

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner,

v.

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

IPR2021-01117
Patent 8,191,106 B2

Before BRIAN J. McNAMARA, JO-ANNE M. KOKOSKI, and
JOHN A. HUDALLA, *Administrative Patent Judges*.

HUDALLA, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

Petitioner, Cisco Systems, Inc. (“Petitioner”), filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–18 (“the challenged claims”) of U.S. Patent No. 8,191,106 B2 (Ex. 1001, “the ’106 patent”). Petitioner filed a Declaration of Nader F. Mir, Ph.D. (Ex. 1003) with its Petition. Patent Owner, WSOU Investments, LLC d/b/a Brazos Licensing

and Development (“Patent Owner”), filed a preliminary response (Paper 6). With our authorization, Petitioner filed a preliminary reply (Paper 7) and Patent Owner filed a preliminary sur-reply (Paper 8) directed to the issue of discretionary denial under 35 U.S.C. § 314(a). 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 January 10, 2022, 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 12, “PO Resp.”), and Petitioner filed a Reply to the Patent Owner Response (Paper 13, “Pet. Reply”). Patent Owner also filed a Sur-reply. Paper 14 (“PO Sur-reply”).

An oral hearing was held on October 12, 2022, and a transcript of the hearing is included in the record. Paper 27.

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 1–18 of the ’106 patent. For the reasons discussed below, Petitioner has demonstrated by a preponderance of the evidence that claims 1–18 of the ’106 patent are unpatentable.

I. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies Cisco Systems, Inc., as the real party-in-interest. Pet. 74–75. Patent Owner identifies WSOU Investments, LLC d/b/a Brazos Licensing and Development as the real party-in-interest. Paper 3, 1.

B. *Related Proceeding*

The parties identify the following proceeding related to the '106 patent (Pet. 75; Paper 3, 2; PO Resp. 7):

WSOU Invs., LLC v. Cisco Systems, Inc., No. 6:21-cv-00128 (W.D. Tex. filed Feb. 5, 2021).

C. *The '106 patent*

The '106 patent is directed to policy for network access security and perimeter control. Ex. 1001, 1:7–9. According to the '106 patent, access security management approaches at the time of the invention did not address the situation when an end-user's device dynamically changes its access technology within the same premises under the same identity, such as from the Universal Mobile Telecommunications System (UMTS) to a wireless local area network (WLAN). *Id.* at 3:22–28. The '106 patent refers to such a dynamic change in access technology as an inter-technology change-off. *Id.* at 3:28–32. The '106 patent discloses a policy management mechanism that allows for dynamic moving from one access technology to another and makes changes in security policy appropriate to each access technology used by a user's device while allowing the user to remain under the same identity. *Id.* at 6:59–63.

Figure 4 of the '106 patent is reproduced below.

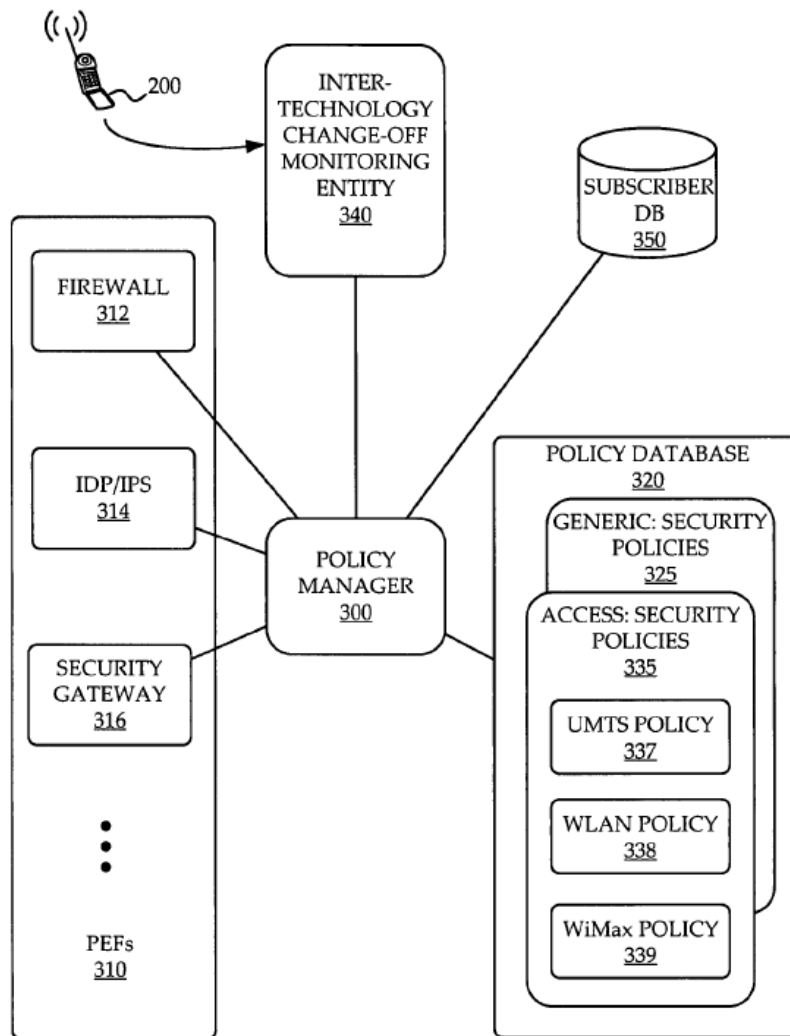


FIG. 4

Figure 4 depicts a system for providing access security management for multimodal device 200 in a converged fixed/mobile network. Ex. 1001, 6:44–46, 6:56–59, 7:29–35. Inter-technology change-off monitoring entity (ICME) 340 monitors the type of access being used using layer 2 monitoring or higher, and any change in status caused by an inter-technology change-off is relayed to ICME 340. *Id.* at 7:40–43. ICME 340 is coupled to policy manager 300, which in turn is coupled to subscriber database 350 and policy

database 320. *Id.* at 7:43–46. Policy database 320 comprises generic security policies 325 and access technology security policies 335, the latter of which includes individual policies corresponding to specific access technologies. *Id.* at 7:44–46.

Once ICME 340 determines an inter-technology change-off has commenced, it notifies policy manager 300. Ex. 1001, 8:18–20. This notification may include a user ID identifying the subscriber, a universal device ID identifying the device, and a technology change identifier identifying the technology to and/or from which the device is changing. *Id.* at 8:20–25. Using information included in the notification, policy manager 300 queries subscriber database 350 to obtain the subscriber's credentials, subscription class, and other parameters including a subscriber policy ID. *Id.* at 8:29–32. Using the subscriber details, policy manager 300 fetches from policy database 320 the policy files pertaining to the subscriber (from generic security policies 325) as well as policies based on the access technology being used (from access technology security policies 335). *Id.* at 8:32–39.

The '106 patent issued from a U.S. application filed on June 7, 2007. Ex. 1001, code (22). As discussed below, Petitioner applies the June 7, 2007, filing date of the U.S. application for qualifying the asserted references as prior art. Pet. 15.

D. Illustrative Claim

Of the challenged claims of the '106 patent, claims 1 and 10 are independent. Claims 2–9 depend directly or indirectly from claim 1, and

claims 11–18 depend directly or indirectly from claim 10. Claim 1 is illustrative of the challenged claims and recites:

1. A system for network access security policy management of multimodal access to a converged network, the system comprising:

an inter-technology change-off monitoring entity (ICME) for detecting an inter-technology change-off of a multimodal device from a first access technology of the converged network to a second access technology of the converged network, and for transmitting an inter-technology change-off message;

a policy database for storing a plurality of access technology policies; and

a policy manager for receiving said inter-technology change-off message from the ICME, for searching said policy database for an access technology policy corresponding to said second access technology, for determining appropriate policies to be enforced, and for distributing said appropriate policies to at least one policy enforcement point (PEF) for enforcing said appropriate policies in respect of access by the multimodal device to the converged network,

wherein at least one of the ICME and the policy manager is implemented in hardware.

Ex. 1001, 9:46–67.

E. Prior Art

Petitioner relies on the following prior art:

U.S. Patent Application Publication No. 2005/0135375 A1, filed Mar. 26, 2004, published June 23, 2005 (Ex. 1005, “Hurtt”);

U.S. Patent Application Publication No. 2004/0208153 A1, filed Apr. 16, 2003, published Oct. 21, 2004 (Ex. 1006, “Mizell”);

U.S. Patent Application Publication No. 2007/0049276 A1, filed Oct. 12, 2005, published Mar. 1, 2007 (Ex. 1007, “Rimoni”); and

U.S. Patent Application Publication No. 2006/0116127 A1, filed July 18, 2005, published June 1, 2006 (Ex. 1008, “Wilhoite”).

F. The Instituted Grounds

We instituted *inter partes* review of claims 1–18 of the ’106 patent on the following grounds (Dec. on Inst. 42), which are all the grounds presented in the Petition (Pet. 17):

Claims Challenged	35 U.S.C. §	References
1–3, 5, 8–12, 14, 17, 18	103(a) ¹	Hurtta
4, 13	103(a)	Hurtta, Mizell
6, 15	103(a)	Hurtta, Rimoni, Wilhoite
7, 16	103(a)	Hurtta, Rimoni

II. ANALYSIS

A. Legal Standards

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).

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103. Because the ’106 patent was filed before March 16, 2013 (the effective date of the relevant amendments), the pre-AIA versions of §§ 102 and 103 apply.

The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations.² *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 Dr. Mir, Petitioner contends a person of ordinary skill in the art (“POSITA”) “would have had a bachelor’s degree in computer science, computer engineering, or an equivalent, and two years of professional experience relating to wireless and cellular networking.” Pet. 16 (citing Ex. 1003 ¶¶ 20–21). Petitioner also contends a POSITA would have had an understanding of various communications protocols and packet-based networking topics and technologies. *Id.* at 15–16 (citing, *inter alia*, Ex. 1003 ¶ 20). Patent Owner neither disputes Petitioner’s definition of the level of ordinary skill nor offers a different definition. PO Resp. 7.

We adopt Petitioner’s definition of the level of ordinary skill in the art. We are satisfied that this definition comports with the level of skill necessary to understand and implement the teachings of the ’106 patent and the asserted prior art.

² 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 using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), including construing the 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) (2020). 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).

The parties have put forth a number of different arguments about whether the recited “inter-technology change-off monitoring entity (ICME)” and “policy enforcement point (PEF)” of claims 1 and 10 need to be separate and distinct elements. Pet. 28 & n.1, 38–39 & n.2; Pet. Reply 6; PO Resp. 9–17. Despite stating that no terms require express construction (Pet. 16), Petitioner nonetheless argues in the Petition that the recited “inter-technology change-off monitoring entity (ICME)” and “policy enforcement point (PEF)” of claims 1 and 10 need not be separate and distinct elements. *Id.* at 28 & n.1, 38–39 & n.2. In its Response, Patent Owner argues that

these elements must be separate. PO Resp. 10. In its Reply, Petitioner purports to agree with Patent Owner “that the claim should be interpreted as requiring the ICME and PEF to be separate and distinct components.” Pet. Reply 6.

In our Decision on Institution, the majority determined preliminarily that the ICME and the PEF need not be separate and distinct entities. Dec. on Inst. 12. The concurring judge found that it was unnecessary to decide this issue. *Id.*, Concurrence at 1. Based on the entire trial record, we determine that we need not decide the issue of whether the ICME and the PEF must be separate and distinct entities. As discussed below, Petitioner puts forth persuasive evidence that the prior art renders some claims obvious even under Patent Owner’s proposal that the elements must be separate.

Patent Owner argues that Petitioner’s late embrace of Patent Owner’s preferred claim interpretation regarding the ICME and the PEF amounts to an improper new construction that renders the Petition deficient under 37 C.F.R. § 42.104(b)(3)–(4). PO Sur-reply 1–4. We disagree. The Petition specifically contemplates a scenario where “Patent Owner argues that claim 1 requires the *ICME* to be a completely separate device from the *policy enforcement point (PEF)*.” Pet. 39. Petitioner puts forth unpatentability arguments based on *Hurtta* for that scenario (*id.*) that we find persuasive, as discussed below. Thus, we do not agree that the Petition is deficient.

The parties do not put forth any other claim construction arguments. For these reasons, we determine that no aspects of the challenged claims 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. Obviousness Ground Based on Hurtta

Petitioner contends the subject matter of claims 1–3, 5, 8–12, 14, 17, 18 would have been obvious over Hurtta. Pet. 19–52; Pet. Reply 6–16. Patent Owner disputes Petitioner’s contentions. PO Resp. 17–22; PO Sur-reply 4–12.

1. Hurtta

Hurtta is a U.S. patent application publication directed to deciding how to control communications via a gateway by applying authorization and policy control. Ex. 1005 ¶ 2. Figure 1 of Hurtta is reproduced below.

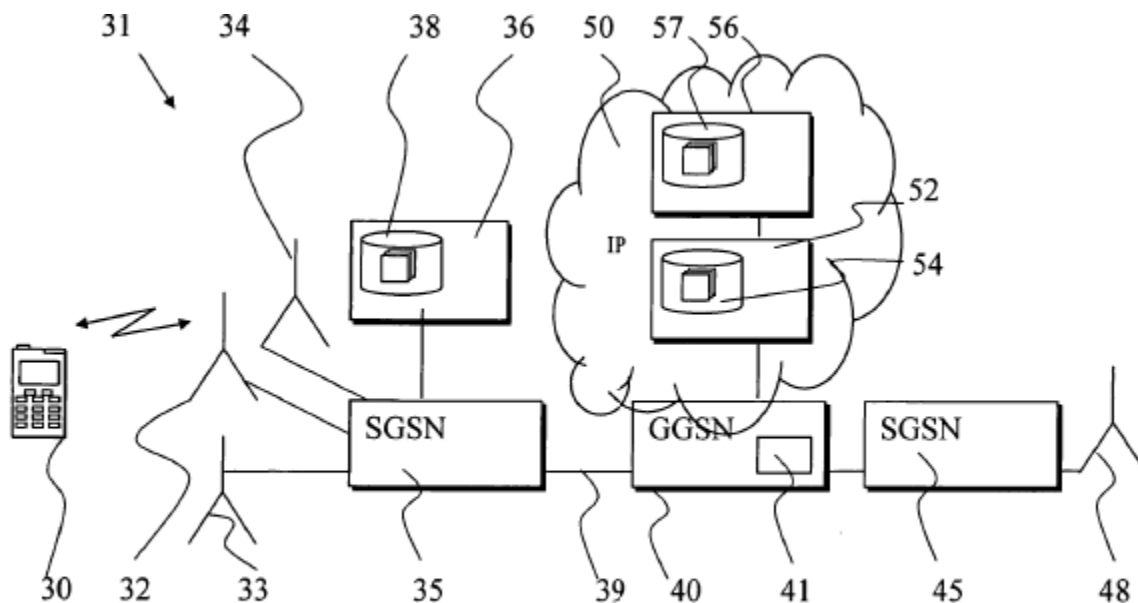


Fig. 1

Figure 1 depicts the architecture of a general packet radio service (GPRS) based mobile communications system. *Id.* ¶ 28. Base stations 32³ to 34 and 48 belong to a radio access network (RAN). *Id.* ¶ 29. Serving GPRS support node 35, in turn, typically communicates with a gateway GPRS support node 40 via the GPRS backbone network on interface 39. *Id.* ¶ 31. Gateway 40 includes access network type determining means 41, which may be configured to determine the access network type based on, for example, information received from a packet data node associated with the access network. *Id.* ¶¶ 39, 43. Gateway 40 may send a request message (including, for example, information regarding the identity of a user/subscriber and type of the access network) to policy control entity 52. *Id.* ¶ 50. Policy control entity 52 may use information sent by gateway 40 to derive information for authorization and policy control decision making. *Id.* ¶ 52. Policy control entity 52 may then perform an authorization and policy decision and send the decision to gateway 40. *Id.* ¶ 56, 60, 62. Gateway 40 enforces the policy decision. *Id.* ¶ 62, 70.

Petitioner contends Hurтта qualifies as prior art under 35 U.S.C. § 102(b) based on its publication date. Pet. 17–18. Patent Owner does not contest the prior art status of Hurтта. We determine that Hurтта qualifies as prior art under 35 U.S.C. § 102(b) because Hurтта’s publication date of June 23, 2005, is more than one year before the U.S. filing date of the challenged claims, which is June 7, 2007. Ex. 1001, code (22); Ex. 1005, code (43).

³ Hurтта mistakenly calls reference numeral 31 a base station, but the context makes clear what was intended. Ex. 1005 ¶ 29, Fig. 1.

2. *Claim 1*

Petitioner puts forth a number of alternative mappings within its analysis for claim 1. We rely primarily on an alternative that Patent Owner calls the “Second Alternative Mapping” (PO Resp. 19; PO Sur-reply 9) and determine that it establishes, by a preponderance of the evidence, that the subject matter of claim 1 would have been obvious over Hurtta. Although this is dispositive as to claim 1, we nonetheless address another alternative mapping (i.e., the “First Alternative Mapping”) for claim 1 in a separate section because it is germane to Petitioner’s analysis for dependent claims 6 and 15.

a. Analysis of the “Second Alternative Mapping”

The preamble of claim 1 recites “[a] system for network access security policy management of multimodal access to a converged network.” Ex. 1001, 9:46–47. Petitioner cites Hurtta’s teachings of a system for deciding a policy (e.g., a security policy) for controlling communications in the communication system. Pet. 22 (citing Ex. 1005, Abstr., ¶¶ 20, 41). Petitioner contends “Hurtta’s communication system is ‘multimodal’ because it determines which ‘type of an access network’ a particular device is using.” *Id.* at 22–23 (quoting Ex. 1005, Abstr.) (citing *id.* ¶¶ 12, 21, 44). Petitioner contends that Hurtta’s system is described as being suitable for access to converged networks. *Id.* at 23–24 (citing Ex. 1005 ¶¶ 9, 11, 12, 28, 37, 72).

Neither party addresses whether the preamble is limiting. Patent Owner does not dispute Petitioner’s analysis of the preamble. Because Petitioner has shown that Hurtta discloses the preamble (*see, e.g.*, Ex. 1005,

Abstr., ¶¶ 37, 41, 44, 72), we need not determine whether the preamble is limiting. *See Realtime Data*, 912 F.3d at 1375.

Claim 1 further recites “an inter-technology change-off monitoring entity (ICME) for detecting an inter-technology change-off of a multimodal device from a first access technology of the converged network to a second access technology of the converged network, and for transmitting an inter-technology change-off message.” Ex. 1001, 9:49–54. Petitioner cites Hurtta’s gateway 40 (and/or access network type determining means 41 within gateway 40) for teaching the ICME and contends that the gateway “detects when a device or communication uses a new or different access network.” Pet. 25–28 (citing, *inter alia*, Ex. 1005 ¶¶ 43, 48, 51, 58–64, 72, Figs. 1, 3). Petitioner further cites Hurtta’s teaching of handing over a device from a 2G access network to a 3G access network and maps the recited “first” and “second access technolog[ies]” to the 2G network and the 3G network, respectively. *Id.* at 28–29 (citing Ex. 1005 ¶ 72). Petitioner alternatively contends Hurtta teaches that the first or second access technology may also be a WLAN access network. *Id.* at 29 (citing Ex. 1005 ¶ 72). For the recited “inter-technology change-off message,” Petitioner cites Hurtta’s gateway 40 (i.e., the recited “ICME”) sending request message 2 to policy control entity 52, and Petitioner contends message 2 includes the type of access network. Pet. 29–30 (citing Ex. 1003 ¶¶ 71–75; Ex. 1005 ¶¶ 50, 72, Fig. 3).

Patent Owner does not contest Petitioner’s analysis of the ICME limitation.⁴ We are persuaded that Hurtta’s gateway 40 (and more specifically, determining means 41 within gateway 40) determines the type of network that a mobile device would like to access based on information in request message 1, an address of request message 1, a format or protocol of request message 1, or the port through which gateway 40 received request message 1. *See, e.g.*, Ex. 1005 ¶¶ 39, 43–44, 48, 51, Figs. 1, 3. Hurtta also teaches that the request message may signal a handover between different types of access networks, e.g., 2G to 3G. *See, e.g., id.* ¶ 72. Thus, Hurtta teaches an ICME that detects an inter-technology change-off. Hurtta also teaches that gateway 40 sends request message 2 (i.e., “an inter-technology change-off message”), which may indicate the type of access network, to policy control entity 52. *See, e.g., id.* ¶¶ 50, 72, Fig. 3.

Claim 1 further recites “a policy database for storing a plurality of access technology policies.” Ex. 1001, 9:55–56. Petitioner cites database 54 within Hurtta’s policy control entity 52 “for storing information required for making service specific authorization and policy decisions.” Pet. 31 (quoting Ex. 1005 ¶ 38). Petitioner also cites Hurtta’s database 57 within subscription manager 56 for storing subscription profiles and access-specific policies. *Id.* at 31–32 (citing Ex. 1005 ¶¶ 40, 54). Patent Owner does not contest Petitioner’s analysis of the policy database limitation. We are persuaded that Hurtta’s databases 54 and 57 are policy databases. *See, e.g.*, Ex. 1005 ¶¶ 38, 40, 54, Fig. 1.

⁴ Petitioner does, however, contest Petitioner’s mapping of both the IMCE and PEF limitations to Hurtta’s gateway 40 (or portions thereof). We address that argument below.

Claim 1 further recites “a policy manager for receiving said inter-technology change-off message from the ICME.” Ex. 1001, 9:57–58. Petitioner cites the same teachings discussed above of Hurtta’s policy control entity 52 receiving message 2, which includes information about the type of access network. Pet. 33–34 (citing Ex. 1005 ¶¶ 40, 50, 72, Fig. 3). Patent Owner does not contest Petitioner’s analysis of this limitation. We are persuaded that Hurtta’s policy control entity 52 (i.e., a “policy manager”) receives message 2 (i.e., the “inter-technology change-off message”). *See, e.g.*, Ex. 1005 ¶¶ 40, 50, 72, Fig. 3.

Claim 1 further recites “[a policy manager] for searching said policy database for an access technology policy corresponding to said second access technology.” Ex. 1001, 9:58–60. Petitioner cites Hurtta’s teaching that policy control entity 52 “use[s] the information sent by the gateway 40 [in message 2] to derive information for authorization and policy control decision making.” Pet. 35 (quoting Ex. 1005 ¶ 52) (alterations by Petitioner). Petitioner contends that “[i]t would have been obvious to a POSITA that the information used by policy control entity 52 for making policy decisions would include the policies stored in either or both of databases 54 and 57.” *Id.* (citing Ex. 1003 ¶¶ 93–97). In support of this contention, Petitioner notes Hurtta’s teaching that “policy control entity 52 may **send a Search Request** message 3 to the subscriber manager to retrieve the subscription profile.” *Id.* (emphasis by Petitioner) (quoting Ex. 1005 ¶ 53). Petitioner further notes that database 57 is part of subscriber manager 56 and contends “it would have been obvious to a POSITA that the Search Request message 3 triggers a search of the subscription profiles in database 57.” *Id.* (citing Ex. 1003 ¶ 96). According to Petitioner, Hurtta

teaches that subscription profiles include “**access specific** attributes for each authorized access point and/or service.” *Id.* (emphasis by Petitioner) (quoting Ex. 1005 ¶ 54). Petitioner additionally notes that database 54 stores “information required for . . . policy decisions,” so Petitioner contends it also would have been obvious to search database 54. *Id.* (quoting Ex. 1005 ¶ 38) (citing Ex. 1003 ¶ 96). Petitioner further contends that, based on Hurtta’s teachings of handover operations, an ordinarily skilled artisan would have understood that the policies sought from databases 54 and 57 related to the new access network type specified in request message 2. *Id.* at 36 (citing Ex. 1003 ¶¶ 97–98; Ex. 1005 ¶¶ 56, 69, 72).

Patent Owner does not contest Petitioner’s analysis of the “policy manager . . . for searching” limitation. We are persuaded that, in response to request message 2, Hurtta’s policy control entity 52 (i.e., the “policy manager”) sends request message 3 to subscriber manager 56, which includes database 57 (i.e., the “policy database”), in order to retrieve subscription profiles. *See, e.g.*, Ex. 1005 ¶¶ 52–53. We also are persuaded by Dr. Mir’s uncontested testimony that an ordinarily skilled artisan would have known request message 3 to trigger a search of database 57. *See, e.g.*, Ex. 1003 ¶ 96. Hurtta additionally teaches that subscription profiles contain access-specific attributes (i.e., “an access technology policy”), and that these attributes may relate to a new access network type specified in request message 2 (i.e., the “second access technology”). *See, e.g.*, Ex. 1003 ¶¶ 97–98; Ex. 1005 ¶¶ 54, 56, 69, 72.

Claim 1 further recites “[a policy manager] for determining appropriate policies to be enforced.” Ex. 1001, 9:60–61. Petitioner cites Hurtta’s teaching of policy control entity 52 deriving “information for

authorization and **policy control decision making.**” Pet. 36 (emphasis by Petitioner) (quoting Ex. 1005 ¶ 52). Petitioner further cites Hurtta’s teaching of various types of policies (e.g., quality of service policy, security policy, charging policy, and chained service policy) that may be decided, and how these policies are sent to gateway 40 for enforcement. *Id.* at 36–37 (citing Ex. 1005 ¶¶ 41, 62). Patent Owner does not contest Petitioner’s analysis of the “policy manager . . . for determining” limitation. We are persuaded that Hurtta teaches policy control entity 52 (i.e., the “policy manager”) deciding policies for enforcement. *See, e.g.*, Ex. 1005 ¶¶ 41, 52, 62.

Claim 1 further recites “[a policy manager] for distributing said appropriate policies to at least one policy enforcement point (PEF) for enforcing said appropriate policies in respect of access by the multimodal device to the converged network.” Ex. 1001, 9:61–65. Petitioner cites Hurtta’s teaching that the “policy decision by the policy control entity 52 is **sent to the gateway 40**” in decision message 7. Pet. 37 & n.2 (emphasis by Petitioner) (quoting Ex. 1005 ¶ 62, Fig. 3). Petitioner contends that gateway 40 (or a component thereof) acts as the recited “policy enforcement point (PEF)” because it “enforces the policy decision in provisioning service to a user’s device accessing the network via an access technology.” *Id.* at 38 (citing Ex. 1005 ¶ 62).

To the extent “that claim 1 requires the *ICME* to be a completely separate device from the *policy enforcement point (PEF)*,” Petitioner contends it would have been obvious to an ordinarily skilled artisan “to modify Hurtta’s network such that the access network detection features of gateway 40 are separate from the policy enforcement features of

gateway 40.” Pet. 39 (citing Ex. 1003 ¶ 108). Petitioner cites Hurtta’s teaching of integrating the gateway with functionality from the policy control entity 52 and contends that this shows how the network shown in Hurtta’s Figure 1 may be structured differently. *Id.* (citing Ex. 1005 ¶ 64). Petitioner contends that “Hurtta is focused on the overall functionality of the network, [so] it would have been equally obvious to a POSITA to separate the combined functions of the gateway into separate component devices.” *Id.* (citing Ex. 1003 ¶ 108). Petitioner further cites Dr. Mir’s testimony that

[i]t would have been obvious to a POSITA for the subcomponent within the gateway that enforces policies from the policy control entity to be a different subcomponent than the determining means **because the techniques involved in policy enforcement are different** from those involved in determining access network type.

Pet. Reply 10–11 (emphasis by Petitioner) (quoting Ex. 1003 ¶ 108). As further support for its contentions, Petitioner cites the patentee’s statement during prosecution that “the precise form of the elements recited as making up a system is not important.” *Id.* at 12 (quoting 1002, 89–90).

Patent Owner disputes Petitioner’s contentions because they are based on Hurtta’s teaching of integrating the gateway, but Petitioner and Dr. Mir suggest the opposite. PO Resp. 20 (citing Pet. 39; Ex. 1003 ¶ 108); PO Sur-reply 10. Patent Owner also contends that Petitioner’s contentions about separating gateway functions creates inconsistencies with earlier claim limitations, particularly Petitioner’s mentions of Hurtta’s determining means 41 in relation to the ICME. PO Resp. 19–20; PO Sur-reply 10–11. Patent Owner also argues that the patentees’ statement during prosecution about the “precise form” of a system not being important only pertains to the issue of hardware versus software. PO Sur-reply 11–12.

We are persuaded that gateway 40, or a portion thereof, acts as the recited “policy enforcement point (PEF)” because it “enforces the policy decision in the provisioning of the service.” Ex. 1005 ¶ 62. We also are persuaded that policy control entity 52 (i.e., the “policy manager”) sends policy decisions to gateway 40 in decision message 7. *See, e.g.*, Ex. 1005 ¶ 62, Fig. 3.

We additionally are persuaded by Petitioner’s contentions about separating gateway functions into separate components. *See, e.g.*, Ex. 1003 ¶ 108. Dr. Mir’s testimony about how to interpret Hurtta’s teachings on integration is only countered by Patent Owner’s unsupported attorney argument, which is not evidence. *See Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017). As such, Dr. Mir’s un rebutted testimony is that an ordinarily skilled artisan considering Hurtta’s teaching of integration would also know to separate components. Ex. 1003 ¶ 108. Beyond Hurtta’s teaching of integration, Dr. Mir also propounds another rationale: that it would have been obvious to make different subcomponents within the gateway for policy enforcement and for determining the type of access network because these subcomponents would involve different techniques. *Id.* Petitioner additionally notes (Pet. Reply 12) how the patentees of the ’106 patent stated during prosecution that the precise form of system elements is not important (*see* Ex. 1002, 89–90), which also supports splitting gateway functions into subcomponents. We do not agree with Patent Owner’s argument (PO Sur-reply 11–12) that the cited prosecution history pertains only to “whether claimed components may be hardware versus software.” Even if it were so limited, it would still support Petitioner’s premise that separating gateway functions would have been

obvious. Finally, we do not agree with Patent Owner (*see* PO Resp. 19–20; PO Sur-reply 10–11) that Petitioner’s contentions are internally inconsistent. As noted by Petitioner (Pet. Reply 11), Petitioner has never contended that determining means 41 corresponds to the recited PEF. Having considered the entire trial record, we determine that a preponderance of the evidence supports Petitioner’s contentions about the obviousness of separating Hurtta’s gateway functions.

For these reasons, Petitioner persuasively shows that Hurtta teaches the ICME and PEF in claim 1 even under Patent Owner’s proposed interpretation that the ICME and PEF must be separate and distinct components. *See supra* § II.C.

Claim 1 further recites that “at least one of the ICME and the policy manager is implemented in hardware.” Ex. 1001, 9:66–67. Petitioner cites Hurtta’s teaching that gateway 40 (i.e., the “ICME”) “may be provided with appropriate software and hardware to provide the decision making functions.” Pet. 40 (emphasis omitted) (quoting Ex. 1005 ¶ 64). Petitioner further notes that Hurtta’s gateway is said to have a processor, which is a hardware component. *Id.* (citing Ex. 1003 ¶ 114; Ex. 1005 ¶ 39). Patent Owner does not contest Petitioner’s analysis of this limitation. We are persuaded that Hurtta’s gateway (i.e., the “ICME”) is implemented in hardware. *See, e.g.*, Ex. 1003 ¶ 114; Ex. 1005 ¶¶ 39, 64.

On the entire trial record, we are persuaded that under Petitioner’s “Second Alternative Mapping,” Hurtta teaches all of the limitations of claim 1 in view of the knowledge of a person of ordinary skill in the art. Thus, we determine that Petitioner has shown, by a preponderance of the

evidence, that the subject matter of claim 1 would have been obvious over Hurtta.

b. Analysis of the “First Alternative Mapping”

In an alternative analysis for claim 1, which Patent Owner calls the “First Alternative Mapping” (PO Resp. 18),⁵ Petitioner maps the recited ICME to a network node or a user equipment that signals to the gateway when a handover occurs. Pet. 28 (citing Ex. 1003 ¶ 69; Ex. 1005 ¶ 72). In this case, Petitioner contends the network node or a user equipment signals a handover (e.g., an access bearer establishment) to the gateway with information in message 1 (i.e., the recited “inter-technology change-off message”). *Id.* at 30 (citing Ex. 1003 ¶ 76; Ex. 1005 ¶¶ 48, 72); *see also* Ex. 1003 ¶ 76 (citing Ex. 1005 ¶ 51) (stating that Hurtta’s message 1 can include an indication of the access network type). Regarding the recited “policy manager for receiving said inter-technology change-off message from the ICME,” Petitioner cites the same teaching as with the “Second Alternative Mapping” discussed above: that Hurtta’s policy control entity 52 receives message 2, which includes information about the type of access network. Pet. 33–34 (citing Ex. 1003 ¶¶ 85–90; Ex. 1005 ¶¶ 40, 50, 72, Fig. 3). Dr. Mir explains that, in this scenario, the indication of network type received at the gateway is forwarded to the policy control entity. Ex. 1003 ¶ 89 (citing Ex. 1004 ¶ 43).

⁵ This alternative mapping for claim 1 is relevant to Petitioner’s analysis for dependent claims 6 and 15, as we discuss in further detail below. *See infra* §§ II.F.3–4.

To the extent “that claim 1 requires the *ICME* to be a completely separate device from the *policy enforcement point (PEF)*,” Petitioner cites its alternative mapping of the ICME to Hurtta’s network node or a user equipment, which are different elements than Hurtta’s gateway as PEF. Pet. 39 (citing Ex. 1003 ¶ 109).

Patent Owner disputes Petitioner’s contentions regarding the “First Alternative Mapping” to the extent that Petitioner “fails to present a consistent mapping of the claims under this alternative theory for all limitations of the claims.” PO Resp. 18; *see also* PO Sur-reply 9 (same argument). Patent Owner notes Petitioner’s analysis for the limitation “a policy manager for receiving said inter-technology change-off message from the ICME” is only keyed to Hurtta’s message 2 as the inter-technology change-off message. PO Resp. 19 (citing Pet. 33). As such, Patent Owner argues that

[t]here is no allegation in the Petition as to how Hurtta is alleged to teach a policy manager for receiving the change-off message under the First Alternative Theory in which Hurtta’s network node or user equipment corresponds to the claimed ICME, which is supposed to send the message to the policy manager.

PO Resp. 19.

We do not agree with Patent Owner’s arguments. Petitioner’s “First Alternative Mapping” relies on “a message from a network node or a user equipment with information about a handover, such as [Hurtta’s] message 1” for teaching the recited “inter-technology change-off message.” Pet. 30 (citing Ex. 1005 ¶¶ 48, 72); *see also* Ex. 1005 ¶ 43 (“[T]he gateway may determine the type of the access network based on information received from the user equipment. The information may include a type indicator

included in a message.”). Although Patent Owner is correct (PO Resp. 19) that Petitioner relies on policy control entity 52 receiving message 2 for teaching the receipt of the “inter-technology change-off message” at the “policy manager,” Petitioner provides testimony from Dr. Mir that links message 1 with message 2 in this scenario. Specifically, Dr. Mir testifies that a network node or user equipment sends an indication of network type in a message to the gateway (e.g., message 1), which is forwarded on to policy control entity (e.g., in message 2). Ex. 1003 ¶ 89 (citing Ex. 1005 ¶ 43). Dr. Mir’s testimony is supported by Hurtta’s teaching that “gateway 40 sends . . . a request message 2 to the policy control entity 52,” and “the message may include information such as . . . type of the access network.” Ex. 1005 ¶ 50; *see also* Pet. 29 (citing same). We do not agree with Patent Owner that Petitioner’s obviousness contentions are deficient simply because Hurtta uses two different message names (i.e., message 1 and message 2) to describe the transmission of the same information (i.e., an indication of access network type) from a network node or a user equipment to the policy control entity.

This “First Alternative Mapping,” which we find persuasive, is the basis for Petitioner’s analysis of dependent claims 6 and 15, as discussed below. *See infra* §§ II.F.3–4.

3. Claim 2

Claim 2 depends from claim 1 and recites that “said inter-technology change-off message comprises a user ID identifying a subscriber, and at least one of a device ID, a second access technology indicator, and a first access technology indicator.” Ex. 1001, 10:1–4. For the “user ID

identifying a subscriber,” Petitioner contends that Hurтта’s message 2 (i.e., the recited “inter-technology change-off message” under the “Second Alternative Mapping”) “include[s] information such as identity of the user/subscriber.” Pet. 42 (alteration by Petitioner) (emphasis omitted) (quoting Ex. 1005 ¶ 50). Petitioner also puts forth an alternative analysis for the recited “user ID identifying a subscriber” that is keyed to Petitioner’s “First Alternative Mapping” where information about a handover in Hurтта’s message 1 is the “inter-technology change-off message.” Pet. 42; *see also supra* § II.D.2.b. The remainder of claim 2 is a Markush group with three alternatives. For the “device ID” alternative, Petitioner cites Hurтта’s teaching that message 2 “include[s] information such as . . . access point (AP).” Pet. 43 (citing Ex. 1005 ¶ 50). Petitioner contends an ordinarily skilled artisan would have found it obvious to identify the access point using a device ID. *Id.* (citing Ex. 1003 ¶ 127).

Patent Owner disputes Petitioner’s alternative analysis for the recited “user ID identifying a subscriber” that is keyed to the “First Alternative Mapping.” PO Resp. 22. But, as noted by Petitioner (Pet. Reply 13), Patent Owner does not dispute Petitioner’s analysis in which it maps the recited “inter-technology change-off message” to Hurтта’s message 2 (i.e., the “Second Alternative Mapping”). We are persuaded by Petitioner’s showing that Hurтта’s message 2 includes user identification information. *See, e.g.*, Ex. 1005 ¶ 50. We are also persuaded that an ordinarily skilled artisan considering Hurтта’s teaching that message 2 includes information about an access point would have known this information to constitute a device ID. *See, e.g.*, Ex. 1003 ¶ 127; Ex. 1005 ¶ 50. This is sufficient to render the entire Markush group obvious. *See Fresenius USA, Inc. v. Baxter Int’l, Inc.*,

582 F.3d 1288, 1298 (Fed. Cir. 2009) (holding that an entire Markush group limitation is disclosed by the prior art if one alternative in the Markush group is in the prior art). Thus, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 2 would have been obvious over Hurtta.

4. *Claim 3*

Claim 3 depends from claim 2 and recites that “said policy manager is further for looking up, in a subscriber database, subscriber security parameters of a subscriber identified in the inter-technology change-off message, and for searching said policy database for a user policy corresponding to said subscriber.” Ex. 1001, 10:5–10. Petitioner contends Hurtta teaches a “‘subscriber database’ storing ‘subscriber data’ including ‘information regarding . . . security, [and] authentication.’” Pet. 44 (alteration by Petitioner) (emphasis omitted) (quoting Ex. 1005 ¶ 10). Petitioner also cites Hurtta’s teaching of subscription manager 56 containing a subscription directory. *Id.* (citing Ex. 1005 ¶ 53). According to Petitioner, “Hurtta’s subscriber database, subscription directory, or both combined correspond to the claimed ‘*subscriber database*.’” *Id.* at 44–45 (citing Ex. 1003 ¶ 134).

For “looking up . . . subscriber security parameters of a subscriber,” Petitioner cites Hurtta’s teaching of policy control entity 52 sending Search Request message 3 to the subscriber manager in order to retrieve a subscription profile. Pet. 45 (citing Ex. 1005 ¶ 53). Petitioner contends that “[t]he subscription profile may include access specific attributes for each authorized access point and/or service.” *Id.* (quoting Ex. 1005 ¶ 53). Given

that message 2 (the recited “inter-technology change-off message”) includes the identity of the subscriber, Petitioner contends an ordinarily skilled artisan would have found it obvious “that the retrieved subscription profile is for the user identified in message 2.” *Id.* (citing Ex. 1003 ¶ 135; Ex. 1005 ¶¶ 50, 52). Petitioner further notes Hurtta’s teaching that “the policy is personalized for the subscription,” which Petitioner likens to a user policy. *Id.* at 45, 47 (citing Ex. 1003 ¶¶ 135–136, 141; Ex. 1005 ¶¶ 57, 59). Patent Owner does not dispute Petitioner’s analysis for claim 3.

We are persuaded that Hurtta’s subscriber database and subscription manager with a subscription directory teach the recited “subscriber database.” *See, e.g.*, Ex. 1003 ¶ 134; Ex. 1005 ¶¶ 10, 53. We are further persuaded that Hurtta’s request message 3 can retrieve policy information that is personalized for a user from the subscriber manager. *See, e.g.*, Ex. 1003 ¶ 135; Ex. 1005 ¶¶ 50, 52, 53, 59. Thus, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 3 would have been obvious over Hurtta.

5. *Claim 5*

Claim 5 depends from claim 1 and recites that “the ICME is one of a layer 2 monitoring entity and a higher than layer 2 monitoring entity.” Ex. 1001, 10:17–19. Petitioner cites Hurtta’s teaching that the gateway (i.e., the recited “ICME”) is “configured for communication with entities associated with different access networks.” Pet. 48 (quoting Ex. 1005 ¶ 21). Petitioner contends that “inter-network connectivity is associated with OSI layer 3,” so an ordinarily skilled artisan would have recognized the gateway

as being a “higher than layer 2 monitoring entity.” *Id.* (citing Ex. 1003 ¶ 145). Patent Owner does not dispute Petitioner’s analysis for claim 5.

We are persuaded that an ordinarily skilled artisan considering Hurtta’s teaching of its gateway communicating with entities in different access networks would have known the gateway to be a “higher than layer 2 monitoring entity.” *See, e.g.*, Ex. 1003 ¶ 145; Ex. 1005 ¶ 21. Thus, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 5 would have been obvious over Hurtta.

6. *Claim 8*

Claim 8 depends from claim 1 and recites that “said appropriate policy is a combination of said user policy and said access technology policy, and wherein portions of said appropriate policy are distributed to each PEF of said at least one PEF.” Ex. 1001, 10:33–36. Petitioner cites Hurtta’s teaching of “a policy covering an appropriate combination of various policies.” Pet. 49 (emphasis omitted) (quoting Ex. 1005 ¶ 41). For the recited “user policy,” Petitioner relies on the same analysis discussed above for claim 3. *Id.*; *see also id.* at 45, 47 (citing Ex. 1003 ¶¶ 135–136, 141; Ex. 1005 ¶¶ 57, 59) (arguing, based on Hurtta’s disclosure that “the policy is personalized for the subscription,” that it would have been obvious “to refer to the subscriber’s profile to obtain security information used to personalize a [user] policy to that subscriber”). For the “access technology policy,” Petitioner cites Hurtta’s teaching that “[a]ccess specific policies which are not personalized for the subscription may be configured to the gateway.” *Id.* at 49 (emphasis omitted) (quoting Ex. 1005 ¶ 61). For the limitation that “portions of said appropriate policy are distributed to each

PEF of said at least one PEF,” Petitioner cites Hurtta’s teaching that “policy control entity 52 may send either policies relevant for the access network type or policies for all access network types to the gateway,” which is a PEF. *Id.* at 50–51 (emphasis omitted) (quoting Ex. 1005 ¶ 60). Patent Owner does not dispute Petitioner’s analysis for claim 8.

We are persuaded that Hurtta teaches “a policy covering an appropriate combination of various policies.” Ex. 1005 ¶ 41. We also are persuaded that Hurtta teaches user policies (*see, e.g.*, Ex. 1003 ¶¶ 135–136, 141; Ex. 1005 ¶¶ 57, 59) and access technology policies (*see, e.g.*, Ex. 1005 ¶ 61). Hurtta additionally teaches sending policies to the gateway, which is a PEF. *See, e.g.*, Ex. 1005 ¶ 60. Thus, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 8 would have been obvious over Hurtta.

7. *Claim 9*

Claim 9 depends from claim 8 and recites that “said combination of said user policy and said access technology policy is a sum of said user policy plus said access technology policy.” Ex. 1001, 10:37–39. Similar to its analysis for claim 8, Petitioner cites Hurtta’s teaching that a policy may be an “appropriate combination of various policies,” and contends that it would have been obvious to sum policies when combining them. Pet. 51 (quoting Ex. 1005 ¶ 41) (citing Ex. 1003 ¶ 159). Patent Owner does not dispute Petitioner’s analysis for claim 9. We are persuaded by Petitioner’s showing for reasons similar to those discussed for claim 8. *See, e.g.*, Ex. 1003 ¶ 159; Ex. 1005 ¶ 41. Thus, we determine that Petitioner has

shown, by a preponderance of the evidence, that the subject matter of claim 9 would have been obvious over Hurтта.

8. *Claims 10–12, 14, 17, and 18*

Independent claim 10 is a method claim similar in scope to the system of independent claim 1. Ex. 1001, 10:40–62. Petitioner relies on the analysis from claim 1. Pet. 52. Patent Owner relies on the same arguments discussed above with respect to claim 1. PO Resp. 21. For the same reasons mentioned above (*see supra* § II.D.2.a), we are persuaded that Hurтта teaches all of the limitations of claim 10 in view of the knowledge of a person of ordinary skill in the art. Thus, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 10 would have been obvious over Hurтта.

Dependent claims 11, 12, 14, 17, and 18 are similar in scope to dependent claims 2, 3, 5, 8, and 9, and Petitioner relies on the analysis from claims 2, 3, 5, 8, and 9, respectively. Pet. 52. Patent Owner relies on the same arguments discussed above with respect to claims 1 and 2. PO Resp. 21–22. For the same reasons mentioned above (*see supra* § II.D.3–7), we are persuaded that Hurтта teaches all of the limitations of claims 11, 12, 14, 17, and 18 in view of the knowledge of a person of ordinary skill in the art. Thus, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 11, 12, 14, 17, and 18 would have been obvious over Hurтта.

E. Obviousness Ground Based on Hurtt and Mizell

Petitioner contends the subject matter of claims 4 and 13 would have been obvious over the combination of Hurtt and Mizell. Pet. 52–59. Patent Owner relies on the same arguments it makes with respect to the Hurtt obviousness ground. PO Resp. 22.

1. Mizell

Mizell is a U.S. patent application publication directed to mobile terminals communicating in a mobile IP network. Ex. 1006 ¶ 2. Mobile terminals may communicate with a device by way of the Internet through a home agent (HA) or a foreign agent (FA). *Id.* ¶ 30. When the mobile terminal is not within the service area of the HA, the mobile terminal will register with the HA through the FA. *Id.* The FA may periodically send out an agent advertisement containing a care-of IP address; the agent advertisement is a special packet periodically broadcast by home agents and foreign agents to notify mobile terminals of their location and that they are available for connectivity. *Id.* ¶ 32. The HA may complete a registration process with the FA, whereupon the HA may assign IP addresses so that the mobile terminal “can access the home network or any other data packet network.” *Id.* ¶¶ 32–34, Fig. 2.

Petitioner contends Mizell qualifies as prior art under 35 U.S.C. § 102(b) based on its publication date. Pet. 17–18. Patent Owner does not contest the prior art status of Mizell. We determine that Mizell qualifies as prior art under 35 U.S.C. § 102(b) because Mizell’s publication date of October 21, 2004, is more than one year before the U.S. filing date of the

challenged claims, which is June 7, 2007. Ex. 1001, code (22); Ex. 1006, code (43).

2. *Claim 4*

Claim 4 depends from claim 1 and recites “said policy manager distributes said appropriate policies after a layer 2 portion of said inter-technology change-off has completed and before a layer 3 portion of said inter-technology change-off has completed.” Ex. 1001, 10:12–16. Building on its analysis of claim 1, Petitioner cites Mizell’s teaching of a mobile terminal registering for access with a network other than its home network via a foreign agent. Pet. 55–56 (citing Ex. 1006 ¶ 30). In particular, Petitioner cites Mizell’s registration process in Figure 2 in which the mobile terminal receives a special IP packet signaling availability from the foreign agent. *Id.* at 56 (citing Ex. 1006 ¶ 32, Fig. 2). Petitioner contends an ordinarily skilled artisan would have found it obvious that “the mobile terminal [had] first established a layer 2 communication capability with the foreign agent’s network before receiving the special IP packet.” *Id.* (citing Ex. 1003 ¶ 185). Petitioner further cites Mizell’s teachings about later stages of the process where the mobile terminal is assigned an IP address by the home agent, whereupon the mobile terminal is able to access any data network. *Id.* at 56–57 (citing Ex. 1006 ¶¶ 34, 36). Petitioner contends that, in the context of Mizell’s IP network using home and foreign agents, an ordinarily skilled artisan would have known that a handoff would not be completed at layer 3 until the mobile terminal had at least been assigned an IP address. *Id.* at 57 (citing Ex. 1003 ¶ 186). Petitioner further contends that an ordinarily skilled artisan would have known that “a mobile terminal

is able to receive Mizell's special broadcast IP packet without having layer 3 connectivity because such a packet is sent to a special reserved address that functions as a local broadcast address within the network." *Id.*

For the policy manager distributing "appropriate policies" after establishing layer 2 but before establishing layer 3, Petitioner cites Mizell's teaching that the foreign agent receives subscriber profile information from the home agent as part of the registration response, which allows the foreign agent to perform policy-based routing of data packets. Pet. 58 (citing Ex. 1003 ¶ 187; Ex. 1006 ¶ 35). Petitioner contends it would have been obvious that the subscriber profile information received as part of registration includes policies to be applied. *Id.*

Petitioner contends that an ordinarily skilled artisan considering Hurtta would have found it obvious to consider other references detailing Hurtta's handover technologies, including "(1) using mobile IP and (2) provisioning communication policies in a mobile IP network." Pet. 53 (citing Ex. 1003 ¶ 179; Ex. 1005 ¶¶ 36, 76). Petitioner contends that Mizell provides such details, particularly because it "relates to mobile terminals communicating in a mobile IP network" and it "illustrates and describes in detail how a mobile terminal 'moves into a foreign network' and 'register[s] its location with its' home network." *Id.* at 53–54 (quoting Ex. 1006 ¶¶ 2, 32) (alteration by Petitioner). As such, Petitioner contends

the combination of Hurtta and Mizell is simply the combination of prior art elements (employing mobile IP registration techniques taught by Mizell in the mobile communication network of Hurtta) according to known methods (disclosed by Mizell) to yield predictable results (allowing for devices in Hurtta's system to roam to foreign networks and maintain communication and connectivity).

Id. at 54 (citing Ex. 1003 ¶ 180). Patent Owner does not dispute Petitioner’s analysis for claim 4.

We are persuaded that Mizell’s teaching of the mobile terminal receiving a special IP packet evidences that layer 2 communications had been established. *See, e.g.*, Ex. 1003 ¶ 185; Ex. 1006 ¶ 32, Fig. 2. In later stages of Mizell’s process for registering the mobile terminal on a foreign agent’s network, the mobile terminal is assigned an IP address by the home agent, which evidences layer 3 communications. *See, e.g.*, Ex. 1003 ¶ 186; Ex. 1006 ¶¶ 34, 36. And Mizell teaches that part of that registration process involves receiving “subscription/profile information,” which an ordinarily skilled artisan would have known to include policy information. *See, e.g.*, Ex. 1003 ¶ 187; Ex. 1006 ¶ 35. Thus, Petitioner persuasively shows that the combination of Hurtta and Mizell teaches the additional limitation in claim 4. We also are persuaded that an ordinarily skilled artisan considering Hurtta would have looked to Mizell for details on handover technologies in a mobile IP network and would have expected success when implementing those details in Hurtta’s system. *See, e.g.*, Ex. 1003 ¶¶ 179, 180, 185–187. Thus, Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 4 would have been obvious over the combination of Hurtta and Mizell.

3. *Claim 13*

Claim 13 is similar in scope to claim 4, and Petitioner relies on the analysis from claim 4. Pet. 59. Patent Owner does not dispute Petitioner’s analysis for claim 13. For the same reasons mentioned above (*see supra* § II.E.2), we determine that Petitioner has shown, by a preponderance of the

evidence, that the subject matter of claim 13 would have been obvious over the combination of Hurtta and Mizell.

F. Obviousness Ground Based on Hurtta, Rimoni, and Wilhoite

Petitioner contends the subject matter of claims 6 and 15 would have been obvious over the combination of Hurtta, Rimoni, and Wilhoite.

Pet. 58–61. Patent Owner relies on the same arguments it makes with respect to the Hurtta obviousness ground. PO Resp. 22.

1. Rimoni

Rimoni is a U.S. patent application publication directed to “a User Terminal (UT)-initiated system and method for a hard handoff from a wireless local area network (WLAN) to a cellular telephone network.” Ex. 1007 ¶ 3. Rimoni states that the disclosed system and method may be used with Code Division Multiple Access (CDMA), Global System for Mobile Communications (GSM), or Universal Mobile Telecommunications System (UMTS) cellular networks. *Id.* ¶ 25.

Petitioner contends Rimoni qualifies as prior art under, *inter alia*, 35 U.S.C. § 102(e) based on its filing date. Pet. 18. Patent Owner does not contest the prior art status of Rimoni. We have no evidence of an invention date other than the filing date of the application that led to the challenged claims. We determine that Rimoni qualifies as prior art under 35 U.S.C. § 102(e) because Rimoni’s filing date of October 12, 2005, is before the U.S. filing date of the application that led to the challenged claims, which is June 7, 2007. Ex. 1001, code (22); Ex. 1007, code (22).

2. *Wilhoite*

Wilhoite is a U.S. patent application publication directed to a telephone system that supports communication with user devices over both a cellular radio network and an Internet Protocol (IP) network and enables roaming and active call handoff between cellular and IP domains. Ex. 1008, Abstr. Wilhoite states that a handoff of an active cellular telephone call on the cellular radio network may be initiated by the user entering the proximity of a suitable WiFi network. *Id.* ¶ 255. Wilhoite describes a series of steps needed to complete registration with the WiFi network and continue the call via the WiFi network. *See id.* ¶¶ 255–264, Fig. 11A.

Petitioner contends Wilhoite qualifies as prior art under 35 U.S.C. § 102(b) based on its publication date. Pet. 18. Patent Owner does not contest the prior art status of Wilhoite. We determine that Wilhoite qualifies as prior art under 35 U.S.C. § 102(b) because Wilhoite’s publication date of June 1, 2006, is more than one year before the U.S. filing date of the challenged claims, which is June 7, 2007. Ex. 1001, code (22); Ex. 1008, code (43).

3. *Claim 6*

Claim 6 depends from claims 5 and 1 and recites “the ICME is a layer 2 monitoring entity.” Ex. 1001, 10:20–21. Petitioner cites its “First Alternative Mapping” with a user equipment in Hurtt as the ICME based on its signaling of information about a handover to the gateway. Pet. 65 (citing Ex. 1005 ¶ 72); *see also id.* at 28 (alternative mapping for claim 1); *supra* § II.D.2.b (discussion of the “First Alternative Mapping”). Petitioner

contends that an ordinarily skilled artisan considering this teaching from Hurtta

would have recognized that a user equipment is a layer 2 monitoring entity because the user equipment engages in layer 2 communications—such as wireless communication via radio network channels and radio access bearers . . . —and would be aware of, participate in, and potentially control a handoff between access technologies.

Pet. 65 (citing Ex. 1003 ¶ 206; Ex. 1005 ¶¶ 30, 35, 72).

Claim 6 further recites “the inter-technology change-off is between UMTS and WLAN.” Ex. 1001, 10:21–22. Petitioner cites Hurtta’s teaching of a handoff “between a WLAN access network and a 2G or 3G access network,” and contends an ordinarily skilled artisan would have known 2G and 3G to be UMTS technologies. Pet. 65–66 (quoting Ex. 1005 ¶ 72) (citing Ex. 1003 ¶ 208) (emphasis omitted). Petitioner also cites Rimoni’s teaching of a “handoff procedure for a call from a wireless local area network (WLAN) to a cellular telephone network,” which Rimoni states may be a UMTS cellular network. *Id.* at 66 (quoting Ex. 1007, Abstr.) (citing Ex. 1007 ¶¶ 25, 33).

Claim 6 further recites “a change-off is detected when an association occurs.” Ex. 1001, 10:22–23. Petitioner contends Wilhoite teaches “initiating a handover of an ‘active cellular telephone call’ to a ‘suitable WiFi network’ when an ‘association is created with the WiFi access point (AP).” Pet. 66 (quoting Ex. 1008 ¶ 255). Petitioner further cites Wilhoite’s teaching that the user’s telephone “informs the cellular radio that a handoff will be needed” after associating with the WiFi access point and registering its updated location. Pet. 66–67 (quoting Ex. 1008 ¶ 257) (citing Ex. 1008 ¶¶ 256–257, Fig. 11A). Petitioner contends that “[b]y informing the

‘cellular radio that a handoff will be needed,’ Wilhoite’s telephone detects a change of access technology from a cellular network to a WiFi network.”

Id. (citing Ex. 1003 ¶ 214).

Petitioner contends that an ordinarily skilled artisan considering Hurttä “would have found it obvious to consider other references describing additional aspects of Hurttä’s handover technologies, including for example more details about cellular network access technologies that could be supported by Hurttä’s user equipment.” Pet. 60 (citing Ex. 1003 ¶ 195). As such, Petitioner contends an ordinarily skilled artisan would have found it obvious to consider other references, such as Rimoni, that describe additional aspects of Hurttä’s handover technologies, such as a handoff procedure from a WLAN to a cellular telephone network. *Id.* at 60–61 (citing Ex. 1003 ¶¶ 195, 197; Ex. 1005 ¶¶ 14, 28; Ex. 1007 ¶ 43, Fig. 3). Petitioner contends that an ordinarily skilled artisan would have expected success in making the combination of Hurttä and Rimoni “because Hurttä contemplates handovers operating with any type of 3G access network, and UMTS was a well-known 3G access network technology.” *Id.* at 61–62 (internal quotation omitted) (citing Ex. 1003 ¶ 198).

Petitioner further contends that an ordinarily skilled artisan considering Hurttä would have looked to Wilhoite’s details about a handover process in the context of a wireless local area network using WiFi technology. *Id.* at 63–64 (citing Ex. 1003 ¶¶ 201, 203; Ex. 1008 ¶¶ 255–257). Petitioner contends an ordinarily skilled artisan would have expected success in applying Wilhoite’s handover techniques to the Hurttä–Rimoni combination “because Hurttä states—consistent with Wilhoite’s disclosure—that ‘[i]nformation about the handover may be signalled to the

gateway . . . by a user equipment.” *Id.* at 64 (alteration by Petitioner) (quoting Ex. 1005 ¶ 72) (citing Ex. 1003 ¶ 204). Patent Owner does not dispute Petitioner’s analysis for claim 6.

We are persuaded that, under Petitioner’s “First Alternative Mapping” discussed above (*see supra* § II.D.2.b), an ordinarily skilled artisan would have known the ICME to be “a layer 2 monitoring entity” that signals a handover. *See, e.g.*, Ex. 1003 ¶ 206; Ex. 1005 ¶ 72. We also are persuaded that Hurtta and Rimoni both teach handoffs between WLAN and cellular (e.g., UMTS) networks. *See, e.g.*, Ex. 1005 ¶ 72; Ex. 1007, Abstr., ¶¶ 25, 33. We additionally are persuaded that Wilhoite teaches that the user’s telephone “informs the cellular radio that a handoff will be needed” after successful association and registration teaches detecting a change-off when an association occurs. *See, e.g.*, Ex. 1008 ¶¶ 255–257, Fig. 11A. Moreover, we are persuaded by Petitioner’s rationale that an ordinarily skilled artisan considering Hurtta would have looked to Rimoni’s and Wilhoite’s further details on handovers between UMTS/cellular technologies and WLAN systems. *See, e.g.*, Ex. 1003 ¶¶ 195, 197, 201, 203. In addition, we are persuaded that an ordinarily skilled artisan would have expected success in making the combination. *See, e.g.*, Ex. 1003 ¶¶ 198, 204. For these reasons, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 6 would have been obvious over the combination of Hurtta, Rimoni, and Wilhoite.

4. *Claim 15*

Claim 15 is similar in scope to claim 6, and Petitioner relies on the analysis from claim 6. Pet. 68. Patent Owner does not dispute Petitioner’s

analysis for claim 15. For the same reasons mentioned above (*see supra* § II.F.3), we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 15 would have been obvious over the combination of Hurtta, Rimoni, and Wilhoite.

G. Obviousness Ground Based on Hurtta and Rimoni

Petitioner contends the subject matter of claims 7 and 16 would have been obvious over the combination of Hurtta and Rimoni. Pet. 68–69. Patent Owner relies on the same arguments it makes with respect to the Hurtta obviousness ground. PO Resp. 22.

1. Claim 7

Claim 7 depends from claims 5 and 1 and recites “the ICME is a layer 3 monitoring entity.” Ex. 1001, 10:24–25. Petitioner cites Hurtta for teaching that the gateway (i.e., the “ICME”) is “configured for communication with entities associated with different access networks.” Pet. 48 (quoting Ex. 1005 ¶ 21), 68. Petitioner contends an ordinarily skilled artisan would have known inter-network connectivity to be associated with OSI layer 3. *Id.* at 48 (citing Ex. 1003 ¶ 145), 68.

Claim 7 further recites “the inter-technology change-off is between UMTS and WLAN.” Ex. 1001, 10:25–26. Petitioner cites Hurtta’s teaching of a handoff “between a WLAN access network and a 2G or 3G access network,” and contends an ordinarily skilled artisan would have known 2G and 3G to be UMTS technologies. Pet. 65–66 (emphasis omitted) (quoting Ex. 1005 ¶ 72) (citing Ex. 1003 ¶ 208), 68. Petitioner also cites Rimoni’s teaching of a “handoff procedure for a call from a wireless local area

network (WLAN) to a cellular telephone network,” which Rimoni states may be a UMTS cellular network. Pet. 66 (quoting Ex. 1007, Abstr.) (citing Ex. 1007 ¶¶ 25, 33), 68.

Claim 7 further recites

the change-off is detected on an occurrence of a change in an IP address allocated to the multimodal device, receipt of a message from the multimodal mobile device, receipt of a DHCP message, or any other mechanism from the network or device to initiate a layer 3 handoff or change-off.

Ex. 1001, 10:26–31. Petitioner cites Hurtta’s teaching that “[i]nformation about the handover may be signalled to the gateway . . . by a user equipment” (i.e., a multimodal mobile device). Pet. 69 (emphasis omitted) (alteration by Petitioner) (quoting Ex. 1005 ¶ 72). Petitioner contends this teaches that the change-off is detected upon “receipt of a message from the multimodal mobile device.” *Id.* (citing Ex. 1003 ¶ 223). Petitioner contends that it only needs to show a single alternative in this limitation to establish obviousness. *Id.*

Petitioner contends that an ordinarily skilled artisan considering Hurtta “would have found it obvious to consider other references describing additional aspects of Hurtta’s handover technologies, including for example more details about cellular network access technologies that could be supported by Hurtta’s user equipment.” Pet. 60 (citing Ex. 1003 ¶ 195), 68. As such, Petitioner contends an ordinarily skilled artisan would have found it obvious to consider other references, such as Rimoni, that describe additional aspects of Hurtta’s handover technologies, such as a handoff procedure from a WLAN to a cellular telephone network. *Id.* at 60–61 (citing Ex. 1003 ¶¶ 195, 197; Ex. 1005 ¶¶ 14, 28; Ex. 1007 ¶ 43, Fig. 3), 68. Petitioner contends that “the combination of Hurtta and Rimoni represents

the simple substitution of one known element (Hurttä's GRPS-based cellular access network) for another (Rimoni's UMTS-based cellular access network) to obtain predictable results (supporting handover between WLAN and UMTS access networks)." *Id.* at 61 (citing Ex. 1003 ¶ 196), 68; *see also id.* at 61–62 (citing Ex. 1003 ¶¶ 197–198; Ex. 1005 ¶ 28; Ex. 1007 ¶ 33) (further addressing reasonable expectation of success in making the combination). Patent Owner does not dispute Petitioner's analysis for claim 7.

We are persuaded that an ordinarily skilled artisan would have known Hurttä's gateway (i.e., "the ICME") to be "a layer 2 monitoring entity" that signals a handover. *See, e.g.*, Ex. 1003 ¶ 223; Ex. 1005 ¶ 72. We also are persuaded that Hurttä and Rimoni both teach handoffs between WLAN and cellular (e.g., UMTS) networks. *See, e.g.*, Ex. 1005 ¶ 72; Ex. 1007, Abstr., ¶¶ 25, 33. We additionally are persuaded that Hurttä's teaching of a user equipment (i.e., a "multimodal mobile device") signaling information about a handover to the gateway teaches that "the change-off is detected on an occurrence of . . . receipt of a message from the multimodal mobile device." *See, e.g.*, Ex. 1003 ¶ 223; Ex. 1005 ¶ 72. Moreover, we are persuaded by Petitioner's rationale that an ordinarily skilled artisan considering Hurttä would have implemented Rimoni's further details on handovers between UMTS/cellular technologies and WLAN systems in Hurttä's system with a reasonable expectation of success. *See, e.g.*, Ex. 1003 ¶¶ 195–198. For these reasons, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 7 would have been obvious over the combination of Hurttä and Rimoni.

2. *Claim 16*

Claim 16 is similar in scope to claim 7, and Petitioner relies on the analysis from claim 7. Pet. 69–70. Patent Owner does not dispute Petitioner’s analysis for claim 16. For the same reasons mentioned above (*see supra* § II.G.1), we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 16 would have been obvious over the combination of Hurtta and Rimoni.

III. CONCLUSION⁶

Petitioner has shown, by a preponderance of the evidence, that the subject matter of (1) claims 1–3, 5, 8–12, 14, 17, and 18 would have been obvious over Hurtta; (2) claims 4 and 13 would have been obvious over the combination of Hurtta and Mizell; (3) claims 6 and 15 would have been obvious over the combination of Hurtta, Rimoni, and Wilhoite; and (4) claims 7 and 16 would have been obvious over the combination of Hurtta and Rimoni.

⁶ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

IV. ORDER

Accordingly, it is

ORDERED that claims 1–18 of the '106 patent are 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, 5, 8–12, 14, 17, 18	103(a)	Hurtta	1–3, 5, 8–12, 14, 17, 18	
4, 13	103(a)	Hurtta, Mizell	4, 13	
6, 15	103(a)	Hurtta, Rimoni, Wilhoite	6, 15	
7, 16	103(a)	Hurtta, Rimoni	7, 16	
Overall Outcome			1–18	

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