

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SECURENET TECHNOLOGIES, LLC,
Petitioner,

v.

ICONTROL NETWORKS, INC.,
Patent Owner.

Case IPR2016-00959
Patent 7,855,635 B2

Before KEN B. BARRETT, PATRICK M. BOUCHER, and
MINN CHUNG, *Administrative Patent Judges*.

CHUNG, *Administrative Patent Judge*.

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

I. BACKGROUND

A. Introduction

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, SecureNet Technologies, LLC (“Petitioner”) challenges the patentability of claims 1, 2, 6–10, 14–18, and 21–25 (the “challenged claims”) of U.S. Patent No. 7,855,635 B2 (Ex. 1001, “the ’635 patent”), owned by ICN Acquisition, LLC (“Patent Owner”).¹ The Board has jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. With respect to the grounds instituted in this trial, we have considered the papers submitted by the parties and the evidence cited therein. For the reasons discussed below, we determine Petitioner has shown by a preponderance of the evidence that claims 1, 2, 6–10, 14–18, and 21–25 of the ’635 patent are unpatentable.

B. Procedural History

On April 28, 2016, Petitioner filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1, 2, 6–10, 14–18, and 21–25 of the ’635 patent. Petitioner also filed a Declaration of Dr. Giovanni Vannucci (Ex. 1002, “Vannucci Decl.”) in support of the Petition. Patent Owner filed a Preliminary Response (Paper 8, “Prelim. Resp.”). On October 31, 2016, we instituted an *inter partes* review of claims 1, 2, 6–10, 14–18, and 21–25 of the ’635 patent based on the following specific grounds (Paper 9, “Dec. on Inst.,” 44).

¹ According to Patent Owner, since the filing of the Patent Owner Response, ICN Acquisition, LLC has acquired U.S. Patent No. 7,855,635 B2 from Icontrol Networks, Inc. Paper 14, 2.

Claims Challenged	Statutory Basis	Reference(s)
1, 2, 6, 9, 10, 14–16, and 21–23	§ 103(a)	Simon ²
7, 8, 17, 18, 24 and 25	§ 103(a)	Simon and Pickell ³

After institution, Patent Owner filed a Patent Owner Response (Paper 13, “PO Resp.”), to which Petitioner filed a Reply (Paper 17, “Pet. Reply”). Patent Owner filed a Declaration of Paul Clark, Ph.D. (Ex. 2001, “Clark Decl.”) with its Patent Owner Response. An oral hearing was held on July 27, 2017. A transcript of the hearing is included in the record as Paper 24 (“Tr.”).

C. Related Proceedings

According to the parties, the ’635 patent is the subject of the following patent infringement case: *Icontrol Networks, Inc. v. SecureNet Technologies, LLC*, No. 15-807-GMS (D. Del.). Pet. 2; Paper 5, 2.

II. THE ’635 PATENT

A. Described Invention

The ’635 patent describes a communication system coupled to an alarm system to provide two-way communication between the alarm system

² U.S. Patent No. 6,928,148 B2 (Aug. 9, 2005) (“Simon”) (Ex. 1004).

³ U.S. Patent Application Pub. No. 2004/0153701 A1 (Aug. 5, 2004) (“Pickell”) (Ex. 1005).

and a remote server system. Ex. 1001, Abstract. Figure 2 of the '635 patent is reproduced below.

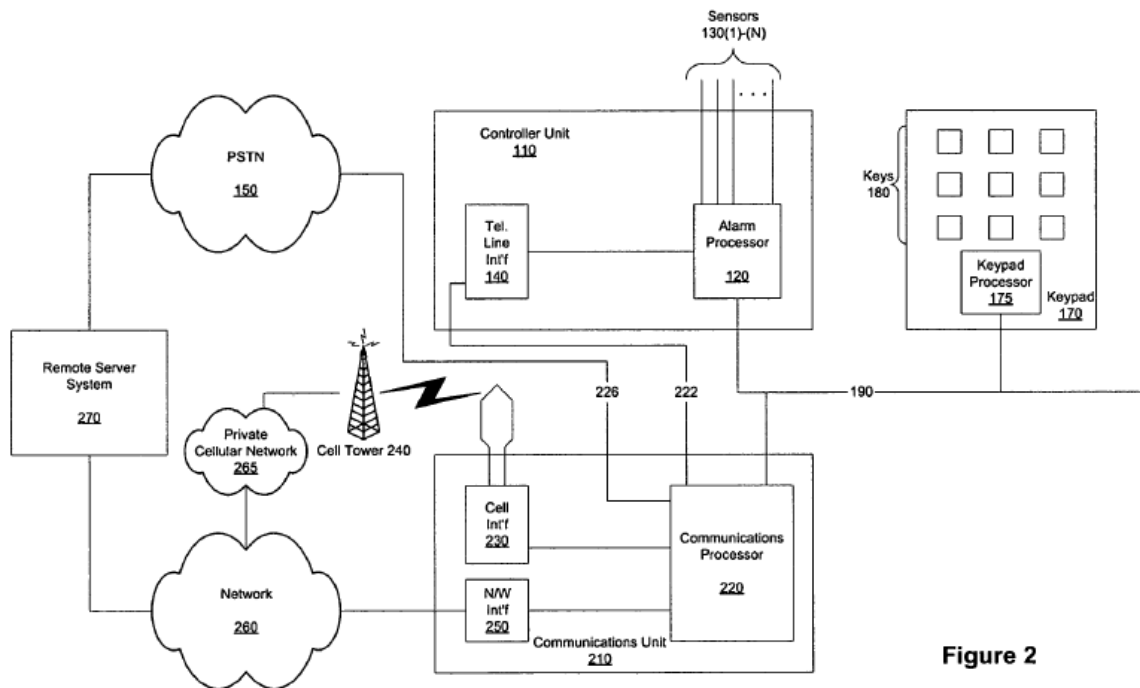


Figure 2

Figure 2 is a block diagram illustrating components of a legacy alarm system coupled to a communication system. *Id.* at col. 2, ll. 36–38. In an embodiment, a communication system is added to a legacy alarm system to provide multiple communication modes between the alarm system and a remote server system and to enable remote control and monitoring functions via two-way communication links. *Id.* at col. 2, ll. 58–61. As illustrated in Figure 2 as well as in Figure 1 (not reproduced herein), a legacy alarm system comprises controller unit 110, keypad 170, and keypad bus 190. *Id.* at col. 3, ll. 15–18, 33–46, 57–65; Figs. 1, 2. Keypad 170 includes keypad processor 175, and controller unit 110 includes alarm processor 120, which is coupled to keypad processor 175 through keypad bus 190. *Id.* at col. 3, ll. 40–42, 44–46, 61–63. Keypad bus 190 provides communication between

the alarm processor and the keypad processor using a communication protocol, such as a serial digital protocol. *Id.* at col. 3, ll. 46–49. Alarm processor 120 is also coupled to sensors 130, which may be installed at various points of entry or monitored areas of a protected building. *Id.* at col. 3, ll. 17–22. Hence, the alarm processor can provide the keypad processor various alarm information, such as whether the alarm is armed or disarmed and whether the sensors are tripped. *Id.* at col. 3, ll. 51–54.

As shown in Figure 2, communications processor 220 is coupled to alarm processor 120 and keypad processor 175 through keypad bus 190. *Id.* at col. 3, ll. 63–65. The communication processor can provide communication from the alarm processor to a remote server over a telephone connection. *Id.* at col. 4, ll. 7–18. The communication processor can also be connected to a cellular interface through which communication with a remote server can be provided over a cellular communication link. *Id.* at col. 4, ll. 28–34. In addition, the communication processor can be coupled to a network interface to communicate with a remote server over a broadband network connection. *Id.* at col. 4, ll. 35–40. The communication processor monitors all of the available communication modes to determine which communication mode is optimal for communication with the remote server system. *Id.* at col. 4, ll. 51–54. The communication processor interprets signals from the alarm processor on the keypad bus, and provides the information to the remote server system over a selected communication mode. *Id.* at col. 5, ll. 37–40. The transmitted information can include arm/disarm indicators, alarm trip information, and system status. *Id.* at col. 5, ll. 40–42.

According to the '635 patent, its embodiments disclose a “cost-effective solution” for extending the communications capability of a legacy alarm system by adding a communications unit to the legacy alarm system to provide two-way communication over multiple communication modes. *Id.* at col. 8, ll. 6–9. By adding a communications unit to a legacy alarm system “without replacing the legacy alarm system,” the extended communications functions can be provided “at a substantially lower cost.” *Id.* at col. 7, ll. 31–37.

Figure 6 (not reproduced herein) depicts an exemplary embodiment of attaching communications unit 210 to legacy alarm system controller 110.⁴ *Id.* at col. 7, ll. 38–40. As shown in Figure 6, an existing legacy alarm system controller is housed in wall-mounted housing 610 (placed on a wall at a protected site). *Id.* at col. 7, ll. 40–42, Fig. 6. In an exemplary embodiment, the communications unit is also housed in its own housing 620, which can be attached to alarm control unit housing 610. *Id.* at col. 7, ll. 44–48, Fig. 6. The connection or coupling between the communication unit and the existing alarm system controller can be made by creating a hole in the alarm control unit’s housing (housing 610) and making the connection by connector wires or cables through the hole. *Id.* at col. 7, ll. 47–61. The connection includes coupling the communication unit to the alarm system power and the keypad bus, as well as establishing the telecommunications link to the alarm processor and the telephone line interface. *Id.* at col. 7, ll. 55–61. Hence, in the disclosed “cost-effective” approach for upgrading a

⁴ As discussed above, legacy alarm system controller 110 and communications unit 210 are depicted in Figure 2 of the '635 patent.

legacy alarm system, the communications capability of the existing legacy alarm system is extended without removing and replacing the pre-installed alarm system already in place at the site. *Id.* at col. 8, ll. 6–14; col. 7, ll. 28–37; col. 2, ll. 6–25.

B. Illustrative Claim

Of the challenged claims, claims 1, 14, and 21 are independent.

Claim 1 is illustrative of the challenged claims and is reproduced below:

1. A system comprising:

an alarm system comprising a keypad bus directly connected to an alarm processor and a keypad processor, wherein the keypad bus provides communication between the alarm processor and the keypad processor; and

a communications processor directly connected to the keypad bus and configured to

communicate with a network external to the system using a plurality of communication modes, and

communicate with the alarm processor using the keypad bus connection to the alarm processor.

III. CLAIM CONSTRUCTION

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 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 as the claim construction standard to be applied in an *inter partes* review proceeding). Under the broadest reasonable interpretation standard, and absent any special

definitions, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in view of the specification. *In re Translogic Tech. Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definitions for claim terms or phrases must be set forth with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). A particular embodiment appearing in the written description generally is not incorporated into a claim if the claim language is broader than the embodiment. *SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004); *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

In our Decision on Institution, we preliminarily interpreted four claim terms reciting “means” as means-plus-function limitations under 35 U.S.C. § 112, ¶ 6,⁵ as follows (Dec. on Inst. 7).

Term	Construction
“means for receiving a first signal on a keypad bus” (claim 21)	Function: “receiving a first signal on a keypad bus” Corresponding structure: “communications processor 220” (and its equivalents)

⁵ Section 4(c) of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), re-designated 35 U.S.C. § 112, ¶ 6, as 35 U.S.C. § 112(f). Because the ’635 patent has a filing date prior to September 16, 2012, the effective date of § 4(c) of the AIA, we refer to the pre-AIA version of 35 U.S.C. § 112. See AIA § 4(e).

Term	Construction
“means for transmitting a second signal” (claim 21)	Function: “transmitting a second signal” Corresponding structure: “communications processor 220” alone or in combination with “cellular interface 230” and/or “network interface 250” (and equivalents thereof)
“means for monitoring a status of each of the plurality of communication modes” (claim 24)	Function: “monitoring a status of each of the plurality of communication modes” Corresponding structure: “communications processor 220” alone or in combination with “cellular interface 230” and/or “network interface 250” (and equivalents thereof)
“means for selecting the selected one of the plurality of communication modes . . . in response to said monitoring” (claim 25)	Function: “selecting the selected one of the plurality of communication modes . . . in response to said monitoring” Corresponding structure: “communications processor 220” (and its equivalents)

The parties do not dispute these constructions in their Patent Owner Response or Petitioner Reply. *See* PO Resp. 20–21. Upon considering the complete record, we discern no reason to deviate from our preliminary constructions and, therefore, adopt them as set forth above for this Decision.

Neither party proposes express constructions for any other claim terms. Although Patent Owner argues that Petitioner’s unpatentability challenges are based on overly broad interpretation of the challenged claims, Patent Owner does not identify any specific claim terms, the constructions of which Patent Owner disputes. *Id.* Nor does Patent Owner propose its own constructions for any specific claim terms. *Id.* Rather, Patent Owner asserts

that Petitioner’s contentions disregard the “add-on nature of the invention reflected in the claims” and overlook the “differences from and improvements over [the] prior art,” such as the Simon reference asserted by Petitioner. *Id.* at 20. We address these arguments in the context of our discussion of the parties’ patentability arguments below. Apart from the four means-plus-function terms discussed above, no other claim terms need to be construed expressly for purposes of this Final Written Decision because we need only construe terms “that are in controversy, and only to the extent necessary to resolve the controversy.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

IV. ANALYSIS OF PETITIONER’S PRIOR ART CHALLENGES

To prevail in challenging Patent Owner’s claims, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir.

2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review).

As discussed above, the grounds on which we instituted *inter partes* review are Petitioner’s challenges to claims 1, 2, 6–10, 14–18, and 21–25 as obvious under 35 U.S.C. § 103(a) over Simon alone or Simon combined with Pickell. A claim is unpatentable under § 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 the 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 skill in the art; and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

A. Overview

The parties’ disputes in this proceeding center on their basic disagreement over the subject matter claimed and recited in the challenged claims. Patent Owner asserts that the ’635 patent discloses and claims a solution for upgrading the communications function of an existing, pre-installed legacy alarm system without replacing the existing alarm system, by adding a communications unit to the pre-installed legacy alarm system.

PO Resp. 14 (citing Ex. 1001, col. 7, ll. 28–37), 1 (citing Ex. 1001, Abstract), 10 (citing Ex. 1001, col. 2, ll. 58–63, col. 7, ll. 28–37), 22 (citing Ex. 2001 ¶ 59). Patent Owner argues that the disclosed solution for upgrading an existing legacy alarm system is not merely an embodiment of the invention of the '635 patent, but, rather, is “the invention itself.” *Id.* at 1 (citing Ex. 1001, Abstract), 22 (citing Ex. 2001 ¶ 59). Patent Owner argues, therefore, the challenged claims must be understood to be limited to the subject matter of this alleged “invention itself”—that is, upgrading a pre-existing legacy alarm system by adding a communications unit to the legacy alarm system that is already installed or in place at a site. *Id.* at 22; *see also* Tr. 20:18–21:9, 23:2–10, 23:26–24:6 (Patent Owner arguing that the challenged claims are limited to upgrading a pre-installed, existing legacy alarm system already in place at a home or premises by adding a communications unit to the pre-installed system, and, therefore, do not encompass upgrading a legacy alarm system in a factory that is yet to be installed at a site.).

Patent Owner asserts that Simon (by itself or in combination with Pickell) does not render the challenged claims obvious because Simon does not describe a system or method “for upgrading an existing legacy alarm system” (PO Resp. 29), but, rather, discloses an integrated security system that must replace the existing alarm system to be installed at a site. *Id.* at 26–27.

Petitioner asserts that the challenged claims do not recite a “legacy” alarm system or an “add-on” communications processor and that Patent Owner improperly reads limitations from the Specification into the claims.

Pet. Reply 7. Petitioner further argues that no disclaimer exists in the '635 patent that limits the claims to the subject matter argued by Patent Owner. *Id.* at 8.

We agree with Petitioner's arguments. As discussed below, we are not persuaded that the challenged claims are limited as Patent Owner contends. The basic problem with Patent Owner's arguments is that they focus on subject matter that is not recited in the challenged claims—i.e., how to upgrade legacy alarm systems already in place in the field. Although the '635 patent describes a purportedly novel approach to upgrading existing alarm systems (e.g., adding an upgrade unit to the legacy system at the site, as opposed to taking out the existing system and replacing it with a new system), we do not conclude that such a subject matter is recited in the challenged claims. Rather, the claims recite a system comprising various security system components (e.g., system claim 1) or a method of operating such a system (e.g., method claim 14). As discussed below, we are not persuaded that there is sufficient evidence in the record to overcome the plain language of the claims and transform the challenged claims into claims reciting the subject matter argued by Patent Owner, i.e., claims reciting “a system or method *for upgrading* an existing legacy alarm system” (PO Resp. 29 (emphasis added)). As discussed in what follows, we are persuaded that Petitioner has demonstrated, by a preponderance of evidence, the challenged claims are rendered obvious by Simon alone or Simon in combination with Pickell.

B. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the

time it was made, 35 U.S.C. § 103 requires us to determine the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. “The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991).

The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, various factors may be considered, including the types of problems encountered in the art, prior art solutions to those problems, the sophistication of the technology, rapidity with which innovations are made, and educational level of active workers in the field. *Id.* In a given case, one or more factors may predominate. *Id.* In addition, we may be guided by the level of ordinary skill in the art reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovation Toys, LLC v. MGA Entm’t, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”).

Relying upon the Declaration of Dr. Vannucci, Petitioner asserts that, at the time of the invention of the ’635 patent, a person of ordinary skill in the art for the technology disclosed in the ’635 patent (a security system coupled to an outside network) would have had a bachelor’s degree or the equivalent in electrical engineering (or related academic fields) and at least

five years of additional work experience in the area of digital and/or telecommunication system design, as applicable to safety and security systems, or equivalent work experience. Pet. 13–14 (citing Ex. 1002 ¶¶ 22–29).

Citing the Declaration of Dr. Clark, Patent Owner asserts that Petitioner’s definition sets the level of ordinary skill in the art too high. PO Resp. 17 (citing Ex. 2001 ¶¶ 42–48). Patent Owner argues that the technology at issue in the ’635 patent primarily relates to signal processing (*id.* (citing Ex. 2001 ¶ 45)), and that a person of ordinary skill in the art would have had at most two years of post-college industry experience at the time of the invention of the ’635 patent (*id.* at 18 (citing Ex. 2001 ¶ 46)). According to Patent Owner, the main difference between the parties’ definitions is that Petitioner’s definition would have required “in-depth knowledge and understanding of . . . circuit design and hardware integration,” which would not have been required under Patent Owner’s definition. *Id.* at 19 (citing Ex. 2001 ¶ 48).

We are not persuaded by Patent Owner’s arguments. First, we are not persuaded that the ’635 patent is primarily directed to the technology of signal processing. Although the ’635 patent describes various communications functions of an alarm system, it also discloses the structure and functions of the alarm system, including how various electronic components are integrated to form a legacy alarm system as well as an alarm system with extended communications capability. Ex. 1001, col. 3, l. 15–col. 4, l. 44, Figs. 1, 2. The ’635 patent also describes in detail how those electronic components operate in conjunction with each other to perform

various functions of an alarm system as an integral operational unit, including the communications functions to communicate with external networks and remote servers. *Id.* at col. 3, l. 15–col. 7, l. 27. Hence, the record indicates that the '635 patent is generally directed to the technology of designing and making, by integrating various electronic components, a security system that communicates with external networks, not merely the signal processing technology relevant to the system's communication functions.

As discussed above, among the factors that may be considered in determining the level of ordinary skill in the art are the types of problems encountered in the art and prior art solutions to those problems. *See GPAC*, 57 F.3d at 1579. As described in the Specification, the '635 patent addresses the problem of providing two-way, multimode communications capability in alarm systems. Ex. 1001, col. 1, ll. 58–col. 2, l. 15. As acknowledged by Patent Owner, the '635 patent describes a prior art security system that provides a multimode and/or two-way communications functionality by replacing the controller unit of an existing legacy security system with a new controller unit having the extended communication capability. *Id.* at col. 2, ll. 6–19; PO Resp. 8 (discussing the “second category” of prior art systems with a multimode or two-way communications capability described in the '635 patent (citing Ex. 1001, col. 2, ll. 6–19)). Hence, the record indicates that the knowledge and understanding of circuit design and hardware integration to design and make such a security system controller unit with the extended communications capability would have been possessed by a

person of ordinary skill in the art at the time of the invention of the '635 patent.

Based on the foregoing discussion and the complete record of this proceeding, we determine that, at the time of the invention of the '635 patent, a person of ordinary skill in the art would have had a bachelor's degree or the equivalent in electrical engineering or related fields, and several years of relevant work experience in the area of digital system design and/or telecommunication system design, as applicable to safety and security systems, or equivalent work experience. As discussed above, a person of ordinary skill in the art would have possessed the knowledge and understanding of circuit design and hardware integration relevant to designing and making security systems with communications capabilities.

C. Obviousness over Simon

Petitioner asserts that claims 1, 2, 6, 9, 10, 14–16, and 21–23 are unpatentable over Simon under 35 U.S.C. § 103(a). Pet. 15–50. Petitioner explains how Simon renders obvious the claimed subject matter of each challenged claim, providing detailed discussion and specific citations to Simon indicating where in the reference the claimed features are disclosed or explaining how the differences between the claimed subject matter and the prior art are such that the subject matter would have been obvious to a person of ordinary skill in the art. *Id.* In addition, Petitioner relies upon the Declaration of Dr. Vannucci to support its positions. *Id.* Upon review of all of the parties' papers and supporting evidence discussed in those papers, we are persuaded that Petitioner has demonstrated, by a preponderance of

evidence, that claims 1, 2, 6, 9, 10, 14–16, and 21–23 are unpatentable under 35 U.S.C. § 103(a) as obvious over Simon.

1. Scope and Content of the Prior Art—Overview of Simon (Ex. 1004)

Simon describes an integrated security and communication system that combines a security system with a telephone interface, a data interface, or both, to allow communication with a central monitoring station. Ex. 1004, Abstract. The integrated system comprises a security controller having sensor inputs and control signal input/output ports, and a communications unit connected to a communication channel. *Id.* at col. 2, l. 66–col. 3, l. 6. A security system protecting a premises includes a keypad used to arm or disarm the system. *Id.* at col. 3, ll. 50–54. The security system of Simon provides communication functions at the security system keypad, which is accomplished by integrating the security system with a communications system. *Id.* at col. 3, ll. 57–61; col. 3, l. 66–col. 4, l. 2.

Figure 2 of Simon is reproduced below.

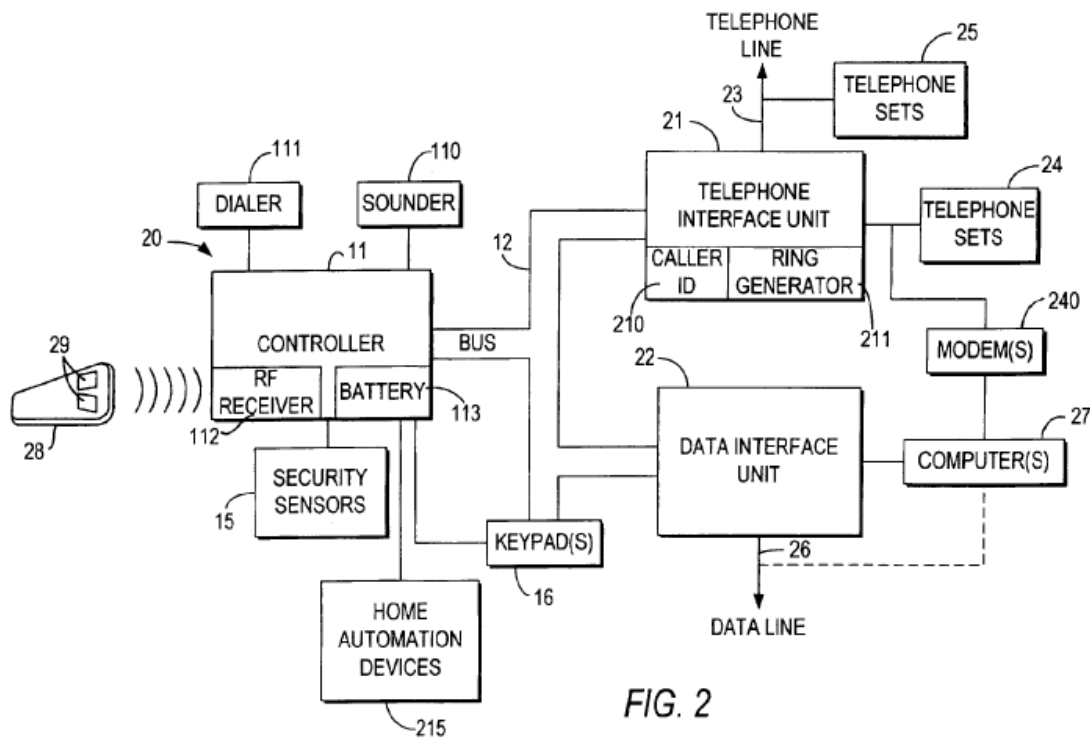


FIG. 2

Figure 2 depicts an embodiment of Simon's integrated security and communication system. As shown in Figure 2, the system includes controller 11, which is connected to sensors 15 and keypads 16. *Id.* at col. 16, ll. 43–45. The keypads can be connected to bus 12 to exchange signals with the controller. *Id.* at col. 15, l. 66–col. 16, l. 3. Further, telephone interface unit 21 is connected to controller 11 by bus 12. *Id.* at col. 16, ll. 45–47. Data interface unit 22 is also connected to controller 11 via bus 12 and is used to transmit data over the Internet or other external network. *Id.* at col. 17, ll. 4–6, 25–28.

In one embodiment, the communication interface includes a primary channel, which is preferably the fastest channel, such as the Internet link, and at least one secondary communication channel, such as a telephone connection, a cellular connection, or a radio link. *Id.* at col. 22, ll. 23–56. In

another embodiment, in the event the primary channel is not available, the system “fails over” to a secondary channel. *Id.* at col. 12, ll. 19–25. In an approach called “dynamic signaling,” all of the channels are tried at the same time to initiate communication, and the first successful channel is selected for communication. *Id.* at col. 12, ll. 29–38.

2. *Discussion —
Differences Between the Claimed Subject Matter and the Prior Art*

a. *Independent Claim 1*

Petitioner asserts that Simon teaches or renders obvious all limitations of claim 1. In what follows, we first discuss Petitioner’s contentions and then Patent Owner’s arguments in opposition to Petitioner’s contentions.

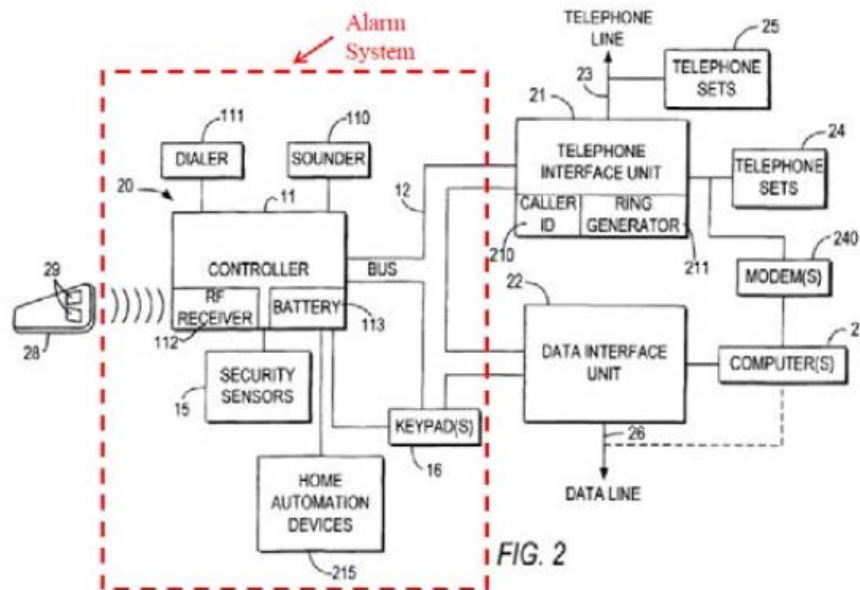
(1) *Petitioner’s Contentions*

i. *“an alarm system comprising a keypad bus directly connected to an alarm processor and a keypad processor”*

Petitioner identifies as claim element 1[b1] the limitation that recites, “an alarm system comprising a keypad bus directly connected to an alarm processor and a keypad processor.” Pet. 16. Referencing Figure 2 of Simon, Petitioner asserts that Simon teaches claim element 1[b1], including “alarm system,” “alarm processor,” “keypad bus,” and “keypad processor.” *Id.* at 16–22.

(a) *“alarm system”*

Petitioner provides an annotated version of Figure 2, which is reproduced below.



Id. at 16. Annotated Figure 2 above shows Petitioner’s identification of the claimed “alarm system” present in Simon. Referencing Figure 2, Petitioner argues that Simon describes components of a legacy alarm system, including system controller 11, keypad 16, and bus 12. *Id.* at 16–17 (citing Ex. 1004, col. 3, l. 66–col. 4, l. 6; col. 15, ll. 38–62; Fig. 2).

Petitioner contends that the system controller 11 of Simon corresponds to the claimed “alarm processor” because the system controller 11 receives sensor 15 data, processes it to determine an alarm condition, and communicates the alarm condition to a remote central station using one of the communication interfaces. *Id.* at 17 (citing Ex. 1004, col. 15, l. 66–col. 16, l. 10; col. 16, ll. 43–45; col. 2, l. 66–col. 3, l. 3; col. 6, ll. 49–53).

We are persuaded by Petitioner’s argument and evidence that Simon teaches “an alarm system” recited in claim 1 because, as shown in the annotated version of Figure 2 of Simon reproduced above, the “alarm system” identified by Petitioner includes a system controller connected to a keypad, security sensors, a sounder, and a dialer. *Id.* at 16; Ex. 1004,

col. 16, ll. 43–45. These components are similar to the components comprising a legacy alarm system described in the '635 patent. *See* Ex. 1001, col. 3, ll. 15–24, Fig. 1 (describing a legacy alarm system comprising a controller unit including an alarm processor, which is coupled to a keypad, sensors, and a telephone line interface). Further, the portion of Simon cited by Petitioner describes that these components are coupled to a communications interface (Pet. 16–17 (citing Ex. 1004, col. 3, l. 66–col. 4, l. 6; col. 15, ll. 38–62; col. 15, l. 66–col. 16, l. 10; col. 16, ll. 43–45)), similar to Figure 2 of the '635 patent that describes the “components of a legacy alarm system” coupled to a communications system or a communications processor (Ex. 1001, col. 3, ll. 57–65, Fig. 2). Simon also describes that these components are capable of providing the basic security functions similar to those provided by the legacy alarm system described in the '635 patent. *See, e.g.*, Ex. 1004, col. 16, ll. 3–7 (“[K]eypads 16 can be connected both directly to controller 11 (for security functions) and to bus 12 (for communications functions). Controller 11 preferably is connected to a sounder 110 (e.g., a bell or siren) for sounding alarm conditions”); Ex. 1001, col. 3, ll. 15–55 (describing the security functions of a legacy alarm system, including monitoring the sensors and detecting alarm conditions).

Based on the complete record, we are persuaded Petitioner has shown sufficiently that Simon teaches an “alarm system” comprising a keypad bus, an alarm processor, and a keypad, similar to the integrated components of a legacy alarm system described in Figure 2 of the '635 patent.

*(b) “a keypad bus directly connected to
an alarm processor and a keypad processor”*

Petitioner relies on CPU 51 shown in Figure 5 of Simon to teach a “keypad processor.” Pet. 19–20 (citing Ex. 1004, col. 18, ll. 30–33; Fig. 5 (item 51)). Citing the testimony of Dr. Vannucci and referencing another annotated version of Figure 2 (not reproduced herein), Petitioner contends that bus 12 disclosed in Simon corresponds to the “keypad bus” recited in claim 1 and that the bus 12 is directly connected to the system controller 11 and keypad 16. *Id.* at 20 (citing Ex. 1004, Fig. 2; Ex. 1002 ¶ 59). Relying upon further testimony of Dr. Vannucci, Petitioner additionally asserts that a person of ordinary skill in the art would have understood that Figures 5 and 7 of Simon show that the CPU of keypad 16 and the microprocessor of the system controller 11 are directly connected to the bus 12 utilizing interface circuits, i.e., security system interface 502 for the keypad CPU and security system interface 600 for the system microprocessor. *Id.* at 20–22 (citing Ex. 1004, Figs. 5, 7, col. 18, ll. 58–59 (“interface 502 connects to controller 11, preferably via bus 12”); Ex. 1002 ¶¶ 60–70). In particular, Dr. Vannucci testifies that “connections between a processor and a bus via an intervening interface circuit are . . . regarded in the electrical engineering community as direct connections.” Ex. 1002 ¶ 65 (cited in Pet. 21–22).

We are persuaded that CPU 51 depicted in Figure 5 of Simon teaches a “keypad processor” because Simon describes that Figure 5 shows a circuitry of a keypad and that the circuitry is built around CPU 51. Ex. 1004, col. 18, ll. 25–33. We credit the testimony of Dr. Vannucci, and are persuaded that bus 12 disclosed in Figure 2 of Simon corresponds to the

“keypad bus” recited in claim 1 and that the bus 12 is directly connected to the system controller 11 and keypad 16.

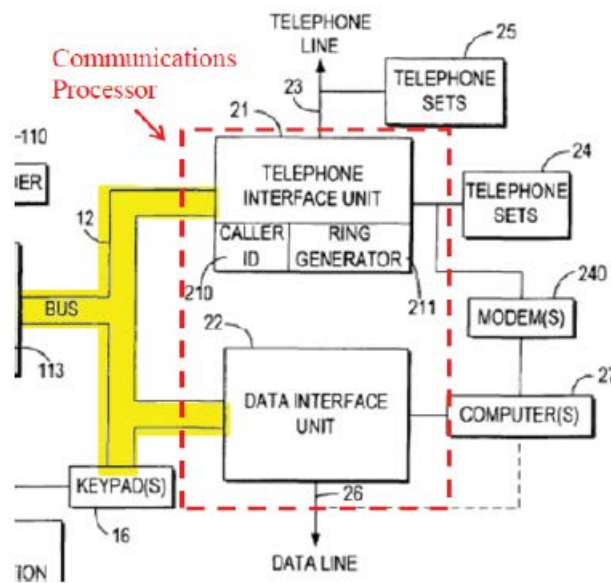
ii. *“the keypad bus provides communication between the alarm processor and the keypad processor”*

Petitioner identifies as claim element 1[b2] the limitation that recites, “wherein the keypad bus provides communication between the alarm processor and the keypad processor.” Pet. 22. We are persuaded that Simon teaches this limitation because, as Petitioner argues, Simon describes that “keypads 16 may be connected to bus 12 for routing of [] security system signals to and from controller 11.” *Id.* (citing Ex. 1004, col. 15, l. 66–col. 16, l. 1). As Petitioner further notes, bus 12 in Simon provides communication between the keypad’s CPU 51 and the controller’s microprocessor because the processors are directly connected to bus 12 and, therefore, receive and transmit the same security system signals. *Id.* (citing Ex. 1004, col. 18, ll. 58–59).

iii. *“a communications processor directly connected to the keypad bus” and “configured to communicate with a network external to the system using a plurality of communication modes”*

Petitioner identifies as claim elements 1[c1] and 1[c2] the limitations that recite, “a communications processor directly connected to the keypad bus” and “configured to communicate with a network external to the system using a plurality of communication modes,” respectively. Pet. 22, 28. Petitioner contends that a combination of telephone interface unit 21 and data interface unit 22 depicted in Figure 2 of Simon teaches the claimed “communications processor.” *Id.* at 22–23. Petitioner provides an annotated

excerpt of Figure 2, which is reproduced below.



Id. at 23. Annotated excerpt of Figure 2 shown above illustrates Petitioner’s identification of Simon’s teaching of a single “communications processor” as a combination of telephone interface unit 21 and data interface unit 22. Citing the testimony of Dr. Vannucci, Petitioner asserts that a person of ordinary skill in the art would have understood that these units can be combined to form a single unit that operates multiple communications interface. *Id.* (citing Ex. 1002 ¶ 71).

Relying upon further testimony of Dr. Vannucci, Petitioner contends that there is nothing in Simon that teaches away from combining those units into a single unit (*id.* (citing Ex. 1002 ¶¶ 74–75)) and that benefits of combining the units include lower cost due to shared functions, e.g., power supply and bus interface, and easier coordination between the two communication modes, e.g., joint monitoring and autonomous selection of best mode (*id.* at 24 (citing Ex. 1002 ¶¶ 75–76)). In addition, Dr. Vannucci cites U.S. Patent No. 4,951,029 (Ex. 1006, “Severson”), which describes

using a single alarm controller to control a telephone channel and an RF (radio frequency) channel, and testifies that the concept of using a single unit to operate multiple communication channels was known in the art prior to the filing of the '635 patent. Ex. 1002 ¶ 78 (citing Ex. 1006, col. 6, ll. 53–68; col. 10, ll. 40–45; Figs. 1, 2a, 2d & 2e, 3); Pet. 24. Thus, according to Dr. Vannucci and Petitioner, it was a simple matter of design choice that Simon used the telephone interface unit and the data interface unit as two separate units, as opposed to combining them into a single unit. Pet. 24; Ex. 1002 ¶ 74.

Relying upon additional testimony from Dr. Vannucci, Petitioner further contends that one of ordinary skill would have understood that Simon also teaches the claimed “communications processor” in the form of an actual processor chip. Pet. 24–25 (citing Ex. 1002 ¶ 79). Referencing Figure 7 (not reproduced herein), which illustrates the internal circuitry of telephone interface unit 21, Petitioner argues that Simon’s telephone interface unit includes microcontroller 69 that arbitrates traffic and interprets the data exchanged between the system controller 11 and the telephone interface unit. *Id.* at 25 (citing Ex. 1004, col. 19, ll. 45–51, Fig. 7). Petitioner additionally asserts that, although Simon does not describe explicitly internal circuitry for data interface unit 22, based on Simon’s similar description of the function of the data interface unit to arbitrate traffic and interpret the data exchanged between the system controller 11 and the data interface unit, a person of ordinary skill in the art would have understood that a similar microcontroller is included in the data interface unit as well. *Id.* at 25–26 (citing Ex. 1004, col. 17, ll. 4–18, 26–30, col. 15,

l. 66–col. 16, l. 3; Ex. 1002 ¶ 79). Citing the testimony of Dr. Vannucci, Petitioner contends that a person of ordinary skill in the art would have understood that the microcontrollers and the related circuit components of the telephone interface unit and the data interface unit may be combined into a single unit to form a “communications processor,” as recited in claim 1. *Id.* at 26 (citing Ex. 1002 ¶ 80). In the alternative, Petitioner asserts that one of ordinary skill would have understood that the microcontrollers of units 21 and 22 could be replaced with a single microcontroller that is capable of arbitrating traffic between the telephone interface unit components and the data interface unit components. *Id.* (citing Ex. 1002 ¶ 81). Dr. Vannucci again cites Severson and testifies that a person of ordinary skill would have been motivated to adopt a single microcontroller modification of Simon based on the teachings of Severson and the benefits of having a single controller. Ex. 1002 ¶ 81.

Petitioner contends that such a single microcontroller or a single unit combining the microcontrollers of telephone interface unit and the data interface unit would have been able to communicate with an external network using two communication modes, such as using the Internet communication mode over the data link and the telephone communication mode over the telephone connection to communicate with a central monitoring station or central communication station. Pet. 29–31 (citing Ex. 1002 ¶¶ 86–87; Ex. 1004, col. 17, ll. 4–6, 26–30, col. 1, ll. 13–15, col. 2, ll. 40–45, col. 10, ll. 38–52, col. 12, ll. 19–22, col. 15, ll. 47–52, col. 10, ll. 58–61). Petitioner further argues that Simon describes using multiple communication modes in an embodiment where the Internet connection is

selected as the primary channel of communication with the central monitoring station and the telephone connection is used as a secondary channel in the event the Internet connection fails. *Id.* at 31–32 (citing Ex. 1004, col. 12, ll. 20–67, col. 19, ll. 58–63, col. 22, ll. 23–56).

We are persuaded that the combined unit of telephone interface unit 21 and data interface unit 22, as proposed by Petitioner, teaches a communications processor that can communicate with external networks using multiple communication modes because, as Petitioner argues, such a combined unit can communicate over a telephone connection (via telephone interface unit 21) or over the Internet link (via data interface unit 22). Pet. 29–32.

In addition, we credit the testimony of Dr. Vannucci, and are persuaded that a person of ordinary skill in the art would have been motivated to modify Simon by combining telephone interface unit 21 and data interface unit 22 into a single unit that operates multiple communications interface. We are persuaded by Dr. Vannucci’s citation and discussion of Severson that the technique of using a single unit to control multiple communication channels was known to a person of ordinary skill in the art at the time of the invention of the ’635 patent. Ex. 1002 ¶ 78 (citing Ex. 1006). We are also persuaded by Dr. Vannucci’s explanation that a person of ordinary skill in the art would have been motivated to make the proposed combination because of the benefits of combining the telephone interface unit and the data interface unit into a single unit, such as lower cost and easier coordination between the two communication modes. Pet. 24 (citing Ex. 1002 ¶¶ 75–76).

We are persuaded by Petitioner’s argument and evidence that the proposed modification would have been obvious because “[f]or [a] technique’s use to be obvious, the skilled artisan need only be able to recognize, *based on her background knowledge*, its potential to improve the device and be able to apply the technique.” *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1003 (Fed. Cir. 2016) (emphasis added).

Relying upon the testimony of Dr. Vannucci, Petitioner contends that Simon teaches the communications processor is “directly connected to the keypad bus” essentially for the same reasons Simon teaches that the “keypad processor” is directly connected to the keypad bus, as discussed above with respect to claim element 1[b1]. Pet. 27–28 (citing Ex. 1002 ¶¶ 83, 84). We credit the testimony of Dr. Vannucci, and are persuaded that the combined telephone interface unit and data interface is directly connected to the keypad bus because Simon teaches that each of the telephone interface unit and the data interface unit is directly connected to the keypad bus. *Id.* (citing Ex. 1004, col. 16, ll. 45–47, col. 17, ll. 4–6; Ex. 1002 ¶¶ 83, 84).

iv. “communicate with the alarm processor using the keypad bus connection to the alarm processor”

Petitioner identifies as claim element 1[c3] the limitation that recites, “[a communications processor configured to] communicate with the alarm processor using the keypad bus connection to the alarm processor.” Pet. 32. Petitioner contends Simon discloses that the telephone interface unit 21 and data interface unit 22 (and their respective processor) communicate with the controller 11 via the bus 12. *Id.* (citing Ex. 1004, col. 19, ll. 39–51, 60–62, col. 16, ll. 45–47, Fig. 7; Ex. 1002 ¶ 88). We are persuaded that Simon

teaches this limitation because, as Petitioner argues, the telephone interface unit 21 is part of the combined “single” interface unit, the “single” unit communicates with the system controller 11 (and its processor) via bus 12, and, for the same reason, the combined “single” processor and any single processor that replaces the functionality of the microcontrollers in Simon also communicates with the system controller 11 (and its processor) via bus 12. *Id.* at 32–33.

(2) Patent Owner’s Arguments

Patent Owner asserts that Simon does not render claim 1 obvious because Simon discloses a system that is “very different” from the system disclosed and claimed in the ’635 patent. PO Resp. 26. As previewed in the Overview subsection above (Section IV.A), Patent Owner asserts that claim 1 requires a communications processor that is an “add-on” to an pre-installed, existing legacy alarm system to provide the existing legacy alarm system with upgraded communication functions (PO Resp. 14, 22) “without the need to replace the legacy system” (*id.* at 23–24), whereas Simon discloses an “integrated security system” that “must replace an existing system” in order to provide the same or similar communications capability (*id.* at 26–27).

First, Patent Owner argues that claim 1 requires a system comprising two distinct components—i.e., “an alarm system” and “a communications processor.” *Id.* at 22. Patent Owner does not dispute that the “alarm system” identified by Petitioner in Simon teaches components that meet the alarm system recited in claim 1, i.e., an alarm processor, a keypad processor, and a keypad bus directly connected to an alarm processor and a keypad

processor. Patent Owner also does not dispute these components comprise a legacy alarm system described in the '635 patent. *See* Ex. 1001, col. 3, ll. 15–50 (describing a legacy alarm system comprising an alarm processor coupled to a keypad processor through a keypad bus). Rather, citing the testimony of Dr. Clark, Patent Owner asserts that a person of ordinary skill in the art would have understood that claim 1 is limited to “a communications unit add-on interfaced to a separate existing legacy alarm system” in view of the disclosures in the Specification. PO Resp. 25 (citing Ex. 2001 ¶¶ 63, 64).

Patent Owner asserts that Figure 2 of the '635 patent describes this “add-on” communications unit interfaced to an existing legacy alarm system. PO Resp. 11 (citing Ex. 1001, Fig. 2; Ex. 2001 ¶ 27). Patent Owner provides an annotated version of Figure 2 (*id.*), which is reproduced below.

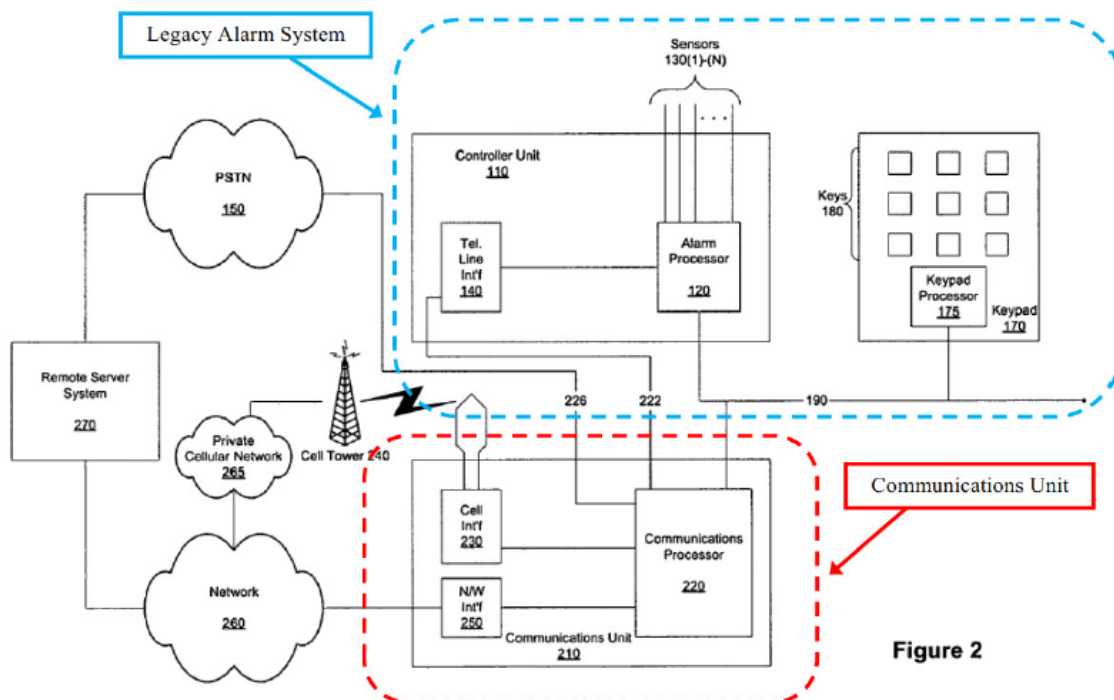


Figure 2

Annotated Figure 2 above shows Patent Owner's identification of an existing legacy alarm system interfaced to an "add-on" communications unit. *Id.* at 11, 13. Patent Owner asserts that Figure 2 the '635 patent depicts a pre-installed legacy alarm system that has been upgraded by adding a separate communications unit to the existing legacy alarm system (*id.* at 11, 13, 15) "without the cost and complexity associated with replacing the entire alarm system" (*id.* at 15). Patent Owner further argues that, when read in light of the Specification, claim 1 requires "a communications processor distinct from the alarm system, not merely an alarm system comprised of integrated components." *Id.* at 39 (citing Ex. 2001 ¶ 71).

Citing the testimony of Dr. Clark, Patent Owner asserts that Simon does not disclose a communications processor that is distinct from an alarm system. *Id.* at 30 (citing Ex. 2001 ¶ 68). Rather, Patent Owner argues that Simon discloses an "integrated security system" that "must replace an existing system" in order to provide upgraded communications capability. *Id.* at 26–27 (citing Ex. 2001 ¶ 50). Patent Owner argues that that the security system described in Simon is an "integrated whole," not a system of "add-ons" and "independent" component parts required by the claim. *Id.* at 39 (citing Ex. 2001 ¶ 71).

We are not persuaded by Patent Owner's arguments because the argued features are not recited in claim 1 and because Patent Owner's limiting interpretation of the claim is not supported by the '635 patent. Contrary to Patent Owner's contention, the '635 patent describes that Figure 2 is a block diagram of "*components of a legacy alarm system coupled to a communications system*" (Ex. 1001, col. 2, ll. 36–38 (emphases added),

col. 3, ll. 57–59 (emphases added)), *not* of a separately existing legacy alarm interfaced to a distinct and independent “add-on” communications processor. The ’635 patent further describes in detail how various electronic components—such as alarm processor 120, keypad processor 175, keypad 170, keypad bus 190, and communications processor 220—are coupled to each other (i.e., integrated) to form a security system with extended communications capabilities not found in a legacy alarm system. Ex. 1001, col. 3, l. 57–col. 4, l. 44, Fig. 2. The ’635 patent describes how those electronic components operate in conjunction with each other to perform various functions of the security system as an integral operational unit, including the communications functions to communicate with external networks and remote servers. *Id.* at col. 3, l. 57–col. 7, l. 27. In other words, the ’635 patent describes the system of Figure 2 as a complete security system that functions as an integral operational unit. Neither Patent Owner nor Dr. Clark explains why the security system described in Figure 2 would not function as an integral operational unit. Thus, Figure 2 of the ’635 patent cited by Patent Owner does not support Patent Owner’s contention that claim 1 excludes “integrated” security systems or a security system comprised of integrated components, such as the security system disclosed in Simon.

As discussed above, Patent Owner also asserts that claim 1 requires an “add-on” communications processor interfaced to a pre-installed legacy alarm system to upgrade the existing legacy alarm system that is already installed or in place at a site without replacing the entire pre-existing alarm system. PO Resp. 14, 22; Tr. 20:18–21:9, 23:2–10, 23:26–24:6 (Patent

Owner arguing that the challenged claims are limited to upgrading a pre-installed, existing legacy alarm system already in place at a home or premises by adding a communications unit to the pre-installed system, and, therefore, do not encompass upgrading a legacy alarm system in a factory that is yet to be installed at a site.). In other words, Patent Owner argues that claim 1 requires a pre-existing legacy alarm system already in place at a site, which was upgraded subsequently by installing an “add-on” communications unit on the pre-existing legacy alarm system.

The '635 patent, however, does not specify how the security system of Figure 2 came into being or how it was installed or would be installed at a site. For example, the system depicted in Figure 2 could have been put in place by combining controller unit 110 and communications unit 210 into a single unit in a factory and installing such a combined unit at a site, either as a first installation or as an upgrade installation replacing the previously installed controller. In this scenario, the completed security system of Figure 2 after installation would not include a separately existing legacy alarm system or a distinct, “add-on” communications processor used for upgrade installation. Because the '635 patent is silent on how the security system of Figure 2 may have been or would be put in place at a site, the disclosure in Figure 2 and its accompanying text does not support Patent Owner's argument that claim 1 is limited to a system that results from upgrading a pre-installed legacy alarm system already in place at a site by installing an “add-on” communications unit on the pre-existing legacy alarm system at the site.

As discussed above in our summary of the disclosures of the '635 patent (Section II.A), Figure 6 of the '635 patent describes an exemplary embodiment of a communications unit housed in a housing that can be attached to an existing legacy alarm system controller housed in its own wall-mounted housing to upgrade the communication capability of the existing legacy alarm system already in place at a site. Ex. 1001, col. 7, l. 38–col. 8, l. 5, Fig. 6. Although Patent Owner does not cite Figure 6, most of the limiting features argued by Patent Owner appear to be present in the system depicted in Figure 6. The '635 patent, however, expressly states that the solution described in Figure 6 is an exemplary embodiment of combining components described in Figure 2. *Id.* at col. 7, ll. 38–40 (“FIG. 6 is a simplified block diagram illustrating *one example* of a connection between a communication unit 210 and a legacy alarm system controller unit 110.” (emphasis added)); col. 8, ll. 6–9 (“*Embodiments* of the present invention therefore provide a cost-effective solution for providing a legacy alarm system with a capacity to communicate over a selected one of a plurality of communication modes.” (emphasis added)).

It is well established that “it is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited.” *Epos Techs. Ltd. v. Pegasus Techs. Ltd.*, 766 F.3d 1338, 1341 (Fed. Cir. 2014). Furthermore, as discussed above, Figure 2 provides a much broader disclosure without many of the limiting features of Figure 6. Hence, absent contrary evidence, the embodiment depicted in Figure 6 does *not* limit claim 1 to “a

communications unit add-on interfaced to a separate existing legacy alarm system” to provide the existing legacy alarm system with upgraded communication functions “without the need to replace the legacy system,” as argued by Patent Owner.

Patent Owner asserts that claim 1 is so limited because the argued subject matter constitute “the invention itself.” PO Resp. 1, 22. Citing various passages of the ’635 patent and the testimony of Dr. Clark, Patent Owner asserts that the ’635 patent describes the invention as a communications unit upgrade that enables an existing legacy alarm system to overcome these drawbacks without the need to replace the legacy system. *Id.* at 23–25 (citing Ex. 1001, Abstract, col. 1, ll. 15–19, col. 2, ll. 20–25, 58–63, col. 7, ll. 28–34, col. 8, ll. 1–14; Ex. 2001 ¶ 62). Patent Owner argues that the cited disclosures limit claim 1 because they describe “the invention itself,” not merely exemplary embodiments. *Id.* at 1, 22.

We are not persuaded by Patent Owner’s argument because the cited portions of the ’635 patent describe a background (Ex. 1001, col. 1, ll. 15–19 (Field of the Invention), exemplary embodiments, and/or advantages or purposes of the disclosed system that are not necessarily limiting. For example, the cited passages describe “[a] communication system is provided that *can be added* to a legacy alarm system to provide a plurality of communication modes” (Ex. 1001, Abstract (emphasis added)), “[e]mbodiments of the present invention provide a communication system that can be added to a legacy alarm system to provide a plurality of communication modes” (*id.* at col. 2, ll. 58–60 (emphasis added)), and “[e]mbodiments of the present invention therefore provide a cost-effective

solution for providing a legacy alarm system with a capacity to communicate over a selected one of a plurality of communication modes” (*id.* at col. 8, ll. 6–9 (emphasis added)).

As acknowledged by Patent Owner, claim 1 does not recite an “existing legacy” alarm system or “add-on” communications processor. PO Resp. 25. Nor does claim 1 recite a “pre-installed legacy alarm system” or “upgrad[ing]” the “pre-installed legacy alarm system” “without . . . replacing the entire alarm system.” *See id.* at 14. As discussed above, it is improper to read limitations from a preferred embodiment described in the Specification into the claim “absent a clear indication in the intrinsic record that the patentee intended the claim[] to be so limited.” *Epos Techs.*, 766 F.3d at 1341. A disclaimer or disavowal of claim scope must be “clear and unmistakable, requiring ‘words or expressions of manifest exclusion or restriction’ in the intrinsic record.” *Unwired Planet, LLC v. Apple Inc.*, 829 F.3d 1353, 1358 (Fed. Cir. 2016) (quoting *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1327 (Fed. Cir. 2002)). In view of the words “can be” and “embodiments” used in the passages discussed above, we are not persuaded that the cited passages rise to the level of such “clear and unmistakable” disclaimer using “words or expressions of manifest exclusion or restriction” sufficient to limit claim 1 as argued by Patent Owner.

The cited passages also describe certain advantages or purposes of the disclosed invention. *See* Ex. 1001, col. 7, ll. 28–37 (“*One of the advantages of the present invention is that . . . without replacing the legacy alarm system, a user of the system gains added functionality such as redundant connectivity and the ability to monitor and remotely control the legacy alarm*

system . . . *at a substantially lower cost* than replacing the system.” (emphases added)), col. 8, ll. 6–9 (“Embodiments of the present invention therefore provide a *cost-effective solution* for providing a legacy alarm system with a capacity to communicate over a selected one of a plurality of communication modes.” (emphasis added)), col. 2, ll. 20–25 (“It is therefore *desirable to provide a cost-effective solution for enabling legacy (pre-installed) security systems* to be remotely controlled and monitored . . . through a plurality of . . . communication modes.” (emphasis added)).

We are not persuaded these advantages or purposes limit the scope of claim 1 because they are not recited in the claim. Further, the stated advantage is only “[o]ne of the advantages” of the claimed invention (Ex. 1001, col. 7, ll. 28–34), and, therefore, does not necessarily limit the scope of claim 1. “An invention may possess a number of advantages or purposes, and there is no requirement that every claim directed to that invention be limited to encompass all of them.” *Howmedica Osteonics Corp. v. Wright Med. Tech., Inc.*, 540 F.3d 1337, 1345 (Fed. Cir. 2008) (quoting *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1370 (Fed. Cir. 2003)).

More importantly, the fundamental problem with Patent Owner’s arguments is that they focus on subject matter that is not recited in claim 1—i.e., how to upgrade legacy alarm systems already in place in the field. There is nothing in the language of claim 1 that touches upon how to upgrade existing legacy alarm systems that are already installed at a site. Rather, claim 1 merely recites a system comprising “an alarm system comprising a keypad bus directly connected to an alarm processor and a

keypad processor” and “a communications processor directly connected to the keypad bus.”

In view of the foregoing discussion and upon reviewing the complete record in this proceeding, we are not persuaded that there is sufficient evidence in the record to overcome the plain language of claim 1 and transform the system claim of claim 1 reciting structural components of the claimed system into a claim reciting “a system or method *for upgrading* an existing legacy alarm system” (PO Resp. 29 (emphasis added)) “without the need to replace the legacy system” (*id.* at 23–24), as argued by Patent Owner.

Lastly, Patent Owner argues that Simon does not render claim 1 obvious because Simon discloses one of the prior systems acknowledged in the Background section of the ’635 patent—i.e., a security system having multiple communications modes or two-way communication capability that required replacing the existing legacy system to be installed at a site. PO Resp. 29 (citing Ex. 1001, col. 2, ll. 6–9), 31, 8.

We are not persuaded by Patent Owner’s argument because there are many material differences between Simon and the prior art. For example, there is no disclosure in the ’635 patent regarding a controller, a keypad, a keypad processor, a keypad bus, or a communications processor of the prior art system. There is also no disclosure of how these components may be coupled to each other to form an integral system or how the components would operate in conjunction with each other. A prior art reference is not made irrelevant to an unpatentability inquiry merely because the challenged

patent describes similar prior art that lacks many of the material features disclosed in the reference.

(3) Conclusion

Upon considering all of the evidence of record, we determine that Petitioner has demonstrated, by a preponderance of evidence, the subject matter of claim 1 would have been obvious under 35 U.S.C. § 103(a) based on Simon.

b. Dependent Claim 9

Claim 9 depends from claim 1 and further recites “the communications processor is further configured to receive a first signal from the alarm processor on the keypad bus; and transmit a second signal to the external network using a selected one of the plurality of communication modes, in response to said receiving the first signal.” Petitioner contends that Simon teaches the additionally recited limitations of claim 9, providing specific citations to Simon and the Declaration of Dr. Vannucci. Pet. 34–36.

Petitioner asserts that Simon teaches a communications processor configured to receive a first signal from the alarm processor on the keypad bus because, for the same reasons discussed above with respect to claim element 1[c3], the combined single unit, the combined single processor, or the single processor replacing the unit’s microcontrollers receives signals, e.g., alarm signals, from controller 11 via bus 12. Pet. 34–35 (citing Ex. 1004, col. 19, ll. 39–51, 60–62, col. 16, ll. 45–47). Petitioner further contends that the same communication unit or processor of Simon transmits a different signal to the external network, e.g., the central monitoring station.

Id. at 35–36. Petitioner argues that a basic purpose of an alarm system is to alert the central monitoring station when an alarm is triggered and that, therefore, the signal transmitted to the central monitoring station is in response to receiving an alarm signal from the controller. *Id.* at 36 (citing Ex. 1004, col. 10, ll. 38–57, col. 17, ll. 26–30, col. 19, ll. 58–63, col. 22, ll. 23–56). According to Petitioner, the “dynamic signaling” and “fail over” operations described in Simon that utilize multiple channels to quickly and efficiently communicate an alarm condition to a central monitoring station illustrate such responsive signal transmission. *Id.* Relying upon the testimony of Dr. Vannucci, Petitioner further asserts that, to provide communication from the security system controller to the external network, the interface units of Simon receive a signal (i.e., a “first signal”) from the controller, process it for a selected channel, and transmit the processed signal (i.e., a “second signal”) on the channel. *Id.* at 35 (citing Ex. 1002 ¶¶ 93–102).

Patent Owner argues that the ’635 patent describes a communications processor making a selection of a communication mode to an external network “based on periodic or continuous monitoring of the communication modes available to the communications unit.” PO Resp. 45 (citing Ex. 1001, col. 6, ll. 8–19). Patent Owner asserts that Simon does not render claim 9 obvious because Simon discloses at most user configuration of a “primary channel” in the “dynamic signaling” and “fail over” operations relied upon by Petitioner, not real-time selection by the communications processor described in the ’635 patent. *Id.* at 47–48.

In our Decision on Institution, we noted that claim 9 recites the communication processor transmits a second signal “using a *selected* one of a plurality of communication modes” and that the plain language of the claim leaves unspecified the identity of the unit that selects a communication mode. Dec. on Inst. 30. Patent Owner’s argument that claim 9 requires a communications processor to make the selection is unpersuasive because the ’635 patent describes the disclosure relied upon by Patent Owner as an exemplary embodiment. The disclosure cited by Patent Owner is a part of an exemplary process illustrated in Figure 3 of the ’635 patent for providing a signal received from a keypad bus to an external network over a communication mode. Ex. 1001, col. 5, l. 55–col. 6, l. 29, Fig. 3. The ’635 patent states that Figure 3 is “a simplified flow diagram illustrating steps performed . . . in accord with *embodiments* of the present invention.” *Id.* at col. 5, ll. 55–58. Patent Owner’s argument is unpersuasive because Patent Owner does not explain why this exemplary embodiment described in the Specification limits “a *selected* one of a plurality of communication modes” recited in claim 9 to “a *communications-processor selected* one of a plurality of communication modes.”

Petitioner argues that the fact that a primary channel and a backup channel have been designated for the “dynamic signaling” operations means that a channel has been selected to transmit a second signal to the external network over the channel. Pet. Reply 20. We are persuaded that Simon teaches transmitting a second signal to the external network using a selected channel because, as Petitioner argues, Simon activates the primary communication channel to transmit an alarm condition (i.e., the “second

signal”) over the primary channel and, when no confirmation is received, subsequently activates the backup channel to re-send the alarm condition to the central monitoring station. Pet. 36 (citing Ex. 1004, col. 12, ll. 19–67); Pet. Reply 20 (citing Ex. 1004, col. 12, ll. 19–67).

Upon considering on the complete record, we determine that Petitioner has demonstrated, by a preponderance of evidence, the subject matter of claim 9 would have been obvious under 35 U.S.C. § 103(a) based on Simon.

c. Independent Claim 14

Petitioner asserts that independent claim 14 is substantially identical to claim 9 written in an independent form and fashioned as a method claim. Pet. 37. Patent Owner does not dispute Petitioner’s characterization of claim 14. PO Resp. 43.

Petitioner asserts that Simon teaches every limitation of claim 14 for the same reasons discussed in the context of Petitioner’s analysis of claims 1 and 9. Pet. 37–39. Patent Owner does not respond separately, with specificity, to Petitioner’s challenge to claim 14 beyond Patent Owner’s arguments advanced with respect to claims 1 and 9 discussed above.

Upon considering on the complete record, we determine that Petitioner has demonstrated, by a preponderance of evidence, the subject matter of claim 14 would have been obvious under 35 U.S.C. § 103(a) based on Simon.

d. Dependent Claims 2, 6, 10, 15, and 16

Claim 2 depends from claim 1 and further recites “the keypad bus comprises a serial digital protocol bus.” Petitioner asserts that Simon teaches the additionally recited limitation of claim 2. Pet. 33–34.

As discussed above with respect to claim 1, Figure 7 of Simon shows that Simon’s telephone interface unit 21 includes microcontroller 69 that arbitrates traffic and interprets the data exchanged between system controller 11 and the telephone interface unit over bus 12. *Id.* at 25 (citing Ex. 1004, col. 19, ll. 45–51, Fig. 7). Petitioner asserts that microcontroller 69 of Simon is a P87CL883 microcontroller in an exemplary embodiment. *Id.* at 33 (citing Ex. 1004, col. 19, ll. 38–39). Petitioner argues that a 1999 datasheet (Ex. 1013) for this microcontroller shows data is received via a “Serial UART Port,” which is described as a “serial port receiver input and transmitter output.” *Id.* (citing Ex. 1013, 5 (Fig. 1), 9 (col. 1)). Citing the testimony of Dr. Vannucci, Petitioner argues that bus 12, therefore, must use a serial protocol. *Id.* (citing Ex. 1002 ¶¶ 89–90). Petitioner further relies upon the testimony of Dr. Vannucci to assert that the signals transmitted across bus 12 are digital signals. *Id.* at 33–34 (citing Ex. 1002 ¶¶ 91, 92).

We are persuaded by Petitioner’s argument and evidence that Simon teaches a keypad bus comprising a serial digital protocol bus because the signals transmitted across bus 12 are serial and digital signals, and, bus 12, therefore, must operate based on a serial digital protocol.

Claim 6 depends from claim 1 and further recites “the communication modes comprise two or more of public switched telephone network (PSTN), cellular transmission, and broadband transmission.” Petitioner asserts that

Simon teaches the additionally recited limitation of claim 6 because, as discussed above with respect to claim 1, telephone interface unit 21 is connected to a telephone line and data interface unit 22 connects to the Internet. *Id.* at 34 (citing Ex. 1004, col. 15, ll. 47–52, col. 16, ll. 45–47, col. 17, ll. 4–6, 26–30, col. 20, ll. 3–6).

We are persuaded Simon teaches the additionally recited limitation of 6 because, as Petitioner argues, the telephone channel is the claimed “public switched telephone network (PSTN)” and the Internet channel is the claimed “broadband transmission.”

Claim 10 depends from claim 9 and further recites “the second signal is transmitted to a server coupled to the external network.” As discussed above with respect to claim 9, Simon teaches transmitting an alarm condition (i.e., the claimed “second signal”) to a central monitoring station via the external network. *Id.* at 35–36. Petitioner asserts that Simon teaches the second signal is relayed by central communications station 701. *Id.* at 37 (citing Ex. 1004, col. 20, ll. 61–62). According to Petitioner, Simon further teaches that this station 701 includes “remote servers 708,” such as “relay servers to relay communications between the various systems 702, 703.” *Id.* (quoting Ex. 1004, col. 20, ll. 61–62). Petitioner argues that the relay servers in Simon are “coupled to” and operate within the external network that includes the central monitoring station (702). *Id.*

We are persuaded Simon teaches transmitting the second signal to a server coupled to the external network because the second signal is relayed by a relay server, and because relay servers must be connected to the network in order to relay messages, including the second signal, from

premises system 703 (i.e., the security system depicted in Figures 1 or 2 of Simon) to central monitoring station 702.

Claim 15 depends from claim 14 and further recites “the source of the first signal is the alarm processor coupled to the keypad bus.” As noted by Petitioner, the limitation recited in claim 14 is similar to the limitation of claim 9 reciting “the communications processor is further configured to receive a first signal from the alarm processor on the keypad bus.” *Id.* at 39. Hence, we are persuaded that Simon teaches the additionally recited limitation of claim 15 for the same reasons discuss above with respect to claim 9.

Claim 16 depends from claim 14 and further recites “the first signal comprises data associated with a status of an alarm system comprising the alarm processor and the keypad bus.” Petitioner argues that the “alarm conditions” signals discussed with respect to claim 9 include data associated with the status of the alarm system because they indicate when the alarm system is triggered. *Id.* at 40. Petitioner further argues that the central monitoring station receives “status” information from the controller because Simon describes that the central station “monitors or supervises *the status of each security system.*” *Id.* at 40–41 (citing Ex. 1004, col. 1, ll. 61–63).

We are persuaded that Simon teaches “the first signal comprises data associated with a status of an alarm system,” as recited in claim 16, because the “alarm conditions” signals of Simon include at least the alarm trigger time data.

Patent Owner does not respond separately, with specificity, to Petitioner’s challenge to dependent claims 2, 6, 10, 15, and 16 beyond Patent

Owner's arguments advanced with respect to claim 1 discussed above. PO Resp. 45.

Upon considering on the complete record, we determine that Petitioner has demonstrated, by a preponderance of evidence, the subject matter of claims 2, 6, 10, 15, and 16 would have been obvious under 35 U.S.C. § 103(a) based on Simon.

e. Independent Claim 21

Petitioner argues that independent claim 21 is substantially identical to claim 14 except that claim 21 is written in means-plus-function form. Pet. 41. Patent Owner does not dispute Petitioner's characterization of claim 21. Claim 21 recites two means-plus-function terms, namely, "means for receiving a first signal on a keypad bus" and "means for transmitting a second signal." Our constructions for these terms are set forth in Section III above. Petitioner asserts that Simon renders claim 21 obvious under these constructions. *Id.* at 41–49.

(1) "means for receiving a first signal on a keypad bus"

As discussed in Section III above, we construe "means for receiving a first signal on a keypad bus" to cover the corresponding structure of "communications processor 220" described in the Specification and its equivalents. Petitioner asserts that Simon teaches the corresponding structure as the combined "single" interface unit, the combined "single" processor, or the replacement single processor or, in the alternative, as the unit's "single" processor or replacement processor and security system interface 600, which interfaces the microcontroller 69 with bus 12 in Simon.

Pet. 42–43 (citing Ex. 1004, col. 19, ll. 39–57, Fig. 7). Petitioner asserts that, for the reasons discussed above with respect to claims 1, 9, and 14, the combined “single” unit, the combined “single” processor or the replacement single processor and/or security system interface 600 in Simon performs the claimed function of “receiving a first signal on a keypad bus.” *Id.* at 43. Petitioner further argues that the combined “single” unit or single processor of Simon satisfies the “means for receiving” limitation as structural equivalent because it performs exactly the claimed function in substantially the same way to produce the same result as the “communications processor 220” of the ’635 patent for the same reasons discussed above with respect to the “communications processor” limitation recited in claim 1. *Id.* (citing Ex. 1001, col. 8, l. 30–col. 9, l. 7; Ex. 1002 ¶¶ 103–104).

Petitioner further contends that Simon teaches the limitations reciting “the keypad bus is directly connected to an alarm processor and a keypad processor and provides a communication link between the alarm processor and the keypad processor” and “said means for receiving is directly connected to the keypad bus” for the same reasons discussed above with respect to the substantially identical or similar limitations recited in claims 1 and 14. *Id.* at 44–45.

We are persuaded by Petitioner’s argument and evidence that Simon renders obvious the limitation of claim 21 reciting “means for receiving a first signal on a keypad bus, wherein the keypad bus is directly connected to an alarm processor and a keypad processor and provides a communication link between the alarm processor and the keypad processor, and said means

for receiving is directly connected to the keypad bus” for the reasons similar to those discussed with respect to claims 1, 9, and 14 above.

(2) “*means for transmitting a second signal*”

As discussed in Section III above, we construe “means for transmitting a second signal” to cover the corresponding structure of “communications processor 220” alone or in combination with “cellular interface 230” and/or “network interface 250” described in the Specification and their equivalents. Similar to Petitioner’s arguments with respect to the “means for receiving” limitation, Petitioner contends that Simon teaches the “means for transmitting” limitation as the combined “single” interface unit, the combined “single” processor or the replacement single processor. Pet. 45. Petitioner asserts that, for the reasons discussed above with respect to claim 1, the combined “single” unit, the combined “single” processor or the replacement single processor is configured to communicate with (e.g., transmit a signal to) an external network using a selected one of a plurality of communication modes (e.g., telephone or Internet). *Id.* In addition, Petitioner argues that the combined “single” unit or single processor transmits alarm signals over the telephone line 23 or the data line 26 for the same reasons discussed above with respect to the limitations of claims 9 and 14 reciting “transmitting [or transmit] a second signal.” *Id.* at 46–47. Petitioner further argues that the combined “single” unit or single processor of Simon satisfies the “means for transmitting” limitation as structural equivalent because it performs exactly the claimed function in substantially the same way to produce the same result as the “communications processor 220” of the ’635 patent for the same reasons discussed above with respect to

the “communications processor” limitation recited in claim 1. *Id.* at 46 (citing Ex. 1001, col. 8, l. 30–col. 9, l. 7; Ex. 1002 ¶¶ 106–107).

Alternatively identifying the corresponding structure as “communications processor 220” in combination with “cellular interface 230” and/or “network interface 250,” Petitioner asserts that Simon teaches the “means for transmitting” limitation as the combined “single” interface unit or single processor in conjunction with the modem 601, telephone line interface 602, and/or auxiliary serial interface 503 (or similar interface). *Id.* at 46–48 (citing Ex. 1002 ¶¶ 108, 109). Petitioner contends that, for the reasons discussed above with respect to claims 9 and 14, the combined “single” unit or single processor alone or in conjunction with the modem 601, telephone line interface 602, and/or auxiliary serial interface 503 (or similar interface) performs the recited function of “transmitting a second signal to an external network using a selected one of a plurality of communication modes.” *Id.* at 48. Petitioner further asserts that the combined “single” unit or single processor alone or in conjunction with the modem 601, telephone line interface 602, and/or auxiliary serial interface 503 (or similar interface) of Simon satisfies the “means for transmitting” limitation as structural equivalent because it performs exactly the claimed function in substantially the same way to produce the same result as the communications processor and/or network or cellular interfaces of the ’635 patent. *Id.* at 48–49 (citing Ex. 1002 ¶ 110; Ex. 1001, col. 8, l. 30–col. 9, l. 7).

Finally, Petitioner contends that Simon teaches “said transmitting is performed in response to receiving the first signal” for the same reasons

discussed above with respect to claim 14, which recites essentially the same limitation. *Id.* at 49.

We are persuaded by Petitioner's argument and evidence that Simon renders obvious the limitation of claim 21 reciting "means for transmitting a second signal to an external network using a selected one of a plurality of communication modes, wherein said transmitting is performed in response to receiving the first signal." for the reasons similar to those discussed with respect to claims 1, 9, and 14 above.

Patent Owner does not respond separately, with specificity, to Petitioner's challenge to claim 21 beyond Patent Owner's arguments advanced with respect to claims 1 and 9 discussed above. PO Resp. 44.

(3) Conclusion

Upon considering on the complete record, we determine that Petitioner has demonstrated, by a preponderance of evidence, the subject matter of claim 21 would have been obvious under 35 U.S.C. § 103(a) based on Simon.

f. Dependent Claims 22 and 23

Claim 22 depends from claim 21 and further recites "the source of the first signal is the alarm processor coupled to the keypad bus." As noted by Petitioner, the additionally recited limitation of claim 22 is identical to the additional limitation recited in claim 15. Pet. 49. Hence, we are persuaded that Simon teaches the additionally recited limitation of claim 22 for the same reasons discussed above with respect to claims 9 and 15.

Claim 23 depends from claim 22 and further recites “the first signal comprises data associated with a status of an alarm system comprising the alarm processor and the keypad bus.” Petitioner notes that the additionally recited limitation of claim 23 is identical to the additional limitation recited in claim 16. *Id.* at 50. We are persuaded that Simon teaches the additionally recited limitation of claim 23 for the same reasons discussed above with respect to claim 16.

Patent Owner does not respond separately, with specificity, to Petitioner’s challenge to claims 22 and 23 beyond Patent Owner’s arguments advanced with respect to claims 1 and 9 discussed above. PO Resp. 45.

Based on the complete record, we determine that Petitioner has demonstrated, by a preponderance of evidence, the subject matter of claims 22 and 23 would have been obvious under 35 U.S.C. § 103(a) over Simon.

D. Obviousness over the Combination of Simon and Pickell

Petitioner asserts that claims 7, 8, 17, 18, 24 and 25 are unpatentable under 35 U.S.C. § 103(a) over the combination of Simon and Pickell. Pet. 50–60.

1. Overview of Pickell (Ex. 1005)

Pickell describes a networked security system that uses redundant communication links to provide reliable communication connection. Ex. 1005, Abstract, ¶ 1. In one embodiment, the “integrity” of the active communication link is monitored to ensure that the communication connection is operational. *Id.* ¶ 33. If a control signal reflecting the communication state of the current communication link indicates a failure,

the connection is switched to a secondary communication links. *Id.*,
Abstract.

2. Discussion

a. Petitioner's Contentions

(1) *Claims 7, 17, and 24*

Claim 7 depends from claim 1 and further recites “the communications processor is further configured to monitor a status of each of the plurality of communication modes.” Petitioner asserts that Pickell teaches the additionally recited limitation of claim 7 because Pickell describes monitoring the “integrity” of redundant communication links to ensure that those links are working properly. Pet. 50 (citing Ex. 1005 ¶¶ 33–35, 39, 44).

We are persuaded Pickell teaches the additionally recited limitation of claim 7 because, as Petitioner argues, Pickell describes initializing each communication link one at a time, switching between each link over a predetermined period of time to ensure the links are functioning. *Id.* at 50–51 (citing Ex. 1005 ¶ 44; Ex. 1002 ¶¶ 116–117).

Claim 17 depends from claim 14 and further recites “monitoring a status of each of the plurality of communication modes.” Petitioner asserts that the additionally recited limitation of claim 17 is substantively identical to the additional limitation recited in claim 7, and that Pickell, therefore, teaches the additionally recited limitation of claims 17 and 21 for the same reasons discussed with respect to claim 7. *Id.* at 54. We are persuaded that Pickell teaches the additionally recited limitation of claim 17 for essentially the same reasons discussed above with respect to claim 7.

Claim 24 depends from claim 21 and further recites “means for monitoring a status of each of the plurality of communication modes.” As discussed in Section III above, we construe “means for monitoring a status of each of the plurality of communication modes” to cover the corresponding structure of “communications processor 220” alone or in combination with “cellular interface 230” and/or “network interface 250” described in the Specification and their equivalents.

Similar to its contentions with respect to claim 21, Petitioner asserts that Simon teaches the corresponding structure as the combined “single” unit or its processor (i.e., the combined “single” processor or the replacement single processor). *Id.* at 55. Petitioner further asserts that, for the same reasons discussed above with respect to claim 7, the combined “single” unit, the combined “single” processor, or the replacement single processor, as modified by Pickell, performs the claimed function of “monitoring a status of each of the plurality of communication modes.” *Id.* at 56.

We are persuaded that the combination of Simon and Pickell teaches the additionally recited limitation of claim 24 for essentially the same reasons discussed above with respect to claim 7.

Citing the testimony from Dr. Vannucci, Petitioner further asserts that a person of ordinary skill in the art would have been motivated to combine the general monitoring concepts described in Pickell with the multi-communication link system of Simon because an ordinary artisan would have understood that Simon’s fail-over and dynamic signaling operations would benefit from monitoring the communication links as described in Pickell so that, at the time of an emergency, Simon’s system would already

know which links are operational and which are not so that it can automatically choose the appropriate link on which to forward the alarm communication. *Id.* at 51–52 (citing Ex. 1004, col. 12, ll. 20–60; Ex. 1002 ¶¶ 122–123).

We credit Dr. Vannucci’s testimony and are persuaded that a person of ordinary skill in the art would have been motivated to combine Pickell’s teaching of monitoring redundant communication links with Simon’s teaching of fail-over and dynamic signaling operations to avoid potentially costly delays in alarm conditions notifications caused by attempting a communication and then switching to the backup channel in the event of failure. *See* Ex. 1002 ¶¶ 121–122.

(2) Claims 8, 18, and 25

Claim 8 depends from claim 7 and further recites “the communications processor is further configured to select one of the plurality of communication modes in response to said monitoring of the status of each of the plurality of communication modes; and perform said communication with the external network using the selected one of the plurality of communication modes.” Petitioner identifies these additionally recited limitations as claim elements 8[a] and 8[b], respectively. Pet. 52, 54.

Petitioner asserts that the combination of Simon and Pickell teaches claim element 8[a] because Pickell describes monitoring a “currently-active” communication link and, if a fault in the link is detected, “promptly switching to a redundant communication link.” *Id.* at 52–53 (citing Ex. 1005 ¶¶ 33, 36). Similar to its discussion with respect to claim 7, Petitioner asserts that the general concept described in Pickell of monitoring links and

switching between them when faults are detected can be applied to Simon. *Id.* at 53. Petitioner argues that, applying the teachings of Pickell, the data interface unit 22 (or its processor) in Simon can be configured to monitor the Internet channel, and the telephone interface unit 21 can be configured to monitor the telephone line. *Id.* Then, if a fault occurs in the Internet channel (i.e., the primary channel) during monitoring, according to the teachings of Pickell, the telephone link can take over as the primary channel. *Id.*

With respect to claim element 8[b], Petitioner argues that the limitation is substantially similar to the limitation of claim 9 reciting “transmit a second signal to the external network using a selected one of the plurality of communication modes,” and, therefore, Simon teaches claim element 8[b] for essentially the same reasons discussed above with respect to claim 9. *Id.* at 54.

We are persuaded that the proposed combination of Simon and Pickell teaches claim element 8[a] because, switching to the backup channel when a fault is detected from monitoring the primary channel, i.e., the “currently-active” communication link, constitutes selecting the backup channel in response to monitoring the status of the channels. We are also persuaded that Simon teaches claim element 8[b] for essentially the same reasons discussed above with respect to claim 9. Hence, we are persuaded that the combination of Simon and Pickell teaches the additionally recited limitations of claim 8.

Claim 18 depends from claim 17 and further recites “selecting the selected one of the plurality of communication modes, wherein said

selecting is performed in response to said monitoring.” Petitioner asserts that the additionally recited limitation of claim 18 is substantively identical to claim element 8[a], and that the combination of Simon and Pickell teaches the additionally recited limitation of claim 18 for the same reasons discussed with respect to claim 8. Pet. 54. We are persuaded that the combination of Simon and Pickell teaches the additionally recited limitation of claim 18 for essentially the same reasons discussed above with respect to claim 8.

Claim 25 depends from claim 24 and further recites “means for selecting the selected one of the plurality of communication modes, wherein said selecting is performed in response to said monitoring.” As discussed in Section III above, we construe “means for selecting the selected one of the plurality of communication modes . . . in response to said monitoring” to cover the corresponding structure of “communications processor 220” and its equivalents.

Similar to its contentions with respect to claim 21, Petitioner asserts that Simon teaches the corresponding structure as the combined “single” unit or its processor (i.e., the combined “single” processor or the replacement single processor). *Id.* at 59. Petitioner further argues that the recited function of claim 25 is substantively similar to claim element 8[a]. Hence, Petitioner asserts that the combined “single” unit or its processor (i.e., the combined “single” processor or the replacement single processor) of Simon, as modified by Pickell, performs the recited function of “selecting the selected one of the plurality of communication modes, wherein said selecting is performed in response to said monitoring.” *Id.*

We are persuaded that the combination of Simon and Pickell teaches the additionally recited limitation of claim 25 for essentially the same reasons discussed above with respect to claim 8.

Petitioner asserts that a person of ordinary skill in the art would have been motivated to combine the teachings of Simon and Pickell for the same reasons discussed above with respect to claim 7. We are persuaded that a person of ordinary skill in the art would have been motivated to combine Pickell's teaching of monitoring redundant communication links with Simon's teaching of fail-over and dynamic signaling operations for the same reasons discussed above with respect to claim 7.

b. Patent Owner's Arguments

Addressing claims 7, 8, 17, 18, 24, and 25 together, Patent Owner asserts that Pickell discloses monitoring only one type of communication links—i.e., data network channels—and, therefore, cannot be combined with Simon to teach a communications processor that monitors the status of a plurality of different types of communication modes. PO Resp. 48–49. In its Reply, Petitioner argues that Pickell is relied on for its general monitoring concepts (Pet. Reply 21 (citing Pet. 50–52; Ex. 1002 ¶¶ 118–123)) and that the process of monitoring by activating a link to determine if it is operable can be applied to any type of communication link, including those described in Simon (*id.* at 21–22 (citing Pet. 51–52; Ex. 2003 (Vannucci Dep. Tr.), 150:17–24, 174:9–177:22)).

We are persuaded by Petitioner's argument and unpersuaded by Patent Owner's argument because, in an obviousness analysis, “[a] reference must be considered for everything that it teaches, not simply the described

invention or a preferred embodiment.” *In re Applied Materials, Inc.*, 692 F.3d 1289, 1298 (Fed. Cir. 2012). Also, “KSR does not require that a combination only unite old elements without changing their respective functions.” *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1219 (Fed. Cir. 2016). In addition, “[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *MCM Portfolio LLC v. Hewlett-Packard Co.*, 812 F.3d 1284, 1294 (Fed. Cir. 2015) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)).

With respect to claims 8, 18, and 25, Patent Owner repeats essentially the same argument it made with respect to claim 9—that is, Simon does not teach real-time selection by the communications processor. PO Resp. 50–51. Petitioner argues Patent Owner’s argument is misguided because Petitioner’s challenge to claims 8, 18, and 25 is based on the combination of Simon and Pickell—that is, how Simon would operate if modified by the teachings of Pickell. Pet. Reply 23 (citing Pet. 53–54).

We agree with Petitioner and find Patent Owner’s argument unpersuasive because nonobviousness cannot be established by attacking the references individually when the unpatentability challenge is based on a combination of prior art disclosures. *See In re Merck & Co. Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

c. Conclusion

Upon considering the complete record, we determine that Petitioner has demonstrated, by a preponderance of evidence, the subject matter of

claims 7, 8, 17, 18, 24 and 25 would have been obvious under 35 U.S.C. § 103(a) over the combination of Simon and Pickell.

V. CONCLUSION

Petitioner has met its burden of proof, by a preponderance of the evidence, in showing that the claims 1, 2, 6–10, 14–18, and 21–25 of the '635 patent are unpatentable based on the following grounds:

1. Claims 1, 2, 6, 9, 10, 14–16, and 21–23 as obvious under 35 U.S.C. § 103(a) over Simon; and
2. Claims 7, 8, 17, 18, 24 and 25 as obvious under 35 U.S.C. § 103(a) over the combination of Simon and Pickell.

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 2, 6–10, 14–18, and 21–25 of the '635 patent are unpatentable; and

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

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