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Paper No. 42
Entered: December 17, 2018

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

OOMA, INC.,
Petitioner,

v.

DEEP GREEN WIRELESS LLC,
Patent Owner.

Case IPR2017-01541
Patent RE42,714 E

Before RAMA G. ELLURU, DANIEL J. GALLIGAN, and SHARON FENICK, *Administrative Patent Judges*.

FENICK, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
Inter Partes Review
35 U.S.C. § 318(a)

I. INTRODUCTION

In this *inter partes* review, Ooma, Inc. ("Petitioner") challenges the patentability of claims of U.S. Patent No. RE42,714 E (Ex. 1001, "the '714 patent"), which was assigned to Deep Green Wireless LLC ("Patent Owner").

We have jurisdiction under 35 U.S.C. § 6(b)(4). This Final Written Decision, issued pursuant to 35 U.S.C. § 318(a), addresses issues and arguments raised during this *inter partes* review. For the reasons discussed below, we determine that Petitioner has proven by a preponderance of the evidence that claims 35, 37–39, 43, 44, 46–48, 52, 53, and 55–57 of the '714 patent are unpatentable. *See* 35 U.S.C. § 316(e) ("In an inter partes review instituted under this chapter, the petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.").

A. Procedural History

On June 8, 2017, Petitioner requested *inter partes* review of claims 35, 37–39, 43, 44, 46–48, 52, 53, and 55–57 (the "challenged claims") of the '714 patent. Paper 1 ("Pet."). The Petition relies on the Declaration of Dr. Harry V. Bims (Ex. 1009). Patent Owner filed a Preliminary Response. Paper 7.

On December 18, 2017, based on the record before us and in accordance with the Board's practice at the time, we instituted an *inter partes* review of all of the challenged claims, although not on all of the asserted grounds. Paper 8 ("Decision on Institution" or "Dec."), 2, 31–33. On March 5, 2018, Patent Owner filed a Response. Paper 16 ("PO Resp.").

On May 3, 2018, pursuant to the Supreme Court's decision in *SAS Institute, Inc. v. Iancu*, 138 S. Ct. 1348, 1358 (2018), holding that a decision to institute under 35 U.S.C. § 314 may not institute on less than all claims challenged in the petition, we issued an Order modifying our Decision on Institution to institute review of all claims and all grounds of the Petition. Paper 23. The parties filed a Joint Motion to Limit the Petition on May 24, 2018, which we granted on May 29, 2018, limiting the Petition by excluding from the Petition challenges based on U.S. Patent No. 6,712,306, issued to Farris et al. Paper 26; Paper 28. Accordingly, the following grounds are at issue in this trial:

Reference(s)	Basis	Claims Challenged
Gernert[1]	§ 102(e)	35, 37–39, 43, 44, 46–48, 52, 53, and 55–57
Gernert and/or Gernert and AT&T[2]	§ 103	35, 37–39, 43, 44, 46–48, 52, 53, and 55–57
IBM[3] and/or IBM and Arai[4]	§ 103	35, 37–39, 43, 44, 46–48, 52, 53, and 55–57

See Pet. 3; Paper 23; Paper 28. We also authorized Patent Owner to file a supplemental response relating to the 35 U.S.C. § 102(e) ground of unpatentability over Gernert, added to the Decision on Institution by our Order of May 3, 2018. Paper 28, 3; Paper 23, 2. Patent Owner filed such a

[1] Gernert et al., U.S. Patent No. US 6,600,734 B1, iss. July 29, 2003 (Ex. 1004).
[2] Gerszberg et al., U.S. Patent 6,452,923 B1, iss. Sept. 17, 2002 (Ex. 1006) ("AT&T").
[3] Hortensius et al., Euro. Pat. App. No. EP 0789470 A2, pub. Aug. 13, 1997 (Ex. 1007) ("IBM").
[4] Arai et al., Euro. Pat. App. No. EP 0785637 A2, pub. July 23, 1997 (Ex. 1008).

Supplemental Response on May 30, 2018. Paper 29 ("PO Supp. Resp."). Petitioner filed its Reply on June 8, 2018. Paper 30 ("Pet. Reply").

Oral Argument was conducted on August 13, 2018, and a transcript of that hearing is of record. Paper 41 ("Tr."). Patent Owner filed a Motion to Exclude on July 12, 2018; Petitioner filed an opposition on July 23, 2018; and Patent Owner filed a reply on July 30, 2018. Papers 36–38.

B. Related Matters

Petitioner and Patent Owner inform us that Patent Owner has asserted the '714 patent in the following district court case: *Deep Green Wireless LLC v. Ooma, Inc*., Case No. 4:17-cv-2434-JSW in the United States District Court for the Northern District of California. Pet. 1; Paper 5, 1.

C. The '714 Patent

The '714 patent is titled "Apparatus for Voice Communications over Wired and Wireless Networks" and relates to a telephone line distribution system that enables simultaneous operation of computer telephony and other equipment. Ex. 1001, [54], 2:24–30. A multi-function peripheral device, such as a computer card, has "connection facilities for telephone lines and equipment which uses telephone lines." *Id*. at 3:7–11. "Once properly configured, a system according to the invention can perform telephony and signal conversions for operation of connected devices." *Id*. at 4:18–21.

The device can include a discrimination circuit that detects the type of incoming call. *Id*. at 5:8–10. This allows a user to establish priorities as to how incoming calls will be processed, including determining which connected device should be used for the incoming call and which alternate device(s) should be used, and in which order, if the first device is in use or not responsive. *Id*. at 2:30–32, 4:57–5:7. In particular, the user may set a

device order for an incoming call software setup screen as shown in Figure 4 of the ’714 patent, reproduced below:

Figure 4

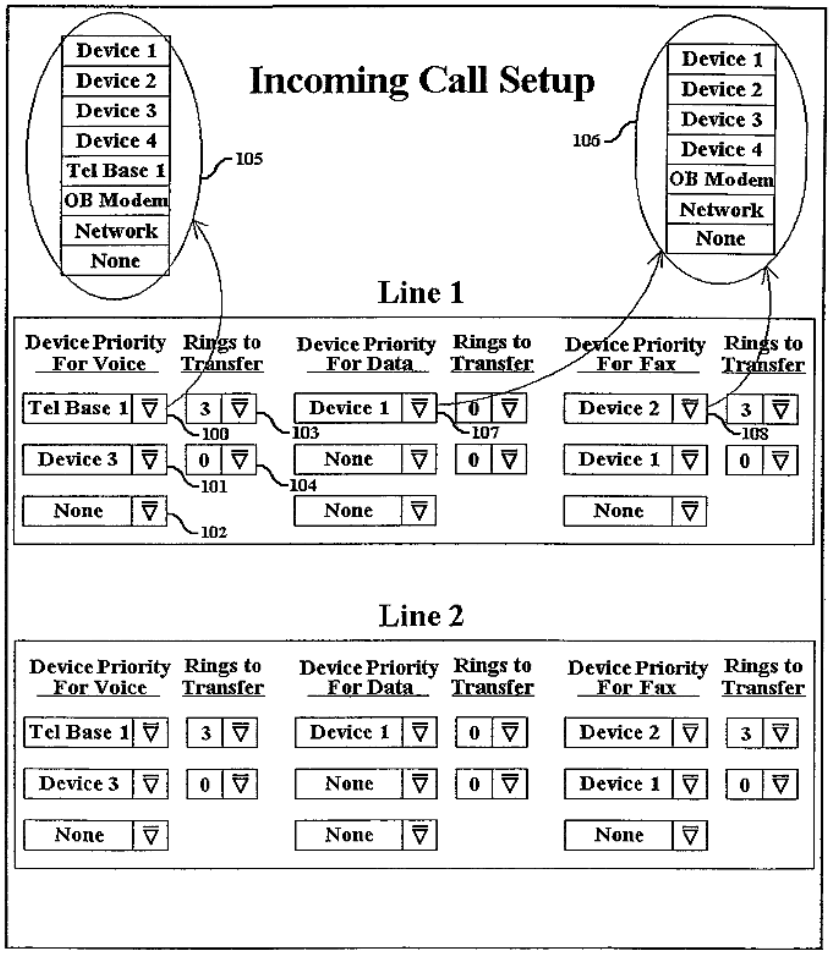
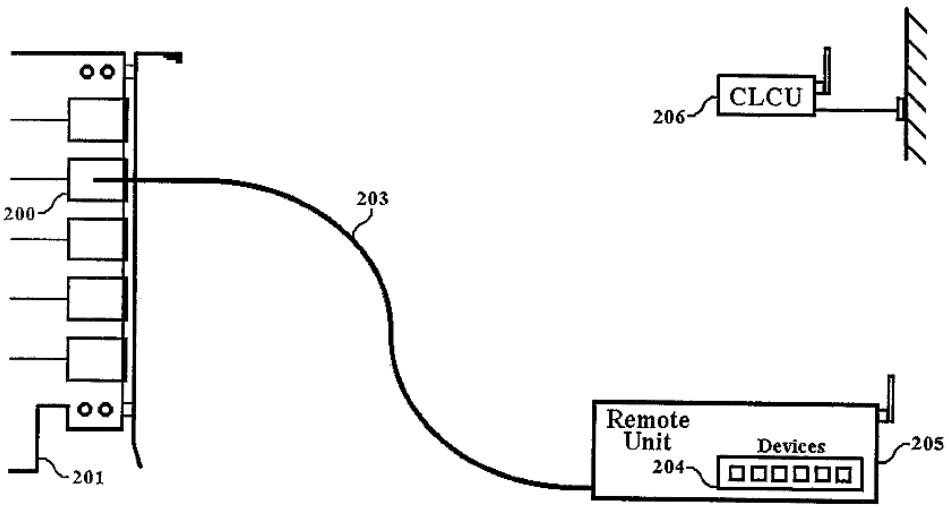


Figure 4 shows a setup screen for setting priority for allowing three possible devices to be selected for each of three types of incoming calls that might be received (i.e., voice, data, and fax) on a specified line. *Id*. at 2:62–63, 4:57–5:4. The devices are listed in the order in which they will be called, from top to bottom. *Id*. at 4:62–64. In the example shown in Figure 4, for a voice call to Line 1, “Tel Base 1” (shown selected at element 100) is rung first and “Device 3” (shown selected at element 101) is rung next. *Id*. at 4:64–5:4.

The possible device selections available to be used in a device order are shown in selection box 105. *Id*. at 5:4–5.

Wireless or cellular communications that are received may be provided through a remote unit (RU) as shown in Figure 7 of the '714 patent, reproduced below:

Figure 7



As shown above in Figure 7, Remote Unit 205 connects to a device 201 and communicates wirelessly with Communication Line Control Unit (CLCU) 206, which in turn is connected to communication lines in another location. *Id.* at 6:8–14. Alternatively, the '714 patent specification explains that for cellular communications, remote unit 205 communicates "through the air to a cellular network." *Id*. at 6:14–16.

D. Illustrative Claim

Claims 35, 44, and 53 of the challenged claims of the '714 patent are independent. Claim 35 is illustrative of the claimed subject matter:

> 35. An apparatus for routing digital data signals among a plurality of telecommunications devices over a network, the apparatus comprising:
>
> a network interface for connection to at least one network communication line, wherein the network interface receives digital data signals over the at least one network communication line, the digital data signals comprising at least one voice signal;
>
> a discrimination circuit connected to the network interface for detecting incoming voice signals from among other digital data signals;
>
> a wireless interface, wherein the wireless interface communicates the digital data signals between a plurality of wireless telecommunications devices; and
>
> a processor for executing instructions to route the digital data signals between the network interface, the wireless interface, and the plurality of wireless telecommunications devices for communication over the network; and
>
> a circuit for routing voice communication sessions to specific telecommunications devices.

II. ANALYSIS

A. Person of Ordinary Skill in the Art

Petitioner does not provide a proposed definition for the level of one of ordinary skill in the art. *See, generally,* Pet. 38–61. Petitioner relies in part on the declaration of Dr. Bims (Ex. 1009) who also does not opine on the definition of one of ordinary skill.

Specification of the level of skill in the art supplies "an important guarantee of objectivity in the process" of determining obviousness. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). We find this to

be a case in which "the prior art itself reflects an appropriate level" of skill in the art. *Id*. (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp*., 755 F.2d 158, 163 (Fed. Cir. 1985)). We analyze the asserted grounds using the level of skill reflected in the prior art.

B. Claim Construction

In an *inter partes* review where (as here) the petition was filed before November 13, 2018, the Board interprets claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent. 37 C.F.R. § 42.100(b) (2016); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard as the claim interpretation standard to be applied in *inter partes* reviews). Under the broadest reasonable construction standard, claim terms are generally given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). We apply this standard to the claims of the '714 patent.

Petitioner and Patent Owner each argue that no claim constructions are necessary in this proceeding. Pet. 4–5; PO Resp. 8. In our Decision on Institution, we determined that no terms of the challenged claims required express construction at that time. Dec. 8–9. Based on the record developed during trial, we maintain our initial determination that the terms of the challenged claims do not require express constructions. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

C. Principles of Law

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *See Net*

MoneyIN, Inc. v. VeriSign, Inc., 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). 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); *accord In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

A patent 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. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) any secondary considerations of nonobviousness, if in evidence.[5] *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

D. Asserted Anticipation by and Obviousness over Gernert

Petitioner contends claims 35, 37–39, 43, 44, 46–48, 52, 53, and 55–57 are anticipated by Gernert and would have been obvious over Gernert. Pet. 3, 8–22, 38. Patent Owner presents arguments disputing these

[5] The record contains no allegations or evidence of secondary considerations.

contentions. PO Resp. 12–48; PO Supp. Resp. 1–10 (citing PO Resp. 14–20).

1. Overview of Gernert

Gernert is titled "Apparatus for Interfacing a Wireless Local Network and a Wired Voice Telecommunications System" and describes a wireless local network and an apparatus that includes the functionality of a gateway, such as a public switched telephone network (PSTN) voice gateway, with a wireless local area network (LAN) base station or access point. Ex. 1004, [54], [57], 1:21–26, 4:31–37.

Gernert provides an illustrative wireless LAN as shown in Figure 1 of Gernert, reproduced below:

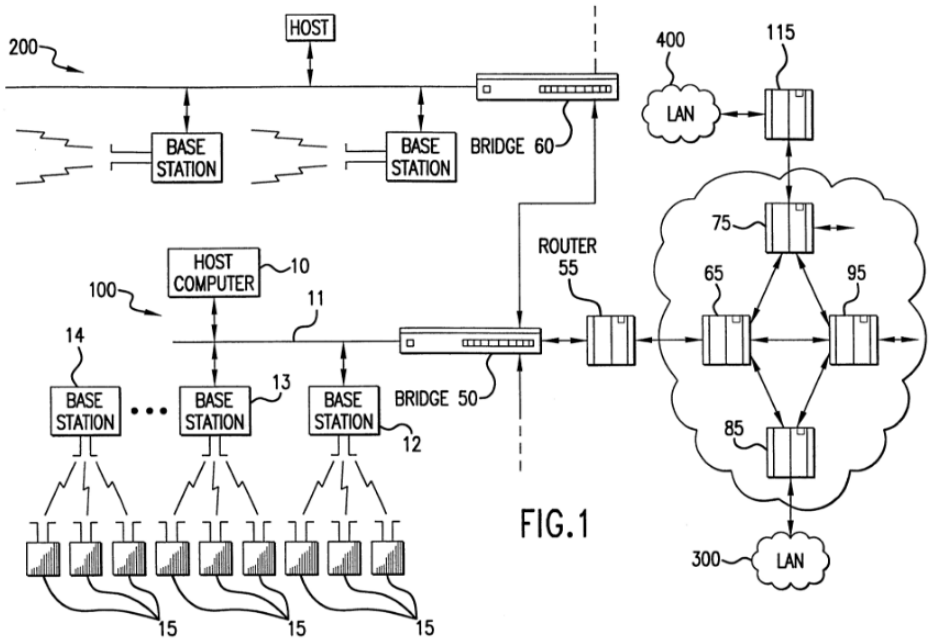


Figure 1 of Gernert "is a diagram illustrating a wireless local area network" in which the invention of Gernert may be implemented. *Id*. at 6:13–15. Gernert shows first LAN 100 including a host processor 10 connected to a number of stationary access points or base stations 12, 13, 14, which in turn

connect mobile units to the network via a radio frequency (RF) link. *Id.* at 6:38–49.

Gernert discloses, in a system with a wireless LAN and a wide area network or PSTN, apparatus 50 combining the functions of a wireless communication system access point or base station and a telephony gateway, in order to provide "a simple and user-transparent interface" between wireless LAN and other networks. *Id*. at 4:4–10, 4:34–37, 5:21–34, 7:59–63. Gernert's Figure 3, a block diagram illustrating an apparatus interfacing a wireless LAN and a PSTN, is reproduced below:

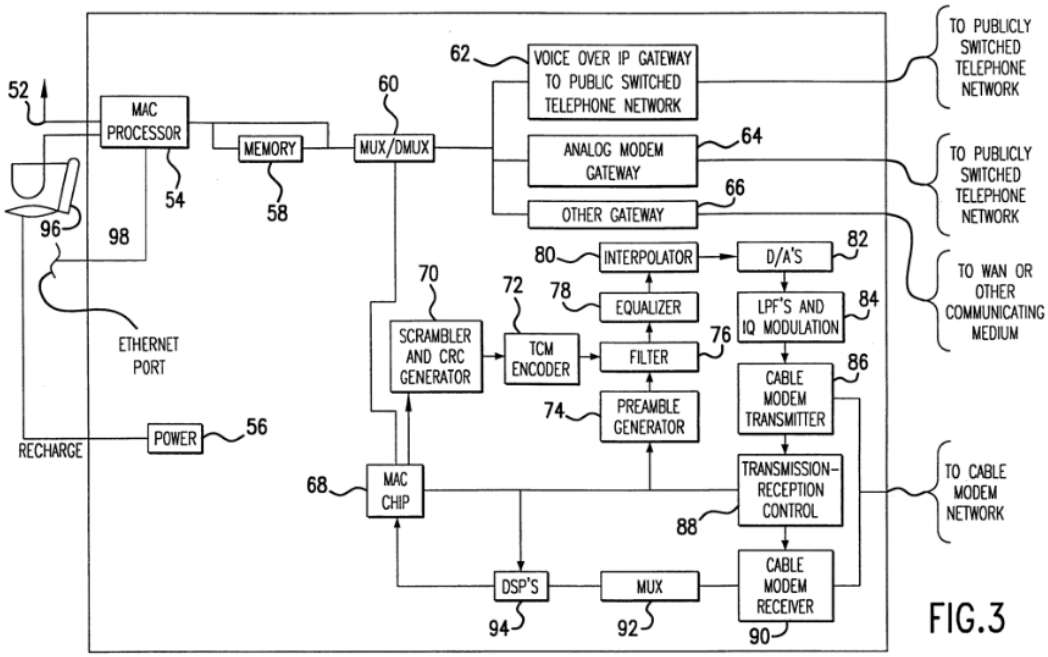


FIG.3

Figure 3 shows apparatus 50 including: voice gateway 62, which allows signals to be sent for transmission to a PSTN, and "other gateway" 66, which may be a gateway for cellular radio telephony or other networks. *Id.* at 6:18–21, 7:59–63, 8:25–67. Apparatus 50 also includes one or more transmitter/receivers 52 for radio communications to mobile units and a wall or docking station for a wireless handset or mobile computer terminal. *Id*. at

8:8–9, 9:63–10:8, 10:44–52. Apparatus 50 includes a multiplexor/demultiplexor 60, which can route data packets to an appropriate gateway, such as voice packets to voice gateway 62 and digital datagrams from the LAN to analog modem gateway 64. *Id*. at 8:25–39. Apparatus 50 also includes an access point Media Access Control (MAC) processor 54, coupled to transmitter/receiver 52, "which functions to send and receive data frames in the appropriate format to and from the transmitter/receiver 52 at the appropriate times. *Id*. at 8:10–13.

In one embodiment, a wireless desk telephone communicates to a PSTN via apparatus 50. *Id.* at 10:63–11:7. Gernert discloses that voice packets sent via such a phone may contain a header with a flag indicating that the packets contain voice-encoded data. *Id*. at 11:24–42.

2. Analysis of Asserted Anticipation by and Obviousness over Gernert

Petitioner maps the disclosure of Gernert to the limitations of independent claim 35, and contends that claim 35 is anticipated by Gernert. Pet. 8–14. Petitioner additionally argues that claim 35 would have been obvious over Gernert. Pet. 38. Patent Owner presents a number of arguments alleging deficiencies in Petitioner's arguments relating to anticipation of claim 35 by Gernert and obviousness of claim 35 over Gernert. PO Supp. Resp. 2–10; PO Resp. 9–21. We determine that Petitioner has not established unpatentability of claim 35 based on Gernert alone, because Petitioner has not shown by a preponderance of the evidence that Gernert discloses "a discrimination circuit connected to the network interface for detecting incoming voice signals from among other digital data signals" (hereinafter "the discrimination circuit limitation"), as discussed

below, Sections II.D.2.c and II.D.2.d. However, we discuss each claim limitation because each is relevant to the ground of obviousness under Gernert and another reference, discussed below, Section II.E.

a. Petitioner's Contentions: Claim 35 (Excepting Discrimination Circuit Limitation)

Petitioner argues that Gernert discloses a system in which a plurality of telecommunications devices receive digital data signals, including VoIP packets, over a network. Pet. 8 (citing, *inter alia*, Ex. 1004, Fig. 1 elements 12, 13, and 15, 3:43-46, 10:28–29, 10:44–62.). For the claimed apparatus discussed in claim 35, Petitioner refers to Gernert's apparatus 50. *Id*. (citing Ex. 1004, 7:63–8:7, 10:28–29, 10:44–62; Ex. 1009 ¶¶ 7–8). Petitioner asserts Gernert discloses that apparatus 50 "combin[es] the functions of an access point and a gateway" (Ex. 1004, 5:20–22) and is coupled to a number of remote mobile units, e.g., voice communication handsets. Pet. 8–9 (citing Ex. 1004, 5:20–34, 6:38–67; Ex. 1009 ¶¶ 7–8, 11); *see also* Ex. 1004, 7:60–62 ("[A]pparatus 50 . . . combines the functions of a wireless communication system access point and a telephony gateway in a single unit . . . .").

The apparatus of claim 35 comprises "a network interface for connection to at least one network communication line, wherein the network interface receives digital data signals over the at least one network communication line, the digital data signals comprising at least one voice signal." Ex. 1001, 9:40–44. Petitioner argues that Gernert's apparatus 50 contains a number of network interfaces that disclose the claimed network interface. Pet. 9. Petitioner argues that these include, *inter alia*, a PSTN voice gateway, an analog modem gateway, and a port for connecting to a LAN. *Id*. (citing Ex. 1004, 5:20–34, Fig. 3; Ex. 1009 ¶¶ 10–13). We are

persuaded by Petitioner's evidence and argument and find that this limitation is disclosed by Gernert.

The apparatus of claim 35 further comprises "a wireless interface, wherein the wireless interface communicates the digital data signals between a plurality of wireless telecommunications devices." Ex. 1001, 9:48–50. Petitioner notes that apparatus 50 "contains one or more transmitter/receivers 52 for radio communications to the mobile units" and argues that these disclose the claimed wireless interface communicating digital data signals between a plurality of wireless telecommunications devices. Pet. 12 (quoting Ex. 1004, 8:8–9; citing Ex. 1009 ¶¶ 25–27). We are persuaded by Petitioner's evidence and argument and find that this limitation is disclosed by Gernert.

The penultimate limitation of claim 35 is that the apparatus comprises "a processor for executing instructions to route the digital data signals between the network interface, the wireless interface, and the plurality of wireless telecommunications devices for communication over the network." Ex. 1001, 9:51–54. Petitioner argues that according to Gernert's disclosure, apparatus 50 contains processor 54 and multiplexor 60, which conduct routing between remote mobile devices (via the wireless interface) and the network interface. Pet. 12–13 (citing Ex. 1004, 5:12–19, 8:8–39 ("The memory 58 may be coupled to a switch or processor and multiplexor/demultiplexor 60 which provides processing and switching functions to route the data packets between MAC [(media access control)] processor 54 and an appropriate gateway."); Ex. 1009 ¶ 26). We are persuaded by Petitioner's evidence and argument and find that this limitation is disclosed by Gernert.

The last limitation of claim 35 requires that the apparatus comprises "a circuit for routing voice communication sessions to specific telecommunications devices." Ex. 1001, 9:55–56. Petitioner asserts that Gernert shows that stationary access points or base stations are coupled to remote mobile units, which may be, for example, voice communication handsets. Pet. 8 (quoting Ex. 1004, 6:42–49). Gernert describes that a processor at an access point determines, when detecting a message from one mobile unit, whether it is to be routed to another mobile unit. Ex. 1004, 5:12–15, *cited in* Pet. 13; Ex. 1009 ¶¶ 28–29). We are persuaded by Petitioner's evidence and argument and find that this limitation is disclosed by Gernert.

However, we determine that Petitioner has not established that Gernert anticipates claim 35 or that claim 35 would have been obvious over Gernert, as further discussed below, because Petitioner does not show by a preponderance of the evidence that the discrimination circuit limitation is anticipated by or would have been obvious over Gernert alone.

b. Petitioner's Contentions: Discrimination Circuit Limitation

Claim 35's apparatus also comprises "a discrimination circuit connected to the network interface for detecting incoming voice signals from among other digital data signals." Ex. 1001, 9:45–47. Petitioner characterizes Gernert's disclosure with respect to the transmission of certain packetized digital signals representing voice data as teaching the discrimination circuit limitation. Pet. 10–11. In particular, Gernert states that "[t]hese packets will normally contain a header with a flag indicating that the packets contain[] voice encoded data. This allows a network node

such as a hub or router to treat a voice packet differently from packets containing data . . . ." Ex. 1004, 11:34–38, *cited in* Pet. 10. In addition, Petitioner asserts that "Gernert's network node is connected to the network interface and is capable of detecting incoming voice signals from among other digital data signals." Pet. 10–11. Petitioner specifically refers to Gernert's processor 54/multiplexor 60 within apparatus 50 as performing the claimed detection in the limitation. *Id*. at 11 (citing Ex. 1004, 8:25–33). Petitioner argues that, "[f]or example, Gernert's processor 54/multiplexor 60 provides appropriate formatting and communication of the voice packets to voice gateway 62" while "digital datagrams may be sent to the modem gateway." Pet. 11. Alternatively, Petitioner argues that all limitations of claim 35, including specifically the discrimination circuit limitation, which Petitioner admits is "not elaborately discuss[ed]" in Gernert, would have been obvious over the teachings of Gernert alone. Pet. 38.

c. Discrimination Circuit Limitation – Anticipation by Gernert

With respect to the discrimination circuit limitation of claim 35, Petitioner argues that the combination of *Gernert's processor 54 and multiplexor/demultiplexor 60* within apparatus 50 discloses this limitation. Pet. 11 (citing Ex. 1004, 8:25–33). Petitioner notes that the processor 54 and multiplexor/demultiplexor 60 of Gernert "provide[] appropriate formatting and communication of the voice packets to voice gateway 62" and send digital datagrams to the modem gateway. *Id.* We, however, agree with Patent Owner that this specific disclosure of Gernert does not disclose providing a discrimination circuit with the claimed functionality of detecting voice signals from among other data signals. PO Resp. 16–18; PO Supp.

Resp. 6–8. Rather, Gernert more generally discloses the multiplexor "provid[ing] processing and switching functions to route the data packets between MAC processor 54 and an appropriate gateway." Ex. 1004, 8:25–28. As Patent Owner notes, no detection of voice packets from other packets is necessary for packets to be formatted and directed to different gateways. PO Resp. 16–18. For example, voice data may be carried over packet networks as well as via voice gateway 62 to a PSTN. *Id*. at 18 (citing Ex. 1004, 3:16–38). Simply stated, Petitioner adduces no evidence that the multiplexor functions by knowing whether what it is transmitting are voice packets or some other type of packets. Thus, we do not agree that, on their own, Gernert's disclosures relating to processor 54 and multiplexor/demultiplexor 60, which merely describe formatting and communication of voice packets to a voice gateway, teach or suggest the discrimination circuit of claim 35.

Petitioner's remaining anticipation and obviousness arguments regarding the claimed "discrimination circuit" hinge on Gernert's disclosure of voice communications with packets containing "a header with a flag indicating that the packet[] contains voice encoded data" in order to "allow a network node such as a hub or router to treat a voice packet differently from packets containing data." Ex. 1004, 11:34–38, *cited in* Pet. 10; Ex. 1009 ¶¶ 17, 19; Pet. Reply 4; Tr. 6:6–11).

Patent Owner argues that this disclosure is limited only to a "network node" disclosed in Figure 4. According to Patent Owner, this Figure 4 embodiment network node and Gernert's apparatus 50 are different and disparate embodiments of Gernert's invention. PO Resp. 14–16; PO Supp. Resp. 2–4. Patent Owner contends:

> Gernert does not suggest that "treat[ing] a voice packet differently from packets containing data" would be implemented in apparatus 50. Rather, in a different embodiment, Gernert discusses this functionality for a "network node such as a hub or router," which is an intermediate node along the path of a packet to its destination.

PO Resp. 15. Patent Owner further argues that the "network node such as a hub or router" disclosed in Gernert is "just 'a node on a network'" and might be intermediate equipment which does not correspond to apparatus 50. *Id*. at 15–16 (quoting Ex. 2003 (Dr. Bims's deposition), 31:12–13)).

We agree with Petitioner that Gernert relates apparatus 50 to the embodiment in which packets containing voice communications are flagged in their header. Pet. Reply 3–5. Patent Owner's arguments that a "network node" can be any node on a network disregard Gernert's disclosure that the wireless desk telephone which sends voice-flagged packets is disclosed as "communicat[ing] . . . with access points on a wireless LAN, and to apparatus 50 or a gateway, and thereby to the PSTN or other telephony network." Ex. 1004, 11:3–7. The claim limitation requires detecting "incoming voice signals from among other digital data signals." Gernert discloses a network node "treat[ing] a voice packet differently from packets containing data," which, in conjunction with the disclosure that the wireless desk telephone connects to the telephony network via apparatus 50, teaches or suggests that apparatus 50 would treat voice packets differently, and thus that voice packets would be detected from among other digital data packets. Ex. 1004, 10:63–11:7, 11:34–42.

Even so, Petitioner has not shown that processor 54 and multiplexor/demultiplexor 60 perform the claimed discrimination, rather

than simply directing packets to different gateways without detecting "voice signals from among other digital data signals," as per the discrimination circuit limitation. Petitioner's arguments have not persuaded us, therefore, that Gernert anticipates claim 35.

Independent claims 44 and 53 also include in the same form the discrimination circuit limitation of claim 35, and Petitioner makes the same argument with respect to anticipation by Gernert for those limitations. Pet. 17, 20; Tr. 9:4–11:13. We therefore determine Petitioner has not shown that these independent claims, or the remainder of the contested claims which depend from the independent challenged claims, are anticipated by Gernert.

d. Discrimination Circuit Limitation – Obviousness over Gernert

Petitioner also asserts that claim 35 would have been obvious over Gernert based on its anticipation arguments. Pet. 38.

Petitioner presented for the first time in the Reply and then again in the hearing its contention that "circuitry to perform the discrimination functionality was known and commercially available" and that one of ordinary skill could have used such an "off the shelf" discrimination circuit in combination with Gernert's apparatus 50. Tr. 10:12–11:13; Pet. Reply 9–10. Our Rules explain that "[a] reply may only respond to arguments raised in the corresponding opposition ... or patent owner response." 37 C.F.R. § 42.23(b). For example, our Trial Practice Guide explains that "[w]hile replies can help crystalize issues for decision, a reply that raises a new issue or belatedly presents evidence will not be considered." Office Patent Trial

Practice Guide, 77 Fed. Reg. 48,756, 48,767 (Aug. 14, 2012). Accordingly, we do not consider this argument, raised for the first time in reply.

Petitioner's other arguments relating to obviousness are based only upon its anticipation arguments. Pet. 38; Pet. Reply 9; Tr. 8:4–11:13.

Therefore, because Petitioner has not established Gernert anticipates the claims and because Petitioner does not provide additional arguments supporting its contention of obviousness, we determine Petitioner has not shown that the claims would have been obvious over Gernert.

E. Asserted Obviousness over Gernert and AT&T

Petitioner contends claims 35, 37–39, 43, 44, 46–48, 52, 53, and 55–57 would have been obvious over a combination of Gernert and AT&T. Pet. 38–41 (referencing *id*. at 8–22). Patent Owner presents arguments relating to these contentions. PO Resp. 21–35.

1. Overview of AT&T

AT&T is a United States patent, to Gerszberg et al., titled "Cable Connected WAN Interconnectivity Services for Corporate Telecommuters." Ex. 1006. AT&T describes an integrated residence gateway / intelligent services director (IRG/ISD) 22 that connects with a variety of devices including analog telephones 15, digital voice telephones 18, digital videophones 130, facsimile devices 16, personal computers 14, among others. Ex. 1006, 5:24–25, 5:30–31, 9:13–20, Fig. 2. The ISD/IRG 22 is configured to provide services for a user through and relating to these various devices. *Id*. at 10:50–11:50. Processor 102 in the ISD/IRG 22 "may be configured to discriminate between the various forms of traffic," including "high priority voice and/or video," and routes traffic to appropriate

devices. *Id*. at 19:26–31, 19:39–41, 19:43–48. "[V]oice has a higher priority than data." *Id*. at 20:7–10.

2. Petitioner's Contentions: Claim 35

With respect to Petitioner's obviousness assertion based on a combination of Gernert and AT&T, Petitioner relies on the teachings of Gernert, discussed *supra* at II.D.2.a, for all of the limitations of claim 35, excepting the discrimination circuit limitation. Pet. 38.

Petitioner asserts that AT&T discloses the discrimination circuit functionality in the ISD/IRG 22 configuration to discriminate between various forms of traffic and "provide[] flexibility in traffic control and overflow mitigation." *Id*. at 38–39. According to Petitioner, AT&T discloses voice calls as being provided with priority, with bandwidth shifted from data to voice use when a voice call is being made. *Id*. at 40.

With respect to the motivation for the combination, Petitioner argues that one of ordinary skill at the time of the invention "would have modified Gernert to include AT&T's discrimination circuit to provide any of prioritization, flexibility, overflow management, bandwidth allocation, for resource management, dynamic responsiveness, and/or transfer maximization. *Id*. at 40 (citing Ex. 1009 ¶ 82.)

3. Analysis of Asserted Obviousness of Claim 35 over a Combination of Gernert and AT&T

We have reviewed the evidence and arguments presented in the Petition, as detailed below and *supra* at Section II.D.2.a and Section II.D.2.b, and determine that Petitioner has established that claim 35 would have been obvious over the combination of Gernert and AT&T.

As discussed *supra* at Section II.D.2.c, we do not agree with Patent Owner (PO Resp. 14–16) that the Figure 4 embodiment and Gernert's apparatus 50 are different and disparate embodiments of Gernert.

a. "incoming" versus outgoing digital data signals

Patent Owner argues that, although the claimed discrimination circuit detects *incoming* voice signals, Gernert does not teach or suggest the discrimination circuit limitation because "Gernert's reference to 'a network node such as a hub or router … treat[ing] a voice packet differently from packets containing data' is in the context of outgoing packets being transmitted from a wireless desk telephone to the network via a stationary base station." PO Resp. 19. We reproduce below the version of Gernert's Figure 3 as annotated by Patent Owner's declarant, Dr. Vyacheslav Zavadsky.

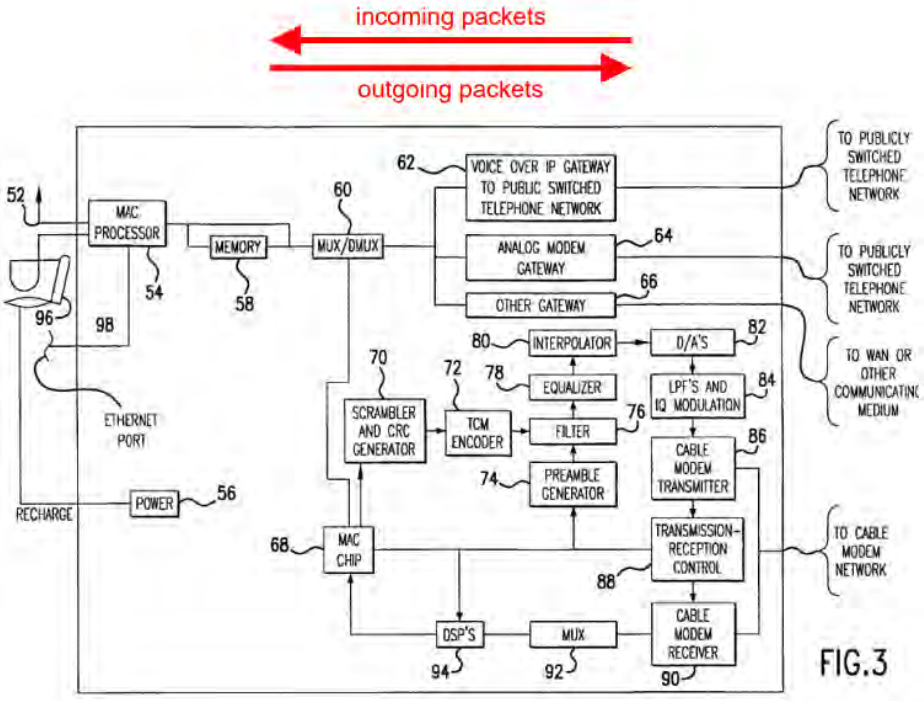


FIG.3

PO Resp. 10. Annotated Figure 3 of Gernert shows the "apparatus for interfacing a wireless local area network and a wide area network or public switched telephone network," with annotations indicating that "incoming packets" originate from the right side of the apparatus (publically switched telephone network, WAN, cable modem network) and "outgoing packets" originate from the left side (transmitter/receiver 52 for radio communications to mobile units; docking station or well 96 for a wireless handset or mobile computer terminal). *Id*. at 11; Ex. 1004, 6:18–21, 8:8–13, 9:67–10:8. Gernert's Figure 4 wireless desk telephone is described as communicating to a wireless LAN, then to apparatus 50, and "thereby" to the telephone network. Ex. 1004, 10:63–11:7. Patent Owner argues that packets sent by the telephone would thus be sent in the outgoing direction as per the annotations of Figure 3; any insertion by the wireless desk telephone of a flag in voice packets could be used in apparatus 50 to distinguish outgoing voice signals from among other digital data signals, not, as the claim requires, "incoming voice signals." PO Resp. 19–20

However, we conclude that the discrimination circuit limitation does not require that the claimed "incoming voice signals" detected from among other digital data signals be incoming from the network interface. This limitation only requires that the discrimination circuit be connected to the network interface, not that the signals being detected are incoming from that interface. *See* Ex. 1001, 9:45–47 ("a discrimination circuit connected to the network interface for detecting incoming voice signals from among other digital data signals"). Patent Owner concedes that the desk phone sends voice traffic to a network via an apparatus 50. Tr. 19:18–20:1. We agree with Petitioner that "what is outgoing to the desk phones is incoming to the

network node." Tr. 37:25–38:3. Simply stated, a discrimination circuit within apparatus 50 performing the detection as per the claim would be connected to the identified network interface within apparatus 50, and thus would meet all features of the claim limitation.

Additionally, although Patent Owner focuses on "the flow of digitally encoded voice from the wireless telephone toward the network" (PO Resp. 19–20) as incorporating the differential treatment of voice packets from data packets, we find that the differential treatment may occur in either direction. It is clear from Gernert that traffic in apparatus 50 is bi-directional. *See* Ex. 1014, 62:24–64:2 (discussing multiplexor/demultiplexor bidirectionality). We find that Gernert teaches or suggests processing of traffic in each direction, and discrimination between voice and data packets in both the "incoming" and "outgoing" directions (as labelled by Patent Owner).

b. Combination of Gernert and AT&T

Patent Owner argues this ground is deficient because (a) "Petitioner does not explain which, if any, component(s) of the ISD/IRG of AT&T form the purported 'discrimination circuit,'" and (b) there would be no motivation to combine any AT&T discrimination circuit teaching with the Gernert apparatus. PO Resp. 25–35.

Patent Owner argues that the ISD/IRG is a self-contained appliance and that "a person of ordinary skill would not look to the entire ISD/IRG as a mere component that can be added to Gernert's apparatus 50, and Petitioner does not explain which, if any, part of the ISD/IRG would be combined with Gernert." PO Resp. 25–26. With respect to the first argument, it sounds in bodily incorporation, and "[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. Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). Additionally, we agree with Petitioner that AT&T discloses the ISD/IRG discrimination circuitry with the same "granularity" as the claims, which is sufficient. Pet. Reply 10; *see TF3 Ltd. v. Tre Milano, LLC*, 894 F.3d 1366, 1374 (Fed. Cir. 2018) (in an anticipation context, the prior art disclosure "must be shown in as complete detail" as contained in the patent claim).

Next, Patent Owner argues that one of ordinary skill would not have been motivated to import discrimination circuitry from AT&T into Gernert because the purposes of the devices described in the references are "entirely different." PO Resp. 26. Patent Owner argues that AT&T's system contains disparate devices with different requirements but that Gernert's apparatus 50 is "mainly directed to 'voice communications over different types of communications networks.'" *Id.* at 26–27 (quoting Ex. 1004, 1:21–23). Patent Owner acknowledges that Gernert discusses remote terminals that transfer data over the wireless LAN, including in situations with simultaneous voice and data transfer, but maintains that these data transfers were so limited that one of ordinary skill in the art would not have considered that the detection of voice signals to provide higher quality of service for voice would be necessary. *Id.* at 28–29 (citing Ex. 2004 ¶ 49); Tr. 26:10–27:11. Patent Owner additionally notes that Dr. Bims testified that the low end of a data rate could be zero. PO Resp. 29 (citing, *inter alia*, Ex. 2003, 41:18–42:1, 44:2–7, 45:1–7).

We agree, however, with Petitioner that given Gernert's number of disclosed devices, an ordinary artisan would have identified a need for voice traffic to be detected and identified as privileged. Pet. Reply 12–13 (citing Ex. 1014, 77:2–79:25 (Dr. Zavadsky testifying that, at the time, there was a limit of "a couple of hundred devices" on a network such as Gernert's); Ex. 1004, 7:17, 9:65). A lower limit of zero for data rate, as testified to by Dr. Bims, does not signify that any one device would have a zero-bandwidth requirement at other times, or what effect that any bandwidth used for data for a number of low-bandwidth devices would have on voice traffic. As discussed, Gernert specifically discloses routing voice packets differently to provide less compromised voice service. Ex. 1004, 11:34–42. Therefore, we disagree with Patent Owner's argument that that discussion, although present in Gernert, would not have been viewed as applicable to Gernert's disclosure because no significant data traffic was present. *See* Tr. 26:10–27:11. Rather, we agree with Petitioner that one of ordinary skill would have found AT&T's discrimination circuitry to be useful in the Gernert apparatus.

Patent Owner additionally argues that AT&T's devices are heterogeneous and that the AT&T queueing system for prioritizing different network traffic would not meet the needs of Gernert, which includes mobile units "without differentiating between voice-oriented and non-voice-oriented units." PO Resp. 30–31. But, as Petitioner argues, Gernert discloses heterogeneous mobile units. Pet. Reply 14–15 (citing Ex. 1004, 7:63–8:2, 9:45–62). And, although Gernert may not identify which device is sending data traffic, Gernert's disclosure of a flag in the header of voice packets indicates how voice traffic may be queued.

Thus, upon review of Petitioner's evidence and analysis, and taking into account Patent Owner's arguments, we determine the motivation existed to combine Gernert with AT&T as proposed by Petitioner. We, therefore, find that a person of ordinary skill in the art would have been motivated to combine AT&T's prioritization circuitry with the teachings or suggestions of Gernert to provide prioritization of traffic. *See* Ex. 1009 ¶ 82. Gernert itself provides a motivation to do so, explaining that voice packets may have a flag in their header to allow a network node to treat a voice packet differently from packets containing data. Ex. 1004, 11:34–41.

c. Conclusion

As to the other limitations of claim 35 under this ground, Patent Owner presents no additional arguments. We determine that, on the entire trial record, Petitioner has shown by a preponderance of the evidence that claim 35 would have been obvious over the combination of Gernert and AT&T.

4. Claims 37–39, 43, 44, 46–48, 52, 53, and 55–57

Petitioner argues that the remaining contested claims would have been obvious over the combination of Gernert and AT&T.

Claim 37 depends from claim 35 and requires that the apparatus of claim 35 comprises "configuration software which configures routing of voice communications sessions to the plurality of telecommunications devices." Ex. 1001, 9:62–65. Petitioner argues that this configuration software is disclosed, for example, in Gernert's network software and application programming interfaces (APIs) implementing the methods of the invention. Pet. 14–15 (citing Ex. 1004, 11:54–12:32; Ex. 1009 ¶¶ 31–32).

We are persuaded by Petitioner's evidence and argument and find that this limitation is disclosed by Gernert.

Claim 38 depends from claim 35 and requires that "the at least one network communication line is part of an Ethernet network." Ex. 1001, 9:66–67. Claim 39 depends from claim 35 and requires that "the at least one network communication line is part of a local area network." Ex. 1001, 10:1–2. Petitioner argues that each of these network types is disclosed in Gernert. Pet. 16 (citing Ex. 1004, 10:44–52; Ex. 1009 ¶¶ 33–34). We are persuaded by Petitioner's evidence and argument and find that this limitation is disclosed by Gernert.

Claim 43 depends from claim 35 and requires that "the plurality of wireless telecommunications devices comprise at least one telephone handset." Ex. 1001, 10:10–12. Petitioner argues that Gernert discloses this in its "voice communication handsets." Pet. 16–17 (quoting Ex. 1004, 7:17–20; citing *id*. at 8:3–7; Ex. 1009 ¶ 35). We are persuaded by Petitioner's evidence and argument and find that this limitation is disclosed by Gernert.

The remaining claims comprise similar limitations to those already discussed and are argued on the same bases. Pet. 17–22, 38–41.

Upon review of Petitioner's evidence and analysis, and taking into account Patent Owner's arguments, we determine, on the entire trial record, Petitioner has shown by a preponderance of the evidence that claims 37–39, 43, 44, 46–48, 52, 53, and 55–57 would have been obvious over the combination of Gernert and AT&T.

F. Asserted Obviousness over IBM or over IBM and Arai

Petitioner contends claims 35, 37–39, 43, 44, 46–48, 52, 53, and 55–57 would have been obvious over IBM or over the combination of IBM and

Arai. Pet. 44–61. Patent Owner presents arguments relating to these contentions. PO Resp. 12–48.

1. Overview of IBM

IBM is a European patent application titled "Gateway having connection to voice and data networks." Ex. 1007, [54]. Gateway 150 of IBM has connections to a voice network and one or more data networks (such as a LAN or the Internet) "so that clients on either network may access any of the networks via various devices." *Id*. at [57], 6:15–20, Fig. 1. Gateway 150 includes SVD (simultaneous voice and data) modem process 312. *Id*. at 7:1–10. SVD process 312 handles combined voice and data streams, and separates the streams and routes them to their respective destinations. *Id*. at 8:23–24, 9:2–15.

2. Overview of Arai

Arai is a European patent application titled "Wireless communication apparatus and method." Ex. 1008, [54]. Arai discloses simultaneous wireless communication with a plurality of disparate devices. *Id.* at [57], 4:42–5:20, Figs. 1–2. Frequency hopping patterns are used to create channels for simultaneous wireless communication. *Id*. at 7:1–47.

3. Petitioner's Contentions: Claim 35

Petitioner contends that IBM teaches or suggests all limitations of independent claim 35, and alternatively that the combination of IBM and Arai teaches or suggests the wireless interface limitation. Pet. 45–53. Patent Owner presents a number of arguments alleging deficiencies in Petitioner's arguments relating to obviousness of claim 35 over IBM and/or IBM and Arai. PO Resp. 36–54.

With respect to claim 35, Petitioner contends gateway 150 of IBM teaches the apparatus of the claim 35, noting that gateway 150 routes digital signals among a plurality of devices. Pet. 45–46 (citing Ex. 1007, [57]; Ex. 1009 ¶ 89.) Petitioner alleges that the network interface limitation is shown in IBM's interface between gateway 150 and networks such as LAN 110 and trunk line 185 and that gateway 150 may be used to route voice calls from a phone device. Pet. 46–47 (citing Ex. 1007, Fig. 3A, 5:15–27; Ex. 1009 ¶¶ 90–91).

Petitioner argues that IBM discloses that SVD 312 determines whether an incoming call is a voice telephone or modem data call. Pet. 47–48 (citing Ex. 1007, Figs. 3A–3C, 7:36–42, 8:25–27; Ex. 1009 ¶¶ 92–94). Petitioner notes that IBM contemplates a combined stream with both voice and data portions and may examine the packets of such a stream to split them into voice and data portions. Pet. 48 (citing Ex. 1007, 7:36–42, 9:2–7; Ex. 1009 ¶ 94.) Thus, Petitioner argues, SVD 312 and associated hardware and software teach the claimed "discrimination circuit connected to the network interface for detecting incoming voice signals from among other digital data signals." *Id*.

With respect to the claimed processor, Petitioner indicates that this is taught or suggested by the digital signal processor and general purpose computer of IBM, which perform various processes including executing instructions for routing data signals to different destination devices. Pet. 48–49 (citing Ex. 1007, 6:32–36, Fig. 3A element 220; Ex. 1009 ¶ 96). Petitioner argues that the claimed circuit for routing voice communications to specific devices is taught, *inter alia*, by digital signal processor 220. Pet. 50 (citing Ex. 1007, 8:31–38, 8:55–9:1, Figs. 3A–3C; Ex. 1009 ¶ 97).

The remaining limitation of "a wireless interface, wherein the wireless interface communicates the digital data signals between a plurality of wireless telecommunications devices" is admitted by Petitioner not to be explicitly disclosed in IBM. Pet. 44, 50. However, Petitioner argues that the broad applicability of mobile-based applications indicates that a wireless interface would have been obvious to one of ordinary skill in the art. *Id.* at 50–51 (citing Ex. 1009 ¶ 98). Petitioner argues that one of ordinary skill would have used IBM's gateway 150 with a wireless interface "to allow flexible expansion of IBM's interconnectivity arrangement and as a combination of known components and/or methods to achieve the predictable results of at least the mobility of wireless configurations." *Id*. at 51.

Alternatively, Petitioner argues that one of ordinary skill in the art would have been motivated to combine IBM's teachings, as discussed *supra*, with those of Arai to teach or suggest an apparatus with the wireless interface of claim 35. Pet. 45–53 (citing, *inter alia*, Ex. 1008, Figs. 7–9, 7:15–37; Ex. 1009 ¶¶ 89–94, 96–98, 100–102). Petitioner argues that one of ordinary skill would have found it obvious to do this in order to achieve the mobility of wireless configurations and to provide wireless voice and data communications without interference. Pet. 52–53 (citing Ex. 1009 ¶ 102).

4. Analysis of Asserted Obviousness of Claim 35 over IBM or a Combination of IBM and Arai

We have reviewed the evidence and arguments presented, and determine that Petitioner has not established that claim 35 would have been obvious over IBM, and over the combination of IBM and Arai.

Patent Owner argues that "[t]he gateway is meant for connecting to a telephone switching station, and is not intended for connection to end user telecommunications devices." PO Resp. 41–42; 44–45. Patent Owner argues that IBM's invention is merely meant to connect a voice network and a data network. *Id.* at 41–43. Thus, Patent Owner contends, "[t]here is no reason why one of ordinary skill in the art would have modified such a gateway to incorporate the '714 Patent's claimed 'wireless interface.'" *Id.* at 42.

Petitioner argues that one of ordinary skill would have been motivated to add a wireless interface "to allow flexible expansion of IBM's interconnectivity arrangement" and that "[t]he motivation to increase mobility with respect to any of these devices, and/or their infrastructure 19 would amply support adding a wireless interface to IBM's architecture." Pet. 51–52 (citing Ex. 1009 ¶ 102); Pet. Reply 18–19 (citing Ex. 1009 ¶¶ 99, 100, 102). However, although IBM's disclosure includes an example of more than one data network and one voice network, *see*, *e.g.*, Ex. 1007, Fig. 6, we are not persuaded by a preponderance of the evidence presented that one of ordinary skill would have been motivated to add a wireless interface to the IBM gateway. Petitioner's argument that the addition of wireless functionality would have allowed different, more mobile devices to access the networks connected by the gateway does not adequately describe a motivation to provide on the gateway (as opposed to somewhere on the networks it connects) an interface to "communicate[] the digital data signals between a plurality of wireless telecommunications devices."

Petitioner's expert identified locations in the IBM disclosure, other than the gateway, as possible locations to incorporate a wireless interface.

PO Resp. 40–41 (citing Ex. 2003, 138:4–15, discussing adding a wireless interface into gateway 150, voice network 115, and/or data network 110 shown in Figure 6); Tr. 29:20–30:7; Ex. 2003, 122:24–123:25 (discussing adding a wireless interface to trunk line 185 shown in IBM's Fig. 1), 127:7–128:17 (discussing adding a wireless interface to element 230 of IBM's Fig. 3A). However, the Petition asserts that the IBM gateway teaches the apparatus of claim 35. Pet. 45–46. The inclusion of a wireless interface at the voice network 115 or data network 110 would be inconsistent with other positions taken in the Petition, for example, that the IBM gateway's interface with these networks teaches or suggests the claimed network interface. *See* Pet. 46–47.

We determine that, on the entire trial record, Petitioner has not shown by a preponderance of the evidence that claim 35 would have been obvious over IBM, or over IBM and Arai.

The remaining independent claims 44 and 53 each comprise a wireless interface and are argued on the same basis. Pet. 56–57, 59–60. Accordingly, for the reasons given above in our analysis of claim 35, upon review of Petitioner's evidence and analysis, and taking into account Patent Owner's arguments, we determine, on the entire trial record, Petitioner has not shown by a preponderance of the evidence that claims 37–39, 43, 44, 46–48, 52, 53, and 55–57 would have been obvious over IBM and over the combination of IBM and Arai.

III. PROCEDURAL ISSUES

Motion to Exclude

Patent Owner moves to exclude portions of Dr. Bims's deposition testimony (Ex. 2003, 148:17–149:3) as impermissibly elicited through a leading question. Paper 36.

The Final Decision does not rely on this portion of the deposition testimony or the argument to which it relates. Thus, Patent Owner's Motion to Exclude is dismissed as moot.

IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that:

Claims 35, 37–39, 43, 44, 46–48, 52, 53, and 55–57 are unpatentable as obvious over Gernert and AT&T.

V. ORDER

For the foregoing reasons, it is:

ORDERED that claims 35, 37–39, 43, 44, 46–48, 52, 53, and 55–57 of the '714 patent are unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Exclude is dismissed as moot; 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.

IPR2017-01541
Patent RE42,714 E

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