

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SIERRA WIRELESS AMERICA, INC., SIERRA WIRELESS, INC.,
and RPX CORP.,
Petitioner,

v.

M2M SOLUTIONS LLC,
Patent Owner.

Case IPR2015-01823
Patent 8,648,717 B2

Before KALYAN K. DESHPANDE, JUSTIN T. ARBES, and
DANIEL J. GALLIGAN, *Administrative Patent Judges*.

GALLIGAN, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314 and 37 C.F.R. § 42.108, Sierra Wireless America, Inc., Sierra Wireless, Inc., and RPX Corp. (collectively, “Petitioner”) challenge the patentability of claims 1, 3, 5, 6, 10–13, 15–24, and 29 of U.S. Patent No. 8,648,717 B2 (“the ’717 patent,” Ex. 1001), owned by M2M Solutions LLC (“Patent Owner”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision, issued pursuant to 35 U.S.C. § 318(a), addresses issues and arguments raised during trial. For the reasons discussed below, we determine that Petitioner has proven by a preponderance of the evidence that claims 24 and 29 of the ’717 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.”). However, Petitioner has not proven by a preponderance of the evidence that claims 1, 3, 5, 6, 10–13, and 15–23 of the ’717 patent are unpatentable.

A. Procedural History

On August 26, 2015, Petitioner requested *inter partes* review of claims 1–3, 5–7, 10–24, 29, and 30 of the ’717 patent. Paper 1, “Pet.” Patent Owner filed a Preliminary Response. Paper 11. In a Decision on Institution of *Inter Partes* Review, we instituted trial of claims 1, 3, 5, 6, 10–13, 15–24, and 29, but we denied institution as to claims 2, 7, 14, and 30. Paper 16, “Dec. on Inst.” Trial was instituted on the following grounds of unpatentability:

1. Whether claims 1, 3, 5, 6, 10–13, 15, 18, 22–24, and 29 are unpatentable under 35 U.S.C. § 103(a) as having been obvious over Whitley¹ and the SIM Specification;²
2. Whether claims 16, 17, 19, and 20 are unpatentable under 35 U.S.C. § 103(a) as having been obvious over Whitley, the SIM Specification, and Kail;³ and
3. Whether claim 21 is unpatentable under 35 U.S.C. § 103(a) as having been obvious over Whitley, the SIM Specification, and Eldredge.⁴

Dec. on Inst. 32–33.

During the trial, Patent Owner filed a Response (Paper 27, “PO Resp.”), and Petitioner filed a Reply (Paper 33, “Reply”).

An oral hearing was held on December 5, 2016, a transcript of which appears in the record. Paper 37 (“Tr.”).

B. Related Matters

Petitioner and Patent Owner cite a number of judicial matters in the United States District Court for the District of Delaware involving the ’717 patent, as well as matters involving ancestor patents of the ’717 patent. See Pet. 3; Paper 8. The ’717 patent is also the subject of *Telit Wireless Solutions Inc. et al. v. M2M Solutions LLC*, Case IPR2016-00055, in which the Board is issuing a Final Written Decision concurrently.

¹ WO 99/49680 A1, published Sept. 30, 1999 (Ex. 1003).

² Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface (GSM 11.11 version 7.4.0 Release 1998) (1999) (Ex. 1004).

³ US 5,959,529, issued Sept. 28, 1999 (Ex. 1005).

⁴ WO 95/05609, published Feb. 23, 1995 (Ex. 1006).

C. Illustrative Claim

The '717 patent is generally directed to a “programmable communicator device.” Ex. 1001, Abstract. The '717 patent has three independent claims—claims 1, 24, and 29. Claim 29 is reproduced below:

29. A programmable communicator device comprising:
- a programmable interface for establishing a communication link with at least one monitored technical device, wherein the programmable interface is programmable by wireless packet switched data messages; and
 - a processing module for authenticating one or more wireless transmissions sent from a programming transmitter and received by the programmable communicator device by determining if at least one transmission contains a coded number; wherein the programmable communicator device is configured to use a memory to store at least one telephone number or IP address included within at least one of the transmissions as one or more stored telephone numbers or IP addresses if the processing module authenticates the at least one of the transmissions including the at least one telephone number or IP address and the coded number by determining that the at least one of the transmissions includes the coded number, the one or more stored telephone numbers or IP addresses being numbers to which the programmable communicator device is configured to and permitted to send outgoing wireless transmissions;
 - wherein the programmable communicator device is configured to use an identity module for storing a unique identifier that is unique to the programmable communicator device; and
 - wherein the one or more wireless transmissions from the programming transmitter containing instructions to program the stored number comprise one or more short message service (SMS) data messages; and
 - wherein the programmable communicator device is configured to process data received through the programmable interface from the at least one monitored technical device in response to programming instructions received in at least one

incoming short message service (SMS) data message or packet switched data message.

Ex. 1001, 16:1–38.

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, “[a] claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b); *see Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard). In applying a broadest reasonable construction, claim terms generally are 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. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). This presumption may be rebutted when a patentee, acting as a lexicographer, sets forth an alternate definition of a term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner proposed constructions for the terms “coded number,” “identity module,” and “programming transmitter,” and Petitioner proposed “programmable interface” be given its plain and ordinary meaning. Pet. 13–16. In its Preliminary Response, Patent Owner contended that Petitioner’s proposed constructions for the terms “identity module” and “programming transmitter” were incorrect, but Patent Owner did not propose its own constructions for these terms in its Preliminary Response. Prelim. Resp. 2–3. We determined in the Decision on Institution that, at that time, these terms did not require express constructions. Dec. on Inst. 6.

Based on the record developed during the trial, we provide the following additional analysis with respect to certain claim terms.

1. “*Programmable interface*”

In our Decision on Institution, we determined that the term “programmable interface” did not require an express construction. Dec. on Inst. 6. In its Response, Patent Owner does not advocate for a particular construction of “programmable interface,” other than to say that “a person of ordinary skill would understand the plain and ordinary meaning of ‘programmable interface’ to be an interface that *must itself be programmable*.” PO Resp. 7. Although we agree with this proposition, we see no reason to adopt this as a claim construction as it does little more than restate the limitation.

With its Response, Patent Owner also filed a Memorandum Opinion from the United States District Court for the District of Delaware addressing claim construction issues pertaining to two ancestor patents of the ’717 patent—U.S. Patent No. 8,094,010 B2 (“the ’010 patent”) and U.S. Patent No. 7,583,197 B2. *See* Ex. 2009. In its Response, Patent Owner notes that, in construing the same “programmable interface” limitation in the ’010 patent, the District Court determined the word “programmable” is “generally understood in the art to mean ‘capable of accepting instructions for performing a task or an operation.’” PO Resp. 8 (citing Ex. 2009, 11 (citing MICROSOFT COMPUTER DICTIONARY 360 (4th ed. 1999))). We agree that “programmable” in the context of the ’717 patent claims also has its plain and ordinary meaning, i.e., “capable of accepting instructions for performing a task or an operation.”

Patent Owner also notes that the District Court construed the term “programmable interface” to mean “an interface that is able to be directly programmed.” PO Resp. 8 (citing Ex. 2009, 10). In this proceeding, however, neither Petitioner nor Patent Owner advocates for this construction.⁵

In its Petition, Petitioner argued that “programmable interface” should be given its plain and ordinary meaning. Pet. 15. In its Reply, Petitioner still argues that the plain and ordinary meaning should apply, but it argues that the plain and ordinary meaning of “programmable interface” is “a physical interface that may be attached to a remote sensor device to relay data in response to requests for information and that can pass programming instructions to the attached, remote sensor device.” Reply 3–4 (citing Ex. 1001, 9:2–6). Although the cited passage from the Specification of the ’717 patent describes using a programmable interface “for the purpose of relaying data from external devices and sensors,” it also states that the interface “may” be used in that manner. Petitioner, therefore, has not persuaded us that the “plain and ordinary meaning” of the term is so limited.

We determine that the broadest reasonable interpretation of a “programmable interface” is an interface “capable of accepting instructions for performing a task or an operation.”

2. *“Processing module for authenticating”*

In our Decision on Institution, we also addressed the limitation of independent claims 1, 24, and 29 reciting “a processing module for

⁵ When asked during oral argument what it means for an interface to be “directly programmed,” counsel for Patent Owner responded, “I think that means that it itself needs to be programmed.” Tr. 34:3–8.

authenticating one or more wireless transmissions sent from a programming transmitter and received by the programmable communicator device by determining if at least one transmission contains a coded number.” Dec. on Inst. 6–7. In particular, prior to institution, we authorized the parties to file supplemental briefs addressing the issue of whether or not this limitation should be interpreted as a means-plus-function limitation under 35 U.S.C. § 112, paragraph 6, and *Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015), and if so, how the limitation should be interpreted. Paper 12. In their supplemental briefs, both parties argued that the limitation should not be interpreted as a means-plus-function limitation under 35 U.S.C. § 112, paragraph 6. See Paper 13; Paper 14 (citing Ex. 2002 (*M2M Solutions LLC, v. Sierra Wireless America, Inc. et al.*, 1:12-CV-00030-RGA, Doc. 215 (D. Del., Oct. 2, 2015)), a district court decision regarding a similar term in a related patent). As such, we were not persuaded that the presumption against application of 35 U.S.C. § 112, paragraph 6, had been overcome, and we determined that the limitation did not require an express construction at that time. Dec. on Inst. 6–7; see *Williamson*, 792 F.3d at 1349 (“When a claim term lacks the word ‘means,’ the presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” (internal quotations and citation omitted)).

During the trial, neither Petitioner nor Patent Owner argued that the limitation should be interpreted as a means-plus-function limitation under 35 U.S.C. § 112, paragraph 6. Based on the full record developed during trial, we do not change our prior determination that this limitation is not

governed by 35 U.S.C. § 112, paragraph 6, and does not require further construction.

3. *Single Transmission*

In our Decision on Institution, we addressed Patent Owner’s argument that there is a “single transmission” requirement in the independent claims, meaning that the “processing module” “perform[s] ‘coded number’ authentication on an incoming ‘single transmission’ that includes both the ‘coded number’ and the new telephone number or IP address intended for storing into the list.” Prelim. Resp. 24. According to Patent Owner, the scope of the independent claims does not encompass situations in which a “coded number” is in one transmission and a number for storing is in a separate transmission because they must be in a “single transmission.” See Prelim. Resp. 32–33. In our Decision on Institution, we determined that, although the scope of the claims encompasses Patent Owner’s proffered construction, the claims are not limited to Patent Owner’s construction. Dec. on Inst. 9.

During the trial, both parties had the opportunity to address this claim construction issue. In its Response, Patent Owner stated:

Patent Owner disagrees with the Board’s prior conclusion that the independent claims fail to require that a “single transmission” be authenticated that includes both the “coded number” and a new telephone number or IP address for storing into the calling list. (Decision, Paper 16, p. 9). . . . But because the “single transmission” requirement is unnecessary for purposes of the arguments presented in the text below, Patent Owner will adopt the “one or more” transmissions phraseology as a matter of convenience solely for purposes of its present Response.

PO Resp. 16 n.6; *see also* Tr. 58:19–59:10 (counsel for Patent Owner confirmed that, for purposes of this proceeding, whether the “coded number”

and a number for storing are in the same transmission or in different transmissions is not an issue).

Based on the full record developed during trial, we determine that our preliminary claim construction in the Decision on Institution is not the broadest reasonable interpretation in light of the Specification, and we determine that the claim language requires both the coded number and the telephone number or IP address to be in the same transmission. The relevant claim language is reproduced below:

wherein the programmable communicator device is configured to use a memory to store at least one telephone number or IP address included within at least one of the transmissions as one or more stored telephone numbers or IP addresses if the processing module authenticates the at least one of the transmissions including the at least one telephone number or IP address and the coded number by determining that the at least one of the transmissions includes the coded number.

Ex. 1001, 12:44–52, 14:65–15:6, 16:11–19 (emphases added).

In an example where the telephone number and the coded number are in different transmissions, there would be at least two transmissions. The transmission that includes the “at least one telephone number or IP address” is a single transmission and, therefore, the “at least one of the transmissions.”

The independent claims recite that “the processing module authenticates the at least one of the transmissions including the at least one telephone number or IP address and the coded number by determining that the at least one of the transmissions includes the coded number.” Ex. 1001, 12:48–52, 15:2–6, 16:15–19 (emphasis added). Here, the emphasized phrase “the at least one of the transmissions” takes antecedent basis from the first recitation of “at least one of the transmissions,” which is the transmission

within which the telephone number (or IP address) is included. Therefore, the processing module performs authentication “by determining that the at least one of the transmissions includes the coded number,” and “the at least one of the transmissions” is defined in the claim as the transmission within which the telephone number (or IP address) is included. As such, the independent claims require processing module authentication of one transmission that includes both the telephone number (or IP address) and the coded number. Certainly, the claims allow for the existence of more than one transmission, but there must be at least one transmission that contains both.

Therefore, we determine that the claims require authentication of one transmission having both a coded number and a telephone number or IP address.⁶

4. “*numbers to which the programmable communicator device is configured to and permitted to send outgoing wireless transmissions*”

Patent Owner contends that the limitation of the independent claims reciting “numbers to which the programmable communicator device is configured to and permitted to send outgoing wireless transmissions” means that the “programmable communicator be configured to store in memory a list of telephone numbers or IP addresses that functions as an *outbound restrictive calling list*.” PO Resp. 13–14 (citing Ex. 2011 ¶¶ 38–39⁷). Patent

⁶ We adopt the same construction in related Case IPR2016-00055.

⁷ This cited support for Patent Owner’s argument is the testimony of Patent Owner’s declarant, Joel R. Williams, that he “ha[s] been asked to assume by Patent Owner’s counsel that” this limitation requires an “outbound *restrictive calling list*.” Mr. Williams does not appear to testify separately as to why this claim interpretation is correct.

Owner contends that the “permitted to” language of the claims dictates this construction, as allegedly evidenced by the prosecution history of the ’717 patent. PO Resp. 14 n.5 (citing Ex. 2014, 10 (Supplemental Amendment, Nov. 8, 2013)).

We disagree that the broadest reasonable interpretation of “configured to and permitted to” is as limited as Patent Owner proposes. During prosecution, the applicant stated:

Applicants would like to thank the examiner for the telephone interview of November 8, 2013. During the interview, Examiner Nguyen suggested that it was not clear from the claim language that the programmable communicator device was permitted to send outgoing wireless transmissions to the stored telephone numbers or IP addresses. Applicant’s counsel and Examiner Nguyen then discussed amending the claims to add the language “and permitted to”. Examiner Nguyen indicated that the amendments would put the claims in condition for allowance.

...

As mentioned above, during the telephone interview of November 8, 2013, Examiner Nguyen suggested it was not clear from the claims that the programmable communicator device was permitted to send outgoing wireless transmissions the stored number(s). Although Applicants believe that “configured to,” in the context of the claim, meant the device was capable of and permitted to send outgoing wireless transmission, to expedite prosecution, Applicants have amended independent claims 1, 27 and 32 to read “the one or more stored telephone numbers or IP addresses being numbers to which the programmable communicator device is configured to and permitted to send outgoing wireless transmissions....”

Ex. 2014, 10.

According to the prosecution history, therefore, the applicant added the language “permitted to” because the Examiner did not believe it was “clear” in the claims as written that the language “configured to” meant that

the device was also “permitted to” call those numbers. There is no mention of restricting what numbers the device can call.

Patent Owner also argues that Petitioner’s contentions implicitly acknowledge that the list must be restrictive. PO Resp. 15 (citing Pet. 32). However, Petitioner does not propose in this proceeding that the claim requires such a “restrictive” list. See Reply 5 (“Petitioners have merely stated that the FDN [fixed dialing number file] described in the prior art can function as a bar to limit calls to the list of numbers, but have not admitted that that is a requirement of the claims.”); *see also* Pet. 32 (citing Ex. 1004, 80–83; Ex. 1013 ¶ 78) (“In particular, [the SIM Specification] discloses the fixed dialing number (FDN) file, which is a list of numbers or IP addresses to which a device associated with the SIM card is configured to and permitted to send messages.”).

Furthermore, Patent Owner argues that the parties in district court litigation have agreed that the list is restrictive in nature. PO Resp. 14–15 (citing Ex. 2010, 6 (Joint Claim Construction Statement filed on August 14, 2015)). Patent Owner’s proposed construction in litigation is “[t]he set of numbers to which the programmable communicator is limited to sending one or more types of outgoing wireless transmissions.” Ex. 2010, 6. By contrast, the defendants’ proposed construction in litigation is “[t]he exclusive set of numbers to which the programmable communicator is limited to send any outgoing wireless transmissions.” Ex. 2010, 6. Therefore, the parties in district court litigation are not in agreement as to the scope of this claim term. The district court has not issued a claim construction ruling in the litigation. See Tr. 75:12–15, 76:12–18 (counsel for Petitioner representing that the district court has not issued a claim

construction order in the litigation involving the '717 patent and that the case is currently stayed).

We have reviewed the Specification of the '717 patent, and we do not find a definition of the “configured to and permitted to” language, nor do we find disclosure requiring this language to be interpreted as narrowly as Patent Owner proposes. For example, in the “Background of the Invention” section, the '717 patent states: “Clearly there is a need to provide a means to limit the cost of calling and also to provide a means to prevent the child dialing overseas numbers *for extensive periods of time.*” Ex. 1001, 2:20–23 (emphasis added). This passage describes a goal of controlling durations of calls to certain numbers, i.e., overseas calls, not completely blocking the sending of outgoing wireless transmissions to such numbers. Another passage states: “An improved child Hotlink communicator, which restricts the usage of the mobile phone and thereby does not generate high charges through uncontrolled calling, is clearly a solution to the family tariffing challenge.” *Id.* at 2:28–32. This also relates to “control” of calling, not necessarily blocking outgoing transmissions. We do not read these passages as the applicant acting as a lexicographer and defining the “configured to and permitted to” language in the claims.

Other passages in the Specification of the '717 patent describe rejecting incoming calls. Ex. 1001, Fig. 2 (step 4), 9:61–67, 10:8–11. For example, step 4 of Figure 2 states that, upon an incoming call, “programmable communicator is unable to verify that the caller is on the permitted callers list and the call is terminated.” Ex. 1001, Fig. 2. Such functionality, however, is addressed by the authentication limitations of the independent claims, wherein the processing module “authenticat[es] one or

more wireless transmissions sent from a programming transmitter and received by the programmable communicator device.” The claims explicitly recite authentication of certain transmissions, i.e., those to store a telephone number or IP address as “numbers to which the programmable communicator device is configured to and permitted to send outgoing wireless transmissions.” These stored numbers may be a restricted list in the sense that they are only stored upon authentication of a single transmission having the telephone number or IP address and the coded number, as discussed above. However, the independent claims use permissive language—“permitted to”—rather than restrictive language to describe “outgoing wireless transmissions.”

Based on the foregoing, we do not agree that Patent Owner’s proposed construction is the broadest reasonable interpretation of the phrase “numbers to which the programmable communicator device is configured to and permitted to send outgoing wireless transmissions.” Consistent with the applicant’s statements during prosecution, we interpret “numbers to which the programmable communicator device is configured to and permitted to send outgoing wireless transmissions” to mean “numbers to which the programmable communicator device is capable of sending outgoing wireless transmissions and permitted to send outgoing wireless transmissions.”⁸ See Ex. 2014, 10.

5. “*process data*”

The phrase “process data” is recited in independent claims 1, 24, and 29 and in various dependent claims. Patent Owner argues that “the ’717

⁸ We adopt the same construction in related Case IPR2016-00055.

patent teaches that what it means to ‘process data’ is that the programmable communicator have the ability to make intelligent determinations that interpret the meaning of the data so that responsive actions can be taken as the result of those determinations.” PO Resp. 46 (citing Ex. 1001, 4:54–59, 5:16–31, 7:56–58, 9:1–2, 9:16–21, 11:33–35, 11:42).

The ’717 patent does not provide a definition of what it means to “process data.”⁹ The passages of the ’717 patent cited by Patent Owner do not demonstrate that such a narrowing interpretation of “process data” should be imposed on the challenged claims. Several of the cited passages do not even use either the word “data” or the word “process.” See Ex. 1001, 4:54–59, 7:56–58, 9:1–2, 11:42. One passage cited by Patent Owner as support for its proposed construction states: “This device comprises a novel combination of existing technologies and features, which make possible the existence of a new and improved communicating apparatus to address the communication needs of children and elderly persons and for programmable data tags for monitoring the status of associated technical equipment.” Ex. 1001, 9:16–21 (cited at PO Resp. 46). This passage does not support Patent Owner’s interpretation.

Furthermore, the intrinsic record does not support Patent Owner’s attempt to exclude particular activity from the scope of data processing. In particular, Patent Owner argues that “the performance of routine low-level tasks such as merely formatting or packetizing data to facilitate its transmission over a wireless cellular network does not rise to the level of

⁹ Counsel for Patent Owner confirmed that the ’717 patent does not provide a definition of processing data during the oral hearing in Case IPR2016-00055. IPR2016-00055, Paper 33, 57:11–16.

data ‘processing’ within the intended meaning of the ‘717 patent.” PO Resp. 46. Patent Owner argues that the ‘717 patent’s description of “react[ing] to a status condition” supports its proposed construction. PO Resp. 46 (citing Ex. 1001, 11:42). The context of that quote is provided by the full sentence in which it appears, which states that “[t]he remote monitoring application comprises the use of a programmable communicator, which reacts to a status condition and *then initiates a packet data transmission to the network.*” Ex. 1001, 11:40–43 (emphasis added). To the extent this passage informs a person of ordinary skill in the art as to the meaning of data processing, it suggests that “formatting or packetizing data to facilitate its transmission” is within the scope of data processing because packet data transmission would require first packetizing the data. Furthermore, dependent claim 6 recites that the programmable communicator device is “further configured to *transmit the processed data* to an at least one monitoring device.” (Emphasis added). This suggests that, as part of the procedure of making the data “processed data,” the data had been formatted or packetized to facilitate its transmission. The claim does not recite that the device is “configured to format the processed data and to transmit the formatted processed data.”

We also note that Patent Owner’s proposed construction is unclear, as it does not explain in any detail what would or would not constitute “intelligent” determinations that “interpret” the meaning of data. We decline to adopt Patent Owner’s proposed construction that “configured to process data” means “hav[ing] the ability to make intelligent determinations that interpret the meaning of the data so that responsive actions can be taken as the result of those determinations.” PO Resp. 46. Furthermore, we disagree

with Patent Owner’s contention that “routine low-level tasks such as merely formatting or packetizing data to facilitate its transmission over a wireless cellular network” are not within the scope of data processing. PO Resp. 46; *see* Reply 6–7. We determine that the phrase “process data” does not require further construction.

6. Remaining Claim Terms

We determine that no other claim terms require express construction in this proceeding.

B. Principles of Law

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) objective evidence of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

C. Level of Ordinary Skill in the Art

In our Decision on Institution, we determined, based on the record at that time, that the skill level of a person of ordinary skill in the art, at the relevant time for the ’717 patent (May 2000), would have been “at least an undergraduate degree in Electrical Engineering and three years of experience working the development of wireless subscriber terminal systems or

components, or an equivalent combination of education and experience in related fields.” Dec. on Inst. 11 n.4 (citing Pet. 12; Ex. 1013 ¶ 31).

In its Response, Patent Owner does not challenge this determination or offer its own proffered level of ordinary skill in the art. Patent Owner’s declarant, Mr. Williams, testifies:

I have been informed by Patent Owner’s counsel that Patent Owner has previously advanced the following definition of a person of ordinary skill in the art for a related patent in a district court litigation as: “the level of ordinary skill in the art would be met by a person with a bachelor’s degree in computer science or electrical engineering with at least two years of software programming experience and at least two years of industry experience working with wireless communications networks and/or Wide Area Networks (“WANs”).” I agree with this definition and have applied it in my opinions below relating to patentability.

Ex. 2011 (Declaration of Joel R. Williams (“Williams Declaration”)) ¶ 26. In its briefing in this proceeding, however, Patent Owner has not advanced this definition. Furthermore, Mr. Williams testifies he believes that if he applied the definition from our Decision on Institution, “it would not result in any changes to the substance of my opinions.” Ex. 2011 ¶ 27.

Based on the record developed during trial, we see no reason to deviate from our prior determination of the skill level of a person of ordinary skill in the art. See Dec. on Inst. 11 n.4. This level of ordinary skill is reflected not only by the information presented by the parties, but also by the prior art of record. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art itself can reflect the appropriate level of ordinary skill in the art).

D. References

1. Whitley

Whitley is directed to “remotely monitoring and controlling via a wireless network various devices deployed in homes and businesses.” Ex. 1003, Abstract. Whitley discloses:

[G]ateways are configured to collect data, such as data describing use of electric power or other utilities by the particular facility at which they are located or data describing the status of various sensors after arming of a security system. Also, gateways may be coupled to various devices within the facility in order to control the devices. For instance, gateways may control the lights within a facility according to a pre-programmed pattern that the user may change by communicating new commands via the present invention. Or, gateways may be configured remotely to receive commands and data, which allows remote control over the devices (e.g., home appliances or electronics) with which the gateway may communicate. Each uniquely addressable gateway includes a transceiver capable of communicating over a wireless network.

Id. at 3:4–14. Whitley further discloses that “gateway 20 may be a [Global System for Mobile Communications (GSM)] device that allows transfer of data, facsimile or e-mail messages, but which does not have voice capability. These messages can be formulated and read by a SIM or ‘Subscriber Identity Module’ card that can be plugged in or otherwise incorporated into gateway 20.” *Id.* at 9:14–17. According to Whitley, “[b]y taking advantage of the SMS¹⁰ services provided in a GSM network, the network functionality required for forwarding short data messages to and from gateways 20 need not be developed from scratch.” *Id.* at 12:17–20.

¹⁰ SMS refers to “Short Message Service” (Ex. 1001, 4:22; Ex. 1004, 13) or “Short Messaging Services” (Ex. 1003, 3:20).

2. *SIM Specification*¹¹

The SIM Specification “defines the interface between [a] Subscriber Identity Module (SIM) and [a] Mobile Equipment (ME) for use during the network operation phase of GSM as well as those aspects of the internal organization of the SIM which are related to the network operation phase.” Ex. 1004, 9.

E. Unpatentability Challenge based on the Combination of Whitley and the SIM Specification (Claims 1, 3, 5, 6, 10–13, 15, 18, 22–24, and 29)

In this trial, Petitioner challenges claims 1, 3, 5, 6, 10–13, 15, 18, 22–24, and 29 of the ’717 patent as unpatentable under 35 U.S.C. § 103(a) over the combination of Whitley and the SIM Specification. We begin by analyzing Petitioner’s contentions with respect to independent claims 24 and 29. *See* Pet. 17–42.

1. Independent Claims 24 and 29

Claim 29 recites all the limitations of claim 24 and additionally recites the limitations emphasized below:

a programmable interface for establishing a communication link with at least one monitored technical device, *wherein the*

¹¹ The SIM Specification is a publication of the European Telecommunications Standards Institute (ETSI). Ex. 1004. Based on the evidence of record, we agree with Petitioner that the SIM Specification is a printed publication under 35 U.S.C. § 102(b). *See* Pet. 5–6; Ex. 1013 ¶ 48; Ex. 1004, 134; *Kyocera Wireless Corp. v. ITC*, 545 F.3d 1340, 1350–51 (Fed. Cir. 2008) (holding that a “reference is publicly accessible ‘upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it,’” and analyzing a similar set of ETSI standard documents) (citation omitted). Patent Owner does not contend the SIM Specification is not a prior art printed publication.

programmable interface is programmable by wireless packet switched data messages; . . .

wherein the one or more wireless transmissions from the programming transmitter containing instructions to program the stored number comprise one or more short message service (SMS) data messages; and

wherein the programmable communicator device is configured to process data received through the programmable interface from the at least one monitored technical device in response to programming instructions received in at least one incoming short message service (SMS) data message or packet switched data message.

a. *“Programmable communicator device” having a “programmable interface”*

Claims 24 and 29 are each directed to a “programmable communicator device” having “a programmable interface for establishing a communication link with at least one monitored technical device.” Claim 29 additionally recites “wherein the programmable interface is programmable by wireless packet switched data messages.”

First, Petitioner contends Whitley’s “gateway” discloses a “programmable communicator device.” Pet. 17–20, 38–41. In particular, Petitioner contends the gateway in Whitley has a transceiver and is wirelessly programmable because users can control and monitor the gateway via a wireless network. *Id.* at 17 (citing Ex. 1003, 3:3–14, 8:27–9:8). We are persuaded by Petitioner’s contention, and we find that Whitley’s gateway discloses a “programmable communicator device.” This finding is supported by Whitley’s disclosure that “gateways may be configured remotely to receive commands and data, which allows remote control over the devices (e.g., home appliances or electronics) with which the gateway may communicate. Each uniquely addressable gateway includes a

transceiver capable of communicating over a wireless network.” Ex. 1003, 3:10–14.

Second, Petitioner contends Whitley describes that the gateway has “a programmable interface for establishing a communication link with at least one monitored technical device, wherein the programmable interface is programmable by wireless packet switched data messages.” Pet. 20–22, 38–42. In particular, Petitioner contends Whitley teaches that “gateway 20 includes a physical interface in communication with local devices it monitors.” Pet. 20 (citing Ex. 1003, 8:27–9:3). Petitioner argues that Whitley teaches that the interface is “programmable” by wireless messages, including by messages sent over a General Packet Radio System (“GPRS”) network, which Petitioner contends is a packet-switched data network. Pet. 21 (citing Ex. 1003, 14:22–27; Ex. 1009, 13–14).

We are persuaded by Petitioner’s contentions, and we find Whitley discloses that its “gateway” has “a programmable interface for establishing a communication link with at least one monitored technical device, wherein the programmable interface is programmable by wireless packet switched data messages.” This finding is supported by the disclosure of Whitley, which provides that “[t]he term ‘gateway’ includes any device that (a) provides a physical interface between internal devices associated with a particular facility 12 and external networks and, optionally, (b) may provide a platform for delivering various services to the facility 12.” Ex. 1003, 8:27–9:1 (cited at Pet. 20). Thus, Whitley discloses that the gateway includes an “interface” to devices. We find that Whitley teaches that this “interface” is “capable of accepting instructions for performing a task or an operation” and, therefore, is a programmable interface, as construed above.

For example, Whitley discloses that “[g]ateway 20 is programmed to poll each device coupled to it to determine the device’s energy use.” Ex. 1003, 16:20–21 (cited at Pet. 21). We find such polling of the coupled device is performed by the “interface” of the gateway that couples the gateway to the polled device. See Ex. 1003, 9:1–3 (cited at Pet. 20) (“[G]ateways 20 may couple to a remote facility 12 and may monitor, control or both monitor and control various devices within the facility 12, such as lights, security sensors, an answering machine, a home computer, etc.”). Therefore, we find Whitley discloses that the interface of the gateway is “capable of accepting instructions for performing a task or an operation,” namely, polling devices to which the interface is coupled.

Petitioner contends Whitley’s disclosure regarding programming of devices coupled to the interface also demonstrates programmability of the interface. Pet. 21 (citing Ex. 1003, 16:9–12, 17:1–5, 17:17–18). We agree. For example, Whitley discloses that “the customer may . . . input commands to be forwarded to various devices at the facility 12.” Ex. 1003, 16:9–10. Whitley further discloses that “[t]he customer can, . . . based on the energy usage trends, input commands to adjust the thermostat, or turn off one of the devices (such as the washer/dryer or water heater) coupled to the gateway 20 in order to save energy.” Ex. 1003, 17:2–4. This evidence demonstrates that the interface that couples to the devices accepts instructions for performing a task or operation, namely, sending commands to the devices to which the interface is couples.

Furthermore, we are persuaded by Petitioner’s contention that Whitley discloses that the programmable interface is programmable by wireless packet switched data messages, as recited in claim 29. Pet. 21 (citing

Ex. 1003, 14:22–27; Ex. 1009, 13–14). Whitley discloses communicating with gateway 20 over a GPRS network, including transporting “commands.” Ex. 1003, Abstract, 13:24–15:24. Whitley describes “tak[ing] advantage of the architecture and protocols of the GPRS or General Packet Radio System to deliver data from and *commands* to gateways.” Ex. 1003, 4:17–19 (emphasis added); *see also* Ex. 1003, 16:9–18 (“[W]hile viewing data describing activities at facility 12, the customer may also input commands to be forwarded to various devices at the facility 12. . . . [C]entral processor 40 may be provided as part of, or couple[d] to, a support node 60 so that messages or commands entered by customers may be formatted as a GPRS packet for transmission over the network 100 that operates a GPRS, as shown in Figure 4.”). As discussed above, Whitley describes programming the interface of the gateway for performing certain tasks, such as polling devices coupled to the interface. *See* Ex. 1003, 16:20–21. We find Whitley’s disclosure of sending commands, such as those to program the interface, over GPRS teaches that the interface is “programmable by wireless packet switched data messages” because GPRS is a packet-switched network. This is confirmed by the ’717 patent, which states that “[p]acket switched technologies such as GPRS may be used as the radio access technology to communicate the status of the technical equipment.” Ex. 1001, 3:59–61; *see also* Ex. 1013 ¶ 77 (“GPRS was a packet-switched data service embedded to the channel-switched cellular radio network GSM network that was first proposed in 1996 and implemented in 2000.”).

Therefore, we find Whitley teaches a “programmable communicator device” having “a programmable interface for establishing a communication

link with at least one monitored technical device, wherein the programmable interface is programmable by wireless packet switched data messages.”

i. Patent Owner’s Arguments

In its Response to the Petition, Patent Owner argues:

Petitioners have not, and cannot, identify any teaching or disclosure in Whitley that any interface belonging to gateway 20 is itself programmable. Indeed, Whitley barely contains any disclosure at all about the gateway 20 interfaces, much less a specific recitation that they would be programmable in nature. At most, Whitley offers a vague statement that some undisclosed type of “physical interface” would allow gateway 20 to “couple to” or “connect to” the devices residing in facility 12 in some undisclosed manner. (Paper 1, p. 20). For example, in Figures 1 and 4 of Whitley, whatever interfaces may be present are depicted merely as unexplained and unlabeled straight lines.

PO Resp. 10.

In purported contrast to the alleged lack of disclosure of a “programmable interface” in Whitley, Patent Owner characterizes the disclosure of the ’717 patent with respect to the “programmable interface” as follows:

The ’717 patent specification describes the programmable communicator device as using its “programmable interface” to directly connect to and interface with a “monitored technical device” so as to form a communication link through which the programmable communicator can receive data transmissions. *See, e.g.*, (Ex. 1001, Fig. 3, 1:39-41, 2:9-16, 3:52-61, 8:65-9:6, 11:27-32).

PO Resp. 10–11 n.3.

We do not interpret “programmable interface” as limited only to the exemplary functionality in the Specification, for the reasons stated above. Regardless, Patent Owner’s description of the “programmable interface” in the ’717 patent, however, is consistent with Whitley’s description of its

gateway's use of an interface that is capable of accepting instructions for performing a task or an operation, as discussed in our findings above. In particular, Whitley discloses that its gateway has a programmable interface that "provides a physical interface between internal devices associated with a particular facility 12 and external networks" and that "gateways 20 may couple to a remote facility 12 and may monitor, control or both monitor and control various devices within the facility 12, such as lights, security sensors, an answering machine, a home computer, etc." Ex. 1003, 8:27–9:3. Similar to the '717 patent's disclosure that "[s]aid programmable interface means may be attached to all manner of sensor devices for the purpose of relaying data from external devices and sensors either automatically or in response to a request for information from a remote device" (Ex. 1001, 9:2–6), Whitley discloses:

Gateway 20 is programmed to poll each device coupled to it to determine the device's energy use. For instance, gateway 20 can be connected to the thermostat, refrigerator, water heater, and washer/dryer in a particular residential facility as well as to the general meter for that facility. Gateway 20 polls those devices every hour to determine their energy use.

Ex. 1003, 16:20–24.

Patent Owner cites four additional passages from the '717 patent specification in a string citation, but Patent Owner provides no explanation as to how these passages distinguish a "programmable interface" as recited in claims 24 and 29 from the disclosure of Whitley. See PO Resp. 10–11 n.3 (citing Ex. 1001, 1:39–41, 2:9–16, 3:52–61, 11:27–32). Only one of these passages uses the term "interface," and it states:

In addition to this, the current invention relates directly to programmable wireless data communication tags, which comprise the *means to be interfaced* directly with other technical

equipment such that each tag can be programmed remotely by any means to be linked to any fixed or mobile telephone to enable data to be sent to or from the device and to allow a person to make a voice call connection to the linked telephone.

Ex. 1001, 2:9–16 (emphasis added). Whitley describes that its gateway has “the means to be interfaced directly with other technical equipment” by virtue of the interface to such technical equipment as a “thermostat, refrigerator, water heater, and washer/dryer,” as discussed above. *See* Ex. 1003, 16:20–23.

We have reviewed the passages cited by Patent Owner, and these passages do not distinguish the claimed “programmable interface” from the disclosure of Whitley, as discussed in our findings above. *See* Ex. 1001, Fig. 3, 1:39–41, 2:9–16, 3:52–61, 8:65–9:6, 11:27–32 (cited at PO Resp. 10–11 n.3).

Patent Owner also argues Whitley’s disclosure regarding programming of devices coupled to the interface of the gateway does not demonstrate programmability of the interface. PO Resp. 12. According to Patent Owner, “[a]t most, this would establish that the gateway 20 interfaces are ‘programming interfaces’ that can be used to assist in the programming of certain other devices, *not* that they are ‘programmable interfaces’ that are themselves capable of being programmed.” PO Resp. 12. We disagree with Patent Owner because the ability of these interfaces to “assist in the programming” of other devices demonstrates that they are capable of accepting instructions for performing the task of assisting in the programming of devices to which they are coupled.

Patent Owner further argues that, “because Whitley fails to contain any suggestion whatsoever that the gateway 20 interfaces are themselves

programmable, it also necessarily lacks the more specific disclosure required by claim element 1(b) of an interface that is ‘programmable by *wireless packet switched data messages*’ in particular.” PO Resp. 12. We disagree with Patent Owner’s argument because, as discussed above, we find Whitley discloses a “programmable interface,” and we find that Whitley’s disclosure of sending commands, such as those to program the interface, over GPRS teaches that the interface is “programmable by wireless packet switched data messages” because GPRS is a packet-switched network.

b. *“Processing module for authenticating” and “configured to use a memory to store at least one telephone number”*

Claims 24 and 29 further recite:

a processing module for authenticating one or more wireless transmissions sent from a programming transmitter and received by the programmable communicator device by determining if at least one transmission contains a coded number;

wherein the programmable communicator device is configured to use a memory to store at least one telephone number or IP address included within at least one of the transmissions as one or more stored telephone numbers or IP addresses if the processing module authenticates the at least one of the transmissions including the at least one telephone number or IP address and the coded number by determining that the at least one of the transmissions includes the coded number.

Claim 29 further recites: “wherein the one or more wireless transmissions from the programming transmitter containing instructions to program the stored number comprise one or more short message service (SMS) data messages.” This limitation is not in claim 24.

Petitioner contends the combination of Whitley and the SIM Specification teaches these limitations, and Petitioner contends that a person of ordinary skill in the art would have had reason to combine the teachings

of these references and provides articulated reasoning with rational underpinning supported by evidence in the record. *See* Pet. 23–36, 38–42.

i. Contentions and Findings as to Whitley

Petitioner contends Whitley describes communicating with the gateway, including sending commands to the gateway, using SMS messages. Pet. 23–24 (citing Ex. 1003, 9:23–25, 15:26–16:6, 16:9–12). Petitioner also contends Whitley describes “programming the gateway to send a message to remote computers or phones that have a particular number or address.” Pet. 30 (citing Ex. 1003, 15:26–27, 17:7–14). We are persuaded by these contentions, which are supported by the disclosure of Whitley. For example, Whitley discloses:

[T]he user can input other commands for delivery to the gateway 20. For instance, the user could instruct the gateway 20 to enable or disable an alarm system at a particular facility 12 at a particular time and for a particular time period. *The present invention also allows the gateway 20 to be programmed to copy messages on energy uses or alarm triggers at a particular facility 12 directly to a handset 32 associated with the owner of facility 12.*

Ex. 1003, 17:4–9 (emphasis added).

Petitioner further contends Whitley teaches including a subscriber identity module (SIM) card in the gateway and using the SIM card to read SMS messages. Pet. 23–24 (citing Ex. 1003, 9:15–25, 15:26–16:6, 16:9–12, 16:15–18; Ex. 1013 ¶¶ 78–80). We are persuaded by Petitioner’s argument, and we find Whitley discloses including a SIM card in the gateway and using the SIM card to read SMS messages. This finding is supported by Whitley, which discloses:

Gateway 20 sends and receives SMS messages via and as part of the architecture of a GSM network. For instance, gateway 20

may be a GSM device that allows transfer of data, facsimile or e-mail messages, but which does not have voice capability. These messages can be formulated and read by a SIM or “Subscriber Identity Module” card that can be plugged in or otherwise incorporated into gateway 20.

Ex. 1003, 9:12–17. Whitley further describes that, “[w]hen an SMS message is received at the gateway 20, the gateway 20 reads the SMS message from the SIM card and processes the contents of the SMS message as though it was entered directly from a command console.” Ex. 1003, 9:23–25.

However, Petitioner acknowledges that “Whitley does not expressly disclose authenticating wireless transmissions by determining if at least one of the wireless transmissions contains a coded number.” Pet. 25.

Furthermore, Petitioner acknowledges that “Whitley does not explicitly disclose how the gateway 20 updates or stores the telephone number or IP addresses that it is configured to and permitted to send outgoing wireless transmissions.” Pet. 32.

ii. Contentions and Findings as to the SIM Specification

Petitioner contends that the SIM Specification teaches both authenticating transmissions having a coded number and storing phone numbers that are included in an authenticated transmission. Pet. 25, 32. Petitioner argues “[t]he microprocessor in the SIM card is capable of performing the claimed authentication functions . . . and is therefore the claimed processing module.” Pet. 24. Petitioner argues “[t]he fixed dialing number (FDN) file is one exemplary file that is stored in memory on the SIM card and that *requires* processor authentication in order to update the file.” Pet. 25 (citing Ex. 1013 ¶ 79). Petitioner contends that the FDN file

“is a list of numbers or IP addresses to which a device associated with the SIM card is configured to and permitted to send messages.” Pet. 32 (citing Ex. 1004, 80–83; Ex. 1013 ¶ 78). Petitioner provides a detailed explanation to show how the SIM Specification teaches authenticating a single transmission (an SMS message) having a coded number and a telephone number and storing the telephone number in the FDN file upon authentication. Pet. 23–33.

In particular, Petitioner contends the SIM Specification discloses updating the FDN file using a wireless transmission, specifically an SMS message. Pet. 25, 33 (citing Ex. 1004, 131; Ex. 1013 ¶ 77). We are persuaded by this contention, and we find the SIM Specification explicitly discloses updating the FDN file using an SMS message, which is a wireless transmission. This is supported by the disclosure of the SIM Specification, which provides:

This annex defines if changing the content of an EF [(elementary file)] by the network (*e.g. by sending an SMS*), or by SIM Toolkit Application (*e.g. by using the SIM API*), is advisable. Updating of certain EFs, “over the air” such as EF_{ACC} could result in unpredictable behaviour of the MS; these are marked “Caution” in the table below. Certain EFs are marked “No”; under no circumstances should “over the air” changes of these EFs be considered.

Ex. 1004, 131 (emphasis added). Following this paragraph, the SIM Specification provides a table with three columns labeled “File identification,” “Description,” and “Change advised.” Ex. 1004, 131. One entry in this table is for file identifier “6F 3B,” whose description is “Fixed dialling numbers” and whose corresponding entry in the “Change advised” column is “Yes.” Ex. 1004, 131. Therefore, the SIM Specification

expressly discloses changing the content of the FDN file using a wireless transmission such as “an SMS.” *See* Ex. 1004, 131.

Petitioner further contends the SIM Specification discloses that updating the FDN file requires authentication, such as CHV2 access. Pet. 25–26, 33–34. We are persuaded by this contention, and we find the SIM Specification discloses that CHV2 access is required to update the FDN file based on the SIM Specification’s recitation of “CHV2” as the “Access Condition[.]” for “UPDATE.” Ex. 1004, 83. Petitioner contends that the SIM Specification provides conditions for utilizing commands that require CHV2 access. Pet. 26 (citing Ex. 1004, 27). We agree because the SIM Specification discloses:

The meaning of the file access conditions is as follows:

CHV2: The action shall only be possible if one of the following two conditions is fulfilled:

- a correct CHV2 value has already been presented to the SIM during the current session;
- UNBLOCK CHV2 has been successfully performed during the current session.

Ex. 1004, 27–28 (emphasis omitted).

Petitioner argues the SIM Specification defines CHV2 and UNBLOCK CHV2 as the current terms for the old PIN2 and PIN2 Unblocking Key (PUK2), respectively. Pet. 26–27 (citing Ex. 1004, 13). Petitioner contends that both CHV2 and UNBLOCK CHV2 are coded numbers that are used for authentication. Pet. 27 (citing Ex. 1004, 13, 28, 31–33, 83, 98; Ex. 1013 ¶ 79). We are persuaded by these contentions, and we find that both CHV2 and UNBLOCK CHV2 are coded numbers that are used for authentication. The SIM Specification discloses that “CHV” stands

for “Card Holder Verification information; access condition used by the SIM for the verification of the identity of the user.” Ex. 1004, 12. The SIM Specification defines “PIN/PIN2” as “Personal Identification Number / Personal Identification Number 2 (obsolete terms for CHV1 and CHV2, respectively)” and defines “PUK/PUK2” as “PIN Unblocking Key / PIN2 Unblocking Key (obsolete terms for UNBLOCK CHV1 and UNBLOCK CHV2, respectively).” Ex. 1004, 13.

As explained above, the SIM Specification expressly discloses updating the FDN file via “an SMS.” Ex. 1004, 131. Petitioner contends the SMS updating the FDN file has both the telephone number to be updated and the coded number: “The wireless message sent by the SIM+ME Spec to update the FDN would include the new IP address or telephone number and the CHV2 or PUK2 code.” Pet. 33 (citing Ex. 1013 ¶ 81). Petitioner contends:

The SIM card determines that the CHV2 value or Unblock CHV2 value is in the message that includes the command to update the FDN and verify the CHV2 value or Unblock CHV2 value, and compares the CHV2 or Unblock CHV2 in the wirelessly transmitted verify and update command message with the CHV2 or Unblock CHV2 value stored on the SIM card before the FDN can be updated.

Pet. 27 (citing Ex. 1004, 28, 31–33; Ex. 1013 ¶¶ 79, 81). Petitioner also cites the SIM Specification’s disclosure of determining that the access condition to update the FDN file is met to support its contention that the SIM Specification teaches the authentication required by independent claims 24 and 29. Pet. 32 (citing Ex. 1004).

We are persuaded by Petitioner’s contentions, and we find the SIM Specification discloses authenticating a received transmission by

determining if the transmission contains a coded number, and we find the SIM Specification discloses that one such authenticated transmission is “an SMS” for updating the FDN file. *See* Ex. 1004, 131. These findings are supported by the disclosure of the SIM Specification as discussed above and further discussed below.

Furthermore, as discussed above, we find the SIM Specification discloses that CHV2 access is required to update the FDN file based on the SIM Specification’s recitation of “CHV2” as the “Access Condition[]” for “UPDATE.” Ex. 1004, 83. Furthermore, the SIM Specification states that the “UPDATE RECORD” “function shall only be performed if the UPDATE access condition for this EF [elementary file] is satisfied.” Ex. 1004, 30 (cited at Pet. 32). As discussed above the SIM Specification discloses that an action is only possible if, for example, “a correct CHV2 value has already been presented to the SIM during the current session.” Ex. 1004, 27–28.

Therefore, we find Whitley’s disclosure of a gateway incorporating a SIM card in combination with the SIM Specification’s disclosure of determining that the access condition is satisfied for updating the FDN file teaches “authenticating one or more wireless transmissions sent from a programming transmitter and received by the programmable communicator device by determining if at least one transmission contains a coded number.”

We further find Whitley’s disclosure of a gateway incorporating a SIM card in combination with the SIM Specification’s disclosure of updating the FDN file “by sending an SMS” discloses:

wherein the programmable communicator device is configured to use a memory to store at least one telephone number or IP address included within at least one of the

transmissions as one or more stored telephone numbers or IP addresses if the processing module authenticates the at least one of the transmissions including the at least one telephone number or IP address and the coded number by determining that the at least one of the transmissions includes the coded number.

This finding is supported by the SIM Specification's disclosure that, "[i]f the access condition for UPDATE is fulfilled, the SIM updates the selected EF by replacing the existing data in the EF with that contained in the command." Ex. 1004, 98 (cited at Pet. 32). Therefore, the SIM updates the FDN file by storing the new telephone number into the FDN file if the access condition for the update is satisfied. As discussed above, we find that determining that the access condition is satisfied for updating the FDN file teaches authenticating a transmission by determining that the transmission contains a coded number.

Furthermore, we find the SIM Specification discloses authenticating one transmission that includes both the telephone number to be stored and the coded number by determining that the transmission includes the coded number, consistent with Petitioner's contention that "[t]he wireless message sent by the SIM+ME Spec to update the FDN would include the new IP address or telephone number and the CHV2 or PUK2 code." Pet. 33 (citing Ex. 1013 ¶ 81). This finding is supported by the evidence of record. In particular, as discussed above, the FDN file is updated with the new data if the CHV2 access condition is fulfilled. Ex. 1004, 98. The SIM Specification expressly discloses "changing the content" of the FDN elementary file "by sending *an SMS*." Ex. 1004, 131 (emphasis added). Thus, the SIM Specification expressly discloses updating, which requires authentication and data for updating, to occur with one SMS, i.e., one transmission.

Therefore, we find the combination of Whitley and the SIM Specification teaches the limitation of the independent claims reciting:

wherein the programmable communicator device is configured to use a memory to store at least one telephone number or IP address included within at least one of the transmissions as one or more stored telephone numbers or IP addresses if the processing module authenticates the at least one of the transmissions including the at least one telephone number or IP address and the coded number by determining that the at least one of the transmissions includes the coded number.

iii. Reasons to Combine the Teachings of Whitley and the SIM Specification

As discussed above, Whitley describes communicating with the gateway, including sending commands to the gateway, using SMS messages, and it describes programming the gateway to communicate with certain telephone numbers, disclosing that “[t]he present invention allows gateway 20 to be programmed to copy messages on energy uses or alarm triggers at a particular facility 12 directly to a handset 32 associated with the owner of facility 12.” Ex. 1003, 17:7–9. Petitioner acknowledges that “Whitley does not explicitly disclose how the gateway 20 updates or stores the telephone number or IP addresses that it is configured to and permitted to send outgoing wireless transmissions.” Pet. 32. However, Petitioner contends that Whitley’s express disclosures of incorporating a SIM card into the gateway and utilizing SMS services provided by GSM provide reasons for a person of ordinary skill in the art to have looked to the SIM Specification and to have incorporated the SIM Specification’s teachings of updating a

calling list using SMS. Pet. 27–29, 33–34 (citing Ex. 1003, 9:10–13, 9:15–25, 12:17–20;¹² Ex. 1013 ¶¶ 82–83, 85).

For the reasons discussed below, we are persuaded by Petitioner’s contention, and we find that the evidence of record establishes that a person of ordinary skill in the art would have had reason to combine the teachings of Whitley and the SIM Specification to arrive at the devices recited in the claims.

Whitley discloses:

Gateway 20 sends and receives SMS messages via and as part of the architecture of a GSM network. For instance, gateway 20 may be a GSM device that allows transfer of data, facsimile or e-mail messages, but which does not have voice capability. These messages can be formulated and read by a SIM or “Subscriber Identity Module” card that can be plugged in or otherwise incorporated into gateway 20.

Ex. 1003, 9:12–17. Therefore, Whitley contains an express disclosure of incorporating a SIM card into the gateway and using it to receive SMS messages.

Petitioner’s declarant, Kevin Negus, Ph.D., testifies that “[a] person of ordinary skill in the art, reading Whitley, would look to the GSM/GPRS standards documents, such as the [SIM Specification], to understand the standard features of GSM/GPRS and the SIM card.” Ex. 1013 ¶ 82. We credit this testimony because the SIM Specification “defines the interface between the Subscriber Identity Module (SIM) and the Mobile Equipment (ME) for use during the network operation phase of GSM as well as those aspects of the internal organization of the SIM which are related to the

¹² Petitioner mistakenly cites Ex. 1003 at column 12, lines 9–12 for the material quoted on page 29 of the Petition.

network operation phase.” Ex. 1004, 9. The purpose of the disclosure of the SIM Specification “is to ensure interoperability between a SIM and an ME independently of the respective manufacturers and operators.” Ex. 1004, 9. Therefore, consistent with the testimony of Dr. Negus, we find that Whitley’s disclosure of using a SIM card in the gateway would have motivated a person of ordinary skill in the art to look to the very document that explains how the SIM card and the device into which the SIM card is incorporated interoperate—the SIM Specification.

Whitley further discloses: “By taking advantage of the SMS services provided in a GSM network, the network functionality required for forwarding short data messages to and from gateways 20 need not be developed from scratch.” Ex. 1003, 12:17–20. Therefore, Whitley provides a further motivation to use the very SMS services described in the SIM Specification, such as updating the FDN file “by sending an SMS.” *See* Ex. 1004, 131.

We also are persuaded that a person of ordinary skill in the art, considering Whitley’s teachings in light of the SIM Specification, would have been motivated to use the SIM Specification’s specific updating processes in Whitley’s system. As discussed above, Whitley discloses “[t]he present invention allows gateway 20 to be programmed to copy messages on energy uses or alarm triggers at a particular facility 12 directly to a handset 32 associated with the owner of facility 12.” Ex. 1003, 17:7–9. Dr. Negus testifies:

[A] person of ordinary skill in the art would understand that it would be desirable to be able to update the telephone number or IP addresses in the SIM card in the event that the telephone number of the handset 32 and/or the IP address of the central

processor 40 were to change, which was contemplated by those of skill in the art as early as 1995.

Ex. 1013 ¶ 85 (citing Ex. 1015). This evidence provides a specific reason a person of ordinary skill in the art would have been motivated to combine the SIM Specification's specific teachings of updating a calling list, such as the FDN file, using SMS with Whitley to accommodate the reprogramming of the numbers to which the device is configured to and permitted to send messages.

Therefore, we find that the combination of Whitley and the SIM Specification teaches the authentication limitations of claims 24 and 29, and we find that a person of ordinary skill in the art would have had reason to combine the teachings of Whitley and the SIM Specification to arrive at the claimed subject matter.

iv. Patent Owner's Arguments

Patent Owner offers several reasons why it contends Petitioner has not provided an adequate rationale to combine the teachings of Whitley and the SIM Specification. PO Resp. 3–5, 42–45. Patent Owner argues:

Petitioners' further suggestion that Whitley teaches "taking advantage of the SMS services provided in a GSM network" is not relevant to a proper motivation to combine analysis because the SIM Specification is directed not to SMS services but rather to the details of the SIM-ME interface present on a SIM card.

PO Resp. 43 (citing Pet. 27–29; Ex. 2011 ¶ 90).

As an initial matter, we agree that the SIM Specification is directed to the interface between the SIM card and the mobile equipment (ME) with which it operates. *See* Ex. 1004, 9. However, as discussed above, Whitley's express teaching of incorporating a SIM card into the gateway would have

motivated a person to look to the document that defines the interface between these devices—the SIM Specification. We disagree with Patent Owner’s assertion that the SIM Specification is not directed to SMS services because, as we explain in detail above, the SIM Specification expressly discloses updating elementary files, including the FDN file, “by sending an SMS.” Ex. 1004, 131.

Patent Owner also argues that Petitioner has not provided any basis for its assertion that the teachings it seeks to incorporate from the SIM Specification are “standard” SIM card features, and Patent Owner argues that the teachings of the SIM Specification directed to updating the FDN file are actually optional SIM card features. PO Resp. 42–43 (citing Ex. 2011 ¶¶ 50–52, 89). Patent Owner argues, therefore, that Petitioner’s rationale to combine is insufficient because it is based on the assertion that these are “standard” features. PO Resp. 42–43 (citing Pet. 27–29). Patent Owner’s argument refers to the following contention of Petitioner:

The functionality and features of GSM and the GSM SIM were known to Whitley, as set forth above, but were not explicitly described in Whitley. Accordingly, it would have been obvious to one of ordinary skill in the art reading Whitley to look to SIM+ME Spec, a GSM/GPRS standards document, for a teaching regarding the standard features of GSM/GPRS and the SIM card.

Pet. 28.

The evidence that the features described in the SIM Specification are “standard features” is that the SIM Specification is itself a document defining industry standards. Patent Owner acknowledges that the SIM Specification is an industry standard: “The SIM Specification is an industry standard for GSM cellular networks that specifies a particular type of

interface to be used for connecting a SIM card (the ‘SIM’) to the mobile equipment (the ‘ME’) (e.g., a telephone handset, wireless modem, etc.) in which the SIM is typically being hosted.” PO Resp. 18.

However, regardless of whether a feature described in the SIM Specification is optional or not, as we explain above, Petitioner provides articulated reasoning why a person of ordinary skill in the art would have been motivated to combine the particular teachings of the SIM Specification directed to updating the FDN file with Whitley. Thus, Petitioner’s contention of obviousness, and our findings, discussed above, do not rely solely on whether features are “standard” or not. The SIM Specification “is prior art for all that it teaches.” *Beckman Instruments, Inc. v. LKB Produkter AB*, 892 F.2d 1547, 1551 (Fed. Cir. 1989). The SIM Specification teaches updating the FDN file via SMS, as discussed in detail above, even if the FDN file is described as “optional,” and we are persuaded by Petitioner’s arguments as to why a person of ordinary skill in the art would have found it advantageous to use such a feature.

In addition to arguing that Petitioner does not provide sufficient reasoning to combine Whitley and the SIM Specification, Patent Owner argues that the combination of Whitley and the SIM Specification fails to disclose certain of the authentication limitations of claims 24 and 29. *See* PO Resp. 24–26, 34–41. Patent Owner acknowledges that the SIM Specification discloses sending an SMS message for updating the FDN phonebook. PO Resp. 34 (citing Ex. 1004, 131). Patent Owner then characterizes Petitioner’s contention as follows:

Petitioners argue that the way in which the network device would accomplish this would be to include APDU commands in the data payloads of those SMS messages such as the UPDATE

RECORD command and either the VERIFY CHV or UNBLOCK CHV command used for supplying the “coded number” required for programming access.

PO Resp. 34 (citing Ex. 2011 ¶ 79). Patent Owner, however, does not cite any argument in the Petition. Rather, Patent Owner cites the testimony of its declarant, Mr. Williams. *Id.*; see Ex. 2011 ¶ 79. Mr. Williams’s testimony, which is nearly identical to Patent Owner’s argument quoted above, cites the testimony of Petitioner’s declarant Dr. Negus. Ex. 2011 ¶ 79 (citing Ex. 1013 ¶ 81).

We have reviewed the Petition and Dr. Negus’s declaration, and we find no mention of an application protocol data unit or “APDU.” The paragraph of the Negus Declaration cited by Mr. Williams begins by explaining that the SIM Specification discloses updating the FDN file wirelessly via SMS messages. Ex. 1013 ¶ 81. Dr. Negus then provides additional testimony regarding other ways in which the FDN file can be updated, making reference to other standards documents. Ex. 1013 ¶ 81 (citing Exs. 1007, 1014). These documents are not part of the asserted ground of unpatentability, and we do not rely on them in our findings regarding whether Whitley and the SIM Specification teach the authentication limitations of the claims. Rather, as explained in detail above, we find the SIM Specification teaches updating the FDN file by authenticating a single wireless transmission (an SMS) having a telephone number and a coded number for authentication, such as the CHV2.

Patent Owner further argues that the SIM card does not perform authentication on a wireless transmission because it is the mobile equipment (ME) that receives the wireless transmission. PO Resp. 37–38. According

to Patent Owner, there is no coded number authentication of an incoming wireless transmission because

the ME OS merely extracts the data payload from an SMS message, places it into the command data field of a particular APDU command known as the ENVELOPE command, and then uses an ENVELOPE command message to pass the data payload “transparently” over the SIM-ME interface to the SIM OS in a hard wire serial transmission.

PO Resp. 38. We disagree with Patent Owner’s contention. Claims 24 and 29 recite “a processing module for authenticating one or more wireless transmissions sent from a programming transmitter and *received by the programmable communicator device* by determining if at least one transmission contains a coded number.” (Emphasis added). Therefore, the claims expressly recite that the programmable communicator device receives the wireless transmission and the processing module authenticates it. The claims do not recite that the processing module has a separate transceiver to receive the wireless transmission itself. In Patent Owner’s characterization of the prior art, the ME passes the data received in the wireless transmission to the SIM card. The SIM card authenticates the wireless transmission by performing authentication on the data passed to it from the device that receives the wireless transmission. This is consistent with the requirements of the claims.

Patent Owner still further contends that the SIM operating system (“SIM OS”) does not perform authentication because it is the SIM application that is the intended recipient of data in an incoming SMS message. PO Resp. 39–41. In particular, Patent Owner argues “Petitioners are wrong to argue that the SIM OS could act as the claimed ‘processing module’ by performing ‘coded number’ authentication on the content of that

data payload, and/or by executing a command contained within that data payload such as a command to update an FDN phonebook.” PO Resp. 39–40 (citing Ex. 2011 ¶ 86). Patent Owner’s argument is based on the incorrect premise that Petitioner contends the “SIM OS” discloses the claimed “processing module.” The Petition states: “The microprocessor in the SIM card is capable of performing the claimed authentication functions . . . and is therefore the claimed processing module.” Pet. 24. The Petition, therefore, unequivocally asserts that the microprocessor in the SIM card is relied upon to teach the processing module, not the SIM OS. Patent Owner’s arguments regarding the distinction between the SIM OS and the SIM applications are not responsive to Petitioner’s contentions.

c. *“numbers to which the programmable communicator device is configured to and permitted to send outgoing wireless transmissions”*

Claims 24 and 29 further recite that the “one or more stored telephone numbers or IP addresses” referred to in the authentication limitations discussed above are “numbers to which the programmable communicator device is configured to and permitted to send outgoing wireless transmissions,” which we interpret above to mean “numbers to which the programmable communicator device is capable of sending outgoing wireless transmissions and permitted to send outgoing wireless transmissions.” As discussed above, Petitioner contends, and we find, that the SIM Specification describes authenticating an incoming wireless transmission to update the fixed dialing number (FDN) file. Petitioner contends that the FDN file “is a list of numbers or IP addresses to which a device associated with the SIM card is configured to and permitted to send messages.” Pet. 32

(citing Ex. 1004, 80–83; Ex. 1013 ¶ 78); *see also* Pet. 2 (“The FDN restricts any outgoing transmissions to the number or numbers on the FDN list.”).

As evidence in support of its contention that the FDN file is a list of numbers to which the device is configured to and permitted to send messages, Petitioner proffers the testimony of its declarant, Dr. Negus. Pet. 32 (citing Ex. 1013 ¶ 78). In reference to the FDN file of the SIM Specification, Dr. Negus testifies that “[t]he FDN file includes a list of numbers that are permitted to call the device including the SIM card, and is used as an electronic lock that makes it possible to place a bar on calling any numbers other than those programmed in the SIM.” Ex. 1013 ¶ 78 (citing Ex. 1015, Abstract, 6). As discussed above, the SIM Specification expressly discloses the FDN feature of a SIM card. *See* Ex. 1004, 83.

Based on this evidence, we find that the FDN file teaches “numbers to which the programmable communicator device is capable of sending outgoing wireless transmissions and permitted to send outgoing wireless transmissions.” Importantly, Patent Owner does not dispute that the FDN file of the SIM Specification teaches the limitation under the interpretation set forth herein. *See* PO Resp. 27. In particular, Patent Owner argues that “the SIM Specification merely describes the telephone numbers stored in the FDN phonebook as being ‘dialing numbers’ to which outgoing calls can potentially be placed by the ME [(mobile equipment)].” PO Resp. 27. Rather, Patent Owner argues the SIM Specification does not describe the FDN file “as being *restrictive* in nature as the parties have agreed is required by the claim language.” PO Resp. 27 (citing Ex. 2011 ¶ 66). As discussed above, however, we do not agree with Patent Owner’s proposed

construction. Further, Petitioner does not agree with Patent Owner's proposed construction. See Reply 5.

However, even under Patent Owner's interpretation, we find that the evidence of record demonstrates that the FDN file functions as an "outbound restrictive calling list." This finding is supported by the testimony of Dr. Negus, who explains that "[t]he FDN file includes a list of numbers that are permitted to call the device including the SIM card, *and is used as an electronic lock that makes it possible to place a bar on calling any numbers other than those programmed in the SIM.*" Ex. 1013 ¶ 78 (emphasis added) (citing Ex. 1015, Abstract, 6). Dr. Negus's testimony that the FDN file of the SIM Specification "is used as an electronic lock" to restrict calling is evidence of how a person of ordinary skill in the art would have understood the FDN file disclosed in the SIM Specification.

Dr. Negus's testimony is supported by a 1995 article entitled, "The Subscriber Identity Module." See Ex. 1015. This article discloses:

[A] "Fixed Dialling SIM" will only work in special MEs and *the user can only dial those numbers which are stored in the SIM.* Protecting the change of these numbers by the PIN would allow the user to bypass the fixed dialling mechanism by just storing the number he/she wishes to call in the SIM. The update of fixed dialling numbers is thus under the control of a second PIN (PIN2) which is not known to the user but, say, only to the personnel department of a company running a fleet of lorries whereas the drivers would know the PIN itself. Clearly, where there is a PIN there is a PUK, and PUK2 can be used to unblock PIN2.

Ex. 1015, 6 (emphasis added). We find this article "serve[s] to document the knowledge that skilled artisans would bring to bear in reading the prior art identified as producing obviousness." See *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1365 (Fed. Cir. 2015). In particular,

this article supports Dr. Negus’s testimony that the FDN file disclosed in the SIM Specification is used to restrict calling.

Therefore, we find the FDN file of the SIM Specification teaches a restrictive outbound calling list even under Patent Owner’s proposed interpretation of the phrase “numbers to which the programmable communicator device is configured to and permitted to send outgoing wireless transmissions.”

Patent Owner argues that “[n]one of the passages that Petitioners cite from the SIM Specification demonstrates that the FDN phonebook stored on the SIM would function as an *outbound restrictive calling list* of telephone numbers.” PO Resp. 27 (citing Pet. 32; Ex. 1004, 80–83). The SIM Specification does not itself explain that the function of the FDN file is to restrict calls. However, as explained above, Petitioner introduces evidence to show that a person of ordinary skill in the art would have understood the FDN file of the SIM Specification to function as a restrictive outbound calling list. See Ex. 1013 ¶ 78; Ex. 1015, 6.

Patent Owner further contends:

Petitioners incorrectly imply that there is a teaching in the SIM Specification that the FDN phonebook is subject to “an electronic lock [*i.e.*, a facility lock] that makes it possible to place a bar on calling any numbers other than those programmed in the SIM.” (Pet., p. 32, *citing* Ex. 1013, ¶ 78). (*See also Id.* ¶ 80) (referencing the AT+CLCK command used for applying a facility lock to an FDN phonebook). However, this teaching is not actually present in the SIM Specification but rather it is part of a different GSM industry standard known as the AT Command Set For GSM Mobile Equipment (ME)

PO Resp. 27–28 (citing Ex. 1007; Ex. 2011 ¶¶ 67–68); *see also* PO Resp. 15 (characterizing the Petition as “arguing that the FDN phonebook is subject to

‘an electronic lock that makes it possible to place a bar on calling any numbers other than those programmed in the SIM’’).

The SIM Specification clearly teaches that the FDN file is “subject to” a lock because, as discussed extensively above, the SIM Specification discloses that CHV2 is an access condition to update the FDN file.

Ex. 1004, 83. However, we do not understand Petitioner’s contention to be that the FDN file satisfies the “permitted to” language of this claim limitation because it is “subject to” a lock. Rather, Petitioner contends that the FDN file is “used as an electronic lock” to restrict calling, as explained by Petitioner’s declarant Dr. Negus and as discussed above. *See* Pet. 32 (citing Ex. 1013 ¶ 78). Petitioner contends that the SIM Specification’s disclosure of satisfying the access conditions teaches the claimed authentication procedure, as discussed above.

Regarding Patent Owner’s argument that the “AT+CLCK command used for applying a facility lock to an FDN phonebook” is not in the SIM Specification but in a different specification (PO Resp. 27–28), this argument appears to be directed to testimony provided by Dr. Negus. In particular, Dr. Negus testifies:

Although I believe that the SIM+ME Spec discloses all of the limitations of the independent claims relating to the authentication and storage of new information regarding devices or callers permitted to access the programmable communicator, it should be recognized that other sections of the GSM/GPRS standard disclose other specific techniques for updating the FDN. For example, the AT Command Set document, another GSM/GPRS standards document, discloses AT commands that can be used to update the FDN.

Ex. 1013 ¶ 80 (citing Ex. 1007). Here, Dr. Negus provides additional testimony regarding “other specific techniques for updating the FDN” after

expressly stating his opinion that the SIM Specification discloses the subject matter relating to updating the FDN file. Ex. 1013 ¶ 80.

As discussed above, we find the SIM Specification's disclosure of updating the FDN file using CHV2 access conditions discloses the authentication limitations of claims 24 and 29, and we do not rely on the additional materials cited by Dr. Negus. See Ex. 1013 ¶ 80 (citing Exs. 1007, 1014). The fact that other documents may disclose other techniques for updating the FDN file does not take away from the SIM Specification's disclosure regarding updating the FDN file.

Patent Owner also argues that “[a]n FDN phonebook is able to alternatively operate as either a restrictive calling list when it is facility locked, or as a non-restrictive calling list when it is *not* facility locked.” PO Resp. 29 (citing Ex. 2011 ¶ 70). Patent Owner's declarant, Mr. Williams, testifies that the teaching of applying a “facility lock” to the FDN file is not in the SIM Specification but, rather, is in a different specification. Ex. 2011 ¶ 68 (citing Ex. 1007). Mr. Williams testifies that, “[a]s disclosed in the GSM 7.07 Specification, a customer/subscriber could optionally elect to use an AT+CLCK command to place a facility lock on an FDN phonebook that would convert it into being an outbound restrictive calling list.” Ex. 2011 ¶ 68 (citing Ex. 1007). However, the use of a “facility lock” to place a lock on the FDN file does not address Petitioner's contention that the FDN file itself is used as an electronic lock to restrict calling. It is Patent Owner's contention that the “permitted to” and “one or more stored telephone numbers” language means that the claimed list of numbers restricts the programmable communicator from “placing one or more types of outbound transmissions to” numbers other than those in the list. See PO Resp. 27.

The locking of the list itself is a separate issue and, to the extent it is required by the claimed authentication procedure, the SIM Specification teaches that a lock is placed on the FDN file itself by virtue of the access conditions necessary to update the FDN file. *See* Ex. 1004, 83.

Thus, under either the interpretation adopted herein or Patent Owner's proposed interpretation, we are persuaded that the SIM Specification teaches the limitation.

d. "Identity module"

Claims 24 and 29 further recite: "wherein the programmable communicator device is configured to use an identity module for storing a unique identifier that is unique to the programmable communicator device." Petitioner contends the combination of Whitley and the SIM Specification teaches this limitation because Whitley discloses that "each gateway is uniquely addressable through, for instance, a phone number, IP address, or similar identifier" and because it further discloses using a "Subscriber Identity Module" (SIM) card in the gateway. Pet. 34 (citing Ex. 1003, 6:8–15, 9:12–17). Petitioner contends the SIM Specification discloses that a SIM card stores a number of unique identifiers, such as the integrated circuit card (ICC) identification and the International Mobile Subscriber Identity (IMSI). Pet. 34–35 (citing Ex. 1004, 49, 51; Ex. 1013 ¶ 86).

We are persuaded by Petitioner's contentions, and we find the combination of Whitley and the SIM Specification teaches that "the programmable communicator device is configured to use an identity module for storing a unique identifier that is unique to the programmable communicator device." The finding that the programmable communicator device (i.e., the gateway) is configured to use the claimed identity module is

supported by Whitley’s disclosure of “a SIM or ‘Subscriber Identity Module’ card that can be plugged in or otherwise incorporated into gateway 20.” Ex. 1003, 9:15–17. Consistent with the evidence, we find the SIM card stores unique identifiers, such as the integrated circuit card (ICC) identification and the International Mobile Subscriber Identity (IMSI). Ex. 1004, 49, 51; Ex. 1013 ¶ 86.

In addition, Whitley’s disclosure that “each gateway is uniquely addressable through, for instance, a phone number, IP address, or similar identifier” further supports Petitioner’s contention and our finding that the combination of Whitley and the SIM Specification discloses this limitation because the gateway would know and store its own unique identifier. *See* Ex. 1003, 6:10–14, 12:9–12 (“A GSM network supports multiple points of origin or destination of the SMS messages, allowing for two-way communication among terminals and *gateways 20, each of which are provided with a unique identifier*, such as a phone number or an IP address.” (emphasis added)).

e. SMS data messages

Claim 29 further recites: “wherein the one or more wireless transmissions from the programming transmitter containing instructions to program the stored number comprise one or more short message service (SMS) data messages.” This limitation is not in claim 24. The recitation “the one or more wireless transmissions from the programming transmitter” finds antecedent basis in the limitation of claim 29 reciting, “a processing module for authenticating *one or more wireless transmissions sent from a programming transmitter* and received by the programmable communicator

device by determining if at least one transmission contains a coded number.” (Emphasis added).

As explained above in our discussion of the teachings of Whitley and the SIM Specification with respect to the authentication of transmissions and the storage of telephone numbers in the fixed dialing number list, we find the combination of Whitley and the SIM Specification teaches this limitation. In particular, the SIM Specification discloses changing the content of certain elementary files (EFs), including the fixed dialing number (FDN) file, “by sending an SMS.” See Ex. 1004, 131.

f. “Process data”

Claim 29 further recites, “wherein the programmable communicator device is configured to process data received through the programmable interface from the at least one monitored technical device *in response to programming instructions received in at least one incoming short message service (SMS) data message or packet switched data message.*” (Emphasis added). Claim 24 recites everything except for the emphasized portion of the limitation of claim 29.

Petitioner contends Whitley teaches this limitation because it describes programming the gateway to collect and send data from connected devices, for example, and discloses that the programming of the gateway to perform such tasks is performed using SMS. Pet. 36–38, 40, 42 (citing Ex. 1003, 3:4–12, 5:16–22, 9:23–25, 16:19–17:15; Ex. 1013 ¶ 77).

We are persuaded by Petitioner’s contentions, and we find Whitley discloses that “the programmable communicator device is configured to process data received through the programmable interface from the at least one monitored technical device in response to programming instructions

received in at least one incoming short message service (SMS) data message or packet switched data message.”

First, we find Whitley describes that its gateway “is configured to process data received through the programmable interface from the at least one monitored technical device.” This finding is supported by the disclosure of Whitley, which states:

Gateway 20 is programmed to poll each device coupled to it to determine the device’s energy use. For instance, gateway 20 can be connected to the thermostat, refrigerator, water heater, and washer/dryer in a particular residential facility as well as to the general meter for that facility. Gateway 20 polls those devices every hour to determine their energy use. Gateway 20 then forwards the poll results to the SIM card, which generates a SMS message containing the poll results as well as the date, time and location of gateway 20.

Ex. 1003, 16:20–26 (cited at Pet. 37). We find Whitley’s disclosure that its gateway is programmed to collect data from connected devices and then forward that data to the SIM card teaches that “the programmable communicator device is configured to process data received through the programmable interface from the at least one monitored technical device.”

Patent Owner argues:

Whitley does not describe gateway 20 in terms of “processing” data in the sense required by the claim language, but rather merely as being a “data collection” device that acts to “package” and “forward” data that it has received locally from a “monitored technical device” across a wireless network to a remote monitoring device.

PO Resp. 47 (citing Ex. 1003, 7:27–8:4, 9:10–11, 12:28–29). Patent Owner further argues “gateway 20 is described merely as collecting and forwarding data.” PO Resp. 48 (citing Ex. 1003, 3:4–12).

As discussed above in the section addressing claim construction, we reject Patent Owner’s interpretation that “configured to process data” means “hav[ing] the ability to make intelligent determinations that interpret the meaning of the data so that responsive actions can be taken as the result of those determinations.” *See* PO Resp. 46. We also disagree with Patent Owner’s contention that “routine low-level tasks such as merely formatting or packetizing data to facilitate its transmission over a wireless cellular network” are not within the scope of data processing. *See* PO Resp. 46. Rather, we find Whitley’s disclosure of the gateway’s collecting and forwarding data to be within the broadest reasonable interpretation of data processing.

Second, we find Whitley describes that the gateway is configured to process data, as discussed above, “in response to programming instructions received in at least one incoming short message service (SMS) data message or packet switched data message,” as recited in claim 29. This finding is supported by the disclosure of Whitley, which describes sending commands to program the gateways remotely using SMS. *See, e.g.*, Ex. 1003, Abstract, 3:4–12, 16:9–10, 5:16–22, 9:23–25, 16:19–17:15. For example, Whitley discloses:

The present invention allows for monitoring and control of various gateways distributed to remotely located facilities to be monitored and the devices coupled to those gateways to be controlled via a wireless communications network. Preferably, the network is a GSM network adapted to provide short messaging services or any type of wireless network adapted to operate a General Packet Radio System for delivering data over the network. . . . Likewise, customers may forward data and commands to a particular gateway either from a mobile station or by accessing a fixed terminal, such as through an Internet

connection. Transporting messages or commands via the short messaging service of the GSM network or via the GPRS protocol avoids the prohibitive cost of setting up a call for each message

Ex. 1003, Abstract. Whitley further discloses:

[T]he user can input other commands for delivery to the gateway 20. For instance, the user could instruct the gateway 20 to enable or disable an alarm system at a particular facility 12 at a particular time and for a particular time period. The present invention also allows the gateway 20 to be programmed to copy messages on energy uses or alarm triggers at a particular facility 12 directly to a handset 32 associated with the owner of facility 12.

Ex. 1003, 17:4–9. Whitley further describes that, “[w]hen an SMS message is received at the gateway 20, the gateway 20 reads the SMS message from the SIM card and processes the contents of the SMS message as though it was entered directly from a command console.” Ex. 1003, 9:23–25; *see* Reply 15–17.

Therefore, Whitley’s disclosure that its gateway is programmed to collect and forward data and that such programming is performed by sending commands to the gateway in SMS messages demonstrates that Whitley discloses that “the programmable communicator device is configured to process data received through the programmable interface from the at least one monitored technical device in response to programming instructions received in at least one incoming short message service (SMS) data message or packet switched data message.”

g. Conclusion as to Claims 24 and 29

Petitioner has demonstrated by a preponderance of the evidence that the subject matter of independent claims 24 and 29 would have been obvious

to a person of ordinary skill in the art in view of the teachings of Whitley and the SIM Specification.

2. Independent Claim 1

As discussed above, claim 29 recites, “wherein the one or more wireless transmissions from the programming transmitter containing instructions to program the stored number comprise one or more short message service (SMS) data messages.” As we find above, the SIM Specification’s disclosure of authenticating an SMS message to update the fixed dialing number (FDN) file in combination with Whitley teaches this limitation of claim 29. Claim 1, by contrast, recites “wherein the one or more wireless transmissions from the programming transmitter comprises a General Packet Radio Service (GPRS) or other wireless packet switched data message” (hereinafter, “the GPRS limitation”). Thus, unlike claim 29, the disclosure of authenticating an SMS message is insufficient, on its own, to teach this limitation of claim 1.

In its discussion of the GPRS limitation, Petitioner cites Whitley’s disclosure that messages are sent to the gateways using SMS or GPRS. Pet. 35–36 (citing Ex. 1003, Abstract, 3:15–25, 16:15–18). Whitley indeed describes “[t]ransporting messages or commands via the short messaging service of the GSM network or via the GPRS protocol.” Ex. 1003, Abstract. However, the recitation “the one or more wireless transmissions from the programming transmitter” finds antecedent basis in the limitation of claim 1 reciting “a processing module for authenticating *one or more wireless transmissions sent from a programming transmitter* and received by the programmable communicator device by determining if at least one transmission contains a coded number.” (Emphasis added). Therefore, the

“one or more wireless transmissions” of the GPRS limitation are those transmissions that are for authentication by the processing module.

In its discussion of the “processing module” limitation of claim 1, Petitioner acknowledges that “Whitley does not expressly disclose authenticating wireless transmissions by determining if at least one of the wireless transmissions contains a coded number.” Pet. 25. Rather, Petitioner contends “[t]he microprocessor in the SIM card is capable of performing the claimed authentication functions, as set forth in further detail below, and is therefore the claimed processing module.” Pet. 24 (citing Ex. 1013 ¶¶ 78–80). With respect to the transmissions that are authenticated by the processing module, Petitioner relies on the SIM Specification’s disclosure of an SMS message to update the fixed dialing number (FDN) file. See Pet. 25–33. For example, Petitioner contends the SIM Specification “describes the types of files stored on the SIM card that may be updated ‘by the network (e.g. by sending an SMS)’ and specifically explains that updating the fixed dialing numbers (FDN) over the air is acceptable,” and Petitioner argues “[t]he SMS message is a wireless transmission.” Pet. 25 (citing Ex. 1004, 131; Ex. 1013 ¶ 77). With respect to the transmissions that are used to update the stored numbers, Petitioner contends that the SIM Specification “specifically identifies the ability to update the FDN file over the air using SMS.” Pet. 33 (citing Ex. 1004, 131). Therefore, Petitioner expressly relies on the SIM Specification’s disclosure of an SMS message for updating the fixed dialing number (FDN) file for teaching the “one or more wireless transmissions.”

To satisfy the GPRS limitation, Petitioner contends that “[t]his SMS message for updating the FDN file on the SIM card *could be sent* over the

GPRS network.” Pet. 33 (emphasis added) (citing Ex. 1013 ¶ 77). The declarant testimony Petitioner cites in support of its contention is as follows:

GPRS is an acronym that stands for General Packet Radio Service, which is also referred to as GSM Phase 2+. See, e.g., Ex. 1009 at Front page. GPRS was a packet-switched data service embedded to the channel-switched cellular radio network GSM network that was first proposed in 1996 and implemented in 2000. Ex. 1009 at p. 13-14. *SMS messages can be transmitted over the GPRS network.* See, e.g., Ex. 1009 at p.13, 20. Commands or messages sent over the GPRS network as SMS messages or GPRS data packets are, thus, wireless packet switched data messages. The wireless packet switched data message is a wireless transmission.

Ex. 1013 ¶ 77 (emphasis added). However, the allegation that something could have been done is insufficient to show why a person of ordinary skill in the art would have found it obvious to do that thing. See *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention”); see also *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011) (stating that “obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention”).

Petitioner does not direct us to disclosure within the relied-upon SIM Specification to show that the SMS messages that are authenticated by the processing module and that are used to update the FDN file are sent over a GPRS or other wireless packet-switched network. And although Whitley describes communicating with the gateway using GPRS, as discussed above,

Petitioner relies on the SIM Specification's disclosure of an SMS message to update the fixed dialing number (FDN) file to teach the "one or more wireless transmissions" that are authenticated by the processing module. *See* Pet. 25–33. Petitioner has not demonstrated that the two references upon which its contention of obviousness is based disclose the GPRS limitation, nor has Petitioner provided a sufficient reason why one of ordinary skill in the art would have used GPRS to send the SMS messages identified by Petitioner as the "one or more wireless transmissions" for authentication by the processing module. We find Petitioner's contention that the SMS message used to update the FDN file "could be sent over the GPRS network" insufficient to support a conclusion of obviousness. *See* Pet. 33.

As such, Petitioner has not established by a preponderance of the evidence that the subject matter of claim 1 would have been obvious to a person of ordinary skill in the art based on the combination of Whitley and the SIM Specification.

3. Dependent Claims 3, 5, 6, 10–13, 15, 18, 22, and 23

Claims 3, 5, 6, 10–13, 15, 18, 22, and 23 depend directly or indirectly from independent claim 1. Petitioner's contentions with respect to these dependent claims rely on its contention that independent claim 1 would have been obvious over the combination of Whitley and the SIM Specification. *See* Pet. 42–50. Because Petitioner has not established by a preponderance of the evidence that the subject matter of claim 1 would have been obvious to a person of ordinary skill in the art based on the combination of Whitley and the SIM Specification, Petitioner has not established unpatentability of dependent claims 3, 5, 6, 10–13, 15, 18, 22, and 23 by a preponderance of the evidence.

*F. Unpatentability Challenge based on the Combination of
Whitley, the SIM Specification, and Kail
(Claims 16, 17, 19, and 20)*

Petitioner challenges claims 16, 17, 19, and 20 of the '717 patent as unpatentable under 35 U.S.C. § 103(a) over the combination of Whitley, the SIM Specification, and Kail. Claims 16, 17, 19, and 20 depend directly or indirectly from independent claim 1. Petitioner's contentions with respect to these dependent claims rely on its contention that independent claim 1 would have been obvious over the combination of Whitley and the SIM Specification, and Petitioner does not rely on Kail for the missing limitation of claim 1. See Pet. 51–54. Because Petitioner has not established by a preponderance of the evidence that the subject matter of claim 1 would have been obvious to a person of ordinary skill in the art based on the combination of Whitley and the SIM Specification, Petitioner has not established unpatentability of dependent claims 16, 17, 19, and 20 by a preponderance of the evidence.

*G. Unpatentability Challenge based on the Combination of
Whitley, the SIM Specification, and Eldredge
(Claim 21)*

Petitioner challenges claim 21 of the '717 patent as unpatentable under 35 U.S.C. § 103(a) over the combination of Whitley, the SIM Specification, and Eldredge. Claim 21 depends from independent claim 1, and Petitioner's contentions with respect to claim 21 rely on its contention that independent claim 1 would have been obvious over the combination of Whitley and the SIM Specification, and Petitioner does not rely on Eldredge for the missing limitation of claim 1. See Pet. 55–56. Because Petitioner has not established by a preponderance of the evidence that the subject matter of claim 1 would have been obvious to a person of ordinary skill in

the art based on the combination of Whitley and the SIM Specification, Petitioner has not established unpatentability of dependent claim 21 by a preponderance of the evidence.

III. CONCLUSION

Based on the information presented and the record developed during trial, we conclude that Petitioner has shown by a preponderance of evidence that Whitley and the SIM Specification render independent claims 24 and 29 unpatentable as obvious.

Petitioner, however, has not shown by a preponderance of evidence that Whitley and the SIM Specification render claim 1 obvious and, consequently, has not shown by a preponderance of the evidence that claims 3, 5, 6, 10–13, and 15–23, which depend from claim 1, are unpatentable.

IV. ORDER

Accordingly, it is:

ORDERED that claims 24 and 29 have been shown to be unpatentable;

FURTHER ORDERED that claims 1, 3, 5, 6, 10–13, and 15–23 have not been shown to be unpatentable; and

FURTHER ORDERED that, because this is a final 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.

IPR2015-01823
Patent 8,648,717 B2

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