioner further cites

Haller's disclosure that service plug-ins 406 includes SMS software component plug-in 406h, which is "an SMS server for terminals 107 and an SMS termination for device 106" and which "enables standard legacy SMS or Instant Messaging over SMS." *Id.* at 22 (quoting Ex. 1005, 13:21–26) (citing *id.* at 13:17, Fig. 5). Based on this disclosure, Petitioner contends that "the data packet transmitted from terminals 107 such as the PDA (the claimed first terminal device) is formatted into an SMS message by SMS software component plug-in 406h of device 106 (the claimed intermediate terminal device)." *Id.* at 23; *see also id.* at 21 (citing Ex. 1003 ¶¶ 74–78). Petitioner also cites Haller's disclosure of a protocol enabling terminals 107 to send packets to SMS plug-in 406h so that SMS plug-in 406h can "then send the SMS message to a cellular network." Pet. Reply 18 (quoting Ex. 1005, 13:24–29). According to Petitioner, "[s]ending the packet over the cellular network requires formatting the packet into a format per the respective protocol that is suitable for transmission in a cellular network, such as SMS format." *Id.* at 18–19.

Claim 1 further recites "transmitting the at least one SMS message from the intermediate terminal device to the second remote located terminal device through cellular network connection" ("second 'transmitting' limitation"). Ex. 1001, 5:1–4. Petitioner cites Haller's disclosure of terminals 107 sending SMS software component plug-in 406h a data packet "with a destination device phone number + message text," which plug-in 406h sends as an SMS message to a cellular network. Pet. 24 (citing Ex. 1005, 13:16–35). Petitioner further cites Haller's disclosure that servers 101 and 102 are both coupled to the cellular network. *Id.* (citing Ex. 1005, 6:20–35). As such, Petitioner contends Haller discloses "transmitting the

SMS message from device 106 (the claimed intermediate terminal device) to server 101 or 102 (the claimed second remote located terminal device) through cellular signals 111 (the claimed cellular network connection).” *Id.* at 23 (citing Ex. 1003 ¶¶ 79–82), 25.

b. Patent Owner’s Arguments

Patent Owner contends that, under Petitioner’s mapping of the “obtaining” step (discussed above) and based on antecedent basis, the “data to be synchronized” that is formatted in the “formatting” step “must be ‘data packets’ to be synchronized by Haller’s PDA synchronization embodiment.” PO Resp. 5–10 (citing, *inter alia*, Pet. 18–19). According to Patent Owner, Petitioner’s analysis for the “formatting” step “cites only generally to Haller’s disclosure of ‘plug-in 406h’, and fails to tie ‘plug-in 406h’ to the PDA synchronization embodiment.” *Id.* at 8 (citing Pet. 21–23); *see also* PO Sur-reply 7 (same argument). Patent Owner further argues that “Haller’s PDA synchronization embodiment has nothing to do with, and never interacts with, ‘SMS software component plug-in 406h.’” PO Resp. 8–9; *see also* PO Sur-reply 7 (same argument). In particular, Patent Owner argues that the synchronization embodiment sends data packets over a TCP connection through the Internet rather than via SMS messages. PO Resp. 9–10 (citing Ex. 1005, 13:16–35, 14:40–60); *see also* PO Sur-reply 11 (similar argument). Thus, Patent Owner contends that Petitioner has failed to prove anticipation because the elements of Haller are not arranged as in the claim. PO Resp. 7–8 (citing, *inter alia*, *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1334, 1338 (Fed. Cir. 2008)).

Patent Owner also disputes that Haller discloses the second “transmitting” limitation. PO Resp. 6, 10–11. Patent Owner contends that “there is no evidence whatsoever and nothing to suggest that Haller’s server 101 or 102 receives (or even *can receive*) SMS messages, such that the intermediate device *transmits* at least one SMS message *to* Haller’s server 101 or 102.” *Id.* at 11. Patent Owner notes Haller’s disclosures that “SMS software component plug-in 406h allows **terminals 107** to send messages **between each other** in a LAN 116” and that “SMS 406h is an SMS server for terminals 107 and an SMS termination for device 106.” *Id.* (quoting Ex. 1005, 13:17–18, 13:24–26) (emphasis added by Patent Owner). Patent Owner additionally argues that Haller does not disclose that servers 101 or 102 are associated with any “destination device phone number.” *Id.*; *see also* PO Sur-reply 14 (similar argument).

Patent Owner additionally argues that Petitioner’s anticipation contentions are insufficient because Petitioner merely shows that “Haller’s system may *hypothetically be capable* of performing the claimed [invention].” PO Resp. 12; *see also* PO Sur-reply 16 (same argument). Patent Owner similarly argues that, even if Petitioner has proven that Haller’s servers 101 and 102 are connected to device 106, this is insufficient to show that the “data to be synchronized” in Haller is formatted into an SMS message and transmitted as an SMS message to servers 101 and 102. PO Resp. 12–13; *see also* PO Sur-reply 16–17 (same argument). Patent Owner also argues that Petitioner’s Reply arguments about Haller’s teaching of a protocol enabling terminals 107 to send packets to SMS plug-in 406h do not support that packets sent to a cellular network must be in SMS format. PO Sur-reply 18 (citing PO Resp. 18–19). Patent Owner likewise argues

that Petitioner does not show any particular formatting in Haller that is ascribed to the cellular network. *Id.* at 18–19.

c. Analysis

At the outset, we note that Petitioner relies solely on an express anticipation theory for this ground. Petitioner did not put forth any contentions based on inherent anticipation, and Petitioner did not put forth any arguments or evidence like those in *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015), to show that “a person of skill in the art, reading the reference, would ‘at once envisage’ the claimed arrangement or combination.” Thus, we must decide whether Haller discloses “all elements of [the] claimed invention *arranged as in the claim.*” *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1334 (Fed. Cir. 2008).

In our Decision on Institution, based on the record at the time, we found that, as illustrated in Figure 1, Haller’s device 106 ultimately is coupled to servers 101 and 102 via WAN 105 and carrier backbone 104. Dec. on Inst. 27, 29 (both citing Ex. 1005, 5:52–55, 6:20–35). We also found that Haller “describes how ‘IP packets’ or ‘other packet types’ are transferred between the components illustrated in Figure 1.” *Id.* at 27 (citing Ex. 1005, 5:65–6:2). We further noted Haller’s teaching of SMS plug-in 406h in device 106 that enables SMS messaging to a cellular network. *Id.*; *see also* Ex. 1005, 13:21–26. In light of these teachings, we found that “Haller’s system is agnostic as to whether packets are sent via a cellular network or an IP network, because Haller provides alternative pathways for sending data packets to servers 101, 102.” Dec. on Inst. 27. Thus, even

though Haller describes a PDA synchronization “scenario” where data from a PDA is ultimately synchronized with “corporate VPN and exchange servers” via IP packets over the Internet (*see* Ex. 1005, 14:23–60), we determined that such servers were reachable by SMS message based on Haller’s other teachings of SMS messaging. *Id.* at 27–28. We now reconsider our preliminary determination in light of the entire trial record.

We acknowledge that the structural elements in the embodiment of Haller’s Figure 1 might be capable of formatting and transmitting SMS messages from device 106 to servers 101 and 102. But, as noted by Patent Owner (PO Resp. 12; PO Sur-reply 16), hypothetical and generic connections in the system of Figure 1 are not sufficient to prove anticipation. Instead, given that claim 1 is a method claim, we must consider whether Petitioner’s cited teachings regarding Haller’s processes are arranged as in the claim. *See Finisar*, 523 F.3d at 1334. We conclude that they are not. Importantly, Petitioner cites two different aspects of Haller to support its anticipation analysis: (1) the PDA synchronization “scenario”; and (2) a microrouter service plug-in for SMS messages. Petitioner’s anticipation analysis relies solely on the PDA synchronization scenario for the “obtaining” and first “transmitting” limitations of claim 1. *See* Pet. 18–21. Then Petitioner turns to Haller’s teachings of SMS plug-in 406h for teaching the “formatting” limitation. *See id.* at 21–23. Finally, for the second “transmitting” limitation, Petitioner again relies on Haller’s teachings of SMS plug-in 406h, but with further allusions to the structure of Figure 1 to purportedly establish that the destination of SMS messages can be the same as the PDA synchronization scenario, namely, Haller’s servers 101 and 102. *See id.* at 23–25.

Yet Haller never discloses that SMS messages are transmitted via SMS plug-in 406h to server 101 or server 102 (i.e., the “second remote located terminal device”). Rather, Haller discloses that SMS plug-in 406h sends SMS messages “to a cellular network.” Ex. 1005, 13:16–35. Haller’s synchronization scenario is likewise deficient. It discloses transmission of each IP packet from cellular telephone 106 through VPN software component plug-in 406b, which “packages the packet over an Internet tunnel, encrypts and signs it” for transmission “through the cellular air interface and the Internet” until it “reach[es] the corporate VPN and exchange servers.” *Id.* at 14:32–38, 14:50–59.⁴ Thus, the synchronization scenario does not disclose formatting an SMS message and transmitting an SMS message.

Petitioner’s attempt to link Haller’s teachings regarding the PDA synchronization scenario and SMS plug-in 406h is similarly unsuccessful. Specifically, Petitioner purports to bridge these different aspects of Haller based on the connections in Haller’s Figure 1 system diagram: “*Haller . . . discloses that the cellular network is ‘coupled to a wireless carrier internal network or carrier backbone 104,’ and ‘manager server 102 is coupled to carrier backbone 104,’ and alternatively, ‘carrier backbone 104 is coupled to Internet 103. Server 101 is coupled to Internet 103.’*” Pet. 24–25 (citing Ex. 1005, 6:20–35). But again, this does not establish that Haller’s system formats “data to be synchronized”—which Petitioner maps to the synchronization scenario (*see id.* at 18–19)—into an SMS message for transmission to servers 101 and 102.

⁴ Haller misidentifies VPN plug-in 406b with reference numbers 406f and 406j in these passages.

Importantly, the trial record includes fatal inconsistencies in Petitioner’s attempted fusion of Haller’s disclosures about SMS messaging and Haller’s disclosures about data synchronization. In the Petition, Petitioner argues that “*Haller* is intended to send the SMS message to server 101 or 102. In other words, in *Haller*, the server 101 and 102 is the destination of the SMS message.” Pet. 51; *see also* Ex. 1003 ¶ 144 (same testimony from Mr. Gray). Yet this conflicts with an argument made in the Reply, where Petitioner quotes Haller’s disclosures about SMS plug-in 406h and contends that “the ‘destination device phone number+message text’ described in *Haller* is *the device phone number of the device 106*.” Pet. Reply 14 (quoting Ex. 1005, 13:24–29) (emphasis added). This inconsistency about the ultimate destination of SMS messages in Haller (i.e., servers 101, 102 versus device 106) underscores how Haller does not expressly disclose the use of SMS messages to reach servers 101 or 102 in the context of data synchronization. In addition, the latter of these arguments is untenable in the context of Haller, because it means that SMS plugin 406h in device 106 would end up sending an SMS message to itself (i.e., the destination device) via the cellular network. Ex. 1005, 13:26–29 (stating that each terminal 107 “send[s] a packet to SMS 406h with a destination device phone number+message text. SMS 406h then send[s] the SMS message to a cellular network”).

Our reviewing court has stated that, for anticipation, “it is not enough that the prior art reference discloses part of the claimed invention, which an ordinary artisan might supplement to make the whole, or that it includes multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545

F.3d 1359, 1371 (Fed. Cir. 2008). In our view, Petitioner’s reliance on the *structure* of Haller’s Figure 1 embodiment to bridge various passages regarding the *functional* aspects of Haller’s synchronization scenario is not apt in the context of proving anticipation. Although Haller’s teachings of the system structure of Figure 1 might be capable of rendering claim 1 obvious when combined with Haller’s teachings of the synchronization scenario, that is not the ground put forth by Petitioner. *See id.* (citing 35 U.S.C. § 103(a)) (“[D]ifferences between the prior art reference and a claimed invention, however slight, invoke the question of obviousness, not anticipation.”). For these reasons, and based on the entire trial record, we conclude that Haller does not disclose all limitations of claim 1 arranged as in the claim. Thus, we determine that Petitioner has not shown, by a preponderance of the evidence, that claim 1 is anticipated by Haller.

3. *Independent Claim 14*

Claim 14 recites a “mobile terminal device,” which Petitioner maps to Haller’s wireless device 106. Pet. 26 (citing Ex. 1005, 5:29–31, 5:52–55, 6:16–17); Ex. 1001, 5:40. Claim 14 further recites that the “mobile terminal device” comprises “a data message receiver to receive data from a first terminal device, which data is to be synchronized with a second, remotely located, terminal device via a short range communication link.” Ex. 1001, 5:41–45. Petitioner cites Haller’s processor 307, RF circuit 309, and antenna 313 of device 106 for teaching the recited “data message receiver.” Pet. 26–27 (citing Ex. 1003 ¶ 88; Ex. 1005, 7:6–10, Fig. 3a). Similar to its analysis for claim 1, Petitioner maps the “first terminal device” to Haller’s terminals 107 and the “second, remotely located, terminal device” to

Haller's server 101 or 102. *Id.* at 26. Regarding data synchronization, Petitioner cites the same example discussed above for claim 1 about a PDA user synchronizing data with a corporate exchange server. *See id.* at 27–28 (citing Ex. 1005, 14:40–60).

Claim 14 further recites that the “mobile terminal device” comprises “a formatter to format the received data into at least one SMS (Short Message Service) message.” Ex. 1001, 5:46–47. Similar to its analysis for claim 1, Petitioner cites Haller's service plug-ins 406, including SMS software component plug-in 406h that “enables standard legacy SMS or Instant Messaging over SMS.” Pet. 30 (citing Ex. 1005, 13:16–35, Fig. 5). Petitioner also notes that plug-in 406h is part of the software architecture for device 106. *Id.* at 29 (citing Ex. 1005, 7:35–36, Fig. 4).

Claim 14 further recites that the “mobile terminal device” comprises “a transmitter to transmit the at least one SMS message to the second, remotely located, terminal device through a cellular network connection.” Ex. 1001, 5:48–50. For the transmitter, Petitioner cites Haller's digital circuit 306, analog circuit 308, transceiver 310, receiver 311, and antenna 312. Pet. 31–32 (citing Ex. 1003 ¶ 95; Ex. 1005, 7:12–15, Fig. 3a). The remainder of Petitioner's analysis for this limitation is similar to that of the “transmitting” step of claim 1. *See id.*

Patent Owner relies on the same arguments discussed above with respect to claim 1. *See* PO Resp. 5, 13–14; PO Sur-reply 3, 20. As with claim 1, Petitioner's analysis mixes Haller's synchronization scenario as disclosing the “data message receiver” limitation with Haller's disclosure of SMS plug-in 406h for teaching the “formatter” and “transmitter” limitations, which are tied to SMS messages. For the same reasons mentioned above

with respect to claim 1, and based on the entire trial record, we conclude that Haller does not disclose all limitations of claim 14 arranged as in the claim. Thus, we determine that Petitioner has not shown, by a preponderance of the evidence, that claim 14 is anticipated by Haller.

4. *Independent Claim 23*

The preamble of independent claim 23 recites “[a] program storage device, readable by machine, tangibly embodying a program of instructions executable by machine to perform a method of synchronization between a first terminal device and a second, remotely located, terminal device.” Ex. 1001, 6:9–13. The body of claim 23 recites the steps of the “method of synchronization” mentioned in the preamble, and these steps are substantially similar to the method steps of claim 1. Ex. 1001, 6:15–26. Petitioner relies on the same analysis as for claim 1. Pet. 36. Patent Owner relies on the same arguments discussed above with respect to claim 1. *See* PO Resp. 5, 13–14; PO Sur-reply 3, 20.

For the same reasons mentioned above with respect to claim 1, and based on the entire trial record, we conclude that Haller does not disclose all limitations of claim 23 arranged as in the claim. Thus, we determine that Petitioner has not shown, by a preponderance of the evidence, that claim 23 is anticipated by Haller.

5. *Claims 3, 10–12, 20, 21, 25, 32–34, 38, 39, 43, and 44*

Each of claims 3, 10–12, 20, 21, 25, and 32–34 depend directly or indirectly from one of independent claims 1, 14, and 23. Petitioner’s analysis for these claims does not cure the deficiencies discussed above with

respect to these independent claims. Thus, we determine that Petitioner has not shown, by a preponderance of the evidence, that claims 3, 10–12, 20, 21, 25, and 32–34 are anticipated by Haller.

Claims 38 and 39 depend directly or indirectly from independent claim 36, while claims 43 and 44 depend directly or indirectly from independent claim 41. Although Petitioner purports to put forth anticipation contentions for these dependent claims (*see* Pet. 42–43), Petitioner does not put forth any anticipation contentions for the limitations in independent claims 36 and 41 from which they depend.⁵ In the absence of a complete anticipation analysis, we determine that Petitioner has not shown, by a preponderance of the evidence, that claims 38, 39, 43, and 44 are anticipated by Haller.

E. Obviousness Ground Based on Haller and Yu

Petitioner contends the subject matter of claims 4, 5, 13, 22, 26, 27, 35–37, 40–42, and 45 would have been obvious over the combination of Haller and Yu. Pet. 43–64; Pet. Reply 2–19. Patent Owner disputes Petitioner’s contentions. PO Resp. 5–14; PO Sur-reply 2–20.

⁵ As discussed below, independent claims 36 and 41 both recite “message center” limitations. *See infra* §§ II.E.2, II.E.3. In the Haller–Yu obviousness ground, Petitioner states that it relies on Yu for teaching the “message center” limitations “[i]n the event that Patent Owner argues that *Haller* does not explicitly disclose transmitting the SMS message via an SMS message center.” Pet. 46. But Petitioner never asserts that Haller discloses the “message center” limitations. Thus, Petitioner has not put forth any anticipation contentions for claims 36 and 41.

1. Yu

Yu is a U.S. patent directed to providing wireless instant messaging.
Ex. 1006, 1:7–9. Figure 6 of Yu is reproduced below.

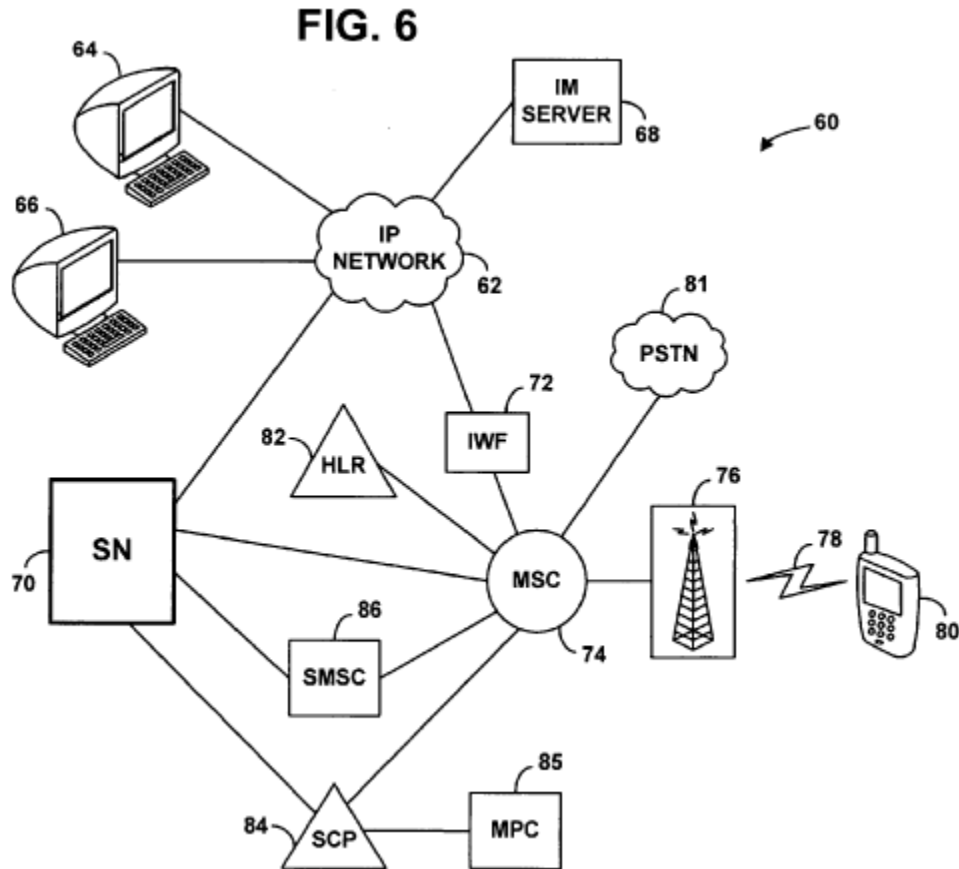


Figure 6 is a block diagram of telecommunications network 60 including Internet Protocol (IP) network 62. *Id.* at 10:4–6, 10:17–20, 10:38–39. Instant Messaging (IM) client terminals 64, 66, IM server 68, service node 70, and interworking function (IWF) 72 are connected to IP network 62. *Id.* at 10:40–42. IWF 72 communicatively couples IP network 62 with mobile switching center (MSC) 74, which may be part of a serving system in a wireless telecommunications network. *Id.* at 11:6–10, 11:18–20. In turn, MSC 74 is coupled with cellular base station controller (BSC) 76, which is arranged to communicate over air interface 78 with

mobile station 80. *Id.* at 11:21–23. Mobile station 80 is capable of sending and receiving SMS messages. *Id.* at 11:45–48. MSC 74 is further coupled to short message service center (SMSC) 86,⁶ which can store SMS messages if a recipient is unavailable and then forward them later when the recipient becomes available. *Id.* at 4:26–33, 4:52–56, 12:24–27.

2. *Independent Claim 36*

Petitioner’s unpatentability contentions for claim 36 are similar to and build upon its contentions for claim 1 in the Haller anticipation ground. In contrast, however, claim 36 recites “transmitting the least one SMS message from the intermediate terminal device *to a message center*.” Ex. 1001, 7:6–7 (emphasis added). Petitioner again relies on Haller’s teaching of transmitting the SMS message from device 106 (i.e., the “intermediate terminal device”) to server 101 or 102. Pet. 46; *see also supra* § II.E.2. For the recited “message center,” Petitioner further relies on Yu’s teaching of short message service center 86 (also called just a “message center”) that can store (if, for example, a recipient is unavailable) and forward SMS messages in a cellular network. Pet. 48–49 (citing Ex. 1006, 12:25–36). Petitioner proposes modifying Haller such that “the SMS message of *Haller* is sent to the short message service center first, as taught by *Yu*.” *Id.* at 50 (citing Ex. 1003 ¶ 142; Ex. 1006, 4:26–36).

Claim 36 also recites “transmitting the at least one message *from the message center* to the second remote located terminal device through a cellular network connection.” Ex. 1001, 7:8–10 (emphasis added).

⁶ Yu states that the short message service center (SMSC) is sometimes referred to as simply a message center (MC). Ex. 1006, 4:26–29.

Petitioner continues its proposed modification of Haller based on Yu “to send the SMS message from the short message service center to server 101 or 102, because *Haller* is intended to send the SMS message to server 101 or 102.” Pet. 51 (citing Ex. 1003 ¶ 144).

Citing testimony from Mr. Gray, Petitioner contends an ordinarily skilled artisan would have understood Yu to fill a gap in the details as to how Haller was capable of sending SMS messages to a remote server in a cellular network. *Id.* at 50 (citing Ex. 1003 ¶ 142); *see also id.* at 43–44 (citing Ex. 1003 ¶ 131) (noting similarities in components and functions described in the two references). Petitioner further contends an ordinarily skilled artisan would have been motivated to route messages through an SMS service center to “provide flexibility in message transmission and also prevent data packet loss.” *Id.* at 50 (citing Ex. 1003 ¶ 142).

Patent Owner relies on the same arguments discussed above with respect to claim 1 of the Haller anticipation ground. *See* PO Resp. 5–14; PO Sur-reply 2–20.

We find that Petitioner’s obviousness analysis for claim 36 differs from its anticipation analysis for claim 1 based on Haller only insofar as it addresses the “message center” limitations of claim 36. *See* Pet. 46–51. In other words, Petitioner does not put forth any obviousness theory based on the combination of Haller and Yu that overcomes the deficiencies discussed above with respect to the independent claims in the Haller anticipation ground. Nor does Petitioner attempt to establish in this ground that, for example, it would have obvious to combine Haller’s teachings regarding the synchronization scenario with Haller’s teachings of SMS capabilities. As such, Petitioner’s obviousness analysis for claim 36 does not cure the

deficiencies discussed above with respect to the independent claims in the Haller anticipation ground. Thus, for similar reasons to those mentioned above with respect to claim 1, and based on the entire trial record, we determine that Petitioner has not shown, by a preponderance of the evidence, that claim 36 would have been obvious over the combination of Haller and Yu.

3. *Independent Claim 41*

Claim 41 is similar to claim 23 insofar as it recites “[a] program storage device” holding instructions to perform “a method of data synchronization.” Ex. 1001, 7:22–8:12. Claim 41 also includes recitations regarding transmitting a message to and from a message center. Ex. 1001, 8:8–12. Petitioner relies on its analysis of claims 1 and 23 from the Haller anticipation ground and its analysis of the “message center” limitations in claim 36. Pet. 52–53. Patent Owner relies on the same arguments discussed above. *See* PO Resp. 5, 13–14; PO Sur-reply 3, 20. For the same reasons discussed above with respect to claim 36, Petitioner’s obviousness analysis for claim 41 does not cure the deficiencies discussed above with respect to the independent claims in the Haller anticipation ground. Thus, based on the entire trial record, we determine that Petitioner has not shown, by a preponderance of the evidence, that claim 41 would have been obvious over the combination of Haller and Yu.

4. *Claim 4, 5, 13, 22, 26, 27, 35, 37, 40, 42, and 45*

Claim 37 depends from independent claim 36, and claims 42 and 45 depend from independent claim 41. Petitioner’s analysis for these claims

does not cure the deficiencies discussed above with respect to the independent claims. Thus, we determine that Petitioner has not shown, by a preponderance of the evidence, that claims 37, 42, and 45 would have been obvious over the combination of Haller and Yu.

Each of claims 4, 5, 13, 22, 26, 27, and 35 depend directly or indirectly from one of independent claims 1, 14, and 23, which are discussed above in the Haller anticipation ground. For the same reasons discussed above with respect to claim 36, Petitioner's obviousness analysis for claims 4, 5, 13, 22, 26, 27, and 35 does not cure the deficiencies discussed above with respect to the independent claims. Thus, we determine that Petitioner has not shown, by a preponderance of the evidence, that claims 4, 5, 13, 22, 26, 27, and 35 would have been obvious over the combination of Haller and Yu.

Claim 40 recites "[t]he method of claim 31, further comprising transmitting other data from the second terminal device to the first terminal device via the intermediate terminal device." Ex. 1001, 7:19–21. The reference to claim 31 appears to be a typographical error in the challenged patent, because claim 31 recites a "program storage device" (and not a method) by virtue of its dependency from independent claim 23. *See id.* at 6:9–26, 6:47–48. Given the dependency structure within the '505 patent, we assume that the patentees intended to have claim 40 depend directly or indirectly from claim 36, which recites a method. Regardless of the correct interpretation, however, Petitioner's obviousness contentions for claim 40 do not cure the deficiencies in its analysis for the independent claims, as discussed above. Thus, we determine that Petitioner has not shown, by a

preponderance of the evidence, that claim 40 would have been obvious over the combination of Haller and Yu.

F. Obviousness Ground Based on Haller and Singhal

Petitioner contends the subject matter of claims 2, 6–8, 15–18, 24, and 28–30 would have been obvious over the combination of Haller and Singhal. Pet. 64–72; Pet. Reply 2–19. Patent Owner disputes Petitioner’s contentions. PO Resp. 5–14; PO Sur-reply 2–20.

1. Singhal

Singhal is a U.S. patent directed to enabling wireless information devices to access and manipulate data in various formats. Ex. 1007, 3:28–33. Singhal states that a wireless device may include software to provide enhanced authentication, encryption, compression, or similar functions that augment the transmission of data. *Id.* at 5:29–32. For example, Singhal discloses that SyncML is a synchronization protocol proxy that is used to seamlessly synchronize wireless and wireline data and devices. *Id.* at 6:8–15. Singhal also discloses that XML files may be converted to WBXML decks. *Id.* at 7:56–58. Singhal further discloses that a multi-part MIME message may be generated that contains the original content in one part and a service description in another part. *Id.* at 15:3–6.

2. Claims 2, 6–8, 15–18, 24, and 28–30

Petitioner’s unpatentability contentions for dependent claims 2, 6–8, 15–18, 24, and 28–30 build upon its contentions for independent claims 1, 14, and 23 in the Haller anticipation ground. Petitioner cites Singhal for

teaching certain added characteristics of SMS messages that are recited in these dependent claims, including “SyncML format” (*see* Pet. 65–66 (citing Ex. 1007, 6:9–16)), “compressed SMS message[s]” (*see* Pet. 66–67 (citing Ex. 1007, 5:29–32)), “WBXML (Wireless Application Protocol Binary Extensible Markup Language) encoded message[s]” (*see* Pet. 67–69 (citing Ex. 1007, 7:56–60, 15:14–16, 15:36–39, 15:44–46)), and “MIME (Multipurpose Internet Mail Extensions) formats” (*see* Pet. 69 (citing Ex. 1007, 15:3–8)). Petitioner provides reasons for combining Singhal with Haller based on the desirability of enabling various synchronization protocols and of ensuring data formatting compatibility. *See* Pet. 64–69 (citing Ex. 1003 ¶¶ 176–200).

Patent Owner relies on the same arguments discussed above with respect to claim 1 of the Haller anticipation ground. *See* PO Resp. 5–14; PO Sur-reply 2–20.

Petitioner’s obviousness analysis for claims 2, 6–8, 15–18, 24, and 28–30 does not cure the deficiencies discussed above with respect to the independent claims in the Haller anticipation ground. Thus, for similar reasons to those mentioned above with respect to claims 1, 14, and 23, and based on the entire trial record, we determine that Petitioner has not shown, by a preponderance of the evidence, that claims 2, 6–8, 15–18, 24, and 28–30 would have been obvious over the combination of Haller and Singhal.

G. Obviousness Ground Based on Haller, Singhal, and Oueslati

Petitioner contends the subject matter of claims 9, 19, and 31 would have been obvious over the combination of Haller, Singhal, and Oueslati.

Pet. 72–74; Pet. Reply 2–19. Patent Owner disputes Petitioner’s contentions. PO Resp. 5–14; PO Sur-reply 2–20.

1. Oueslati

Oueslati is a U.S. patent directed to “a communication protocol for short messaging wireless communication.” Ex. 1008, 1:8–11. Oueslati describes a protocol for wireless data exchange via packet transport that can be used with, for example, a personal digital assistant (PDA) having a Global System for Mobile Communications (GSM) radio that utilizes Short Message Service (SMS). *Id.* at 2:44–50. The protocol includes a data type identifier that can identify by extension, MIME type, or application creator. *Id.* at 2:60–64. Oueslati states that the data type can be identified by the “vcf” or “vCard” category (*id.* at 9:45–49) and also provides an example of sending vCards wirelessly via SMS (*id.* at 10:1–23).

2. Claims 9, 19, and 31

Petitioner’s unpatentability contentions for dependent claims 9, 19, and 31 build upon its contentions from the Haller–Singhal obviousness ground. Petitioner further cites Singhal for teaching the transmission of calendar data between a wireless information device and a PC, which Petitioner contends is evidence that Singhal uses v-calendar/vcal format. *See* Pet. 73 (citing Ex. 1003 ¶ 203; Ex. 1007, 16:21–23). Petitioner also cites Oueslati for teaching added limitations in these dependent claims directed to the vcard formats. *See id.* at 73–74 (citing Ex. 1008, 2:60–64, 9:45–49, 10:3–5). Petitioner provides reasons for combining Haller,

Singhal, and Oueslati based on the desirability of enabling synchronization with vcard or vcal formats. *See id.* at 72–73 (citing Ex. 1003 ¶¶ 201–207).

Patent Owner relies on the same arguments discussed above with respect to claim 1 of the Haller anticipation ground. *See* PO Resp. 5–14; PO Sur-reply 2–20.

Petitioner’s obviousness analysis for claims 9, 19, and 31 does not cure the deficiencies discussed above with respect to the independent claims in the Haller anticipation ground. Thus, for similar reasons to those mentioned above with respect to claims 1, 14, and 23, and based on the entire trial record, we determine that Petitioner has not shown, by a preponderance of the evidence, that claims 9, 19, and 31 would have been obvious over the combination of Haller, Singhal, and Oueslati.

III. CONCLUSION

Petitioner has not shown, by a preponderance of the evidence, that any of claims 1–45 of the ’505 patent are unpatentable.

IV. ORDER

Accordingly, it is

ORDERED that claims 1–45 of the ’505 patent are not unpatentable; and

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

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 3, 10–12, 14, 20, 21, 23, 25, 32–34, 38, 39, 43, 44	102(e)	Haller		1, 3, 10–12, 14, 20, 21, 23, 25, 32–34, 38, 39, 43, 44
4, 5, 13, 22, 26, 27, 35–37, 40–42, 45	103(a)	Haller, Yu		4, 5, 13, 22, 26, 27, 35–37, 40–42, 45
2, 6–8, 15–18, 24, 28–30	103(a)	Haller, Singhal		2, 6–8, 15–18, 24, 28–30
9, 19, 31	103(a)	Haller, Singhal, Oueslati		9, 19, 31
Overall Outcome				1–45

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