

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LINDSAY CORPORATION,
Petitioner,

v.

VALMONT INDUSTRIES, INC.,
Patent Owner.

Case IPR2015-01039
Patent 7,003,357 B1

Before SALLY C. MEDLEY, ROBERT J. WEINSCHENK, and
WILLIAM M. FINK, *Administrative Patent Judges*.

WEINSCHENK, *Administrative Patent Judge*.

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

I. INTRODUCTION

Lindsay Corporation (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–18 of U.S. Patent No. 7,003,357 B1 (Ex. 1001, “the ’357 patent”). Valmont Industries, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”) to the Petition. On September 24, 2015, we instituted an *inter partes* review of claims 1–15, 17, and 18 (“the challenged claims”) of the ’357 patent on the following grounds:

Claims	Statutory Basis	Applied References
1–3, 6–14, 17, and 18	35 U.S.C. § 103(a)	Scott et al., PCT International Publication No. WO 99/39567 (published Aug. 12, 1999) (Ex. 1004, “Scott”); and Pyotsia et al., U.S. Patent No. 7,010,294 B1 (issued Mar. 7, 2006) (Ex. 1007, “Pyotsia”)
1–3, 6–14, 17, and 18	35 U.S.C. § 103(a)	Scott; Pyotsia; and <i>Irrigation Advances: Conserving Water, Energy and Labor</i> , Vol. 5, No. 1 (Spring 1996) (Ex. 1012, “AIMS”)
4, 5, 11, and 15	35 U.S.C. § 103(a)	Scott; Pyotsia; and Abts, U.S. Patent No. 6,337,971 B1 (issued Jan. 8, 2002) (Ex. 1008, “Abts”)

Paper 7 (“Dec. on Inst.”), 15.

After institution, Patent Owner filed a Response (Paper 15, “PO Resp.”) to the Petition, and Petitioner filed a Reply (Paper 20, “Pet. Reply”) to the Response. An oral hearing was held on June 16, 2016, and a transcript of the hearing is included in the record. Paper 36 (“Tr.”).

We issue this Final Written Decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons set forth below, Petitioner has shown by a preponderance of the evidence that claims 1–10, 12–15, 17, and 18 of

the '357 patent are unpatentable, but Petitioner has not shown by a preponderance of the evidence that claim 11 is unpatentable.

A. *Related Proceedings*

The parties indicate that the '357 patent is at issue in the following district court case: *Valmont Industries, Inc. v. Lindsay Corp.*, No. 1:15-cv-00042 (D. Del.). Pet. 1; Paper 5, 2.

B. *The '357 Patent*

The '357 patent relates to remotely monitoring and controlling irrigation equipment.¹ Ex. 1001, Abstract. According to the '357 patent, prior systems for remotely monitoring and controlling irrigation equipment used a personal computer ("PC") located at a base station control. *Id.* at col. 1, ll. 24–30. The '357 patent explains that situations may arise when immediate action is required after viewing the operation of irrigation equipment. *Id.* at col. 1, ll. 30–33. With the prior systems, though, a user would have to travel back to the PC at the base station control, which may be located miles away, in order to control the irrigation equipment. *Id.* at col. 1, ll. 33–35.

To address the aforementioned deficiency in the prior systems, the '357 patent describes a handheld remote user interface ("RUI") with a display and optional keypad. *Id.* at col. 1, ll. 51–55. The handheld RUI communicates with the irrigation equipment using wireless telemetry technology. *Id.* at col. 1, ll. 56–58. Thus, according to the '357 patent, the handheld RUI allows a user to control the irrigation equipment from any

¹ The parties agree that, for the purposes of this case, the '357 patent is *not* entitled to the benefit of the filing date of U.S. Application No. 09/778,367. Tr. 10:18–11:5, 28:14–29:4.

location without having to travel back to a PC located at a base station control. *Id.* at col. 1, ll. 58–61.

C. *Illustrative Claim*

Claims 1, 17, and 18 are independent. Claim 1 is reproduced below.

1. A remote user interface for reading the status of and controlling irrigation equipment, comprising:

a hand-held display;

a processor;

wireless telemetry means for transmitting signals and data between the remote user interface and the irrigation equipment; and

software operable on said processor for:

(a) displaying data received from the irrigation equipment as a plurality of GUIs that are configured to present said data as status information on said display;

(b) receiving a user's commands to control the irrigation equipment, through said user's manipulation of said GUIs; and

(c) transmitting signals to the irrigation equipment to control the irrigation equipment in accordance with said user's commands.

Ex. 1001, col. 6, ll. 47–64.

II. ANALYSIS

A. *Level of Ordinary Skill in the Art*

Petitioner argues that a person of ordinary skill in the art at the time of the invention of the '357 patent would have had a Bachelor's degree in electrical engineering or a related engineering discipline such as industrial engineering, and several years of relevant academic, research, or industry work experience. Ex. 1009 ¶ 29. Patent Owner argues that a person of ordinary skill in the art at the time of the invention of the '357 patent would

have had a Bachelor of Science degree in electrical engineering, computer engineering, or computer science with related work experience. Ex. 2006 ¶ 28. The parties do not identify any material differences between their respective definitions of the level of ordinary skill in the art. PO Resp. 15–16. Thus, we determine that both parties define the level of ordinary skill in the art appropriately in this case. To the extent necessary, though, we adopt Petitioner’s definition that a person of ordinary skill in the art at the time of the invention of the ’357 patent would have had a Bachelor’s degree in electrical engineering or a related engineering discipline such as industrial engineering, and several years of relevant academic, research, or industry work experience.

B. *Claim Construction*

The claims of an unexpired patent are interpreted using the broadest reasonable interpretation in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–45 (2016). In applying that standard, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the specification. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An applicant may provide a different definition of the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In the absence of such a definition, limitations are not to be read into the claims from the specification. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

1. *hand-held display / handheld RUI*

Claims 1 and 18 recite “a hand-held display,” and claim 17 recites “a single handheld RUI.” Ex. 1001, col. 6, l. 49, col. 8, l. 17, col. 8, l. 29. Petitioner argues that the terms “hand-held display” and “handheld RUI” should be construed to mean “any device, having a display screen, that can be used while held in the hands.” Pet. 6. Petitioner specifies that, under its proposed construction, the terms “hand-held display” and “handheld RUI” include a laptop computer. *Id.* Patent Owner argues that the terms “hand-held display” and “handheld RUI” should be construed to mean a “personal digital assistant, cell phone, smart phone, or similar device of a compact size, including a display and designed to be operated while being held in a user’s hand.” PO Resp. 3. Patent Owner specifies that, under its proposed construction, the terms “hand-held display” and “handheld RUI” do *not* include a laptop computer. *Id.* at 3–6.

In short, the parties propose similar constructions, but disagree as to whether the terms “hand-held display” and “handheld RUI” include a laptop computer. Pet. 6; PO Resp. 3–6. We agree with Patent Owner that those claim terms, when read in light of the specification of the ’357 patent, do *not* include a laptop computer. As discussed above, the ’357 patent explains that the problem with prior irrigation control systems is that those systems required a user to operate a PC that was not located near the irrigation equipment. Ex. 1001, col. 1, ll. 24–35. The ’357 patent purports to solve that problem by using a handheld RUI that “allows the user to read the status of, communicate with, and control irrigation components from *any location*, without requiring the user to be at the irrigation component controls or at a specific location in the field.” *Id.* at col. 1, ll. 58–61 (emphasis added).

Thus, according to the '357 patent, the handheld RUI is a device that a user would carry around as the user inspects irrigation equipment in the field.

A person of ordinary skill in the art reading the '357 patent would not have considered a laptop computer to be a handheld RUI. Ex. 2006 ¶ 37. The '357 patent consistently describes the handheld RUI as a personal digital assistant (“PDA”) or another device with a similar compact size. Ex. 1001, col. 3, ll. 21–26, col. 3, l. 36–38, col. 6, ll. 14–19, Fig. 1. At the time of the invention of the '357 patent, a laptop computer would not have been similar in size to a PDA. Ex. 2006 ¶ 37. Further, the '357 patent indicates that the handheld RUI can have “an optional keypad.” Ex. 1001, col. 1, ll. 54–55. A laptop computer ordinarily has a full keyboard and, thus, would not need an optional keypad.

Petitioner argues that the '357 patent does not limit the “hand-held display” and “handheld RUI” to just PDAs or smaller devices. Pet. Reply 3–4. We agree that the challenged claims are not limited to just PDAs and smaller devices. Nonetheless, as discussed above, the '357 patent indicates that the handheld RUI is *similar in size* to a PDA (Ex. 1001, col. 3, ll. 21–26, col. 3, l. 36–38, col. 6, ll. 14–19, Fig. 1), and, at the time of the invention of the '357 patent, a laptop computer would not have been similar in size to a PDA (Ex. 2006 ¶ 37). Petitioner also argues that the personal experience of its declarant, Dr. Craig Rosenberg, indicates that a laptop computer was small enough to be operated while being held in a person’s hands. Pet. Reply 4 (citing Ex. 1009 ¶ 46; Ex. 1018 ¶ 3). Dr. Rosenberg’s personal experience, however, does not outweigh the intrinsic evidence discussed above. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005)

(“We have viewed extrinsic evidence in general as less reliable than the patent and its prosecution history in determining how to read claim terms.”).

Therefore, we determine that the term “hand-held display” in claims 1 and 18 and the term “handheld RUI” in claim 17 do *not* include a laptop computer.

2. *wireless telemetry means*

Claims 1, 17, and 18 recite a “wireless telemetry means.” Ex. 1001, col. 6, ll. 51–53, col. 8, ll. 18–20, col. 8, ll. 31–33. We agree with the parties that “wireless telemetry means” is a means-plus-function limitation under 35 U.S.C. § 112 ¶ 6. Pet. 7–8; Prelim. Resp. 1; Dec. on Inst. 4. The recited function for the “wireless telemetry means” in claims 1 and 18 is “transmitting signals and data between the remote user interface and the irrigation equipment.” Ex. 1001, col. 6, ll. 51–53, col. 8, ll. 31–33. The recited function for the “wireless telemetry means” in claim 17 is “receiving and transmitting data between the remote user interface and the irrigation equipment.” *Id.* at col. 8, ll. 18–20.

The “wireless telemetry means” is described in the following portion of the ’357 patent:

To enable the RUI **14** to exchange information with the irrigation components and ancillary equipment, the PDA is preferably coupled with wireless telemetry technology, such as RF telemetry or cell phone telemetry. It is contemplated that the PDA and wireless telemetry technology could be combined into a single integrated RUI **14** such as the Sprint TP3000, Kyocera 6035, Samsung 1300, or similar device that would enable the user to monitor and control the subject equipment from virtually anywhere. It is further contemplated that the RUI **14** could be comprised of a PDA that is interfaced with *a cellular or digital telephone* using an interface cable. Additionally, it is contemplated that the RUI **14** could be

comprised of a PDA that is interfaced with *a VHF/UHF or spread spectrum radio* using an interface cable.

Id. at col. 6, ll. 11–24 (emphasis added). The above portion of the ’357 patent links the claimed “wireless telemetry means” to several corresponding structures, namely a cellular telephone, a digital telephone, a VHF/UHF radio, and a spread spectrum radio. *Id.* As a result, we determine that the corresponding structure for the “wireless telemetry means” is “a cellular telephone, a digital telephone, a VHF/UHF radio, or a spread spectrum radio, and equivalent structures.” We identified the same corresponding structure in the Decision on Institution (Dec. on Inst. 5), and the parties do not dispute that determination.

Therefore, we construe the term “wireless telemetry means” in claims 1, 17, and 18, as shown in the table below.

Claim Term	Recited Function	Corresponding Structure
wireless telemetry means (claims 1 and 18)	transmitting signals and data between the remote user interface and the irrigation equipment	a cellular telephone, a digital telephone, a VHF/UHF radio, or a spread spectrum radio, and equivalent structures
wireless telemetry means (claim 17)	receiving and transmitting data between the remote user interface and the irrigation equipment	a cellular telephone, a digital telephone, a VHF/UHF radio, or a spread spectrum radio, and equivalent structures

3. *directly*

Claim 17 recites “to directly control the operation of the irrigation components and ancillary equipment.” Ex. 1001, col. 8, ll. 24–26. In the Decision on Institution, we construed the term “directly” to mean “with no intermediary.” Dec. on Inst. 6. The parties do not dispute that construction, and we see no reason now to deviate from that construction.

Our construction is consistent with the ordinary and customary meaning of the term “directly.” For example, one definition of the term “directly” is “[w]ithout medium, agent, or go-between.” Ex. 3001, 3 (THE NEW INTERNATIONAL WEBSTER’S COMPREHENSIVE DICTIONARY OF THE ENGLISH LANGUAGE: ENCYCLOPEDIA EDITION, 362 (1999)).² Our construction also is supported by the intrinsic evidence. Figure 1 of the ’357 patent shows remote user interface 14 communicating with pivot controllers 12 and valve controllers 13 *without* an intermediary. Ex. 1001, Fig. 1. Further, during prosecution of a related application, the applicant indicated that the term “directly” means *without* an intermediary. Ex. 1006, 155–56.³ Specifically, the applicant argued that the cited prior art did *not* teach “directly” transmitting telemetry from a remote user interface to an irrigation component because there *were* intermediaries between the remote user interface and the irrigation component. *Id.*

Petitioner argues that “[t]he phrase ‘directly control’ as used in the ’357 claims requires only that user input is utilized to control . . . ‘irrigation components and other ancillary equipment.’” Pet. 7. According to Petitioner, “it does not matter what communication pathway is utilized to send signals to the controlled element.” *Id.* However, as we explained in the Decision on Institution, Petitioner’s proposed construction would

² See *Phillips*, 415 F.3d at 1314 (“In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words. In such circumstances, general purpose dictionaries may be helpful.” (citation omitted)).

³ We cite to the exhibit page numbers added to Exhibit 1006 by Petitioner.

improperly read the term “directly” out of the claims. Dec. on Inst. 6; see *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) (“[C]laims are interpreted with an eye toward giving effect to all terms in the claim.”).

Therefore, we construe the term “directly” in claim 17 to mean “with no intermediary.”

C. *Obviousness of Claims 1–3, 6–14, 17, and 18 Over Scott and Pyotsia, or Over Scott, Pyotsia, and AIMS*

Petitioner argues that claims 1–3, 6–14, 17, and 18 would have been obvious over Scott, Pyotsia, and AIMS. Pet. 3. In the Decision on Institution, we explained that Petitioner demonstrated a reasonable likelihood of prevailing in showing that claims 1–3, 6–14, 17, and 18 would have been obvious over Scott and Pyotsia, even without AIMS. Dec. on Inst. 8. Thus, we instituted an *inter partes* review on the grounds that claims 1–3, 6–14, 17, and 18 would have been obvious over Scott and Pyotsia, *or* over Scott, Pyotsia, and AIMS. *Id.* at 15.

A claim is unpatentable as obvious under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) any objective indicia of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We have considered the parties’ arguments and supporting evidence, and we determine that Petitioner has shown by a preponderance of the

evidence that claims 1–3, 6–10, 12–14, 17, and 18 would have been obvious over Scott and Pyotsia. We determine that Petitioner has not shown by a preponderance of the evidence that claim 11 would have been obvious over Scott and Pyotsia, or over Scott, Pyotsia, and AIMS.

1. *Overview of Scott and Pyotsia*

Scott relates to remotely monitoring and controlling an irrigation system. Ex. 1004, 10:26–30.⁴ Scott teaches a computer, such as a laptop computer, that monitors and controls various components of the irrigation system. *Id.* at 10:26–30, 14:21–22. Specifically, the computer in Scott displays a graphical user interface (“GUI”) that allows a user to view components of the irrigation system, monitor the operation of those components, and adjust programming parameters for those components. *Id.* at 43:3–6. The computer communicates with the components of the irrigation system using a radio link. *Id.* at 11:35–12:3.

Pyotsia relates to remotely monitoring and controlling field devices, such as sensors and transducers, in an industrial process. Ex. 1007, Abstract, col. 1, ll. 6–9, col. 1, ll. 14–16. Pyotsia teaches a mobile terminal, such as a mobile phone, with a GUI that allows a user to monitor and control the field devices. *Id.* at Abstract, col. 5, ll. 43–50, col. 8, ll. 23–25. The mobile phone communicates with the field devices using a cellular communication system. *Id.* at Abstract, col. 5, ll. 43–50.

⁴ We cite to the exhibit page numbers added to Scott by Petitioner.

2. *Claim 1*

a. *Limitations of Claim 1*

Claim 1 recites “a hand-held display.” Ex. 1001, col. 6, l. 49. As discussed above, we determine that the term “hand-held display” does *not* include a laptop computer. *See supra* Section II.B.1. Petitioner acknowledges that Scott only teaches a laptop computer, and, thus, relies on Pyotsia to teach a hand-held display. Pet. 30–31. Pyotsia teaches a mobile terminal that monitors and controls field devices in an industrial process. *Id.*; Ex. 1007, Abstract. Pyotsia teaches that the mobile terminal may be a standard mobile phone or similar device with a relatively small display. Pet. 31, 34; Ex. 1007, col. 8, ll. 23–25. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 1.

Claim 1 recites “a processor.” Ex. 1001, col. 6, l. 50. Scott teaches a computer that includes a microprocessor. Pet. 34; Ex. 1004, 14:30–34. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 1.

Claim 1 recites “wireless telemetry means for transmitting signals and data between the remote user interface and the irrigation equipment.” Ex. 1001, col. 6, ll. 51–53. As discussed above, we determine that the corresponding structure for the “wireless telemetry means” is “a cellular telephone, a digital telephone, a VHF/UHF radio, or a spread spectrum radio, and equivalent structures.” *See supra* Section II.B.2. Scott teaches a computer that transmits signals and data to irrigation equipment using a radio link. Pet. 35; Ex. 1004, 11:35–12:3. Pyotsia teaches a mobile phone that transmits signals and data to field devices using a cellular communication system. Pet. 35; Ex. 1007, col. 5, ll. 43–50, col. 8, ll. 23–25.

Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 1.

Claim 1 recites “software operable on said processor” for “displaying data received from the irrigation equipment as a plurality of GUIs that are configured to present said data as status information on said display.” Ex. 1001, col. 6, ll. 54–58. Scott teaches a computer that is programmed with software. Pet. 35; Ex. 1004, 14:17–20, 15:15–17. Scott teaches that the software receives data from the irrigation equipment. Pet. 36, 38; Ex. 1004, 38:5–7. Scott also teaches that the software displays a plurality of GUIs that allow a user to monitor the status of the irrigation equipment. Pet. 36, 38; Ex. 1004, 38:1–5, 43:3–6, Fig. 28. For example, Scott teaches a GUI for a pump that shows water moving through the pump when the pump is in operation. Pet. 38; Ex. 1004, 38:1–7, Fig. 28. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 1.

Claim 1 recites “software operable on said processor” for “receiving a user’s commands to control the irrigation equipment, through said user’s manipulation of said GUIs.” Ex. 1001, col. 6, ll. 54, 59–61. Scott teaches that the software displays a plurality of GUIs that allow a user to adjust the programming parameters for the irrigation equipment. Pet. 36, 38; Ex. 1004, 36:12–14, 38:14–16, 43:3–6, Fig. 28. For example, Scott teaches that a user may manipulate the GUIs to select whether a pump is on or off. Pet. 38; Ex. 1004, 38:14–16, Fig. 28. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 1.

Claim 1 recites “software operable on said processor” for “transmitting signals to the irrigation equipment to control the irrigation

equipment in accordance with said user's commands." Ex. 1001, col. 6, ll. 54, 62–64. Scott teaches that the software controls the irrigation equipment by transmitting a user's commands to the irrigation equipment in a suitable digital or analog format. Pet. 37–38; Ex. 1004, 11:35–12:3, 21:23–25, 38:16–19. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 1.

b. *Reasons for Combining Scott and Pyotsia*

Petitioner identifies evidence indicating that it would have been obvious to a person of ordinary skill in the art at the time of the invention of the '357 patent to combine the identified aspects of the system in Scott with the mobile phone in Pyotsia. Pet. 31 (citing Ex. 1009 ¶¶ 56–61). We agree with and adopt Petitioner's reasoning. Specifically, we find that Scott and Pyotsia relate to the same field of endeavor as the '357 patent, that is, remotely monitoring and controlling field devices. Ex. 1004, Abstract; Ex. 1007, Abstract; Ex. 1009 ¶ 61. We also find that a person of ordinary skill in the art would have been motivated to combine the cited teachings in Scott and Pyotsia because the mobile phone in Pyotsia would have provided greater portability and mobility than the laptop computer in Scott. Ex. 1009 ¶ 61. Further, we find that a person of ordinary skill in the art would have had a reasonable expectation of success in combining the cited teachings in Scott and Pyotsia. *Id.* ¶¶ 57–61.

Patent Owner does not dispute that Scott and Pyotsia relate to the same field of endeavor as the '357 patent. PO Resp. 28–29. Patent Owner also does not dispute that a person of ordinary skill in the art would have been motivated to combine the cited teachings in Scott and Pyotsia in order to enhance the portability and mobility of the system in Scott. *Id.* at 28.

Patent Owner only disputes whether it would have been possible to combine the cited teachings in Scott and Pyotsia. *Id.* at 23–28.

First, Patent Owner argues that Petitioner’s declarant, Dr. Craig Rosenberg, does not provide any support for his conclusion that a person of ordinary skill in the art would have been able to combine the identified aspects of the system in Scott with the mobile phone in Pyotsia. *Id.* at 23–24. Patent Owner’s argument is not persuasive. As an initial matter, Dr. Rosenberg’s testimony does not have to show that a person of ordinary skill in the art would have known with absolute predictability that the combination of Scott and Pyotsia would work. *See In re Kubin*, 561 F.3d 1351, 1360 (Fed. Cir. 2009). Rather, Dr. Rosenberg need only explain why a person of ordinary skill in the art would have had a reasonable expectation of success in combining the cited teachings in Scott and Pyotsia. *See id.*

Here, Dr. Rosenberg explains that Pyotsia teaches a mobile phone that is capable of providing a user interface for remotely monitoring and controlling field devices in an industrial process. Ex. 1009 ¶¶ 57–60 (citing Ex. 1007, col. 3, ll. 58–67, col. 6, ll. 31–35, col. 8, ll. 1–6, col. 8, ll. 23–27). Dr. Rosenberg also explains that AIMS teaches a mobile phone that is capable of providing a user interface for remotely monitoring and controlling irrigation equipment.⁵ Ex. 1009 ¶ 61 (citing Ex. 1012, 4⁶ (“I’m also adapting my laptop computer so that I can log into the system via

⁵ Even if AIMS is not included in the asserted ground of unpatentability, Petitioner may rely on AIMS to show the knowledge that a person of ordinary skill in the art would bring to bear in reading the prior art identified as producing obviousness. *See Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1365 (Fed. Cir. 2015).

⁶ We cite to the exhibit page numbers added to AIMS by Petitioner.

cellular phone and monitor the network from almost anywhere.”)). Thus, the teachings of the prior art support Dr. Rosenberg’s conclusion that a person of ordinary skill in the art would have reasonably expected that a user interface for remotely monitoring and controlling irrigation equipment, like the one in Scott, would work on a mobile phone, like the mobile phone in Pyotsia. Ex. 1009 ¶ 61; see *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (finding that the teachings of the prior art provide a sufficient basis for a reasonable expectation of success).

Second, Patent Owner argues that the mobile phones available at the time of the invention of the ’357 patent would not have had the processing power, storage, or display capability needed to operate the “complex software” in Scott. PO Resp. 24–26 (citing Ex. 2006 ¶¶ 58–66). Specifically, Patent Owner’s declarant, Dr. Melvin Ray Mercer, explains that Scott uses CAD software to build and render the graphical user interface. Ex. 2006 ¶ 59. According to Dr. Mercer, the CAD software in Scott was too complex to be operated on the mobile phones that existed at the time of the invention of the ’357 patent. *Id.*

Patent Owner’s argument is not persuasive. The evidence identified by Patent Owner does *not* demonstrate that the mobile phones available at the time of the invention of the ’357 patent lacked the processing power, storage, or display capability needed to operate the software in Scott. Dr. Mercer explains that a mobile phone available at the time of the invention of the ’357 patent would have had less processing power, less storage, and a smaller display than a laptop computer. *Id.* ¶¶ 62–65. That evidence alone, however, is not sufficient. Just because a mobile phone did not have the same capabilities as a laptop computer does not mean necessarily that the

mobile phone was unable to operate the software in Scott. Neither Patent Owner nor Dr. Mercer explains specifically what processing power, storage, and display capability was required to operate the software in Scott, or whether a mobile phone available at the time of the invention of the '357 patent could meet those requirements. See PO Resp. 24–26; Tr. 36:1–9; Ex. 2006 ¶¶ 58–66.

Further, as Petitioner points out, the evidence shows that the mobile phones available at the time of the invention of the '357 patent were capable of operating at least those software features in Scott that are relied on in the Petition. Pet. Reply 18–21. As discussed above, Petitioner relies on the software features in Scott that display GUIs and receive a user's commands through manipulation of the GUIs. Pet. 36–37. The evidence shows that the mobile phones available at the time of the invention of the '357 patent were capable of doing both. Specifically, mobile phones, such as the Benefon ESC!, could display GUIs that were very similar to the GUIs in Scott. Ex. 1004, Fig. 16; Ex. 1018 ¶¶ 20, 22; Ex. 2015, 14–15. Also, mobile phones, such as the Nokia 9000 Communicator, Benefon ESC!, and Sony Ericsson P800, could receive a user's commands through the manipulation of GUIs, like the laptop computer in Scott. Ex. 1018 ¶¶ 20, 22, 25; Ex. 2015, 8–9, 14–15, 27–28.

Patent Owner's argument also is not persuasive because the CAD software in Scott does not have to be physically combined with the mobile phone in Pyotsia. See *In re Mouttet*, 686 F.3d 1322, 1332–33 (Fed. Cir. 2012). As discussed above, the CAD software in Scott is used to build and render GUIs. Ex. 1004, 6:6–14; Ex. 2006 ¶ 59. Scott teaches, though, that “[t]he CAD drawing file may be produced anywhere *on any computer* and

loaded onto computer 10 via removable media drive 58 (Fig. 2) or loaded via a network connection.” Ex. 1004, 19:30–32 (emphasis added). Thus, a person of ordinary skill in the art reading Scott and Pyotsia would have recognized that the GUIs in Scott could be produced using the CAD software on any computer and then simply loaded on the mobile phone in Pyotsia. *Id.*; Ex. 1018 ¶¶ 11, 23, 26. In other words, the cited teachings in Scott and Pyotsia could have been combined without having to operate the CAD software on the mobile phone. Ex. 1018 ¶ 11. In that case, the mobile phone would not create the GUIs, but it would still display the GUIs and allow a user to manipulate the GUIs, as required by claim 1 of the ’357 patent. Ex. 1001, col. 6, ll. 54–61; Ex. 1004, 36:12–14, 38:1–5, 38:14–16, 43:3–6, Fig. 28; Ex. 1018 ¶ 11.

Third, Patent Owner argues that the wireless communication technology available at the time of the invention of the ’357 patent was insufficient to transmit the complex CAD software data in Scott. PO Resp. 26 (citing Ex. 2006 ¶¶ 61–63). Patent Owner’s argument is not persuasive. Neither Patent Owner nor Dr. Mercer explains specifically what capabilities were required to transmit the data in Scott, or whether the wireless communication technology available at the time of the invention of the ’357 patent could meet those requirements. *See* PO Resp. 26; Ex. 2006 ¶¶ 61–63.

Further, as Petitioner points out, the evidence shows that the wireless communication technology available at the time of the invention of the ’357 patent was able to transmit at least those signals in Scott that are relied on in the Petition. Pet. Reply 20. Specifically, Petitioner does not rely on Scott to teach transmitting CAD software data, but, rather, relies on Scott to teach transmitting status and command signals between the remote user interface

and the irrigation equipment. Pet. 36–37. The evidence shows that the wireless communication technology available at the time of the invention of the ’357 patent was capable of doing that. For example, Scott expressly teaches a wireless radio link that is capable of transmitting command signals between the remote user interface and the irrigation equipment. Ex. 1004, 11:35–12:3; Ex. 1018 ¶¶ 30–31.

Patent Owner’s argument also is not persuasive because, as discussed above, Scott teaches that “[t]he CAD drawing file may be produced anywhere on any computer and loaded onto computer 10 *via removable media drive 58* (Fig. 2) or loaded via a network connection.” Ex. 1004, 19:30–32 (emphasis added). Thus, a person of ordinary skill in the art reading Scott and Pyotsia would have recognized that the GUIs in Scott could be created using the CAD software on any computer and then loaded on the mobile phone in Pyotsia using a removable media drive. *Id.*; Ex. 1018 ¶¶ 11, 23, 26, 32. In other words, the cited teachings in Scott and Pyotsia could have been combined without having to transmit the CAD software data wirelessly. Ex. 1018 ¶ 32. In that case, the mobile phone would still transmit the status and command signals wirelessly, as required by claim 1 of the ’357 patent. Ex. 1001, col. 6, ll. 51–64; Ex. 1004, 11:35–12:3, 21:23–25; Ex. 1018 ¶ 32.

Fourth, Patent Owner argues that Petitioner does not provide any reason why it would have been obvious to combine the cited teachings in Scott and Pyotsia with the cited teachings in AIMS. PO Resp. 27. For the reasons discussed above, though, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 would have been obvious over Scott and Pyotsia, without AIMS. Thus, Petitioner does not have to show

that it would have been obvious to combine the cited teachings in Scott and Pyotsia with the cited teachings in AIMS.

c. *Summary*

For the reasons discussed above, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 would have been obvious over Scott and Pyotsia.

3. *Claims 2 and 3*

Claim 2 depends from claim 1, and recites “wherein said wireless telemetry means is comprised of a cellular telephone.” Ex. 1001, col. 6, ll. 65–67. Pyotsia teaches a mobile terminal that monitors and controls field devices in an industrial process. Pet. 37–38; Ex. 1007, Abstract. Pyotsia also teaches that the mobile terminal may be a mobile phone that communicates using a cellular communication system. Pet. 37–38; Ex. 1007, Abstract, col. 8, ll. 23–25. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 2.

Claim 3 depends from claim 1, and recites “wherein said wireless telemetry means is comprised of a digital telephone.” Ex. 1001, col. 7, ll. 1–3. Pyotsia teaches that the mobile terminal may be a mobile phone that implements digital networking standards. Pet. 38; Ex. 1007, col. 6, ll. 42–51. Patent Owner argues that “[n]either the Petition nor the expert declaration provide any facts that a mobile telephone that uses digital network standards would have been considered by a person of ordinary skill in the art at the time of the application to be a ‘digital phone.’” PO Resp. 18. Patent Owner’s argument is not persuasive. The evidence shows that a mobile phone that uses digital networking standards, as taught by Pyotsia, is a digital phone. Pet. 32; Ex. 1009 ¶ 62; Ex. 1018 ¶ 35. Moreover, at the oral

hearing, Patent Owner acknowledged that Pyotsia teaches a digital phone and withdrew its argument. Tr. 29:17–30:12.

With respect to claims 2 and 3, Patent Owner argues that “Petitioner offers no arguments or evidence in support of the obviousness of combining prior art features to satisfy the limitations of claims 2–3.” PO Resp. 29 (emphasis omitted). Patent Owner’s argument is not persuasive. Petitioner relies on Pyotsia as teaching a mobile cellular phone and a mobile digital phone. Pet. 30–32, 37–38. As discussed above, the evidence shows that it would have been obvious to a person of ordinary skill in the art at the time of the invention of the ’357 patent to combine the cited teachings in Scott with the mobile phone in Pyotsia because the mobile phone in Pyotsia would have provided greater portability and mobility than the laptop computer in Scott. *See supra* Section II.C.2.b.

Therefore, we determine that Petitioner has shown by a preponderance of the evidence that claims 2 and 3 would have been obvious over Scott and Pyotsia.

4. *Claims 6–9*

Claim 6 depends from claim 1, and recites “wherein said software is further operative on said processor for displaying said irrigation equipment status information as a plurality of GUIs that are shaped to identify particular types of irrigation equipment.” Ex. 1001, col. 7, ll. 10–14. Scott teaches displaying a plurality of GUIs that are shaped to identify particular types of irrigation equipment. Pet. 38; Ex. 1004, 38:1–7, Fig. 16 (irrigation heads 248), Fig. 19 (pumps 310, 312, 313, 314), Fig. 28 (pumps 310, 312, 313). Scott also teaches that the GUIs display status information, such as by

showing water moving through a pump when the pump is in operation. Pet. 38; Ex. 1004, 38:1–7.

Patent Owner argues that, because claim 6 depends from claim 1, the software that displays the GUIs recited in claim 6 must be operative on the processor recited in claim 1. PO Resp. 19. As discussed above, Petitioner relies on the microprocessor in Scott as teaching the processor recited in claim 1. Pet. 34; *see supra* Section II.C.2.a. Patent Owner contends that the GUIs that Petitioner cites to as teaching the limitations of claim 6 are provided by the pump station control engine in Scott, not the microprocessor. PO Resp. 21 (citing Ex. 1004, 38:16–19).

Even assuming that the pump station control engine is involved in displaying the identified GUIs, Patent Owner’s argument is not persuasive. Scott teaches that computer 10 includes microprocessor 54 and main memory 62. Ex. 1004, 14:29–34, 15:15–17, Fig. 2. Scott also teaches that the software stored on main memory 62 and executed by microprocessor 54 includes pump station control engine 76. *Id.* at 15:15–17, 17:5–7, Fig. 2; Ex. 1018 ¶ 36. Thus, pump station control engine 76 in Scott is software executed on microprocessor 54, and not, as Patent Owner suggests, a different processor.

Claim 7 depends from claim 6, and recites “wherein said plurality of GUIs are selectively displayed on a single screen on said display.” Ex. 1001, col. 7, ll. 15–17. Scott teaches that a user can selectively display the plurality of GUIs on a single screen by zooming out on a site map. Pet. 39; Ex. 1004, 33:13–17, 33:30–32, 43:3–6, Fig. 19. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 7.

Claim 8 depends from claim 6, and recites “wherein said plurality of GUIs are selectively displayed on a plurality of individual screens.” Ex. 1001, col. 7, ll. 18–20. Scott teaches that a user can selectively display the plurality of GUIs on a plurality of individual screens either by zooming in on a particular irrigation element on the site map (Pet. 39; Ex. 1004, 33:13–17, 33:27–30, 43:3–6, Fig. 21), or by clicking on a particular irrigation element (Pet. 39; Ex. 1004, 34:7–11, 38:1–2, Figs. 22, 28). Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 8.

Claim 9 depends from claim 8, and recites “wherein said plurality of individual screens are interlinked with one another to allow a user to navigate between and selectively display the same.” Ex. 1001, col. 7, ll. 21–24. Scott teaches that, after a user zooms in on a particular irrigation element or clicks on a particular irrigation element, the user can click a “Back” button to return to the previously displayed screen. Pet. 39; Ex. 1004, 33:18–19, Figs. 21, 22. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 9.

With respect to claims 6–9, Patent Owner argues that “Petitioner provides no arguments or evidence in support of the obviousness of combining prior art features to satisfy the limitations of claims 6–9.” PO Resp. 30 (emphasis omitted). Patent Owner’s argument is not persuasive. Petitioner relies on Scott to teach most of the limitations of claims 6–9, and relies on Pyotsia to teach a mobile phone. Pet. 30–31, 38–40. As discussed above, the evidence shows that it would have been obvious to a person of ordinary skill in the art at the time of the invention of the ’357 patent to combine the cited teachings in Scott with the mobile phone in Pyotsia

because the mobile phone in Pyotsia would have provided greater portability and mobility than the laptop computer in Scott. *See supra* Section II.C.2.b.

Therefore, we determine that Petitioner has shown by a preponderance of the evidence that claims 6–9 would have been obvious over Scott and Pyotsia.

5. *Claims 10–14*

Claim 10 depends from claim 6, and recites “wherein said plurality of GUIs are shaped to identify operating irrigation patterns for specific irrigation equipment.” Ex. 1001, col. 7, ll. 26–28. Scott teaches that, when a user positions a cursor over an irrigation head icon, a coverage pattern graphic is displayed for that irrigation head. Pet. 40; Ex. 1004, 28:22–27, Fig. 16. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 10.

Claim 11 depends from claim 10, and recites “wherein said software is further operative on said processor to change the shape of said plurality of GUIs change in response to a change in the status of the irrigation equipment.” Ex. 1001, col. 7, ll. 29–32. As discussed above, claim 10 recites GUIs that are shaped to identify irrigation patterns. *Id.* at col. 7, ll. 26–28. The parties agree that, because claim 11 depends from claim 10, claim 11 requires GUIs shaped to identify irrigation patterns that also change shape in response to a change in status.⁷ PO Resp. 37–38; Tr. 44:1–25. For the reasons discussed below, Petitioner has not shown sufficiently that the

⁷ We agree with Petitioner, though, that the irrigation pattern itself does not have to change. Tr. 44:7–22. For example, as Petitioner explained at the oral hearing, if “you had a circle showing an irrigation pattern and then you put a line through it, you have changed the shape of the GUI without changing the shape of the irrigation pattern.” *Id.* at 44:15–18.

combination of Scott and Pyotsia, or the combination of Scott, Pyotsia, and AIMS, teaches GUIs shaped to identify irrigation patterns that also change shape in response to a change in status.

Petitioner argues that Scott teaches displaying a GUI shaped like a pump that shows water moving through the pump to indicate when the pump is in operation. Pet. 40–41 (citing Ex. 1004, 38:1–19, Figs. 28, 29). Even assuming that the pump in Scott changes shape to indicate a change in status, we find that the pump is not shaped to identify an irrigation pattern. Ex. 1004, 38:1–19, Fig. 28. Petitioner also argues that Scott teaches a GUI shaped like a reservoir that changes shape to reflect the level of water in the reservoir. Pet. 41 (citing Ex. 1004, 34:4–29). Again, even assuming that the reservoir in Scott changes shape to indicate a change in status, we find that the reservoir is not shaped to identify an irrigation pattern. Ex. 1004, 34:4–19, Fig. 22; Tr. 45:1–17. Thus, Petitioner has not shown sufficiently that Scott teaches the limitations of claim 11.

Petitioner argues that AIMS teaches displaying partial or full circles that identify the irrigation patterns for individual pivots.⁸ Pet. 41 (citing Ex. 1009 ¶ 65; Ex. 1012, 2, 5). Petitioner argues that, in AIMS, radial lines extend outward from the center of the circles to show the position of the pivot in its rotation. Ex. 1009 ¶ 65. Even assuming that movement of the radial lines indicates a change in status, we find that the radial lines are located completely within the original circles. Ex. 1009 ¶ 65; Ex. 1012, 2, 5. As Patent Owner points out, and Petitioner does not dispute, forming lines

⁸ Petitioner does not argue specifically or identify specific evidence showing that the irrigation patterns change in AIMS. See Pet. 41; Ex. 1009 ¶ 65; Ex. 1012, 2, 5.

within the original GUI does not change the shape of the GUI. *See* PO Resp. 40; Pet. Reply 24; Ex. 1002, 44:6–23⁹ (applicant stating, during prosecution of the '357 patent, that “forming lines *within* the original GUI” does not change the shape of the GUI (emphasis added)). Thus, Petitioner has not shown sufficiently that AIMS teaches the limitations of claim 11. Further, Petitioner does not argue specifically that it would have been obvious to extend the radial lines outside the original circles in AIMS. *See* Pet. 41; Ex. 1009 ¶ 65.

Claim 12 depends from claim 6, and recites “wherein said plurality of GUIs are color-coded to identify specific irrigation equipment status information.” Ex. 1001, col. 7, ll. 33–35. Scott teaches displaying GUIs shaped to identify irrigation heads that also are colored differently to indicate whether the irrigation heads are enabled or disabled. Pet. 41–42; Ex. 1004, 25:18–20. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 12.

Claim 13 depends from claim 12, and recites “wherein said software is further operative on said processor to change the color of said plurality of GUIs change in response to a change in the status of the irrigation equipment.” Ex. 1001, col. 7, ll. 37–40. Scott teaches that a user may toggle an irrigation head between an enabled state and a disabled state, and that the color of the irrigation head changes to indicate whether the irrigation head is enabled or disabled. Pet. 42; Ex. 1004, 25:18–20, 26:20–24. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 13.

⁹ We cite to the exhibit page numbers added to Exhibit 1002 by Petitioner.

Claim 14 depends from claim 1, and recites “wherein said software is further operative on said processor to execute one or more programs comprising a plurality of user defined irrigation control commands.” Ex. 1001, col. 7, ll. 41–44. Scott teaches that a user may create an application program comprising irrigation system commands that is executed by the application processor software on the microprocessor. Pet. 42; Ex. 1004, 32:14–24. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 14.

With respect to claims 10 and 12–14, Patent Owner argues that Petitioner has not shown sufficiently that it would have been obvious to combine the cited teachings in Scott and Pyotsia. PO Resp. 30–31. Patent Owner’s argument is not persuasive. Petitioner relies on Scott to teach most of the limitations of claims 10 and 12–14, and relies on Pyotsia to teach a mobile phone. Pet. 30–31, 40–43. As discussed above, the evidence shows that it would have been obvious to a person of ordinary skill in the art at the time of the invention of the ’357 patent to combine the cited teachings in Scott with the mobile phone in Pyotsia because the mobile phone in Pyotsia would have provided greater portability and mobility than the laptop computer in Scott. *See supra* Section II.C.2.b.

Therefore, we determine that Petitioner has shown by a preponderance of the evidence that claims 10 and 12–14 would have been obvious over Scott and Pyotsia. We determine that Petitioner has not shown by a preponderance of the evidence that claim 11 would have been obvious over Scott and Pyotsia, or over Scott, Pyotsia, and AIMS.

6. *Claims 17 and 18*

Claim 17 recites limitations similar to those discussed above with respect to claim 1. Ex. 1001, col. 8, ll. 15–26; *see supra* Section II.C.2.a. Claim 17 further specifies that there is “a *single* handheld RUI.” Ex. 1001, col. 8, l. 17 (emphasis added). As discussed above, Pyotsia teaches that the mobile terminal may be a single standard mobile phone or similar device with a relatively small display. Pet. 46; Ex. 1007, col. 8, ll. 23–25. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 17.

Claim 17 also specifies that a user can manipulate the GUIs “to *directly* control the operation of the irrigation components and ancillary equipment.” Ex. 1001, col. 8, ll. 24–26 (emphasis added). Scott teaches that a user’s commands are transmitted to the irrigation components via communications interfaces. Pet. 47–48; Ex. 1004, 21:23–25, 32:19–20. As we explained in the Decision on Institution, the communications interfaces in Scott are depicted as separate boxes 12 and 13 in Figure 1, but Scott teaches that the communications interfaces also can be a part of computer 10. Dec. on Inst. 12; Ex. 1004, 15:5–11, Fig. 1. Because communications interfaces 12 and 13 are a part of computer 10 in Figure 1, computer 10 transmits a user’s commands *directly* to pump and valve controllers 28, 32, 40, 44. Ex. 1004, 15:5–11, Fig. 1.

Patent Owner does not dispute in the Response that the combination of Scott and Pyotsia teaches the above limitation of claim 17. We note, though, that Dr. Mercer testifies that the mobile phone in Pyotsia does not directly control the field devices because there are intermediaries, namely a database 22 and server 23, between the mobile phone and the field devices.

Ex. 2006 ¶ 67. Dr. Mercer’s testimony is not persuasive because he addresses the teachings in Pyotsia alone, rather than the combined teachings of Scott and Pyotsia. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981). As discussed above, Scott teaches providing GUIs for directly controlling irrigation equipment, and, thus, combining the cited teachings in Scott with the mobile phone in Pyotsia would result in a mobile phone that has GUIs for directly controlling irrigation equipment. Ex. 1004, 15:5–11, 21:23–25, 32:19–20, Fig. 1.

Patent Owner argues that “neither Petitioner nor Dr. Rosenberg provide a separate analysis of claim 17 including the motivation to combine the references in the manner suggested, or the obviousness of combining the specific additional features of claim 17 not included in claim 1, as required.” PO Resp. 35 (emphasis omitted). Patent Owner’s argument is not persuasive. Petitioner expressly provides a separate analysis, with which we agree, showing how the combination of Scott and Pyotsia teaches the limitations of claim 17. Pet. 45–48. Further, as with claim 1, Petitioner relies on Scott to teach most of the limitations of claim 17, and relies on Pyotsia to teach a mobile phone. *Id.* at 30–31, 45–48. As discussed above, the evidence shows that it would have been obvious to a person of ordinary skill in the art at the time of the invention of the ’357 patent to combine the cited teachings in Scott with the mobile phone in Pyotsia because the mobile phone in Pyotsia would have provided greater portability and mobility than the laptop computer in Scott. *See supra* Section II.C.2.b.

Claim 18 also recites limitations similar to those discussed above with respect to claim 1. Ex. 1001, col. 8, ll. 27–48; *see supra* Section II.C.2.a. Claim 18 further specifies that the plurality of GUIs are “shaped to identify

particular types of irrigation equipment.” Ex. 1001, col. 8, ll. 38–39. As discussed above with respect to claim 6, Scott teaches displaying a plurality of GUIs that are shaped to identify particular types of irrigation equipment. *See supra* Section II.C.4. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 18. Further, Patent Owner’s arguments regarding claim 6 are not persuasive for the reasons discussed above. *See id.*

Claim 18 also specifies that a user’s commands are received “through said user’s manipulation of said GUIs to change the appearance of said GUIs so that said GUIs portray specific operational characteristics of the irrigation equipment represented by said GUIs.” Ex. 1001, col. 8, ll. 40–45. Scott teaches that a user may manipulate the GUIs to select whether a pump is on or off. Pet. 50–51; Ex. 1004, 38:14–16, Fig. 28. Scott also teaches that the GUIs portray the operational characteristic selected by the user, namely an arrow in the on/off selector indicates whether the pump is on or off and the presence or absence of water flowing through the pump also indicates whether the pump is on or off. Pet. 50–51; Ex. 1004, 38:4–5, 38:14–16, Fig. 28. Patent Owner does not dispute that the combination of Scott and Pyotsia teaches the above limitation of claim 18.

Therefore, we determine that Petitioner has shown by a preponderance of the evidence that claims 17 and 18 would have been obvious over Scott and Pyotsia.

D. *Obviousness of Claims 4, 5, 11, and 15 Over Scott, Pyotsia, and Abts*

Petitioner argues that claims 4, 5, 11, and 15 would have been obvious over Scott, Pyotsia, and Abts. Pet. 3. We have considered the parties’ arguments and supporting evidence, and we determine that Petitioner has

shown by a preponderance of the evidence that claims 4, 5, and 15 would have been obvious over Scott, Pyotsia, and Abts. We determine that Petitioner has not shown by a preponderance of the evidence that claim 11 would have been obvious over Scott, Pyotsia, and Abts.

1. *Claims 4 and 5*

Claim 4 depends from claim 1, and recites “wherein said wireless telemetry means is comprised of a spread spectrum radio.” Ex. 1001, col. 7, ll. 4–6. Scott teaches that a user’s commands can be transmitted wirelessly to irrigation equipment using a radio link. Pet. 56; Ex. 1004, 11:35–12:3. Scott does not mention specifically that the radio link is a spread spectrum radio link, but Abts teaches that a spread spectrum radio link can be used to transmit signals between a remote user interface and irrigation equipment. Pet. 56–57; Ex. 1008, col. 3, ll. 19–22, col. 7, ll. 5–8, col. 7, ll. 16–18, Fig. 1. Patent Owner does not dispute that the combination of Scott, Pyotsia, and Abts teaches the above limitation of claim 4.

Claim 5 depends from claim 1, and recites “wherein said wireless telemetry means is comprised of a VHF/UHF radio.” Ex. 1001, col. 7, ll. 7–8. As discussed above, Scott teaches that a user’s commands can be transmitted wirelessly to irrigation equipment using a radio link. Pet. 57; Ex. 1004, 11:35–12:3. Scott does not mention specifically that the radio link is a VHF/UHF radio link, but Abts teaches that a VHF/UHF radio link can be used to transmit signals between a remote user interface and irrigation equipment. Pet. 57; Ex. 1008, col. 3, ll. 7–8, col. 7, ll. 5–8, col. 7, ll. 16–18, Fig. 1. Patent Owner does not dispute that the combination of Scott, Pyotsia, and Abts teaches the above limitation of claim 5.

Petitioner identifies evidence indicating that it would have been obvious to a person of ordinary skill in the art at the time of the invention of the '357 patent to implement the radio link in Scott using the spread spectrum radio link or the VHF/UHF radio link in Abts. Pet. 54 (citing Ex. 1009 ¶¶ 69–70). We agree with and adopt Petitioner's reasoning. Specifically, we find that Scott, Pyotsia, and Abts relate to the same field of endeavor as the '357 patent, that is, remotely monitoring and controlling field devices. Ex. 1004, Abstract; Ex. 1007, Abstract; Ex. 1008, Abstract, col. 4, ll. 33–35; Ex. 1009 ¶ 69. Further, we find that Scott generally teaches using a radio link to transmit signals between a remote user interface and irrigation equipment, and, thus, a person of ordinary skill in the art would have considered Abts to determine which specific types of radio links could be used for that purpose. Ex. 1009 ¶ 70; *see KSR*, 550 U.S. at 417–18 (explaining that the “interrelated teachings of multiple patents” may provide a reason to combine known elements). Selecting one of the specific radio links in Abts would have been a matter of design choice based on which type of radio link would be best suited to the particular environment of the system. Ex. 1009 ¶ 70; *see KSR*, 550 U.S. 398 at 417–18.

Patent Owner argues that Petitioner's claim charts for claims 4 and 5 only refer back to the first asserted ground of unpatentability in the Petition (i.e., that claim 1 is anticipated by Scott) and not the second asserted ground of unpatentability (i.e., that claim 1 would have been obvious over Scott and Pyotsia). PO Resp. 40–41 (citing Pet. 56–58). Patent Owner argues that, as a result, “Petitioner simply did not make an argument under Ground 4 that includes Pyotsia for claim 1, and therefore Ground 4 should fail as lacking necessary elements of independent claim 1.” PO Resp. 41. Patent Owner's

argument is not persuasive. Petitioner expressly states in the Petition, and we explained in the Decision on Institution, that the asserted ground of unpatentability for claims 4, 5, 11, and 15 includes Pyotsia as applied to claim 1. Pet. 3, 53; Dec. on Inst. 14–15. Thus, Patent Owner had sufficient notice that Petitioner’s asserted ground of unpatentability for claims 4 and 5 includes Pyotsia as applied to claim 1.

Patent Owner also argues that “[a]s to combining Scott and Pyotsia with Abts, Petitioner provides no argument or support for a contention that a person of ordinary skill would be motivated to combine these three references for claims 4, 5, or 11, or have a reasonable expectation of success in doing so.” PO Resp. 41–42 (emphasis omitted). Patent Owner’s argument is not persuasive. As discussed above, the evidence shows that it would have been obvious to implement the system in Scott using the mobile phone in Pyotsia and either the spread spectrum radio link or the VHF/UHF radio link in Abts. Pet. 54; Ex. 1009 ¶ 70. Further, Abts teaches that a spread spectrum radio link and a VHF/UHF radio link would have been capable of transmitting signals between a remote user interface and irrigation equipment. Ex. 1008, col. 3, ll. 7–8, col. 3, ll. 19–22, col. 7, ll. 5–8, col. 7, ll. 16–18, Fig. 1. Thus, a person of ordinary skill in the art reading Abts would have reasonably expected the spread spectrum radio link and the VHF/UHF radio link in Abts to work for that same purpose with the system in Scott. *See Merck*, 800 F.2d at 1097 (finding that the teachings of the prior art provide a sufficient basis for a reasonable expectation of success).

Therefore, we determine that Petitioner has shown by a preponderance of the evidence that claims 4 and 5 would have been obvious over Scott, Pyotsia, and Abts.

2. *Claim 11*

Claim 11 depends from claim 10, and recites “wherein said software is further operative on said processor to change the shape of said plurality of GUIs change in response to a change in the status of the irrigation equipment.” Ex. 1001, col. 7, ll. 29–32. As discussed above, the parties agree that, because claim 11 depends from claim 10, claim 11 requires GUIs shaped to identify irrigation patterns that also change shape in response to a change in status. *See supra* Section II.C.5. As also discussed above, Petitioner has not shown sufficiently that the combination of Scott, Pyotsia, and AIMS teaches the limitations of claim 11. *See id.* And, for the reasons discussed below, Petitioner has not shown sufficiently that Abts compensates for the deficiencies in Scott, Pyotsia, and AIMS.

Petitioner argues that Abts teaches displaying circle-shaped or squared-shaped GUIs in which status information is indicated by a horizontal line, a vertical line, an “X,” or shading. Pet. 55, 58 (citing Ex. 1008, col. 6, ll. 55–56, Figs. 5–6). Petitioner, however, does not identify specific evidence indicating that the circle-shaped or squared-shaped GUIs in Figures 5 and 6 of Abts are shaped to identify an irrigation pattern, as required by claim 11. *See* Pet. 55, 58; Pet. Reply 24; Ex. 1008, col. 6, ll. 55–56, Figs. 5–6; Ex. 1009 ¶ 72. Petitioner also does not argue specifically that it would have been obvious to combine the horizontal line, vertical line, “X,” or shading in Abts with any of the GUIs in Scott or AIMS that are shaped to identify an irrigation pattern. *See* Pet. 55, 58; Pet. Reply 24; Ex. 1009 ¶ 72.

Moreover, Abts teaches that the horizontal line, vertical line, “X,” and shading are located completely within the circle-shaped or square-shaped

GUIs.¹⁰ Ex. 1008, Figs. 5–6. As Patent Owner points out, and Petitioner does not dispute, forming a horizontal line, vertical line, “X,” or shading within the original GUI does not change the shape of the GUI. PO Resp. 40; Pet. Reply 24; Ex. 1002, 44:6–23 (applicant stating, during prosecution of the ’357 patent, that “forming lines *within* the original GUI” does not change the shape of the GUI (emphasis added)). Further, Petitioner does not argue specifically that it would have been obvious to extend the horizontal line, vertical line, “X,” or shading outside the original circle-shaped or square-shaped GUIs in Abts. See Pet. 55, 58; Pet. Reply 24; Ex. 1009 ¶ 72.

Therefore, we determine that Petitioner has not shown by a preponderance of the evidence that claim 11 would have been obvious over Scott, Pyotsia, and Abts.

3. *Claim 15*

Claim 15 depends from claim 1, and recites “wherein said software is further operative on said processor to monitor the operational status of said irrigation equipment and warn a user when said operational status does not fall within a previously defined operational status range.” Ex. 1001, col. 7, ll. 46–50. Abts teaches issuing an alarm when an operational value deviates from a reference value stored in memory. Pet. 58–59; Ex. 1008, col. 1, ll. 57–67. Patent Owner does not dispute that the combination of Scott, Pyotsia, and Abts teaches the above limitation of claim 15.

¹⁰ Petitioner does not argue specifically or identify specific evidence showing that the asterisk in Figure 5 of Abts teaches the limitations of claim 11. See Pet. 55, 58; Pet. Reply 24; Ex. 1008, col. 6, ll. 55–56, Figs. 5–6; Ex. 1009 ¶ 72.

Petitioner identifies evidence indicating that it would have been obvious to a person of ordinary skill in the art at the time of the invention of the '357 patent to combine the cited teachings in Scott and Pyotsia with the alarm in Abts. Pet. 56 (citing Ex. 1009 ¶¶ 73–74). We agree with and adopt Petitioner's reasoning. Specifically, as discussed above, we find that Scott, Pyotsia, and Abts relate to the same field of endeavor as the '357 patent, that is, remotely monitoring and controlling field devices. Ex. 1004, Abstract; Ex. 1007, Abstract; Ex. 1008, Abstract, col. 4, ll. 33–35. Further, we find that Scott teaches a user interface for monitoring the status of irrigation equipment, and it would have been well known to a person of ordinary skill in the art that an alarm, such as the one in Abts, would enhance the monitoring capabilities of the system in Scott. Ex. 1009 ¶ 74; *see KSR*, 550 U.S. 398 at 417–18 (explaining that the “interrelated teachings of multiple patents” may provide a reason to combine known elements). Patent Owner repeats its previous argument that it would not have been possible to combine the system in Scott with the mobile phone in Pyotsia, but does not otherwise dispute that it would have been obvious to combine the cited teachings in Scott, Pyotsia, and Abts. PO Resp. 43. Patent Owner's argument is not persuasive for the reasons discussed above. *See supra* Section II.C.2.b.

Therefore, we determine that Petitioner has shown by a preponderance of the evidence that claim 15 would have been obvious over Scott, Pyotsia, and Abts.

E. *Declaration of Dr. Craig Rosenberg*

Patent Owner argues that the testimony of Petitioner's declarant, Dr. Rosenberg, should be given little weight because the “majority” of his

declaration contains “vague, unsupported assertions based wholly on hindsight and not on the references’ actual teachings.” PO Resp. 32. Patent Owner’s argument is not persuasive. As demonstrated by the discussion and citations above, the portions of Dr. Rosenberg’s testimony that we rely on in this Decision are consistent with, and supported by, the documentary evidence of record, including the prior art. *See supra* Sections II.C–II.D.

Patent Owner identifies eight particular statements in Dr. Rosenberg’s declaration as allegedly being conclusory. PO Resp. 32–34. Patent Owner, however, does not explain specifically why any of those statements are vague or unsupported. *Id.* In addition, Patent Owner takes at least some of those statements out of context. For example, Patent Owner argues that paragraph 53 is conclusory, but omits the last sentence of that paragraph, in which Dr. Rosenberg identifies a specific portion of Scott as supporting his testimony. *Id.* at 33; Ex. 1009 ¶ 53 (citing Ex. 1004, 32:14–24). Similarly, Patent Owner argues that paragraph 56 is conclusory, but omits paragraphs 57–61, in which Dr. Rosenberg provides the rationale for his testimony in paragraph 56. PO Resp. 33; Ex. 1009 ¶¶ 56–61.

F. *Petitioner’s Reply Brief*

Patent Owner argues that the Petition fails to provide sufficient support for the asserted grounds of unpatentability, and, thus, Petitioner “is not permitted to cure these fatal defects in a reply, as any such introduction of additional opinions or support would necessarily be new evidence, which is not permitted.” PO Resp. 36, 44. Patent Owner’s argument is not persuasive. Patent Owner does not identify specifically any statute or rule that prohibits Petitioner from submitting new evidence with its Reply, and we are not aware of any such statute or rule. *Id.* at 36–37, 43–44. Rather,

the scope of Petitioner's Reply and any supporting evidence is limited in that the "reply may only respond to arguments raised in the corresponding opposition or patent owner response." 37 C.F.R. § 42.23(b). Patent Owner, however, does not identify specifically which arguments or evidence in Petitioner's Reply do *not* respond to an argument raised in Patent Owner's Response. PO Resp. 36–37, 43–44; Paper 28, 12–14; Paper 35, 4.

Further, based on our review of the record, the arguments and evidence in Petitioner's Reply properly respond to arguments raised in Patent Owner's Response. For example, Patent Owner argues in the Response that the mobile phones available at the time of the invention of the '357 patent would not have been able to operate the software in Scott. PO Resp. 24–26. Petitioner responds to that argument in the Reply by identifying evidence indicating that the mobile phones available at the time of the invention of the '357 patent would have been able to operate the software in Scott. Pet. Reply 18–21.

G. *Patent Owner's Motion to Exclude*

Patent Owner filed a Motion to Exclude (Paper 28, "PO Mot. Excl."), to which Petitioner filed an Opposition¹¹ (Paper 31, "Pet. Opp. Excl."), and Patent Owner filed a Reply (Paper 35, "PO Reply Excl."). Patent Owner argues that Exhibit 1019, and portions of Exhibits 1009 and 1018 should be excluded. PO Mot. Excl. 1. We have considered the parties' arguments, and, for the reasons discussed below, Patent Owner's Motion to Exclude is *denied*. In addition, to the extent that this Decision does not rely on a piece

¹¹ Petitioner filed supplemental evidence with its Opposition, but improperly labeled that evidence as a second Exhibit 1009. We, therefore, have renumbered Petitioner's supplemental evidence *sua sponte* as Exhibit 1021.

of evidence that Patent Owner seeks to exclude, Patent Owner's Motion to Exclude is moot as to that particular piece of evidence.

1. *Exhibit 1009*

Exhibit 1009 is the Declaration of Dr. Craig Rosenberg. Patent Owner argues that paragraphs 13, 14, 20, 22, 28, 31, 34–36, 38, 40, 42, 43, 46, 56, 61, 65, and 70–75 of Exhibit 1009 should be excluded under Fed. R. Evid. 602 as lacking foundation, and under Fed. R. Evid. 701, 702, 703, and 37 C.F.R. § 42.65(a) as unsupported by sufficient facts or explanation.¹² PO Mot. Excl. 3, 8. At the oral hearing, though, Patent Owner withdrew these arguments relating to Exhibit 1009. Tr. 22:22–23:13.

Moreover, Patent Owner's arguments are not persuasive. With respect to paragraphs 20, 22, 28, 31, 35, 36, 38, 40, 42, 61, and 65, Patent Owner argues that Dr. Rosenberg describes the teachings of the '357 patent and the prior art, but fails to provide specific citations to the '357 patent or the prior art to support his testimony. PO Mot. Excl. 9–10. Although Dr. Rosenberg does not provide a specific citation to the '357 patent or the prior art for every statement in the aforementioned paragraphs of Exhibit 1009, his testimony is consistent with, and supported by, the teachings of the '357 patent and the prior art discussed above. *See supra* Sections II.C–II.D. Thus, we are not persuaded that Dr. Rosenberg's testimony is unsupported by sufficient facts or explanation.

With respect to paragraphs 13, 14, 34, 43, 46, 56, and 70–75, Patent Owner argues that Dr. Rosenberg does not cite to documentary evidence or otherwise explain the basis for his testimony. PO Mot. Excl. 3–4, 9–11. Dr.

¹² To the extent Patent Owner relies on 37 C.F.R. § 42.65(a), that rule addresses the weight to be given expert testimony, not its admissibility.

Rosenberg can testify based on facts that he has been made aware of or personally observed, not just documentary evidence. *See* Fed. R. Evid. 703. Further, in each of paragraphs 13, 14, 34, 43, 46, 56, and 70–75, Dr. Rosenberg explains the basis for his testimony. For example, in paragraphs 13, 14, 43, and 46, Dr. Rosenberg explains how his personal experience supports Petitioner’s proposed constructions of certain claim terms in the ’357 patent. Ex. 1009 ¶¶ 13, 14, 43, 46. Likewise, in paragraphs 70–72 and 74, Dr. Rosenberg explains specifically why a person of ordinary skill in the art would have found it obvious to combine certain teachings in the prior art. *Id.* ¶¶ 70–72, 74. Patent Owner may dispute whether Dr. Rosenberg’s testimony is sufficient to meet Petitioner’s burden of proof in this case, but that is a question of sufficiency of proof, not admissibility.

Patent Owner also argues that paragraphs 15–29, 63, 64, and 75 of Exhibit 1009 should be excluded under Fed. R. Evid. 401, 402, 702, and 37 C.F.R. § 42.6(a)(3) because those paragraphs are not cited in the Petition. PO Mot. Excl. 15. Patent Owner’s argument is not persuasive. To the extent Petitioner fails to explain sufficiently the relevance of evidence in the Petition, we may decide to give that evidence no weight, rather than exclude it. 37 C.F.R. § 42.104(b)(5).

2. *Exhibit 1018*

Exhibit 1018 is the Reply Declaration of Dr. Craig Rosenberg. Patent Owner argues that paragraphs 3, 8, 12, 17, 18, 26, 27, and 29 of Exhibit 1018 should be excluded under Fed. R. Evid. 602 as lacking foundation, and under Fed. R. Evid. 701, 702, 703, and 37 C.F.R. § 42.65(a) as unsupported by sufficient facts or explanation. PO Mot. Excl. 3, 8. Specifically, Patent Owner argues that Dr. Rosenberg does not cite to documentary evidence or

otherwise explain the basis for his testimony. PO Mot. Excl. 3–8, 11–12. At the oral hearing, however, Patent Owner withdrew these arguments relating to Exhibit 1018. Tr. 22:22–23:13.

In addition, Patent Owner’s arguments are not persuasive. As discussed above, Dr. Rosenberg can testify based on facts that he has been made aware of or personally observed, not just documentary evidence. *See* Fed. R. Evid. 703. Further, in each of paragraphs 3, 8, 12, 17, 18, 26, 27, and 29, Dr. Rosenberg explains the basis for his testimony. For example, in paragraph 12, Dr. Rosenberg explains that, based on his experience, the general progression toward smaller, more mobile devices would have motivated a person of ordinary skill in the art to combine the software in Scott with the mobile phone in Pyotsia. Ex. 1018 ¶ 12. In paragraph 26, Dr. Rosenberg cites to the testimony of Dr. Mercer as indicating that, in Scott, there is a distinction between building a CAD drawing and using that drawing. *Id.* ¶ 26 (citing Ex. 2006 ¶¶ 42, 43). Patent Owner may dispute whether Dr. Rosenberg’s testimony is sufficient to meet Petitioner’s burden of proof in this case, but that is a question of sufficiency of proof, not admissibility.

Patent Owner also argues that paragraphs 3, 11, 12, 18, 26, 27, 29, and 32 of Exhibit 1018 should be excluded under 37 C.F.R. § 42.123 because “they present new arguments on the merits and constitute improperly filed and served supplemental information.” PO Mot. Excl. 12–14. At the oral hearing, Patent Owner also withdrew this argument relating to Exhibit 1018. Tr. 26:4–12.

Moreover, Patent Owner’s argument is not persuasive. Petitioner submits Exhibit 1018 with its Reply, not as supplemental information under

37 C.F.R. § 42.123. Patent Owner does not identify specifically any statute or rule that prohibits Petitioner from submitting new evidence with its Reply, and we are not aware of any such statute or rule. PO Mot. Excl. 12–14. Rather, the scope of Petitioner’s Reply and any supporting evidence is limited in that the “reply may only respond to arguments raised in the corresponding opposition or patent owner response.” 37 C.F.R. § 42.23(b). Patent Owner, however, does not explain specifically why the identified paragraphs of Exhibit 1018 do *not* respond to an argument raised in Patent Owner’s Response. PO Mot. Excl. 12–14; PO Reply Excl. 4. Based on our review of the record, Petitioner properly relies on Exhibit 1018 to respond to arguments raised in Patent Owner’s Response, not to introduce new theories of unpatentability. For example, Petitioner relies on paragraphs 11, 12, and 26 of Exhibit 1018 to respond to Patent Owner’s arguments that a person of ordinary skill in the art would not have been able to combine the cited teachings in Scott and Pyotsia. Pet. Reply 17–21; Ex. 1018 ¶¶ 11, 12, 26.

3. *Exhibit 1019*

Exhibit 1019 is a document entitled “Design Patterns: Elements of Reusable Object-Oriented Software,” by Erich Gamma et al. Patent Owner argues that Exhibit 1019 should be excluded under Fed. R. Evid. 901 as not properly authenticated, under Fed. R. Evid. 602 as lacking foundation, under Fed. R. Evid. 801, 802 as inadmissible hearsay, under Fed. R. Evid. 403 because its probative value is outweighed by its potential prejudice, and under 37 C.F.R. § 42.123 as improper supplemental evidence. PO Mot. Excl. 15. Patent Owner, however, does not explain specifically why Exhibit 1019 should be excluded under any of the aforementioned rules. *Id.*

In addition, Patent Owner's arguments are not persuasive. Dr. Rosenberg authenticates and provides a proper foundation for Ex. 1019. Ex. 1018 ¶ 32. The cited statements in Exhibit 1019 are not hearsay because Petitioner offers those statements for the effect they would have had on a person of ordinary skill in the art, not for the truth of the matter asserted. Pet. Reply 20; Ex. 1018 ¶¶ 32–33. Even assuming, though, that the statements in Exhibit 1019 are hearsay, Exhibit 1019 is admissible under Fed. R. Evid. 803(16), because it is more than 20 years old and its authenticity is established by Dr. Rosenberg. Ex. 1018 ¶ 32; Ex. 1019, 2.¹³ Lastly, Exhibit 1019 is not supplemental information under 37 C.F.R. § 42.123, because Petitioner submits Exhibit 1019 with its Reply and relies on Exhibit 1019 to respond to arguments in Patent Owner's Response. Pet. Reply 20; *see* 37 C.F.R. § 42.23(b).

H. *Patent Owner's Motion for Observations*

Patent Owner filed a Motion for Observations on the cross examination of Dr. Craig Rosenberg (Paper 29), to which Petitioner filed a Response (Paper 33). We have considered Patent Owner's observations and Petitioner's responses, and we have given Dr. Rosenberg's testimony the appropriate weight in making our determination in this case.

III. CONCLUSION

Petitioner has shown by a preponderance of the evidence that claims 1–10, 12–15, 17, and 18 of the '357 patent are unpatentable. Petitioner, however, has not shown by a preponderance of the evidence that claim 11 of the '357 patent is unpatentable.

¹³ We cite to the exhibit page numbers added to Exhibit 1019 by Petitioner.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–10, 12–15, 17, and 18 of the '357 patent are shown unpatentable;

FURTHER ORDERED that claim 11 of the '357 patent is not shown unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Exclude is *denied*; and

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

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Patent 7,003,357 B1

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