UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Axis Communications AB,

Petitioner

v.

Avigilon Patent Holding 1 Corporation,

Patent Owner

Case: IPR2018-01268

U.S. Patent No. 8,508,607
Issue Date: August 13, 2013

PETITIONER'S NOTICE OF APPEAL

OFFICE OF THE GENERAL COUNSEL
2020 FEB 19 PM 4:37
US PATENT AND TRADEMARK OFFICE

Pursuant to 35 U.S.C. §§ 141(c) and 319 and 37 C.F.R. § 90.2(a), Petitioner Axis Communications AB hereby provides notice that it appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision entered January 6, 2020, (Paper 37) and from all underlying orders, decisions, rulings, and opinions regarding U.S. Patent No. 8,508,607 ("the '607 patent") set forth in *Inter Partes* Review Case No. IPR2018-01268.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), the issues on appeal are anticipated to include, but are not limited to:

- the Board's failure to find that claims 1–7, 10–16, 19-26, and 29 of the '607 patent are unpatentable under 35 U.S.C. § 103 as obvious over Okonnen;
- the Board's failure to find that claims 1–7, 10–16, 19–26, and 29 of the '607 patent are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Okonnen and Creamer;
- the Board's failure to find that claims 1–29 of the '607 patent are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Okonnen, Creamer, and Jacobson;
- the Board's failure to support and/or adequately explain its decision;
- the Board's reliance on new evidence not introduced or relied upon by any party;

- the Board's reliance on new and/or inconsistent theories, grounds, arguments, factual assertions, and claim constructions;
- the Board's failure to properly consider evidence proving that claims 1–29 of the '607 patent are unpatentable in view of the prior art;
- the Board's violation of the Administrative Procedure Act; and
- all other issues decided adversely to Petitioner in any order, decision, ruling, or opinion underlying or supporting the Final Written Decision.

Pursuant to 35 U.S.C. § 142 and 37 C.F.R. § 90.2(a), this Notice is being filed with the Director of the United States Patent and Trademark Office, and a copy of this Notice is being concurrently filed with the Patent Trial and Appeal Board. In addition, a copy of this Notice and the required docketing fees are being filed with the Clerk's Office for the United States Court of Appeals for the Federal Circuit via CM/ECF.

Dated: February 19, 2020

By: /C. Gregory Gramenopoulos/

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CERTIFICATE OF SERVICE AND FILING

The undersigned certifies that on this 19 day of February 2020, in addition to being filed and served electronically through the Board's E2E System, a true and correct copy of the foregoing "**PETITIONER'S NOTICE OF APPEAL,**" was filed and served with the Director of the United States Patent and Trademark Office, via hand delivery at the following address:

Office of the General Counsel
U.S. Patent and Trademark Office
Madison Building East, Room 10B20
600 Dulany Street
Alexandria, VA 22314

I also hereby certify that on this 19 day of February 2020, a true and correct copy of the foregoing "**PETITIONER'S NOTICE OF APPEAL,**" and the filing fee, were filed with the Clerk's Office of the United States Court of Appeals for the Federal Circuit, via CM/ECF.

I also hereby certify that on this this 19 day of February 2020, a true and correct copy of the foregoing "**PETITIONER'S NOTICE OF APPEAL,**" was served, by electronic mail, on the following counsel for Patent Owner:

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Paper 37
Date: January 6, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AXIS COMMUNICATIONS AB,
Petitioner,

v.

AVIGILON PATENT HOLDING 1 CORPORATION,
Patent Owner.

IPR2018-01268
Patent 8,508,607 B2

Before KALYAN K. DESHPANDE, GEORGIANNA W. BRADEN, and KIMBERLY McGRAW, *Administrative Patent Judges*.

BRADEN, *Administrative Patent Judge*.

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

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6, and this Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine Petitioner failed to show by a preponderance of the evidence that claims 1–29 of U.S. Patent No. 8,508,607 are unpatentable.

I. INTRODUCTION

A. Procedural History

Axis Communications AB ("Petitioner") filed a Petition (Paper 5, "Pet.") requesting an *inter partes* review of claims 1–29 of U.S. Patent No. 8,508,607 (Ex. 1001, "the '607 patent"). Paper 2 ("Pet."). Avigilon Patent Holding 1 Corporation ("Patent Owner") timely filed a Preliminary Response (Paper 10, "Prelim. Resp."). Pursuant to 35 U.S.C. § 314(a), we originally instituted an *inter partes* review of all challenged claims on all proposed grounds of unpatentability. *See* Paper 15 ("Dec. to Inst."), 46.

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 19, "PO Resp."), to which Petitioner filed a Reply (Paper 21, "Reply"). Patent Owner then filed a Sur-reply (Paper 24, "PO Sur-Reply"), to which Petitioner filed a Response (Paper 27, "Pet. Resp.") followed by Patent Owner filing a final Response (Paper 30, "PO Final Resp."). Petitioner also filed Objections to Evidence. Papers 17, 25.

An oral hearing was held on August 25, 2019. A transcript of the oral hearing is included in the record. Paper 31 ("Tr.").

B. Real Parties in Interest

Petitioner certifies that Axis is a real party-in-interest and further that Canon Inc. is a real party-in-interest. Pet. 71–72. Petitioner further asserts

that no other party exercised control or could exercise control over Axis in the filing of the Petition or its participation in this proceeding. *Id.*

C. Related Matters

Petitioner informs us that it concurrently petitioned for an *inter partes* review of U.S. Patent No. 9,342,978, which is owned also by Patent Owner. Pet. 72. The parties inform us of no other related matters. *Id.*; Paper 4, 1 (Patent Owner's Mandatory Notices).

D. The '607 Patent

The '607 patent was filed on September 6, 2005, and is titled "Method and System for a Programmable Camera for Configurable Security and Surveillance Systems." Ex. 1001, Title, code (22). The '607 patent issued on August 13, 2013. *Id.* at code (43).

1. Written Description

The specification discloses systems and methods directed to a "configurable security and surveillance system," which includes programmable sensor agents such as programmable cameras. *Id.* at 3:47–52. According to the '607 patent, "[a] programmable sensor agent for video surveillance may comprise a network interface, a processor, an image processor, and an image sensor." *Id.* at Abstract. The '607 patent discloses that "a programmable sensor agent may correspond to a surveillance camera, a thermal sensor, or a biological/chemical sensor." *Id.* at 4:46–48.

One embodiment of the '607 patent is shown in Figure 1B, reproduced below.

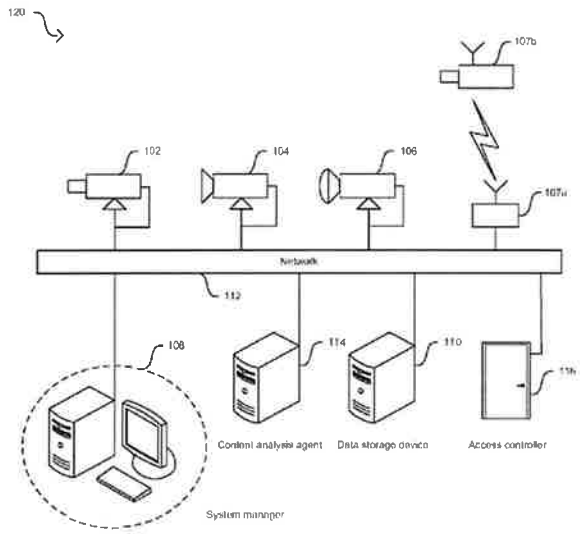

Figure 1B illustrates programmable sensor agents 102, 104, 106, and 107b, system manager 108, and programmable content analysis agent 114, each communicatively coupled to network 112 in security and surveillance system 120. *Id.* at 6:58–67, Fig. 1B. The '607 patent discloses that programmable sensor agents may be adapted to receive control information from system manager 108 via network 112 and may be adapted to be programmed or configured by system manager 108 to add and/or remove features that correspond to a security function or functions performed by a programmable sensor agent. *Id.* at 4:52–59. The '607 patent specifically indicates that the programming or configuration may be performed while configurable security and surveillance system 100 (of Fig 1A) is in operation. *Id.* at 4:59–61. This also may occur in system 120 in Figure 1B. *Id.*

Likewise, according to the '607 patent, system manager 108 may execute code or software adapted to perform control, management, and/or maintenance operations usable in the operation and/or the configuration of

the configurable security and surveillance system 100. *Id.* at 6:28–32, Fig. 1A. The '607 patent discloses that in operation, system manager 108 may transfer a device programming file associated with a security measure or feature to a specified programmable sensor agent via network 112 in accordance with an upgrade and/or maintenance schedule. *Id.* at 6:33–37.

The '607 patent explains that in some instances, the device programming files received by system manager 108 may be encrypted or protected. *Id.* at 6:15–16. In such instances, system manager 108 may receive at least one decryption key or password that may be utilized to decrypt the encrypted device programming files or to gain access to the device programming files. *Id.* at 6:17–21. Following decryption, system manager 108 transfers the device programming files to the corresponding programmable sensor agents over network 112. *Id.* at 6:23–27.

Another embodiment of the '607 patent is shown in Figure 2B, reproduced below.

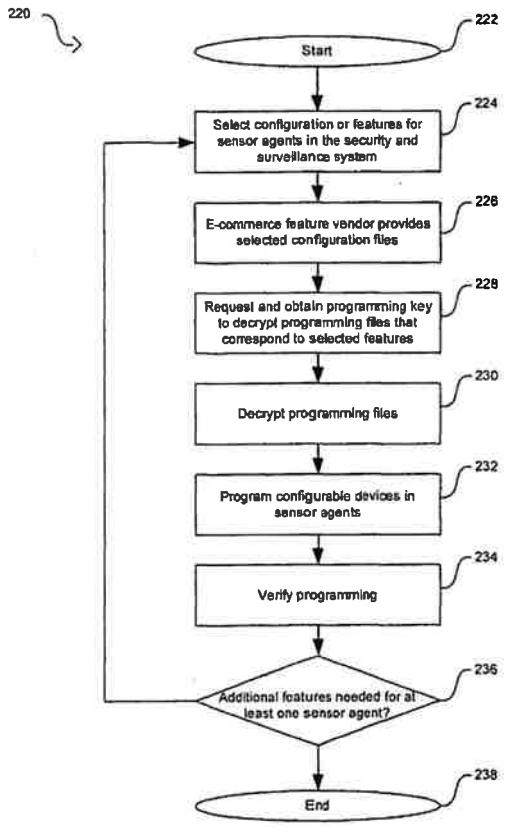

Figure 2B illustrates a flow diagram with steps for configuring a programmable sensor agent. *Id.* at 8:61–63. As shown above in Figure 2B, a user may select features to be programmed into a configurable device within a programmable sensor agent. *Id.* at 8:63–67. In step 226, a device programming file with the selected feature is purchased and provided via a network connection by "an e-commerce feature vendor." *Id.* at 8:67–9:4. In step 228, decryption or programming keys may be requested and obtained from the e-commerce feature vendor for device programming files that are encrypted. *Id.* at 9:5–10. In step 230, the encrypted device programming files is decrypted using the decryption keys received in step 228 so that the device programming files can be transferred to the programmable sensor agents in order to program the configurable devices. *Id.* at 9:11–15. In step

234, the programming of the configurable devices in the programmable sensor agents may be verified. *Id.* at 9:15–17.

In certain embodiments of the '607 patent, a host processor can verify the programming or configuration of the configurable devices within a programmable sensor agent. *See id.* at 10:65–67, 11:12–18. While in other embodiments of the '607 patent, a user (such as a camera installer) may verify the update to a programmable sensor agent. *Id.* at 11:44–50.

2. *Illustrative Claims*

As noted above, Petitioner challenges claims 1–29 of the '607 patent, with claims 1, 10, and 19 being independent. Claims 1[1] and 19 are illustrative of the challenged claims, and are reproduced below:

> 1. A method for configuring a security and/or surveillance system, the method comprising:
>
> [1.1] receiving a device programming file in a programmable sensor agent of the security and/or surveillance system, said device programming file corresponding to at least one new feature selected for addition to or for upgrade of said programmable sensor agent;
>
> [1.2] receiving at least one programming key corresponding to said device programming file;
>
> [1.3] programming at least one configurable device in said programmable sensor agent to perform at least said selected at least one new feature, said programming based on said received device programming file, and [1.3.1] wherein said new feature enables functionality in said programmable sensor agent not previously performed in said programmable sensor agent prior to said programming; and

[1] Bracketed material and formatting added to claim 1 for clarity and consistency with nomenclature used by both parties.

[1.4] verifying said programming of said at least one configurable device in said programmable sensor agent.

Ex. 1001, 18:24–41.

19. A system for configuring a security and/ or surveillance system, the system comprising:

a programmable sensor agent of the security and/or surveillance system, said programmable sensor agent comprises a network interface, a processor, an image processor, and an image sensor;

said image processor comprises at least one configurable device;

said network interface receives a device programming file, said device programming file corresponding to at least one new feature selected for addition to or for upgrade of said programmable sensor agent;

said network interface receives at least one programming key corresponding to said device programming file;

said processor programs at least a portion of said image processor to perform at least said selected at least one new feature, said programming based on said received device programming file, and wherein said new feature enables functionality in said programmable sensor agent not previously performed in said programmable sensor agent prior to said programming; and

said processor verifies said programming of said at least a portion of said image processor.

Id. at 19:41–20:18.

E. Evidence of Record and Asserted Challenges to Patentability

Petitioner asserts the following grounds of unpatentability:

Claims Challenged	35 U.S.C.[2]	References
1–7, 10–16, 19–26, 29	§ 102	Okonnen[3]
1–7, 10–16, 19–26, 29	§ 103	Okonnen
1–7, 10–16, 19–26, 29	§ 103	Okonnen, Creamer[4]
1–29	§ 103	Okonnen, Creamer, Jacobson[5]

Pet. 3, 15–55.

Petitioner submits (i) the Declaration of Kevin Jeffay, Ph.D. in Support of Petition for *Inter Partes* Review (Ex. 1008) and (ii) the Supplemental Declaration of Kevin Jeffay, Ph.D. ("Dr. Jeffay") in Support of Petitioner's Reply to Patent Owner's Response (Ex. 1010). Patent Owner submits the Declaration of Kevin C. Almeroth, Ph.D. ("Dr. Almeroth) in Support of Patent Owner's Responses (Ex. 2005) to support its arguments.

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[2] The Leahy-Smith America Invents Act ("AIA") included revisions to 35 U.S.C. § 100 *et seq.* effective on March 16, 2013. Because the '607 patent issued from an application filed after March 16, 2013, we apply the AIA versions of the statutory bases for unpatentability.

[3] U.S. Patent No. 7,657,884 B2, filed Mar. 24, 2004, issued Feb. 2, 2010 (Ex. 1005, "Okonnen").

[4] U.S. Patent No. 7,350,224 B2, filed June 14, 2004, issued Mar. 25, 2008 (Ex. 1006, "Creamer").

[5] U.S. Patent No. 7,302,562 B1, filed Nov. 5, 2004, issued Nov. 27, 2007 (Ex. 1007, "Jacobson").

II. ANALYSIS

A. Legal Standards

A claim is unpatentable under 35 U.S.C. § 102 if a prior art reference discloses every limitation of the claimed invention, either explicitly or inherently. *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1047 (Fed. Cir. 1995). Furthermore, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must disclose an invention that falls within the scope of the claim "without *any* need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference." *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972). Thus, it is not enough that the prior art reference discloses multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention. *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371–72 (Fed. Cir. 2008) (finding a prior art reference is anticipatory only if the reference discloses every limitation of the claimed invention arranged or combined in the same way as in the claim). "However, a reference can anticipate a claim even if it 'd[oes] not expressly spell out' all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would 'at once envisage' the claimed arrangement or combination." *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (quoting *In re Petering*, 301 F.2d 676, 681 (CCPA 1962)). Specifically, a "reference may still anticipate if that reference teaches that the disclosed components or functionalities may be combined and one of skill in the art would be able to implement the combination." *Blue Calypso, LLC., v. Groupon, Inc.*, 815 F.3d 1331, 1341–44 (Fed. Cir. 2016); *see*

Bristol–Myers Squibb Co. v. Ben Venue Labs., Inc., 246 F.3d 1368, 1379 (Fed. Cir. 2001).

If the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if that element is "inherent" in its disclosure. *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). To establish inherency, extrinsic evidence, when relied upon, "must make clear that the missing descriptive matter is necessarily present," or inherent, in the single anticipating reference. *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991). "Inherency, however, may not be established by *probabilities* or *possibilities*. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Id.* at 1269 (quoting *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981)) (emphasis added). Inherent anticipation, however, does not require recognition in the prior art. *Schering Corp. v. Geneva Pharm.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) ("*Continental Can* does not stand for the proposition that an inherent feature of a prior art reference must be perceived as such by a person of ordinary skill in the art before the critical date.").

A claim is unpatentable under 35 U.S.C. § 103(a) if "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness,

i.e., secondary considerations. *See Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). "[I]t is error to reach a conclusion of obviousness until all [the *Graham*] factors are considered." *Apple v. Samsung Elecs. Co., Ltd.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc) (citations omitted). "This requirement is in recognition of the fact that each of the *Graham* factors helps inform the ultimate obviousness determination." *Id.*

"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 of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review). Furthermore, 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).

Thus, to prevail in an *inter partes* review, Petitioner must explain how the proposed combinations of prior art would have rendered the challenged claims unpatentable. At this final stage, we determine whether a preponderance of the evidence of record shows that the challenged claims are anticipated by or would have been obvious over the cited prior art.

B. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, we consider 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). The level of ordinary skill in the art may be reflected by the prior art of record. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. *GPAC*, 57 F.3d at 1579. In a given case, one or more factors may predominate. *Id.* Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovention 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.").

Petitioner argues that a person of ordinary skill in the art relevant to the '607 patent would have had either "(i) a Bachelor of Science degree in electrical engineering, computer engineering, or computer science, with approximately two years of work experience or research related to the development and programming of computer-based systems, or (ii) equivalent training and work experience in computer systems and programming." Pet. 13. Petitioner relies on Dr. Jeffay to support its contentions. Dr. Jeffay proffers the same level of skill as that argued by Petitioner. Ex. 1008 ¶ 87.

Patent Owner contests Petitioner's definition of a person of ordinary skill in the art, arguing that it "ignores the nature of the types of problems encountered in the relevant art, the prior art solutions, the solutions invented by the '607 patent, and the sophistication and particularity of the technology." PO Resp. 7. Patent Owner further argues that the '607 patent "addresses problems specific to *security and surveillance systems*, particularly 'upgrade and/or maintenance operations given that cameras, sensors, and/or other equipment utilized by the security and surveillance system may be spread out over a wide geographic area.'" PO Resp. 7–8 (citing Ex. 1001, 1:34–37). Patent Owner concludes that "a person having ordinary skill in the relevant art would have (i) a Bachelor of Science degree in electrical engineering, computer engineering, or computer science, with approximately two years of work experience or research related to the development and programming of surveillance and/or video or camera-based systems, or (ii) equivalent training and work experience in computer systems and programming, information technology, and management of surveillance and/or video or camera-based systems." *Id.* at 8 (citing Ex. 2005 ¶ 33). Patent Owner relies on the Dr. Almeroth to support its contentions. Dr. Almeroth proffers a similar level of skill as that argued by Patent Owner. *See* Ex. 2005 ¶ 33 (contending "a person having ordinary skill in the relevant art would have (i) a Bachelor of Science degree in electrical engineering, computer engineering, or computer science, with approximately two years of work experience or research related to the development and programming of surveillance systems, or (ii) equivalent training and work experience in computer systems and programming, information technology, and management of surveillance systems").

Based on our review of the '607 patent, the types of problems and solutions described in the '607 patent and cited prior art, and the testimony of Dr. Jeffay and Dr. Almeroth, we find that a person of ordinary skill in the art at the time of the claimed invention would have had "a Bachelor of Science degree in electrical engineering, computer engineering, or computer science, with approximately two years of work experience or research related to the development and programming of video or camera-based computer systems." Although the'607 patent uses computer-based systems for security and surveillance purposes, we find that a person of ordinary skill in the art having experience with video- or camera-based computer systems would be able to apply such knowledge to security and surveillance systems. Our analysis would not differ, however, if we adopted Patent Owner's or Dr. Almeroth's definition.

C. Claim Construction

For petitions filed before November 13, 2018, we interpret the claims of an unexpired patent that will not expire before issuance of a final written decision using the broadest reasonable interpretation in light of the specification. *See* 37 C.F.R. § 42.100(b) (2017); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016); *see also* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,340 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018). Under that standard, claim terms are presumed to be given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art, in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definition for a claim term

must be set forth with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Limitations, however, are not to be read from the specification into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993). Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); *see also Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs.* in the context of an *inter partes* review).

Petitioner proposes a construction for several phrases, including "programmable sensor agent," "device programming file," "programming key," "configurable device," and "programming . . . to perform at least said selected at least one new feature." Pet. 14–22. Although Patent Owner disputes Petitioner's proposed constructions for these terms, Patent Owner argues no explicit construction of these terms is required. *See* PO Resp. 9–17. We agree with Patent Owner and determine that none of the terms require construction for our analysis.

Petitioner also proposes a construction for the term "verifying/verifies said programming" as "confirming that the programming of the device is completed successfully." Pet. 22–24. Patent Owner does not dispute Petitioner's proposed construction. PO Resp. 17. We agree with the parties and determine that "verifying/verifies said programming" should be construed as "confirming that the programming of the device is completed successfully."

D. Alleged Anticipation of Claims 1–7, 10–16, 19–26, and 29 of the '607 Patent by Okonnen

Petitioner contends claims 1–7, 10–16, 19–26, and 29 of the '607 patent are unpatentable under 35 U.S.C. § 102 as anticipated by Okonnen. Pet. 24–43. Patent Owner disputes Petitioner's contentions. PO Resp. 18–37. For reasons that follow, we determine Petitioner has failed to establish by a preponderance of the evidence that the challenged claims of the '607 patent are unpatentable under 35 U.S.C. § 102 as anticipated by Okonnen.

1. Overview of Okonnen

Okonnen is a U.S. Patent titled "Electronic Device Supporting Multiple Update Agents." Ex. 1005, Title. Okonnen is directed to an "electronic device network" where an "electronic device may be adapted to employ at least one of a plurality of update agents resident in the electronic devices to update one of software and firmware in the electronic devices." *Id.* at Abstract. Okonnen contemplates that the "electronic devices may also be adapted to provisioning the plurality of update agents with parameters and data used to facilitate update operations in the electronic device." *Id.* These electronic devices may be "mobile cellular phone handsets, personal digital assistants (PDA's), pagers, MP3 players, digital cameras, etc." *Id.* at 5:22–24. The electronic devices "contain firmware and/or application software" and "employ at least one of a plurality of update agents resident in the electronic devices to update one of software and firmware" to "fix [any] bugs, introduce new features, delete features, etc." *Id.* at 1:42–47, 1:62–64.

One embodiment disclosed in Okonnen is shown in Figure 1, reproduced below.

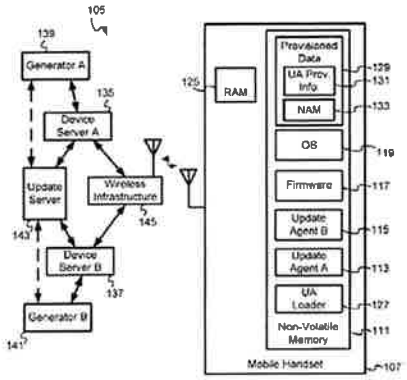


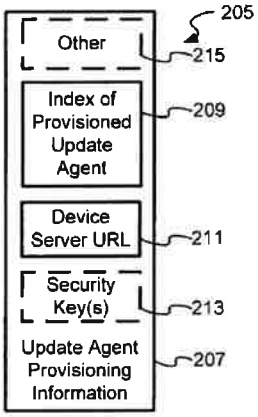
Figure 1, above, illustrates a block diagram of Okonnen's electronic device network. *Id.* at 4:59–61. In the electronic device network illustrated in Figure 1, Okonnen contemplates that an electronic device, for example mobile handset 107, may be communicatively coupled by a wireless infrastructure 145 to at least one of a plurality of device servers, such as device server A 135 and device server B 137. *Id.* at 5:33–38.

According to Okonnen, the electronic device may include non-volatile memory 111, which may comprise a plurality of components such as update application (UA) loader 127, update agent A 113, update agent B 115, firmware 117, operating system (OS) 119, and provisioned data 129. *Id.* at 5:48–57. Okonnen discloses that provisioned data 129 may include update agent provisioning information 131 and number assignment module (NAM) 133. Okonnen further discloses that provisioned data 129 may also be used to store update agent related provisioning information, such as a universal resource locator (URL) of a device server or a management server that may be used to retrieve updates, a security key(s) that may be used to authenticate messages to/from the device server, and selective

encryption/decryption of the messages. *Id.* at 6:8–13. According to Okonnen, provisioned data 129 in an electronic device may be used to store information related to an end-user's electronic device subscription and provisioned data 129 may be programmed during NAM 133 programming activity. *Id.* at 6:1–7. Okonnen additionally contemplates providing provisioning information during an initial provisioning event. *Id.* at 6:17–24.

In one embodiment of Okonnen, a list of available updates may initially be displayed to the end-user to prompt a selection of an update by the end-user. *Id.* at 6:40–43, *see also* 6:30–33 (stating that the electronic device also may display a list of available update agents to an end-user and solicit selection of an update agent to be used to update at least one of software and firmware). In another embodiment, the electronic device may detect an update to firmware/software when the electronic device powers up (or is rebooted). *Id.* at 6:45–46. According to Okonnen, the electronic device then may determine the list of available and provisioned update agents to display to the end-user wherein the end-user may select one of the update agents to perform an update. *Id.* at 6:47–50. Okonnen discloses that "[w]hen the end-user selects one of the provisioned update agents displayed, the UA loader 127 may invoke the selected provisioned update agent and transfer control to the selected update agent." *Id.* at 6:60–63. Okonnen further discloses that the update agents can be provisioned with parameters and data, including security keys, to facilitate update operations. *Id.* at 1:65–67, 2:60–63.

One embodiment of Okonnen is shown in Figure 2A, reproduced below.



As shown in Figure 2A above, update agent provisioning information 207 includes device server URL 211, index of provisioned update agents 209, security key(s) 213, and other related information 215. *Id.* at 7:38–44. Okonnen contemplates security key(s) 213 may be used to authenticate updates, for example, to authenticate during download of updates or during update activity or to authenticate updates by a download agent/download client, (e.g., a browser), and by the update agent. *Id.* at 7:61–67. Okonnen further contemplates that the security keys may include "keys used for encryption and decryption of data" and to support secure communications with external systems. *Id.* at 8:3, 12:21–24.

2. *Analysis of Cited Art as Applied to Independent Claims 1 and 10*

a. *"configuring a security and/or surveillance system"*

Independent claims 1 and 10 each recite "for configuring a security and/or surveillance system" as part of the claim's preamble. Ex. 1001, 18:24–25, 18:65. Petitioner contends this recitation in the preambles is not limiting as it neither defines the invention nor is essential to understand the

claims. Pet. 25. Rather, according to Petitioner, it "serves 'only to state a purpose or intended use for the invention' and is not entitled to patentable weight." *Id.* Patent Owner makes no comment regarding the weight to be given to the preamble. *See generally* PO Resp.

"Whether to treat a preamble term as a claim limitation is determined on the facts of each case in light of the claim as a whole and the invention described in the patent." *Am. Med. Sys., Inc. v. Biolitec, Inc.*, 618 F.3d 1354, 1358 (Fed. Cir. 2010) (internal quotation marks omitted). "Absent clear reliance on the preamble in the prosecution history, or in situations where it is necessary to provide antecedent basis for the body of the claim, the preamble generally is not limiting." *Symantec Corp. v. Comput. Assoc. Int'l, Inc.*, 522 F.3d 1279, 1288 (Fed. Cir. 2008) (internal quotation marks omitted). Additionally, preamble language that merely states the purpose or intended use of an invention generally is not treated as limiting the scope of a claim. *See Boehringer Ingelheim Vetmedica, Inc. v. Schering–Plough Corp.*, 320 F.3d 1339, 1345 (Fed. Cir. 2003); *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997). Yet, when the limitations in the body of the claim rely upon or derive essential structure from the preamble, then the preamble acts as a necessary component of the claimed invention and is limiting. *See Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003).

In the present case, we are persuaded that the preamble in the claims states an intended use for the recited methods. First, the body of each claim recites limitations that dictate the specific steps of the methods, specifically claiming what should be received, programmed, and verified during each part of the method. *See* Ex. 1001, 18:24–41, 18:63–19:15. Therefore, there is no reliance upon the preamble to define the steps or subject matter of the

claimed invention because it is expressed explicitly in the body of the claims. Second, for both claims 1 and 10, the body of the claims recite that the method includes "receiving a device programming file in a programmable sensor agent of the security and/or surveillance system." *Id.* Therefore, the preamble language is redundant of the language recited specifically in the body of the claims and merely states an intended purpose of the recited claim. Accordingly, we determine that the preamble to claims 1 and 10 in the '607 patent are not limiting.

b. "receiving a device programming file in a programmable sensor agent of the security and/or surveillance system, said device programming file corresponding to at least one new feature selected for addition to or for upgrade of said programmable sensor agent"

Claims 1 and 10 both recite "receiving a device programming file in a programmable sensor agent of the security and/or surveillance system, said device programming file corresponding to at least one new feature selected for addition to or for upgrade of said programmable sensor agent." Ex. 1001, 18:26–30, 19:1–5. Petitioner contends Okonnen discloses "electronic devices" such as "digital cameras" that use update agents to access servers via a network in order to retrieve an update for software and firmware in the electronic device.[6] Pet. 26 (citing Ex. 1005, 1:62–64, 5:19–

[6] Petitioner contends that the term "programmable sensor agent" should be construed as being merely a "device" or, in the alternatively, as "a programmable device with a sensor." Pet. 26. Patent Owner contends the term "programmable sensor agent" has a plain and ordinary meaning understood to a person of ordinary skill in the art, thus Patent Owner contests Petitioner's proposed constructions and argues the term should be

24, 7:45–46, Fig. 1). According to Petitioner, the electronic device includes non-volatile memory, which stores several components for programming a device including: "an application (UA) loader," "an update agent A," "an update agent B," "a firmware," "an operating system (OS)," and "a provisioned data." *Id.* at 27–28 (citing Ex. 1005, 5:52–55).

Petitioner further contends that Okonnen discloses that the updates received by the electronic device may be of various files types[7] and that the update agents are adapted to process the updates "based upon the type of update to be performed." Pet. 28–29 (citing Ex. 1005, 6:65–67). Petitioner also contends that Okonnen discloses a "device programming file corresponding to at least one new feature selected for addition to or for upgrade of said programmable sensor agent" because in Okonnen, "a list of

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construed as "a sensor agent that is programmable." PO Resp. 9–11. As discussed previously, we need not construe this term for our analysis. *See* Section II.C. Under either party's construction, Okonnen would meet the limitation, because the reference explicitly discloses the use of a digital camera, which, according to the '607 patent, is an example of a "programmable device with a sensor." *See* Ex. 1001, 1:14–17, 2:53–56, 4:46–48, 5:11–14, Fig. 3A; Ex. 1005, 1:41, 3:26–30, 4:42–45, 5:21–24, 11:9–14, 12:31–36.

[7] Petitioner contends "device programming file" should be construed as "information for programming a device." Pet. 17–18. Patent Owner, however, argues that "not all 'information' can be construed as a 'file' and a person of ordinary skill in the art would not use the two terms interchangeably." PO Resp. 12. As discussed previously, we need not construe this term for our analysis. *See* Section II.C. Regardless of the construction, Okonnen meets the limitation because the reference explicitly discloses using files and file extensions for providing updates and revisions to the electronic device. *See* Ex. 1005, 8:63–67 (The update types may be provided as file extensions.), 9:1–9 (The electronic device maintains "a list of file extensions," and "map[s] the provisioning status of an update agent.").

available updates may initially be displayed to the end-user to prompt a selection of an update by the end-user." *Id.* (citing Ex. 1005, 6:41–43, 2:44–48 ("[T]he electronic device may be adapted to display a list of available update agents to an end-user and solicit selection of an update agent to be used to update at least one of software and firmware.")).

Patent Owner does not address specifically this limitation of independent claims 1 and 10, but nonetheless the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Based on the entire record before us, we determine Petitioner has shown by a preponderance of the evidence that Okonnen's disclosure of end-user selected update files for a digital camera received via a network using Update Agent A, Update Agent B, UA Loader, and Provisioned Data (as illustrated in Figures 1 and 2A) in the digital camera satisfies the challenged claim limitation.

c. "receiving at least one programming key corresponding to said device programming file"

Claims 1 and 10 both recite "receiving at least one programming key corresponding to said device programming file." Ex. 1001, 18:31–32, 19:6–7. Petitioner contends Okonnen discloses this limitation because "update agent provisioning information" is received that corresponds to the updates. Pet. 30. Petitioner argues that Okonnen's electronic device stores corresponding provisioning information within its nonvolatile memory. *Id.* (citing Ex. 1005, 5:51–55). According to Petitioner, Okonnen's update agent provisioning information may include "a device server URL," "an index of provisioned update agents," "security key(s)," and "other related

information." *Id.* (citing Ex. 1005, 7:42–44). Petitioner contends that "[t]his provisioning information is data related to the programming file, such as a decryption key or password" (*id.* (citing Ex. 1008 ¶ 170)), and is "used to facilitate update operation in the electronic device" (Reply 7 (citing Ex. 1005, 2:60–62, 3:39–40)). According to Petitioner, a "skilled person would have understood that Okonnen's security key is related to the programming of Okonnen's network-connected cameras. Reply 7 (citing Ex. 1010 ¶ 22). Petitioner further argues that the "corresponding to" language recited in the challenged claims does not limit the programming key to only use that key for programming files. Reply 6; Tr. 7:12–10:16.

Patent Owner argues that the claims require a "programming key" that it is *corresponding* to the device programming file. PO Resp. 18. According to Patent Owner, the language "corresponding to" establishes a specific, close relationship between the programming key, the device programming file, and a new selected feature for the programmable sensor agent. *Id.* at 18–19. Patent Owner argues that "the programming key can 'correspond to, relate to, encrypt, or decrypt ***multiple*** device programming files.'" *Id.* at 20 (quoting Paper 15, 22, with emphasis added by Patent Owner)). "But, where a key is universal and used indiscriminately to authenticate or decrypt *any* input, even if not a device programming file, it is not a key that is 'corresponding to' a programming file (or multiple programming files) because such an interpretation would read the word 'corresponding' out of the claims entirely." *Id.* at 20–21 (citing Ex. 2005 ¶¶ 69–70; Ex. 1001, 6:23–27, 4:16–19, 4:32–39, 7:30–34).

Patent Owner further argues that "Okonnen's 'authentication' security key is simply not a key for *programming* a device—it is for authenticating a

file." *Id.* at 21. According to Patent Owner, Okonnen's authentication key is used "to authenticate updates by a download agent/download client, [] and by the update agent." *Id.* (citing Ex. 1005, 7:65–66). Patent Owner relies on Dr. Almeroth to support its position. Dr. Almeroth testifies that "the distinction between programming and authenticating is important and one cannot simply extrapolate from one to the other, as the functionality is completely different." Ex. 2005 ¶¶ 70–72. Patent Owner then argues that "Okonnen offers no explanation of what is meant by 'authentication,'" and so the ordinary meaning of the term should apply and mean: "the process or action of proving or showing something to be *true, genuine, or valid*." PO Resp. 21 (citing Ex. 2006).

Patent Owner further argues that "[m]erely determining an update is authentic does not enable any selected features and as such cannot be the claimed programming key." *Id.* at 21–22. Patent Owner contends that similar to the security key, the authentication key in Okonnen is a general purpose key that may be used to authenticate any message to/from the device server or any update received by Okonnen's device. *Id.* at 22 (citing Ex. 1005, 2:28–32, 6:8–16). According to Patent Owner, "Okonnen's encryption/decryption and authentication keys are not *programming* keys as required by the claims, because a *programming* key is specific to *programming*." *Id.* (citing Ex. 2005 ¶¶ 69, 72; Ex. 1001, 4:56–59, 5:2–5, 6:6–9). Patent Owner argues that "Okonnen's keys are used to process communications, not to perform any *programming*," and that "Okonnen's keys do not even distinguish between programming files and other types of files, and cannot be characterized as the claimed programming key." *Id.*; *see* PO Sur-Reply 6–7.

We understand Patent Owner's contention to be that Okonnen's security keys are general and not directed specifically to any one particular communication, data set, or program update. Yet, despite the claims' recitation of a "programming key" that it is *corresponding* to one or more device "programming files," we do not agree that the claims are so narrow as to require a programming key that only corresponds to device programming files. We are not persuaded that a programming key within the scope of the claims cannot correspond to, relate to, encrypt, or decrypt other files that are selected by a user. In other words, simply because a key can correspond (or encrypt/decrypt) non-programming files does not mean that it cannot correspond (or encrypt/decrypt) programming files. Patent Owner fails to provide sufficient evidence that a key cannot "correspond" to multiple different types of files.

Additionally, Patent Owner's argument that Okonnen's keys are only authentication keys and not related to programming is unpersuasive because the '607 patent describes a "programming key" as a decryption key or password similar to that disclosed in Okonnen. Specifically, the '607 patent discloses that "[w]hen the device programming files are encrypted, the system manager . . . may receive at least one decryption key or password that may be utilized to decrypt the encrypted device programming files or to gain access to the device programming files." *See* Ex. 1001, 6:17–21.

Thus, we determine Petitioner has established by a preponderance of the evidence that Okonnen receives programming keys as required by the challenged claims.

d. "programming at least one configurable device in said programmable sensor agent to perform at least said selected at least one new feature, said programming based on said received device programming file"

Claims 1 and 10 both recite "programming at least one configurable device in said programmable sensor agent to perform at least said selected at least one new feature, said programming based on said received device programming file." Ex. 1001, 18:33–36, 19:8–10. Petitioner contends this limitation is met by Okonnen because programming using an update is "with respect to 'at least one configurable device' (such as the non-volatile memory itself when programmed with a new application, or the components stored in the non-volatile memory, including an operating system and firmware) in Okonnen's electronic device." Pet. 31–32 (citing Ex. 1008 ¶ 179). According to Petitioner, the non-volatile memory has a plurality of configurable components, including "firmware" and "operating system (OS)" that are both updateable by the update agents. *Id.* at 32 (citing Ex. 1005, 5:54, 6:25–27). Thus, Petitioner argues that "[b]ecause the non-volatile memory includes configurable components, the non-volatile memory is itself 'configurable' and, as such, is a configurable device, as claimed." Reply 11–12.

Petitioner relies on the testimony of its declarant to support its position. Pet. 32–33; Reply 11–12. Dr. Jeffay testifies that "a person of ordinary skill in the art would find Okonnen's disclosure of a non-volatile memory (itself when programmed with a new application, or the components stored in the non-volatile memory including, among other

things, an operating system and firmware) teaches 'at least one configurable device.'" Ex. 1008 ¶ 184.

Dr. Jeffay further testifies that in Okonnen, an update agent is "invoked based upon the type of update to be performed or based upon the characteristics of the update." *Id.* ¶ 183 (citing Ex. 1005, 6:65–67). According to Dr. Jeffay, depending on the type of update, Okonnen's update agent processes the updates and applies the firmware, software, and hardware configuration updates to the electronic device so that it can perform new features. *Id.* (citing Ex. 1005, 9:16–19).

Patent Owner contests Petitioner's position, arguing that non-volatile memory is not a device and does not perform the claimed new feature, rather it is simply a storage place for code. PO Resp. 28. According to Patent Owner, the Petition fails to explain how Okonnen's non-volatile memory would perform the features of an update. *Id.* at 29–30. Patent Owner then cites to examples in the specification of configurable devices, including "processors, application specific integrated circuits (ASICs), field programmable gate arrays (FPGAs), complex programmable logic devices (CPLD)." *Id.* at 30 (citing Ex. 1001, 4:65–5:2). Patent Owner contends that neither Okonnen nor Petitioner establishes that non-volatile memory (or components stored in the memory such as operating systems, firmware, or software) can be a device such as those listed in the specification. *Id.* (citing Ex. 2005 ¶ 80).

We agree with Petitioner's position, supported by the testimony of Dr. Jeffay, that because non-volatile memory includes configurable components, the non-volatile memory is itself "configurable" as required by the challenged claims. Patent Owner appears to import limitations from the

specification into the claims that are not recited and we decline to limit the scope of the claims to require the discrete use of specific components with an electrical device. Okonnen specifically discloses that its updates may "comprise firmware and software updates that modify or change the version of a particular firmware or software installed in the electronic device, for example, upgrading to a newer version, repairing a bug in the firmware/software, etc." Ex. 1005, 5:24–28. Also, an update may "add new services to the electronic device or delete services, as desired by a service provider, device manufacturer, or an end-user." *Id.* at 5:29–31. In Okonnen, depending on the type of update, an update agent processes the updates and applies the corresponding configuration updates to the electronic device so that it (i.e., the electronic device) can perform new features. *Id.* at 9:17–19. Based on these disclosures in Okonnen that updates and changes to firmware/software results in corresponding configuration updates to the electronic device so that the device can perform new features, we determine Petitioner has established by a preponderance of the evidence that Okonnen must use electrical components to complete such tasks and such components are "configurable" as required by the claims. *See id.* at 5:24–28, 5:29–31, 5:54, 6:25–27, 9:17–19; Ex. 1008 ¶ 184.

e. "wherein said new feature enables functionality in said programmable sensor agent not previously performed in said programmable sensor agent prior to said programming"

Independent claims 1 and 10 each recite "wherein said new feature enables functionality in said programmable sensor agent not previously performed in said programmable sensor agent prior to said programming." Ex. 1001, 18:36–39, 19:11–14. Petitioner contends this limitation is met by

Okonnen because Okonnen discloses that an update may "modify or change the version of a particular firmware or software installed in the electronic device, for example, upgrading to a newer version, repairing a bug in the firmware/software, etc." Pet. 34 (citing Ex. 1005, 5:24–28). According to Petitioner, the "new versions or updates may be made 'periodically' and may 'introduce new features, delete features, etc.'" *Id.* (quoting Ex. 1005, 1:46–48). Petitioner argues that Okonnen's update may "add new services to the electronic device or delete services, as desired by a service provider, device manufacturer, or an end-user" and can "install new applications or components." *Id.* (citing Ex. 1005, 5:29–31, 7:10–11, 7:34–37).

Patent Owner does not address specifically this limitation of independent claims 1 and 10, but nonetheless the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Having reviewed the entirety of the record and cited evidence, we determine Petitioner has established by a preponderance of the evidence that Okonnen's discloses that the "new feature enables functionality in said programmable sensor agent not previously performed in said programmable sensor agent prior to said programming" as required by the challenged claim limitations.

f. "verifying said programming of said at least one configurable device in said programmable sensor agent"

Independent claims 1 and 10 both recite "verifying said programming of said at least one configurable device in said programmable sensor agent." Ex. 1001, 18:40–41, 19:15–16. Petitioner contends this limitation is met by Okonnen because Okonnen discloses confirming that the programming of

the device is completed successfully. Pet. 34. Petitioner argues that in Okonnen, "the selected update agent processes the received update information to modify a first version of one of software and firmware in the electronic device to a second version." *Id.* (citing Ex. 1005, 9:43–46). Therefore, according to Petitioner, "the update agent performs the actual programming of the configurable device." *Id.* at 35 (citing Ex. 1008 ¶ 194).

Petitioner further argues that Okonnen meets the claim limitation because its updates are authenticated by the update agent. Pet. 35 (citing Ex. 1005, 4:27–29, 7:61–63). Petitioner then cites to Okonnen's update agent's use of a security key to confirm the successful completion of the programming. *Id.* (citing Ex. 1005, 10:58–60; Ex. 1008 ¶ 194). Petitioner specifically argues that "Okonnen discloses or at least suggests 'verifying' the programming because it teaches—separate from authenticating a download—to confirm that the programming of the device is completed successfully as part of its update activity." Reply (citing Ex. 1010 ¶¶ 25–26); *see also* Pet. Resp. 2 (citing Ex. 1005, 7:61–67) ("Okonnen teaches . . . (2) and update agent for performing an update activity (which includes verifying the successful programming.")).

Patent Owner contests Petitioner's position, arguing that Okonnen fails to show or suggest any confirmation that updates are completed successfully. PO Resp. 23–24. Patent Owner contends Petitioner's allegations are incorrect and that authentication of the update file itself does not satisfy the claim requirement to confirm that the update is complete. *Id.* at 24 (citing Pet. 35; Ex. 1001, 4:27–29, 7:61–63, 10:58–60). According to Patent Owner, "[a]uthenticating an update means confirming that the updates themselves are valid (*i.e.*, authentic copies)." *Id.* Patent Owner

argues that confirming the download of a true and accurate copy of data is no indication of whether the actual update process was completed successfully. *Id.* at 22–23.

We agree with Patent Owner that Okonnen fails to disclose any verification or confirmation that updates are completed successfully. Okonnen only discloses the use of a security key to authenticate the identity of an update. *See* Ex. 1005, 4:27–29, 7:61–67, 10:58–60. And we find that the use of a security key to authenticate the identity of an update does not explicitly or inherently confirm or verify that the download of a program was completed successfully. Accordingly, we determine Petitioner has failed to establish by a preponderance of the evidence that Okonnen discloses that the "verifying said programming of said at least one configurable device in said programmable sensor agent" as required by the challenged claim limitation and, thus, has failed to establish by preponderance of the evidence that challenged independent claims 1 and 10 are anticipated under 35 U.S.C. § 102 by Okonnen.

3. Analysis of Cited Art as Applied to Independent Claim 19

Petitioner contends that claim 19 includes substantively parallel limitations to that of claim 1 but further recites "a network interface, a processor, and image processor, and an image sensor" and that the "image processor comprises at least one configurable device." Petitioner further contends Okonnen anticipates these additional limitations of claim 19 because a person of ordinary skill in the art would have understood that Okonnen's electronic device, which may be a "digital camera," would have necessarily included: (1) "image processor" and an "image sensor", (2) means of sensing an image, such as a CCD (charge coupled device), (3) a

processor to "scan out" (read) the digital data, and (4) a network interface. Pet. 36–37 (citing Ex. 1005, 3:29–30; Ex. 1008 ¶ 204). Petitioner argues that a person of ordinary skill in the art reading Okonnen would have understood that during updates, a main processor would execute the resident code to program the non-volatile memory within the digital camera with "a particular firmware, software, hardware configuration, etc." *Id.* at 37 (citing Ex. 1005, 7:2–4; Ex. 1008 ¶ 206). Petitioner argues that a person of ordinary skill in the art would have understood this to be a broad disclosure of the ability to update any component within Okonnen's electronic device. *Id.* (citing Ex. 1008 ¶ 207).

Patent Owner contests Petitioner's position because claim 19 specifies a hardware system and functionality that must be performed on and by specific elements of that system. PO Resp. 45. According to Patent Owner, Petitioner relies on a pure inherency argument to meet claim 19's additional requirements without showing that a digital camera *necessarily includes* an image processor and an image sensor and even the inherency arguments only provide a single "processor" and not a "processor and an image processor." *Id.* at 45–46.

Although we credit the testimony of Dr. Jeffay, we agree with Patent Owner's position. Additionally, we determine Petitioner has failed to persuasively show that Okonnen discloses the limitation of claim 19 requiring a "processor [that] verifies said programming of said at least a portion of said image processor." To the extent Petitioner is arguing that Okonnen discloses this limitation of claim 19 for the same reasons Okonnen discloses "verifying said programming of said at least one configurable device in said programmable sensor agent" as recited in claim 1, this

argument is not persuasive for the reasons set forth above in Section II.D.2.f. *See* Pet. 36 (stating "claim 19 is a system claim and includes substantively parallel limitations to that of claim 1"), 38 (stating "for the reasons stated above for claim 1, Okonnen discloses each and every element of independent claim 19); *see also* Section II.D.2.f above (explaining why Petitioner has not shown by a preponderance of the evidence that Okonnen discloses the verifying step of claim 1).

Accordingly, we conclude Petitioner fails to establish by a preponderance of the evidence that challenged independent claim 19 is anticipated under 35 U.S.C. § 102 by Okonnen.

4. Analysis of Cited Art as Applied to Dependent Claims 6, 15, and 26

Petitioner contends dependent claims 6, 15, and 26 of the '607 patent are unpatentable under 35 U.S.C. § 102 as anticipated by Okonnen and provides specific arguments for each challenged claim. Pet. 55–56 (citing Ex. 1006, 8:4–6; Ex. 1008 ¶¶ 334–335). Specifically, Petitioner argues that Okonnen discloses a separate download agent and update agent where the download agent is used to download the updates, and the update agent is capable of programming the electronic device. Thus, according to Petitioner, "when Okonnen's updates are downloaded into Okonnen's electronic device, the device must necessarily store the updates temporarily and/or permanently, because the process of updating the firmware and operating system may not occur until after the electronic device reboots." Pet. Reply 13 (citing Ex. 1005, 7:5–12).

Patent Owner contests Petitioner's position with regards to dependent claims 6, 15, and 26. PO Resp. 36–37. Patent Owner specifically argues

that Petitioner points to no specific disclosure in Okonnen that shows storing an update file in the memory and relies on inherency for its anticipation case. *Id.* at 36. According to Patent Owner, "Petitioner cannot point to the same act of storing in memory to satisfy separate 'programming' . . . and 'storing' limitations." *Id.* at 37. Patent Owner then argues that because the "storing" limitation appears in dependent claims that incorporate the "programming" limitations of the independent claims on which they depend, "Petitioner's allegation would read either the 'programming' or the 'storing' limitation entirely out of the claims." *Id.*

We have considered carefully all arguments and supporting evidence in light of the limitations recited in challenged dependent claims 6, 15, and 26. We agree with Petitioner's analysis, as supported by Dr. Jeffay's testimony, that when Okonnen's updates are downloaded into Okonnen's electronic device, the device must necessarily store the updates temporarily and/or permanently, because the process of updating the firmware and operating system may not occur until after the electronic device reboots. *See* Ex. 1005, 7:5–12. Nonetheless, because these challenged dependent claims depend directly or indirectly from independent claims 1, 10, or 19, for the same reasons regarding those independent claims, we conclude Petitioner has failed to establish by a preponderance of the evidence that challenged dependent claims 6, 15, and 26 are anticipated under 35 U.S.C. § 102 by Okonnen.

5. Analysis of Cited Art as Applied to Dependent Claims 2–5, 7, 11–14, 16, 18, 20–25, and 29

Petitioner contends dependent claims 2–5, 7, 11–14, 16, 18, 20–25, and 29 of the '607 patent are unpatentable under 35 U.S.C. § 102 as

anticipated by Okonnen and provides specific arguments for each challenged claim. Pet. 38–42 (citing Ex. 1002 ¶¶ 209–251). Patent Owner contests Petitioner's position with regards to dependent claims 2–5, 7, 11–14, 16, 18, 20–25, and 29, but does not address the additional limitations of these dependent claims. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

We have considered carefully all arguments and supporting evidence in light of the limitations recited in challenged dependent claims 2–5, 7, 11–14, 16, 18, 20–25, and 29 and agree with Petitioner's analysis, as supported by Dr. Jeffay's testimony, regarding the specific limitations recited in these claims. Nevertheless, because these challenged dependent claims depend directly or indirectly from independent claims 1, 10, or 19, for the same reasons regarding those independent claims, we conclude Petitioner has failed to establish by a preponderance of the evidence that challenged dependent claims 2–5, 7, 11–14, 16, 18, 20–25, and 29 are anticipated under 35 U.S.C. § 102 by Okonnen.

a. Summary

Petitioner has failed to establish by a preponderance of the evidence that Okonnen discloses every limitation of independent claims 1, 10, and 19. Additionally, because dependent claims 2–7, 11–16, 18, 20–26, and 29 depend directly or indirectly from claims 1, 10, or 19, we determine Petitioner has failed to establish by a preponderance of the evidence that Okonnen discloses every limitation of these challenged dependent claims. Accordingly, we determine Petitioner has failed to establish by a preponderance of the evidence that claims 1–7, 10–16, 18–26, and 29 are anticipated under 35 U.S.C. § 102(a) based on Okonnen.

E. Alleged Obviousness of Independent Claims 1–7, 10–16, 19–26, and 29 of the '607 Patent in View of Okonnen Alone or in Combination with Creamer

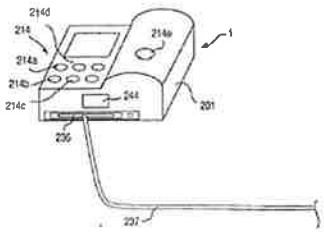
Petitioner contends claims 1–7, 10–16, 19–26, and 29 of the '607 patent are unpatentable under 35 U.S.C. § 103(a) in view of Okonnen alone or in combination with Creamer. Pet. 45–57. Patent Owner disputes Petitioner's contentions. PO Resp. 37–48. For reasons that follow, we determine Petitioner has failed to establish by a preponderance of the evidence that claims 1–7, 10–16, 19–26, and 29 of the '607 patent would have been obvious under 35 U.S.C. § 103 in view of Okonnen and Creamer.

1. *Overview of Okonnen*

See supra Section II.D.1.

2. *Overview of Creamer*

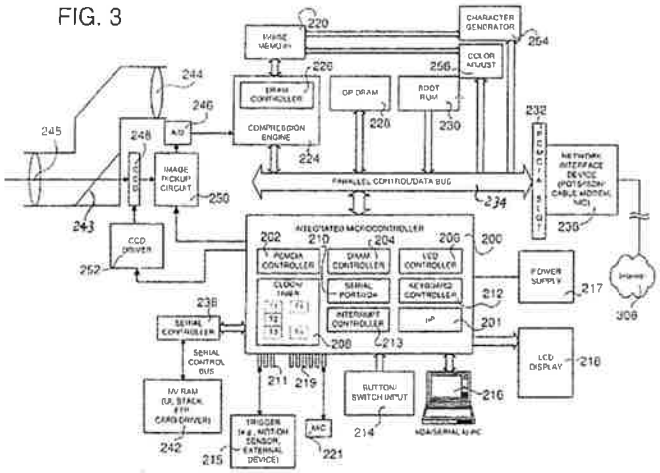
Creamer discloses a "portable, standalone integrated Internet camera" that includes embedded components controlled by a microcontroller and a network interface for connecting to the Internet, such as the one shown in Figure 2 reproduced below. Ex. 1006, Abstract, 3:43–44, Fig. 2.



As shown in Figure 2, above, camera 201 includes viewfinder 244 that allows an operator to view a scene or image created via an image-forming optical system and connected to the internet via network interface device 236. *Id.* at 6:24–41.

One embodiment of Creamer's internet camera is illustrated in Figure 3, reproduced below.

FIG. 3



Creamer's integrated Internet camera includes memory controller 204, display controller 206, and microcontroller 200. *Id.* at 6:60–7:13. The camera also includes a rewritable non-volatile memory (NVRAM) (e.g., an EEPROM) for storing "system firmware, parameters, and applications for the camera." *Id.* at 8:66–9:2. The NVRAM "stores at least: a user interface/operating system application for controlling the microcontroller" and "for controlling an exposure taken by an image pickup circuit." *Id.* at 9:8–12. Creamer's integrated internet camera "further include[s] a configuration device" to retrieve "configuration information from the destination shell account" and to set "operational parameters of one or more of [the embedded components], according to the configuration information." *Id.* at 4:30–40. Creamer discloses that the integrated Internet camera "may be easily and inexpensively used" in "security," "surveillance," and "general consumer applications." *Id.* at 33:34–37.

3. Analysis of Cited Art as Applied to Independent Claims 1, 10, and 19

Petitioner contends claims 1, 10, and 19 of the '607 patent are unpatentable under 35 U.S.C. § 103(a) in view of Okonnen alone or in combination with Creamer for many of the same reasons put forth for its anticipation challenged based on Okonnen. Pet. 45–52. Patent Owner disputes Petitioner's contentions based on similar reasons provided for contesting Petitioner's anticipation challenge based on Okonnen. *See* PO Resp. 42–48. Regarding all claim limitations except the recited "verifying" step, we find Petitioner has demonstrated by a preponderance of the evidence that the claim limitations would have been obvious in view of Okonnen alone or in view of Creamer for the same reasons provided previously in Sections II.D.2.a–e.

Independent claims 1 and 10 both recite "verifying said programming of said at least one configurable device in said programmable sensor agent," while independent claim 19 recites "said processor verifies said programming . . . ." Ex. 1001, 18:40–41, 19:14–15, 20:16–17. Petitioner contends this limitation is met by Okonnen because Okonnen discloses confirming that the programming of the device is completed successfully. Pet. 34, 50. Petitioner argues that in Okonnen, "the selected update agent processes the received update information to modify a first version of one of software and firmware in the electronic device to a second version." *Id.* at 34 (citing Ex. 1005, 9:43–46). Therefore, according to Petitioner, "the update agent performs the actual programming of the configurable device." *Id.* at 35 (citing Ex. 1008 ¶ 194). Petitioner further argues that Okonnen meets the claim limitation because its updates are authenticated by the update agent. *Id.* (citing Ex. 1005, 4:27–29, 7:61–63). Petitioner then cites

to Okonnen's update agent's use of a security key to confirm the successful completion of the programming. *Id.* (citing Ex. 1005, 10:58–60; Ex. 1008 ¶ 194).

Petitioner relies on the testimony of Dr. Jeffay to support its position. *Id.* Dr. Jeffay testifies that a person of ordinary skill in the art would have known how to use Okonnen's keys to authenticate the update activity by applying well-known techniques, such as a checksum verification process. Ex. 1008 ¶ 195. Dr. Jeffay explains:

> Checksum verification is a widely used error detection technique [sic] [that] allows an update to be verified by, for example, computing the checksum over the updated contents of a memory and comparing the result to the checksum stored in the key provided with the update. Other well-known key-based methods of verifying an update, such as the use of a cryptographic hash, could also be used.

Id. Thus, according to Dr. Jeffay, "by disclosing a key used by the update agent to authenticate the update, a person of ordinary skill in the art would know that it is possible to verify that the programming of Okonnen's device was successful." *Id.* ¶ 196.

Patent Owner contests Petitioner's position, arguing that Okonnen fails to show or suggest any verification that updates are completed successfully. PO Resp. 23. Patent Owner contests Petitioner's allegations that authentication of the update file itself satisfies the claim requirement to confirm that the update is complete. *Id.* at 24 (citing Pet. 35; Ex. 1001, 4:27–29, 7:61–63, 10:58–60). According to Patent Owner, "[a]uthenticating an update means confirming that the updates themselves are valid (*i.e.*, authentic copies)." *Id.* Patent Owner argues that confirming

the download of a true and accurate copy of data, which is what checksum does, is no indication of whether the actual update process was completed successfully. PO Resp. 24–25; Tr. 52:9–53:6, 53:16–54:3. Patent Owner further argues that "[c]omputing a checksum merely confirms that downloaded data is a true and accurate copy of what was transmitted by the update server, and was received without transmission errors" and that "[s]uch a confirmation has no bearing on whether the actual ***programming*** using the update—which will take place ***after*** authentication—was completed successfully." PO Resp. 25–26 (citing Ex. 1008 ¶ 195; Ex. 2005 ¶ 77). Indeed, according to Patent Owner, an update can be downloaded successfully and correctly without actually being used to program the configurable device. *Id.* Thus, Patent Owner concludes that merely authenticating update files—or "confirm[ing] or verify[ing] that the download of a program was completed successfully"—does not satisfy a requirement to "verify the subsequent *programming* using those update files" and, therefore, "Okonnen fails to show or suggest 'verifying [verifies] said programming of said at least one configurable device in said programmable sensor agent [said image processor].'" *Id.* at 26 (bracketed text in original). Additionally, Patent Owner points out that Petitioner only relies on Okonnen for this limitation and "does not rely on Creamer to make up for the deficiencies of Okonnen." PO Resp. 45.

Patent Owner then contends that Petitioner attempts to patch Okonnen's deficiency by alleging obviousness and relying on its expert's explanation that "a person of ordinary skill in the art would know that it is possible to verify that the programming of Okonnen's device was successful" from Okonnen's security key disclosure and knowledge of

authentication techniques, such as checksum verification. PO Resp. 27. But, Patent Owner notes, "it is not proper to use an expert to embellish the prior art with functionality that is admittedly not present under the guise of what 'one of ordinary skill' would see in the reference." *Id.* (citing *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362–64 (Fed. Cir. 2016)).

Patent Owner further contends that Petitioner's expert is incorrect regarding his testimony on obviousness. *Id.* According to Patent Owner, it was "well-understood by those of skill in the art that authentication of a message or data mean[t] verifying its contents" as a true and correct copy but would not have meant verifying "successful programming of the device . . . ." *Id.* at 27–28 (citing Ex. 2005 ¶¶ 75–77). Thus, Patent Owner concludes that Petitioner's arguments rest on improper hindsight that simply leaps from one concept to the other without motivation or explanation.

Based on the explicit disclosure of Okonnen that its updates are *authenticated* by the update agent (*see* Ex. 1005, 4:27–29, 7:61–63) and weighing the testimony of Dr. Jeffay and Dr. Almeroth, we agree with Patent Owner. Specifically, we credit Dr. Almeroth's testimony that

> authenticating the received update file, which is all Okonnen discloses, is not sufficient to verify that the update/programming was completed. A POSITA would understand that authenticating a received update file is to ensure that the received file is authentic — that the file is what it purports to be, that it was not corrupted during transmission, or that it originated from an authentic source. *See, e.g.*, Okonnen at 2:28–32 ("security key used to authenticate server messages"), 3:7–14 ("used to authenticate updates"), 3:55–60 ("to authenticate server messages"), 4:26–33 ("authenticating updates during download of the updates and during update activity"), 6:8–16 ("to authenticate messages to/from the device server"), 7:61–67. I note that Dr. Jeffay agrees that verifying the programming of a

> configurable device means "confirming that the programming of the device [was] completed successfully." Ex. 1008 ¶ 194.

Ex. 2005 ¶ 76.

Dr. Almeroth further testifies that

> [a]uthentication, and these authentication methods in specific, are fundamentally different from the programming verification technique claimed by the '607 patent. Specifically, neither authentication by checksum verification nor authentication by cryptographic hash (nor any other authentication of a received update file) is capable of confirming the successful programming using the received data file.

Ex. 2005 ¶ 77.

Furthermore, in considering and weighing the testimony of the experts on this issue, we determine that Dr. Jeffay's testimony is entitled to less weight than Dr. Almeroth's because Dr. Jeffay's testimony is insufficiently supported by the evidence and in certain instances Dr. Jeffay appears to use the terms "authenticate" and "verify" interchangeably. First, Dr. Jeffay cites to Okonnen's explicit disclosure of two methods of using a key to authenticate an update. *See* Ex. 1010 ¶ 25 (citing Ex. 1005, 3:9–11, 4:29–30, 7:61–67); Ex. 1008 ¶ 194. Dr. Jeffay further notes that "Okonnen explains that during download of an update, a download agent or download client may use a key to authenticate the update" and "during its update activity (*i.e.*, during the act of performing the update), an update agent may use a separate key to authenticate the update." Ex. 1010 ¶ 25 (citing Ex. 1005, 3:9–11, 4:29–30, 7:61–67). Then Dr. Jeffay testifies that

> person of ordinary skill in the art reading Okonnen would have recognized that during its update activity, the update agent uses a *separate* key to authenticate the update (*i.e.*, to verify the programming of the device).

Ex. 1010 ¶ 30. Yet, Dr. Jeffay had testified already that "'verify said programming' should be construed to mean 'confirming that the programming of the device is completed successfully.'" Ex. 1008 ¶ 136. Therefore, we understand that Dr. Jeffay's testimony is internally inconsistent. *Compare* Ex. 1008 ¶ 136, *with* Ex. 1010 ¶ 30.

Second, Dr. Jeffay testifies that

> This second process "by the update agent" verifies the update of the firmware and/or software after the update package has been successfully installed into the electronic device's memory. Ex. 1005, 7:61–66.

Ex. 1010 ¶ 30. But Okonnen does not disclose that the second process by the update agent "verifies" the update of the firmware and/or software. Rather, Okonnen states that "a separate key may be employed to authenticate updates by a download agent/download client, (e.g., a browser), and by the update agent." *See* Ex. 1005, 7:61–66. Such inconsistencies call into question the reliability of Dr. Jeffay's testimony.

Dr. Jeffay then testifies that "Okonnen's keys could be used in any conventional manner to verify the programming by authenticating the update process. A person of ordinary skill in the art would also have known how to use Okonnen's keys to authenticate the update activity by applying well-known techniques, such as a checksum verification process." *See* Ex. 1008 ¶ 195. Dr. Almeroth explains, however, that techniques such as checksum and cryptographic hash are only used to authenticate a program and are not capable of confirming the successful programming of a device using a received data file. Ex. 2005 ¶ 77; Tr. 52:1–53:6.

Okonnen explicitly discloses authentication of its updates but is silent regarding verification of successful programming. Relying on Dr. Jeffay's testimony, Petitioner would have us find that a person of ordinary skill in the art at the time of invention reading Okonnen's disclosure would have understood that authentication would include or lead to verification. But given Dr. Jeffay's testimony that the term "verifying said programming" should be construed as "confirming that the programming of the device is completed successfully" (*see* Ex. 1008 ¶ 136), we find Dr. Jeffay's conclusion that a person of ordinary skill in the art would "verify the programming by authenticating the update process" to be unsupported by the record. Additionally, we agree with Dr. Almeroth that the techniques cited by Dr. Jeffay as verification methods (i.e., checksum and cryptographic hash) are actually methods for authenticating a program and are not capable of confirming the successful programming of a device. *Compare* Ex. 1008 ¶ 75, *with* Exs. 3001, 3002, 3003. Therefore, weighing the testimony of Dr. Jeffay and Dr. Almeroth in light of the explicit disclosure of Okonnen, we must credit Dr. Almeroth's testimony because it is the one most consistent with the prior art.

Accordingly, we determine Petitioner has failed to demonstrate by a preponderance of the evidence that the claim limitation "verifying said programming" of claims 1 and 10, and "verifies said programming" of claim 19 would have been obvious under 35 U.S.C. § 103 in view of Okonnen alone or in view of Creamer.

4. Analysis of Cited Art as Applied to Dependent Claims 2–7, 11–16, 18–26, and 29

Petitioner contends dependent claims 2–7, 11–16, 18–26, and 29 of the '607 patent are unpatentable under 35 U.S.C. § 103 as obvious based on Okonnen and Creamer. Pet. 52–57 (citing Ex. 1008 ¶¶ 309–344). Patent Owner contest Petitioner's position. PO Resp. 42–48.

We have considered carefully all arguments and supporting evidence in light of the limitations recited in challenged dependent claims 2–7, 11–16, 18–26, and 29. Because these challenged dependent claims depend directly or indirectly from independent claims 1, 10, or 19, for the same reasons regarding those independent claims, we determine Petitioner has failed to establish by a preponderance of the evidence that challenged dependent claims 2–7, 11–16, 18–26, and 29 would have been obvious under 35 U.S.C. § 103 in view of Okonnen in view of Creamer.

F. Alleged Obviousness of Dependent Claims 1–29 of the '607 Patent in View of Okonnen, Creamer, and Jacobson

Petitioner contends claims 1–29 of the '607 patent are unpatentable under 35 U.S.C. § 103(a) in view of Okonnen, Creamer, and Jacobson. Pet. 57–71. Patent Owner disputes Petitioner's contentions. PO Resp. 48–58. For reasons that follow, we determine Petitioner has not established by a preponderance of the evidence that the challenged claims have been obvious under 35 U.S.C. § 103 in view of the combined teachings of Okonnen, Creamer, and Jacobson.

1. Prior Art Overview

a. Overview of Okonnen

See supra Section II.D.1.a.

b. Overview of Creamer

See supra Section II.E.1.b.

c. Overview of Jacobson

Jacobson is a U.S. patent titled "Transmitting Configuration Data to a Target Programmable Device after Updating an Intermediate Programmable Device." Ex. 1007, Title. Jacobson is directed to "tools for configuring programmable devices." *Id.* at 1:8–9. The programmable devices in Jacobson are "programmable logic device[s] (PLD)" that may be "configured" or "programmed" using configuration data to perform a particular function. *Id.* at 1:13–18. Jacobson further discloses a "programmer" for configuring PLDs. *Id.* at 3:18–20. The programmer has a hardware component ("programmer hardware") and a software component ("programmer software"). *Id.* at 3:10–12.

One embodiment of Jacobson is shown in Figure 1, reproduced below.

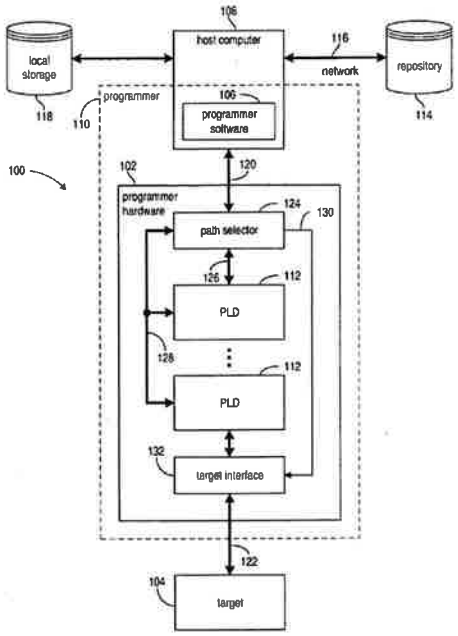


Figure 1 illustrates the programmer hardware implemented with one or more PLDs 112. Ex. 1007, 3:44–46. The programmer hardware receives configuration data on lines 120. *Id.* at 3:35–37.

The programmer software periodically checks for the availability of programmer updates "from a repository 114 located on a network 116, such as the internet." *Id.* at 4:9–11. When an update is available, "the update may be downloaded from the repository 114 to local storage." *Id.* at 4:13–15. The update may include "both replacement software for programmer software 106 and replacement configuration data for PLD 112." *Id.* at 4:16–18. In an update mode, "programmer software 106 may program PLD 112 by sending appropriate configuration data to the PLD 112 via path selector 124 and update path 128." *Id.* at 4:41–43.

2. *Analysis of the Prior Art as Applied to Claims 1–29*

Petitioner provides many of same arguments for Okonnen, Creamer, and Jacobson as it put forth for its combination of Okonnen and Creamer with the addition of comments specific to Jacobson. *See* Pet. 57–71. In addition to Okonnen, Petitioner also argue Jacobson renders the claim limitations regarding a "configurable device" and "verifying" obvious. *Id.* at 64–66. Petitioner specifically argues that the combined teachings provide: "(1) a system for programming a digital camera with a configurable device, as taught by Okonnen; (2) the digital camera being an integrated Internet camera for a security and/or surveillance network, as taught by Creamer; and (3) a well-known solution for updating the configurable device *via the JTAG interface* and verifying the update was successfully completed, as taught by

Jacobson."[8] *Id.* at 61; Reply 21. According to Petitioner, "Okonnen provides for updating and verifying firmware based on software update agents" (Pet. 59), while Jacobson provides a hardware-based solution "for programming the device's firmware and for verifying the successful programming . . . [via] the JTAG interface . . . for *in-circuit* programming of firmware and for verifying the programming" (*id.* at 60 (emphasis added)). Petitioner contends "it would have been obvious to modify Okonnen's digital camera to include specific hardware components, such as a PLD and JTAG interface, as disclosed by Jacobson." Pet. 62; Pet. Reply 22.

Patent Owner disputes Petitioner's contentions for the same reasons Patent Owner opposed Petitioner's combination of Okonnen and Creamer. PO Resp. 48–58. Patent Owner specifically argues Jacobson fails to make up for the deficiencies of Okonnen and Creamer because "Jacobson provides a method of updating a programmer tool (*i.e.*, a tool for configuring a programmable logic device) rather than a programmable sensor agent." *Id.* at 48, 55. Patent Owner also argues that Petitioner's two proposed alternative methods of verification in Jacobson do not involve verification of any programming in a programmable sensor agent. *Id.* at 55. According to Patent Owner, Jacobson's verification of successful configuration of programmable logic device (PLDs) is irrelevant because the PLDs are within the programming hardware, which is not a programmable sensor agent such as that found in Okonnen. *Id.* (citing Pet. 66; Ex. 1007, 8:11–13, 18–21). Relying on testimony from Dr. Almeroth, Patent Owner argues that a person

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[8] JTAG stands for the Joint Test Action Group, an electronics industry association formed in 1985 for developing in-circuit debugging and firmware programming methods. *See* Ex. 1008 ¶ 348.

of ordinary skill in the art would not have been "motivated to combine a verification method for a programmer tool with an update file authentication method." *Id.* (citing Ex. 2005 ¶¶ 112–114).

For the reasons discussed previously in Section II.E.3, based on the entirety of the record and weighing the testimonies of Dr. Jeffay (*see* Ex. 1008 ¶¶ 179–183, 195–196, 209–251, 264–265, 304–306, 309–344; Ex. 1010 ¶¶ 24–36) and Dr. Almeroth (*see* Ex. 2005 ¶¶ 75–77), we determine that Okonnen and Creamer do not meet the "verifying" limitation of the challenged claims. We find, however, that Jacobson teaches verification processes for determining successful programing of hardware. *See* Ex. 1007, 8:11–13, 8:18–21

3. Rationale to Combine Okonnen, Creamer, and Jacobson

Petitioner contends one of ordinary skill would have been motivated to combine the teachings of Okonnen with Creamer in order to extend Okonnen's updating system to internet digital cameras, as taught by Creamer, in order to fix bugs in the device's software or add new features to the device. Pet. 44–45; Pet. Reply 14–17. Petitioner argues that one of ordinary skill would have found it obvious to combine Okonnen's disclosure of updating firmware and software of a networked digital camera with the integrated Internet camera and related features disclosed in Creamer because they are both in the same field of endeavor, both disclose networked digital cameras, and both use security keys for decryption purposes. Pet. 44–45 (citing Ex. 1005, 1:42–47, 1:62–64, 5:19–24; Ex. 1006, 15:56–58; Ex. 1008 ¶ 264). According to Petitioner, the combined teachings of Okonnen and Creamer would provide benefits, such as preventing unauthorized updates and/or ensuring the integrity and authenticity of the updates and would

provide: "(1) a system for updating firmware and software of a networked digital camera, as taught by Okonnen; and (2) the digital camera being an integrated Internet camera of a security and/or surveillance network, as taught by Creamer." *Id.* at 45 (citing Ex. 1008 ¶¶ 264–265). Petitioner also argues that one of ordinary skill would have been motivated to combine the teachings of Creamer with Okonnen in order to extend Okonnen's update system to internet digital cameras, as taught by Creamer, in order to fix bugs or add new features. Pet. 59–61.

Petitioner then contends that a person of ordinary skill in the art would have combined the teachings of Jacobson with Creamer and Okonnen because the references exist in the same field of endeavor and address the same problem of how to update a configurable device to add functionality or features or fix bugs. Pet. 60 (citing Ex. 1008 ¶ 366). Petitioner argues that because Jacobson discloses a PLD that uses "IEEE 1149.1 JTAG scan for the update path 128," then it would have been obvious to the JTAG interface for programming/verifying the programming of a device that combines the teachings of Okonnen and Creamer. *Id.* at 58 (citing Ex. 1007, 4:39–41), 59. According to Petitioner, a person of ordinary skill in the art reading Okonnen would have recognized that a JTAG interface, as disclosed in Jacobson, may be used for programming the device's firmware and for verifying the successful programming of the device. *Id.* at 60 (citing Ex. 1008 ¶ 364). Petitioner then argues that making such a modification to Okonnen was well within the capabilities of a person of ordinary skill in the art in 2005 because implementing the JTAG interface was a simple design choice available before the '607 patent and well-known in the art for in-

circuit programming of firmware and for verifying the programming. *Id.* (citing Ex. 1008 ¶ 365); *see* Pet. Reply 21–28.

Patent Owner first contests Petitioner's rationale for combining Okonnen and Creamer, arguing the references are not in the same field of endeavor and are not analogous. PO Resp. 38–39, 41. Patent Owner specifically argues that a person of ordinary skill in the art viewing Okonnen's electronic service network would not look to an internet camera reference to improve it. *Id.* at 39. Moreover, according to Patent Owner, to the extent Okonnen describes its invention with reference to a particular type of electronic device, it is a mobile phone, not a camera. *Id.* Patent Owner notes that all the embodiments in Okonnen's specification describe "mobile handset 107," aside from catchall statements about other types of electronic devices. *Id.* (citing Ex. 1005, 5:39–6:7, 6:25–29, 7:38–48, 8:16–24, 8:41–47, Fig. 1 ("mobile handset 107")).

Patent Owner further argues that each reference provides a complete solution and the combination would not be an improvement on either reference because "[i]n Okonnen, a key is used to interpret secure communications and to authenticate files, while Creamer uses a password to recover the 'configuration/setup file,' which may be encrypted." *Id.* at 39–40 (citing Pet. 45; Ex. 1005, 3:8–9; Ex. 1006, 15:56–61). Thus, Patent Owner concludes that Okonnen and Creamer each independently contains all the tools needed to function as the inventors on the prior-art patents intended them to (i.e., to solve the problems that the inventor was attempting to solve). *Id.* at 40.

Patent Owner next contests Petitioner's position regarding Jacobson's combinability with the teachings of Okonnen and Creamer. PO Resp. 48–

52. Patent Owner specifically argues that Jacobson's complex programming system is incompatible with Okonnen's electronic service network and Creamer's integrated internet camera. *Id.* at 48. According to Patent Owner, Jacobson's programmer tool and PLD would be functionally at odds with Okonnen's update agents. *Id.* at 48–51. Patent Owner argues that the addition of Creamer's teachings regarding a simple, efficient stand-alone webcam with an auto configuration program acerbates the problem with the combination of Okonnen and Jacobson. *Id.* at 50–52; PO Sur-Reply 22.

Patent Owner then cites to the testimony of Petitioner's declarant, Dr. Jeffay, to support its position. PO Sur-Reply 23; Tr. 43:21–45:1. Patent Owner specifically questioned Dr. Jeffay regarding whether a person of ordinary skill in the art would have wanted to add hardware components to Okonnen so as to use Jacobson's method of verification for hardware:

> Q· What suggestion is there in
> ·· Okonnen that it would be desirable to add
> ·· hardware components between the update
> ·· agents and the firmware?
>
> A· I think it's not that Okonnen
> says that it's desirable to add these
> ··· hardware components.· It's that Okonnen
> ··· teaches that you want the ability to
> ··· update a hardware component and it does
> ··· not provide all the details as to how do
> ··· that.
> ··· If a person of skill in the art
> ··· needed more details they could consult a
> ··· reference like Jacobson, which would
> ·· teach, for example, adding PLDs and a
> JTAG interface.

Ex. 2012, 150:21–151:11.

Patent Owner also relies on the testimony of Dr. Almeroth, who states that no person of ordinary skill in the art would have combined "Jacobson's JTAG interface with Okonnen because the latter's update agents are already operable 'to update one of software and firmware in the electronic devices.'" Ex. 2005 ¶ 107 (quoting Ex. 1005, 1:63–64). Dr. Almeroth further testifies that "[b]ecause Okonnen's method is directed to 'mobile electronic devices' and situations where 'there is very little free space available in the electronic device memory to conduct update related operations,' it would be counterproductive to add an additional interface to an already space-constrained device." Ex. 2005 ¶ 107 (citing Ex. 1005, 5:7–10, 5:19–31). Patent Owner, thus, concludes there is no reason one looking at Okonnen or Creamer would actually *want* to add hardware components (PO Sur-Reply 23; PO Final Resp. 5), and although "JTAB can be used to verify programming . . . there's no reason to look outside of [Okonnen], and certainly, not to something like Jacobson" (Tr. 54:1–3) to fill the gap for the claimed "verifying" limitation.

We have considered carefully all arguments and supporting evidence regarding the rationale for combining Okonnen, Creamer, and Jacobson. Based on the entire record, we do not agree with Petitioner's analysis that a person of skill in the art would have had reason to combine the cited prior art to arrive at the claimed inventions recited in the challenged claims. Rather, based on the evidence before us it appears that Okonnen's and Jacobson update methods are duplicative and Petitioner provides insufficient evidence as to why a person of ordinary skill in the art reading Okonnen would have substituted Okonnen's update agents for Jacobson's PLDs and programming tool. *See* Ex. 2005 ¶¶ 107–108; Ex. 2012, 150:21–151:11. In particular, we

credit the testimony of Dr. Almeroth when he explains that "Jacobson teaches the use of a single programming tool that contains all the programming capabilities for configuring a target," while "Okonnen specifically describes reliance on multiple update agents with different capabilities, including the use of specific indexes organizing those update agents." *See* Ex. 2005 ¶ 106. And we are persuaded by Dr. Almeroth's testimony that "Okonnen and Jacobson each disclose a complete, standalone solutions and combining these solutions would produce redundancy." *Id.* ¶ 107.

Likewise, we agree with Patent Owner that Okonnen and Jacobson each disclose a complete update or programming solution and there would be no reason to combine such teachings. PO Resp. 51. We do not agree with Petitioner's contention that "there were a lot of design choices available" so a person of ordinary skill in the art could use whatever method available to "get to the finish line with authenticating the update, making sure that that [sic] was a successfully programmed device." Tr. 40:2–10. Petitioner's arguments regarding the combined teachings of Okonnen, Creamer, and Jacobson hint of the challenged claims as a roadmap for fitting the prior art together. *See InTouch Techs., Inc. v. VGO Commc'ns, Inc.*, 751 F.3d 1327, 1351 (Fed. Cir. 2014) (rejecting expert's testimony that relied on the challenged "patent itself as her roadmap for putting what she referred to as pieces of a 'jigsaw puzzle' together"). Indeed, most of Petitioner's arguments regarding the applicability of Jacobson's teachings appear to be guided by impermissible hindsight analysis. *See In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) (citing *In re Gorman*, 933 F.2d 982, 987 (Fed. Cir. 1991)) ("It is impermissible to use the claimed invention as an

instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious.").

Although we agree with Petitioner that a person of ordinary skill in the art could have combined the teachings of Okonnen, Creamer, and Jacobson, we are not persuaded that they would have done so. Petitioner must articulate a *reason why* a person of ordinary skill in the art would have combined the prior art references. *In re NuVasive*, 842 F.3d 1376, 1382 (Fed. 2016); *Metalcraft of Mayville, Inc. v. The Toro Company*, 848 F.3d 1358, 1366 (Fed. Cir. 2017) ("[I]t is insufficient to simply conclude the [prior art] combination would have been obvious without identifying any reason why a person of skill in the art would have made the combination."); *see Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) ("[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention."). Conclusory statements alone, even those provided by a declarant, are inadequate to demonstrate a rationale for why a person of ordinary skill in the art would combine the teachings from prior art references. *NuVasive*, 842 F.3d at 1383. Instead, Petitioner's arguments must be supported by a "reasoned explanation." *Id.* (citing *In re Lee*, 277 F.3d 1338, 1342, 1345 (Fed. Cir. 2002)). We understand that a person of ordinary skill is a person of ordinary creativity, not an automaton, but "[w]ithout any explanation as to how or why the references would be combined to arrive at the claimed invention, we are left with only hindsight bias that *KSR* warns against." *Metalcraft*, 848 F.3d at 1367 ("'[T]he obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation,'

we also recognize that we cannot allow hindsight bias to be the thread that stitches together prior art patches into something that is the claimed invention." (quoting *KSR*, 550 U.S. at 420–21)).

Claims	35 U.S.C.	References	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–7, 10–16, 19–26, 29	§ 102	Okonnen		1–7, 10–16, 19–26, 29
1–7, 10–16, 19–26, 29	§ 103	Okonnen		1–7, 10–16, 19–26, 29
1–7, 10–16, 19–26, 29	§ 103	Okonnen, Creamer		1–7, 10–16, 19–26, 29
1–29	§ 103	Okonnen, Creamer, Jacobson		1–29

Overall Outcome				1–29

Accordingly, on the entirety of the record, we determine Petitioner has failed to establish by a preponderance of the evidence that claims 1–29 would have been obvious under 35 U.S.C. § 103 in view of Okonnen, Creamer, and Jacobson.

III. CONCLUSION

Based on the full record before us, we determine that Petitioner has failed to show by a preponderance of the evidence that (1) claims 1–7, 10–16, 19–26, and 29 of the '607 patent are anticipated under 35 U.S.C. § 102 by Okonnen; (2) claims 1–7, 10–16, 19–26, and 29 would have been obvious under 35 U.S.C. § 103 in view of Okonnen; (3) claims 1–7, 10–16, 19–26, and 29 would have been obvious under 35 U.S.C. § 103 in view of Okonnen and Creamer; or (4) claims 1–29 would have been obvious under 35 U.S.C. § 103 in view of Okonnen, Creamer, and Jacobson. In summary:

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, Petitioner has not shown by a preponderance of the evidence that claims 1–29 of the '607 patent are unpatentable; and

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

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