

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ITRON NETWORKED SOLUTIONS, INC.,
Petitioner,

v.

ACOUSTIC TECHNOLOGY, INC.,
Patent Owner.

Case IPR2017-01030
Patent 5,986,574

Before THU A. DANG, JOSIAH C. COCKS, and
PATRICK M. BOUCHER, *Administrative Patent Judges*.

DANG, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background*

Silver Spring Networks, Inc.¹ filed a Petition requesting an *inter partes* review of claims 1–3, 6, 8, 9, 11, 16, 17, 20, 23, 25, and 27–30 of U.S. Patent No. 5,986,574 (Ex. 1001, “the ’574 patent”). Paper 1 (“Pet.”). We instituted trial to determine whether claims 1–3, 6, 8, 9, 11, 16, 17, 20, 23, 25, and 27–30 are unpatentable under 35 U.S.C. § 103 based on *Argyroudis*² either alone or in combination with *Selph*.³ See Paper 9, 28 (“Institution Decision” or “Inst. Dec.”). After institution of trial, Acoustic Technology, Inc. (“Patent Owner”), filed a Patent Owner Response. Paper 25 (“PO Resp.”). Petitioner replied. Paper 33 (“Pet. Reply”).

Petitioner filed a Motion to Exclude Evidence. Paper 37 (“Pet. Mot.”). Patent Owner filed an Opposition to Petitioner’s Motion to Exclude Evidence. Paper 41. Petitioner then replied to the Opposition to the Motion to Exclude Evidence. Paper 45.

Oral argument was conducted on June 4, 2018. A transcript of that argument is entered in the record. See Paper 47 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–3, 6, 8, 9, 11, 16, 17, 20, 23, 25, and 27–30 of the ’574 patent. For the

¹ As a result of a reorganization, the petitioner in this proceeding changed from Silver Spring Networks, Inc. to Itron Networked Solutions, Inc. during the course of the proceeding. Paper 29. We refer collectively to these entities herein as “Petitioner.”

² U.S. 5,892,758 (issued Apr. 6, 1999) (“Argyroudis”; Ex. 1007).

³ U.S. 4,804,957 (issued Feb. 14, 1989) (“Selph”; Ex. 1008).

reasons discussed below, we hold that Petitioner has demonstrated by a preponderance of the evidence that claims 1–3, 6, 8, 9, 11, 16, 17, 20, 23, 25, and 27–30 of the '574 patent are unpatentable under 35 U.S.C. § 103(a).

Furthermore, Petitioners' Motion to Exclude Evidence is dismissed as moot.

B. Related Proceedings

The '574 patent is the subject of a pending district court case captioned *Acoustic Technology, Inc. v. Silver Spring Networks, Inc.*, No. 2:16-cv-00831-JRG-RSP (E.D. Tex.). Pet. 1; Paper 5, 2. An *inter partes* review was instituted for claims 16, 17, 20, 23, 25, and 27–30 of the '574 patent (IPR2017-01031). Also, an *inter partes* review was instituted for claim 8 of U.S. Patent No. 6,509,841 (IPR2017-01024), which issued from a continuation application claiming priority to the '574 patent.

C. The '574 Patent

The '574 patent issued November 16, 1999, from an application filed October 16, 1997. Ex. 1001, at [45] and [22]. The '574 patent is directed to a communication system “suitable for use by a utility provider to monitor a plurality of metering devices from a remote location,” and describes a concentrator within the communication system operably connected to a control and a metering group for transmitting data between the control and the metering group. *Id.* at Abstract. Figure 1, reproduced below, illustrates an embodiment of a communication system.

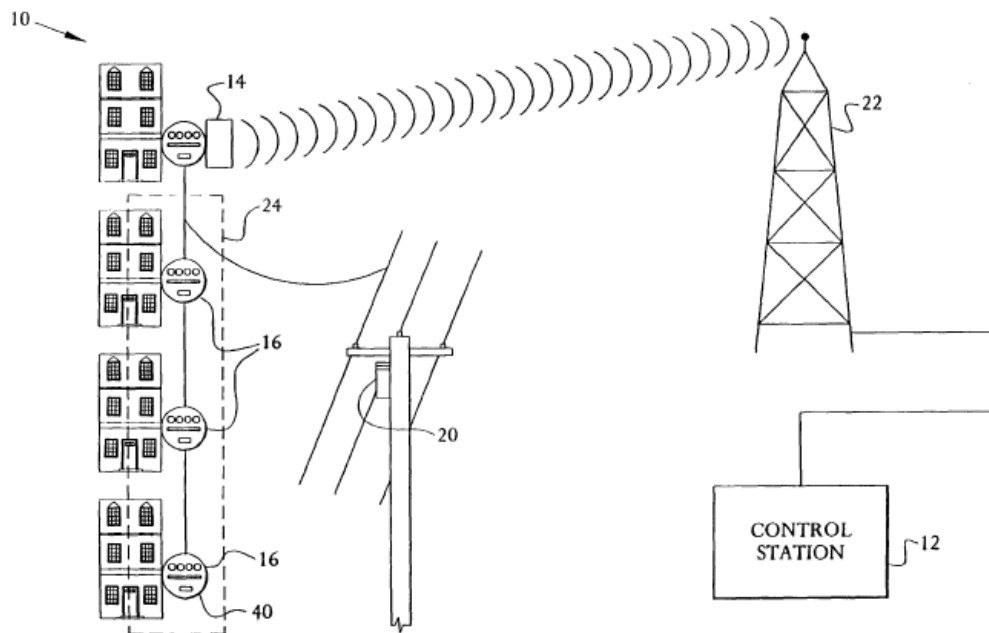
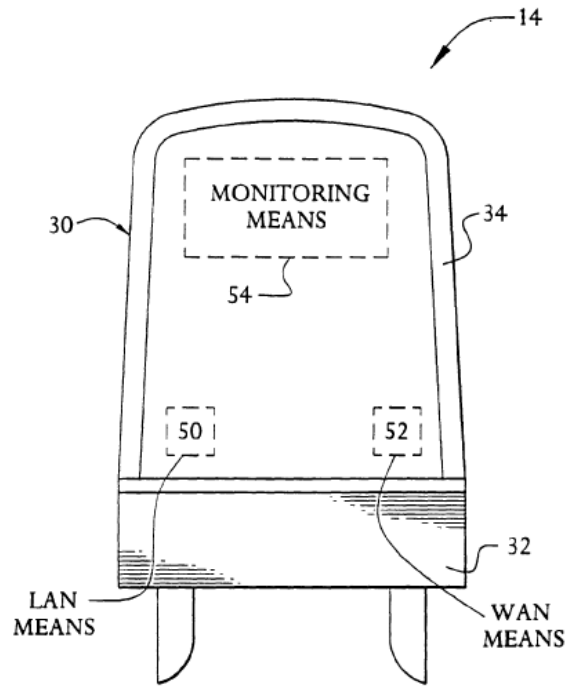


FIG. 1

Figure 1 depicts a communication system 10, comprising control means 12, relay means 14 in communication with the control means, and servicing means 16 in communication with the relay means, wherein, in one embodiment, communication system 10 is adapted for use in a utility provider for customer information. *Id.* at 2:23–37. In a preferred embodiment, each of servicing means 16 comprises a metering device located at the site of the customer of the utility provider, and includes means for measuring an amount of usage of a utility for the specific location to which metering device 16 is connected. *Id.* at 4:11–22. Metering devices 16 are each connected via power lines to relay means 14. *Id.* at 4:33–35.

Preferably, relay means 14 comprises a concentrator in the form of a meter and positioned at the location of a customer. *Id.* at 4:65–67. Figure 2, reproduced below, depicts an embodiment of concentrator meter 14 of Figure 1. *Id.* at 4:67–5:2.



As shown in Figure 2, concentrator meter 14 preferably includes LAN means 50 for receiving and transmitting data over the local area network, WAN means 52 for communicating data over the wide area network with control means 12 (Figure 1), and monitoring means 54 for measuring an amount of usage of a utility at a given location. *Id.* at 5:2–20. Concentrator meter 14 preferably also includes housing 30 having an inner cavity into which the components of concentrator meter 14 are mounted, such as LAN means 50, WAN means 52, and monitoring means 54. *Id.* at 5:33–41. Relay means 14, when in the form of concentrator meter 14, provides for greater efficiency since features of a meter and relay means between metering devices 16 and control means 12 (Figure 1) are combined into a single unit, which can be provided directly at a customer location. *Id.* at 7:13–19.

D. The Challenged Claims

Independent claims 1 and 16 are illustrative of the challenged claims at issue. Claims 1 and 16 are reproduced below:

1. A system for a utility provider to monitor a plurality of metering devices from a remote location comprising:

control means for at least receiving data;

a plurality of metering devices, with each said plurality of metering devices comprising means for transmitting data associated with an amount of usage of a utility, wherein said plurality of metering devices are arranged in a defined number of metering groups, with each said metering group comprising a selected number of plurality of metering devices operably connected together; and

a defined number of concentrator, with each said concentrator being operably connected to the control means and one meter group, with each said concentrator being operably connected to one metering group by at least one power line, wherein each said concentrator comprises relay means for receiving data from one metering group over said at least one power line and transmitting data corresponding to the data received from said one metering group for receipt by said control means, to identify the amount of usage of a utility associated with each of the plurality of metering devices,

wherein said concentrator further comprises a metering device and includes means for monitoring an amount of usage of a utility.

16. A concentrator having means for relaying communication between a plurality of metering devices and at least one control station comprising;

concentrator comprising a meter and means for monitoring an amount of usage of a medium;

LAN means for receiving data from said plurality of metering devices over a local area network;

WAN means for transmitting data associated with both said plurality of metering devices and said monitoring means over a wide area network to said at least one control station; and

a housing comprising a meter receiving said monitoring means, said LAN means and said WAN means.

Ex. 1001, 7:29–54; 9:22–35.

E. Instituted Grounds of Unpatentability

We instituted trial on the following specific grounds (Pet. 18, 55):

Reference	Basis	Claim Challenged
Argyroudis ⁴	§ 103	1–3, 6, 8, 9, 11, 23, 25, and 27–30
Argyroudis, Selph ⁵	§ 103	16, 17, and 20

Petitioner also relies on the declaration of Dr. Samir S. Soliman. Exs. 1003, 2005. Patent Owner relies on, *inter alia*, the declarations of Laurence J. Colton, P.E., and Ray Bassiouni, Ph.D. Exs. 2006, 2015.

II. ANALYSIS

A. Claim Construction

The '574 patent expired on October 16, 2017. We accord claim terms in an expired patent their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention. *See Cisco Sys., Inc. v. AIP Acquisition, LLC*, Case IPR2014-00247, slip op. at 2 (PTAB July 10, 2014) (Paper 20) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313–1317 (Fed. Cir. 2005) (en banc)). In doing so,

⁴ U.S. 5,892,758 (issued Apr. 6, 1999) (“Argyroudis”; Ex. 1007).

⁵ U.S. 4,804,957 (issued Feb. 14, 1989) (“Selph”; Ex. 1008).

“we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–1317).

1. a “metering device”/“meter” (claims 1, 2, 6, 8, 16, 17, 23, 29, 30)

According to Petitioner, the Specification of the ’574 patent refers to “metering devices” which are depicted in Figure 1 as conventional utility meters. Pet. 10–11 (citing Ex. 1001, 4:33–50, FIG. 1). Relying on the declaration of Dr Soliman, Petitioner contends that “meter” or “metering device” should be construed as “a device that monitors the usage of a utility or medium.” *Id.* (citing Ex. 1003 ¶¶ 61–63).

Patent Owner asserts that, “[m]eter” and “metering device” should be interpreted as “[a]ny *utility* meter capable of being *installed at a customer location* that *measures* the amount of utility consumption.” PO Resp. 24. According to Patent Owner, “meters measure, not monitor, the consumption of utility service,” and “utility meters must be installed at the customer location.” *Id.* According to Patent Owner, “[a] POSITA would understand the structure of the concentrator meter housing must be such that the base fits into a standard meter socket.”⁶ *Id.* at 25.

We are unpersuaded by Patent Owner’s contention that the term “metering device” or “meter” is “limited to utility meters” that “must be installed at the customer location.” *Id.* at 24. Although the Specification indicates that “[i]n a presently preferred embodiment,” the servicing means

⁶ “POSITA” is a short-form expression of a person of ordinary skill in the art.

16 comprises a metering device “located at the site of the customer of the utility provider,” and “each metering device 16 preferably includes means for measuring an amount of usage of a utility” (see Ex. 1001, 4:11–32), as Petitioner points out, “the ’574 patent discloses that a utility meter is just one example of the claimed meter” (Pet. Reply 6) and “whether the base of the *housing* fits into a standard meter socket has nothing to do with what a ‘meter’ actually is.” *Id.* at 7.

Based upon our consideration of the claims, written description, and the prosecution history (see *DePuy Spine, Inc.*, 469 F.3d at 1014), we construe the term “metering device” or “meter” in accordance with its ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention. See *Cisco Sys., Inc.*, Case IPR2014-00247, slip op. at 2. The Specification including the claim language, and the prosecution history do not compel any different conclusion. Thus, we conclude “metering device” or “meter” can be any device that measures a quantity, such as a device that includes “monitoring means” for “measuring an amount of usage of a utility” at a given location. Ex. 1001, 5:15–20. That is, the ordinary and customary meaning of the claims merely requires that the “metering device”/ “meter” be a device that measures a quantity of a medium.

2. “*means for monitoring an amount of usage*” of a utility/medium (claims 1, 6, 16, 23)

Petitioner contends the function associated with “means for monitoring” is specified in the claims: “monitoring” an amount “of usage of a utility” or “of usage of a medium.” Pet. 16. According to Petitioner, “monitoring means” is provided “for measuring an amount of usage at a

given location, similar to conventional incremental type metering devices.” *Id.* at 10–11 (citing Ex. 1001, 4:33–34, 5:15–20, FIG. 1). Thus, Petitioner contends the term should be interpreted as “incremental type metering devices and equivalents.” *Id.* at 16 (citing Ex. 1003 ¶ 69).

Patent Owner asserts that “[m]eans for monitoring an amount of usage of a utility” is “a meter interface or module that translates meter readings into digital format that may be transmitted from the customer site to the central computer or control.” PO Resp. 26. According to Patent Owner, these interfaces or modules are essential components of an AMR system. *Id.* (citing Ex. 1017, 3–4). Patent Owner contends the Specification distinguishes between metering and monitoring functions. *Id.*

In response, in Petitioner’s Reply, Petitioner contends “[t]he challenged claims do not require digital conversion, nor is such a function linked to the claimed “monitoring means” in the specification.” Pet. Reply 9. Further, Petitioner contends the claim language “does not dictate that the meter and the means for monitoring are completely separate and distinct structures,” rather, “the language [‘concentrator comprising a meter and means for monitoring’] was added to distinguish over prior art involving a poletop concentrator that did not include a meter at all.” *Id.* at 10.

As an initial matter, we agree with Petitioner that the use of “means” in connection with a “means for monitoring” gives rise to the presumption that it is a “mean-plus-function” limitation subject to 35 U.S.C. § 112. *See* Pet. 13. However, the ’574 patent does not disclose specific structure that corresponds to the claimed “monitoring” function, and particularly, none with digital conversion function. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1352 (Fed. Cir. 2015)(“Structure disclosed in the specification

qualifies as ‘corresponding structure’ if the intrinsic evidence clearly links or associates that structure to the function recited in the claim”). In that respect, the Specification of the ’574 patent generally describes a “monitoring means 54,” but provides no particular details of the structure of that component. In that regard, we are persuaded by Petitioner’s contention that “[t]he challenged claims do not require digital conversion, nor is such a function linked to the claimed ‘monitoring means’ in the specification.” Pet. Reply 9.

Based upon our consideration of the claims, written description, and the prosecution history, we construe the term “monitoring” in accordance with its ordinary and customary meaning. The Specification, claims, and prosecution history do not compel any different conclusion. Thus, we construe “monitoring” as observing or checking a process or quantity, and conclude that means for “monitoring” an amount of usage can be a means that observes and checks the amount of usage, such as means “for measuring an amount of usage of a utility at a given location, similar to conventional incremental type metering devices.” Ex. 1001, 5:15–20. That is, “means for monitoring” is not limited to any “interface” or “module that translates meter readings into digital format,” as Patent Owner contends. PO Resp. 26.

3. “*servicing means*” (claims 23, 25, 29, 30)

Petitioner contends the function associated with “servicing means” is specified in the claims: “transmitting data to and receiving data from said control means via relay.” Pet. 15 (citing Ex. 1001, 10:13–19). Thus, Petitioner contends “servicing means” should be interpreted as “a means-plus-function limitation with a function of ‘transmitting data to and

receiving data from said control means via relay” and “a corresponding structure of ‘a transmitter and receiver.’” *Id.* at 16 (citing Ex. 1003 ¶ 69).

Patent Owner asserts that “[s]ervicing means” should be construed as a “device comprising a utility meter or other components to measure the usage of a medium or output.” PO Resp. 27. According to Patent Owner, “servicing means” is a generic term for a category of devices that perform the equivalent functions of meters or metering devices as claimed in the ’574 patent, “the broadest reasonable (in fact only reasonable) construction of servicing means is a device that performs the equivalent of all of the functions of the meter claimed in the ’574 Patent.” *Id.* at 28. Patent Owner concedes that the ’574 patent refers to a preferred embodiment of the servicing means—“one in which monitoring means are encompassed therein” (*id.* at 28–29 (citing Ex. 1001, 4:6–11))—but contends that the ’574 patent refers to the structure of a servicing means as generic measuring devices that encompass meters. *Id.*

Here, we agree with Petitioner that the recitation of “servicing means” gives rise to the presumption that it is a means-plus-function claim limitation. *See* Pet. 13. The ’574 patent describes that “servicing means 16 comprises means for transmitting and receiving data for communication with the control means 12 via relay means 14; for example, conventional transmitter and receiver units can be utilized for this purpose.” Ex. 1001, 4:6–11. The ’574 patent also describes that “servicing means 16 comprises a metering device. . . .” *Id.* at 4:12–13. Thus, for purposes of this Decision, and based on the Specification and claims, and the prosecution history, we conclude that “servicing means” can be any structure, such as a conventional transmitter and receiver unit, that provides services and that comprises “at

least one meter” in communication with “relay means” for “transmitting data to and receiving data from” a “control means” via the relay. *Id.* at 10:15–19.

4. “WAN means” for “transmitting data” (claims 3, 16, 17, 20)

Petitioner contends the ’574 patent expressly links the function of “transmitting data” to a conventional transmitter. Pet. 16–17 (citing Ex. 1001, 4:6–11 (“means for transmitting and receiving data . . . for example, conventional transmitter and receiver units can be utilized for this purpose”), 5:6–9 (“the concentrator meter 14 also preferably includes WAN means 52 for communicating (receiving and transmitting) data over the wide area network”); Ex. 1003 ¶¶ 69–70). Thus, Petitioner contends “WAN means for transmitting” should be construed as a means-plus-function term with the function and structure specified in the claims as that of a “transmitter.” *Id.*

Patent Owner asserts that a “WAN means for transmitting/receiving data” should be construed as “[a] conventional WAN radio capable of transmitting over public Wide Area Networks.” PO Resp. 29. According to Patent Owner, conventional WAN radios were well known in the art as of the filing date of the ’574 patent to communicate over intermediate cell towers and switching means of publicly available cell towers. *Id.* at 29–30 (citing Ex. 2006 ¶ 65). Moreover, Patent Owner contends the Specification expressly states the “concentrator meter 14 also preferably includes WAN means 52 for communicating (receiving and transmitting) data over the wide area network with the control means 12 via the switching means 22,” wherein the item numbered 22 on Figure 1 is a publicly available cell tower. *Id.* (citing Ex. 1001, 5:7–11, FIG. 1).

We are unpersuaded by Patent Owner’s contention that a “WAN means for transmitting/receiving data” should be limited strictly to a conventional WAN “radio” capable of transmitting over “public” Wide Area Networks, to the exclusion of other types of transmitter devices beyond simply “radio.” *Id.* at 29. As Petitioner contends, “a conventional WAN radio is one type of transmitter/receiver that can be the WAN means but it is not the only structure,” and furthermore “[t]he claims do not include the proposed ‘public’ language.” Pet. Reply 14 (citation omitted).

Here, as Petitioner points out, the recitation of “means for transmitting/receiving” gives rise to the presumption that it is a means-plus-function claim limitation. *See* Pet. 13. The ’574 patent describes that “concentrator meter 14 preferably includes WAN means 52 for communicating (receiving and transmitting) data over the wide area network with the control means 12 via the switching means 22.” Ex. 1001, 5:5–10. Thus, for purposes of this Decision, and based the Specification and claims, and the prosecution history, we construe the term “WAN means for transmitting data” in accordance with its ordinary and customary meaning, namely, as a device for transmitting data in a Wide Area Network (WAN). We conclude that “WAN means” can be any device “for communicating (receiving and transmitting) data over the wide area network.” *See id.* at 5:3–10. That is, “WAN means” is neither limited to any “radio” nor must be “capable of transmitting over public” WAN, as Patent Owner contends. PO Resp. 29.

5. “*LAN means*” for “*receiving data*” (claims 3, 16, 17, 20)

Petitioner contends the ’574 patent expressly links the function of “receiving data” to a conventional receiver. Pet. 16–17 (citing Ex. 1001,

4:6–11 (“means for transmitting and receiving data . . . for example, conventional transmitter and receiver units can be utilized for this purpose”), 5:3–10 (“means 50 for receiving and transmitting data over the local area network, such as a conventional transmitter and receiver”); Ex. 1003 ¶¶ 69–70). Thus, Petitioner contends “LAN means for receiving” should be construed as a means-plus-function term with the functions and structure specified in the claims as that of a “receiver.” *Id.*

Patent Owner asserts that a “LAN means for receiving data from said plurality of metering devices” should be construed as “a receiver receiving data in a direct communication path from numerous meters.” PO Resp. 30. According to Patent Owner, the language “does not contemplate that the LAN means will receive data generated by a meter ‘through’ an independent device in an indirect communication path.” *Id.* Further, Patent Owner asserts that the claim limitation “also specifies that it receives data from a ‘plurality’ of meters.” *Id.* at 31. As such, the LAN receiver must be in direct communication paths with numerous meters. *Id.* at 30–31,

We are unpersuaded by Patent Owner’s contentions that “LAN means for receiving data from said plurality of metering devices” should be construed as a receiver receiving data in a “direct communication path” from numerous meters. *Id.* As Petitioner contends, “the claims only require receipt of data *from* meters, not receipt of data *directly from* meters.” Pet. Reply 12.

Here, as Petitioner points out, the recitation of “means for transmitting/receiving” gives rise to the presumption that it is a means-plus-function claim limitation. See Pet. 13. The ’574 patent describes that “concentrator meter 14 preferably includes LAN means 50 for receiving and

transmitting data over the local area network, such as a conventional transmitter and receiver.” Ex. 1001, 5:2–5. Thus, for purposes of this Decision, and based the Specification and claims, and the prosecution history, we construe the term “LAN means for receiving data” in accordance with its ordinary and customary meaning, namely, as a device for receiving data in a local area network (LAN). We conclude that “LAN means” can be any device “for receiving and transmitting data over the local area network.” *Id.* at 5:3–10. That is, “LAN means” is not limited to any “receiver” in a “direct communication paths” from numerous meters, as Patent Owner contends. PO Resp. 30–31.

6. “*housing comprising a meter receiving said monitoring means, said LAN means and said WAN means*” (claim 16)

Patent Owner asserts that a “housing” should be construed as “a shell or casing completely encompassing components.” PO Resp. 31–32; *see also id.* at 34 (citing Ex. 2005, 91:2–16). According to Patent Owner, the “housing” as claimed “must encompass,” i.e., “must enclose . . . not merely cover” all of “a meter receiving said monitoring means, said LAN means and said WAN means.” *Id.* at 32 (citing Ex. 1001, 9:34–35).

Further, Patent Owner asserts that “comprising” should be construed as “constituting or included within a device.” *Id.* at 34 (citing *Crystal Semiconductor Corp. v. TriTech Microelectronics Intern., Inc.*, 246 F.3d 1336, 1348 (Fed. Cir. 2001)). Thus, according to Patent Owner, a “[h]ousing comprising a meter receiving said monitoring means, said LAN means and said WAN means” should be construed as “a meter capable of measuring utility usage and being inserted into a standard meter socket and

into which components for a concentrator, monitor, LAN transceiver and WAN transceiver are incorporated.” *Id.* at 34–35.

Patent Owner additionally asserts that, according to the prosecution history, “the Applicant clearly narrowed the claims to the concentrator,” wherein the Specification states that, “preferably the relay means comprises a concentrator in the form of a meter and positioned at the location of a customer.” *Id.* at 35 (citing Ex. 1001, 4:56–67). Thus, Patent Owner asserts “the unit into which the components are disposed is a meter.” *Id.*

According to Patent Owner, “once claims are narrowed during prosecution to overcome a rejection, principles of prosecution estoppel preclude a patent owner from relying on the doctrine of the equivalents to claim infringement other than in accordance with the express terms of the claim as narrowed.” *Id.* at 35–36 (citing *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722 (2002)).

In response, Petitioner contends that Patent Owner’s proposed “construction of ‘housing comprising’ . . . does not include the concept of a housing at all.” Pet. Reply 5. Petitioner contends that “nothing in the prosecution history requires that [the meter, monitoring means, WAN means, and LAN means] be a single physical device,” or that “the components are contained in a pre-existing meter housing.” *Id.* at 6. Although Petitioner concedes that “[t]he parties agree that a housing is an enclosure” (*id.* at 4 (citing PO Resp. 24, 34)), Petitioner disagrees that “the claimed meter must be ‘capable of being inserted into a standard meter socket.’” *Id.* at 5.

Based on the Specification and claims, and the prosecution history, we construe the term “housing” in accordance with its ordinary and customary

meaning, namely, as a structure that covers or encloses component(s). We conclude that “housing,” defined by the claims and consistent with the Specification, can be any structure that covers or encloses a meter that receives monitoring means, LAN means and WAN means, and is not limited to a structure being inserted into a standard meter socket. PO Resp. 34–35.⁷

As to the remaining terms, Petitioner proposes constructions that we have considered. Patent Owner neither disputes those constructions nor proffers its own constructions of the terms. Because those proposed constructions comport with the claim-construction standard we apply for expired patents, we adopt most of Petitioner’s proposed constructions, as summarized in the following table:

Claim Term	Construction
“concentrator” (Claims 1, 6, 8, 11, 16, 23)	“a device which concentrates, i.e., collects and stores data.” ⁸

⁷ In reaching this construction, we have considered Patent Owner’s argument that “[c]omprising’ is a well-recognized term of art in patent law are part of a device.” *Id.* at 34 (citations omitted). We agree that Patent Owner’s statement is correct, but our adopted construction of “housing” is consistent with this well-established principle.

⁸ This construction differs from Petitioner’s proposal of “a device which concentrates data from a group of meters and communicates data between those meters and a controller.” *See* Pet. 12. Our adopted construction instead parallels the construction of “concentrator” that we adopt in related IPR2017-01031. *See Itron Networked Solutions, Inc. v. Acoustic Technology Inc.*, Case IPR2017-01031, slip op. at 12 (Paper 48) (PTAB). Although Patent Owner does not dispute Petitioner’s construction in this proceeding, Patent Owner does dispute it in the related proceeding, and we address Patent Owner’s arguments in that proceeding. We see no compelling reason to have different constructions of the same term in the two proceedings, and the distinction between our adopted construction and

“relay means for receiving data” (Claims 1–3) / “means for relaying communication” (Claims 16, 17, 20) / “relay means” (Claims 23, 25, 27–30)	“a relay;” <i>i.e.</i> , “a device that receives signals from one or more locations and then retransmits them to another location.” Pet. 13.
“control means” (Claims 1–3, 6, 11, 23, 27, 28, 30)	“as a means-plus-function limitation with the function(s) of ‘receiving data’ . . . and ‘transmitting data’ . . . and a structure of ‘a computer, microprocessor or equivalent.’” Pet. 14 (citations omitted).
“means for transmitting data” (Claims 1–3, 6, 16, 17, 23, 29, 30)	“as a means-plus-function limitation with a function of ‘transmitting data’ and a corresponding structure of ‘a transmitter.’” Pet. 14.
“means for receiving data” (Claims 2, 3, 6, 16, 17, 23, 30)	“as a means-plus-function limitation with a function of ‘receiving data’ and a corresponding structure of ‘a receiver.’” Pet. 15.
“communication means” (Claim 6)	“with the function of ‘transmitting and receiving data’ and the structure of ‘a transmitter and receiver.’” Pet. 18.

B. Claims 1–3, 6, 8, 9, 11, 23, 25, and 27–30— Asserted Obviousness over Argyroudis

Petitioner alleges that claims 1–3, 6, 8, 9, 11, 23, 25, and 27–30 are unpatentable over Argyroudis. Pet. 18–55.

Petitioner’s proposed construction is ultimately immaterial to our conclusions herein.

1. *Principles of Law*

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *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) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We analyze this asserted ground based on obviousness with the principles identified above in mind.

2. *Level of Skill in the Art*

The level of skill in the art is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham*, 383 U.S. at 17–18; *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)). Relying on the declaration of Dr. Soliman, Petitioner asserts that a person of ordinary skill in the art at the time of the invention would have at least an undergraduate degree in electrical engineering, computer engineering, computer science, or a related field, familiarity with automatic meter reading systems and one to three years working with telecommunications systems. Pet. 9 (citing Ex. 1003 ¶ 23). In particular, Petitioner contends that a POSITA would have had working knowledge of automated meter reading components, data communication concepts and

techniques, and knowledge of wide area/local area networking principles and multiple access techniques. *Id.* at 9–10. Patent Owner does not assess the level of ordinary skill in the art.⁹

We adopt the Petitioner’s, and Dr. Soliman’s assessment of the level of ordinary skill in the art because it is consistent with the ’574 patent and the asserted prior art, and apply it to our obviousness evaluation below. We also observe that the prior art of record reflects the level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

3. Secondary Considerations

Patent Owner asserts that “[e]vidence of long felt but unresolved need . . . weighs in favor of a finding that patent claims are not obvious.” PO Resp. 53 (citing *Apple Inc. v. Samsung Elecs. Co., Ltd.*, 839 F.3d 1034 (Fed. Circ. 2016)). In particular, relying on Mr. Colton’s declaration, Patent Owner contends that “the utility industry had sought for decades to develop effective and cost-efficient automated meter reading systems to replace the labor intensive manual reading of utility meters,” wherein “[t]he system and concentrator meter claimed in the ’574 Patent effectively addressed this long felt need.” *Id.* (citing Ex. 2006 ¶¶ 9–19).

⁹ Although Patent Owner contends for the first time during oral arguments that Petitioner’s expert is not qualified, Patent Owner was cautioned that any arguments for patentability not raised in the response will be deemed waived. *See, e.g.*, Office Patent Trial Practice Guide, 77 Fed. Reg. 48,456, 48,768 (Aug. 14, 2012) (“A party . . . may only present arguments relied upon in the papers previously submitted. No new evidence or arguments may be presented at the oral argument.”).

Failure of others to satisfy a long-felt need can provide evidence of non-obviousness. *Dow Chem. Co. v. Am.Cyanamid Co.*, 816 F.2d 617, 623 (Fed. Cir. 1987). However, Patent Owner's reliance on Mr. Colton's declaration cannot by itself serve as objective evidence of nonobviousness of the combination of teachings, absent evidence that, notwithstanding knowledge of the references, the art tried and failed to solve the problem(s) allegedly solved by the invention of the '574 patent.

Establishing a long-felt need requires objective evidence showing existence of a persistent problem recognized by those of ordinary skill in the art for which a *solution was not known*. *In re Gershon*, 372 F.2d 535, 539 (CCPA 1967). There must be *evidence* of a failure of others to provide a feasible solution to a long-standing problem *and* evidence "that experts did not foresee" the solution claimed. *In re Piasecki*, 745 F.2d 1468, 1475 (Fed. Cir. 1984). In particular, "precedent requires that the applicant submit actual evidence of long-felt need, as opposed to argument. This is because '[a]bsent a showing of long-felt need or the failure of others, the mere passage of time without the claimed invention is not evidence of nonobviousness.'" *In re Kahn*, 441 F.3d 977, 990–91 (Fed. Cir. 2006) (alteration in original) (quoting *Iron Grip Barbell Co. Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004)). Satisfaction of a long-felt but unresolved need is not evidence of nonobviousness unless it is shown that widespread efforts of skilled workers having knowledge of the prior art had failed to find a solution to the problem. *In re Allen*, 324 F.2d 993, 997 (CCPA 1963); *see also Toledo Pressed Steel Co. v. Standard Parts, Inc.*, 307 U.S. 350, 356 (1939).

Here, Patent Owner's general assertion that the industry tried for decades to achieve efficient automated meter reading systems coupled only with Mr. Colton's testimony provides little persuasive evidence showing a long-felt need in the industry that others had been unable to accomplish. As such, Patent Owner's and Mr. Colton's assertions of failure by others are accorded little weight.

Patent Owner also contends that "the system disclosed in the '574 Patent has enjoyed significant commercial success." PO Resp. 55. In support of that contention, and relying on Mr. Colton's declaration, Patent Owner asserts that "[t]he three continuation patents claiming on this system were valued at \$5,000,000 in an arms-length transaction between PECO and Orion in forming a joint venture and was licensed to Motorola." *Id.* (citing Ex. 2006 ¶¶ 74–75).

Patent Owner, however, provides little, if any, context for the significance of the \$5,000,000 valuation. In that regard, absent some comparative market or sales information, or other valuation, an absolute number, such as \$5,000,000 simply is not very meaningful. *See Vandenberg v. Dairy Equipment Co.*, 740 F.2d 1560, 1567 (Fed. Cir. 1984). We observe also that Patent Owner also does not make clear to what extent the particular invention claimed in the patent involved in this proceeding, i.e., the merits of the invention claimed in the '574 patent impacts that \$5,000,000 valuation. Without such clarity, it is difficult to assess what level of commercial success, if any, can be attributed, specifically, to the '574 patent.

Furthermore, Patent Owner, and Mr. Colton, allude to a license taken by Motorola, presumably of the noted "three continuation patents" that include the '574 patent. Yet, the fact that a patent has been licensed, taken

alone, generally is insufficient for purposes of showing commercial success. *See Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1539 (Fed. Cir. 1983). Indeed, an entity's decision to take a license of a patent may be premised on the concerns of potential legal costs rather than due to the merits of a claimed invention. *See Iron Grip Barbell Co. v. USA Sports Inc.*, 392 F.3d 1317, 1324 (Fed. Cir. 2004) ("Our cases specifically require affirmative evidence of nexus where the evidence of commercial success presented is a license, because it is often 'cheaper to take licenses than to defend infringement suits.'"). To that end, without more, that Motorola may have licensed the '574 patent is of little value in assessing the commercial success of the claimed invention of that patent.

Having considered Mr. Colton's declaration alongside the prior art of record, we do not find Patent Owner's objective evidence of nonobviousness compelling. In that regard, we conclude that, on the record before us, Patent Owner's purported evidence of long-felt but unresolved need and commercial success is not fully developed and therefore, unpersuasive.

4. *Scope and Content of Asserted Prior Art—Argyroudis*

Argyroudis, titled "Concentrated Subscriber Wireless Remote Telemetry System," issued April 6, 1999, from an application filed September 27, 1996, assigned to Qualcomm Incorporated. Ex. 1007, at [54], [45], [22], [73]. Argyroudis is directed to "the wireless metering of remote measurement devices which are concentrated in a single geographic area." *Id.* at 1:12–15. In particular, Argyroudis discloses an embodiment applicable to utility service, where consumption of electrical power is measured by a utility metering system having a wireless communication

capability and the metering system comprises a wireless remote metering unit that communicates with a central controller. *Id.* at 3:7–20.

Figure 1, reproduced below, shows a telemetry system.

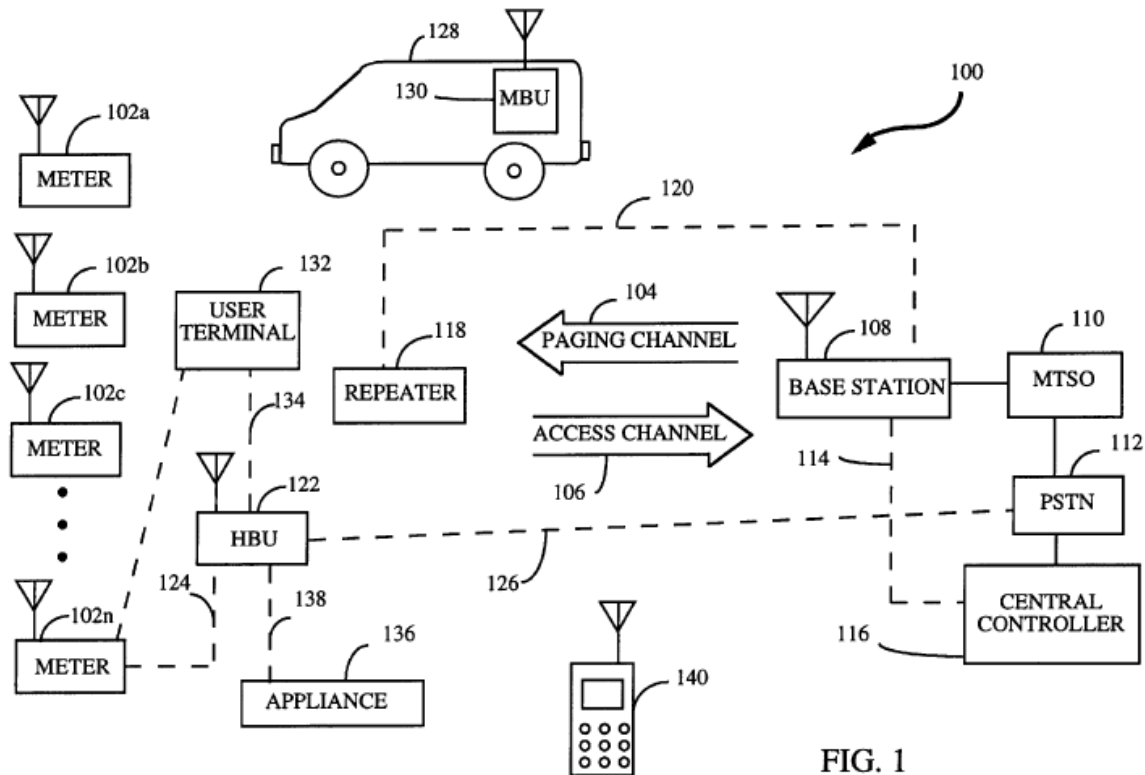


FIG. 1

Figure 1 depicts remote telemetry system 100, comprising a plurality of remote metering units 102a–102n respectively located at strategic points throughout the utility distribution network. *Id.* at 4:43–50. Remote metering units 102a–102n may be comprised of a basic transceiver coupled to a pre-existing conventional electro-mechanical utility meter by an interface device adapted to the type of meter. *Id.* at 4:50–54. Remote metering units 102a–102n may be integral units which combine the utility measurement and communication circuits into a single device. *Id.* at 4:59–62. In one embodiment, some of remote metering units 102a–102n may be part of a concentrator network wherein only one of remote metering units

102a–102n would have a wireless communication capability. *Id.* at 4:65–5:6. Reporting messages from units 102a–102n are transmitted to central controller 116, wherein intermediate steps or “hops” may be interposed between the remoting metering units 102a–102n and central controller 116, or, in a concentrated remote telemetry system, between one or more of remote metering units 102a–102n themselves. *Id.* at 5:11–30.

Figure 2, reproduced below, shows a wireless remote metering unit:

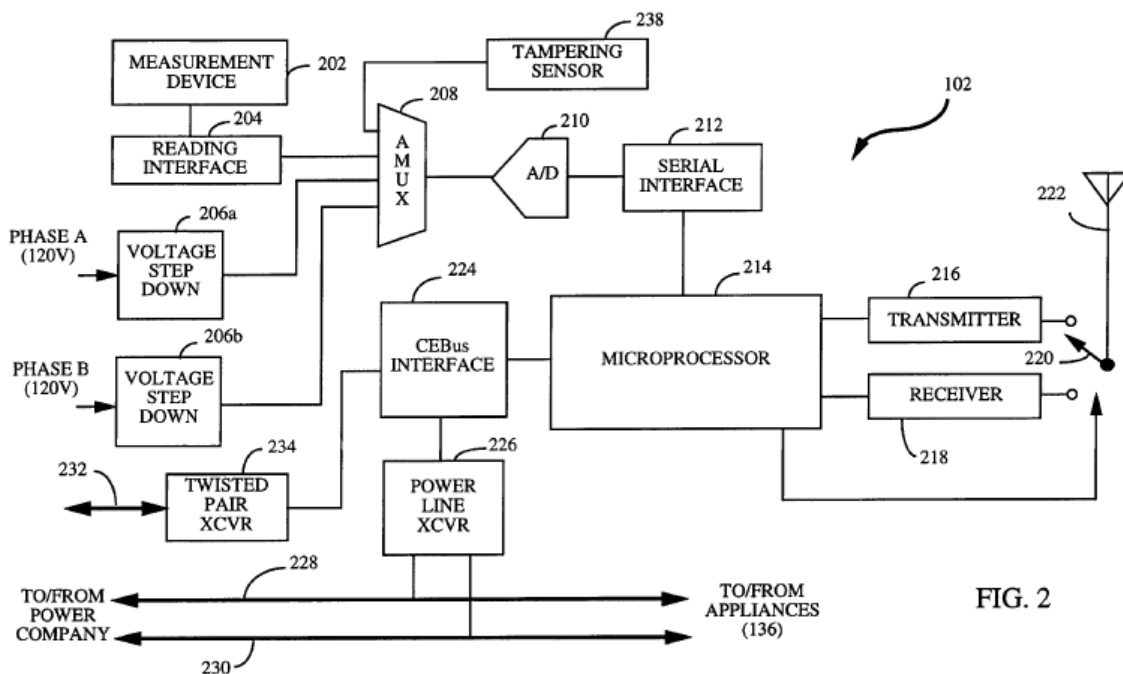


Figure 2 depicts remote metering unit 102 having wireless communication capability, comprising: measurement device 202 such as a power consumption monitor, reading interface 204 which transforms light pulses and transmits them to analog multiplexer (AMUX) 208 where they are passed to analog-to-digital converter (A/D) 210, and microprocessor 214, which then, in response to the digital signal, calculates and stores the total consumption in kilowatt hours in memory 240. *Id.* at 10:21–50.

Figure 3, reproduced below, shows a concentrated remote telemetry system:

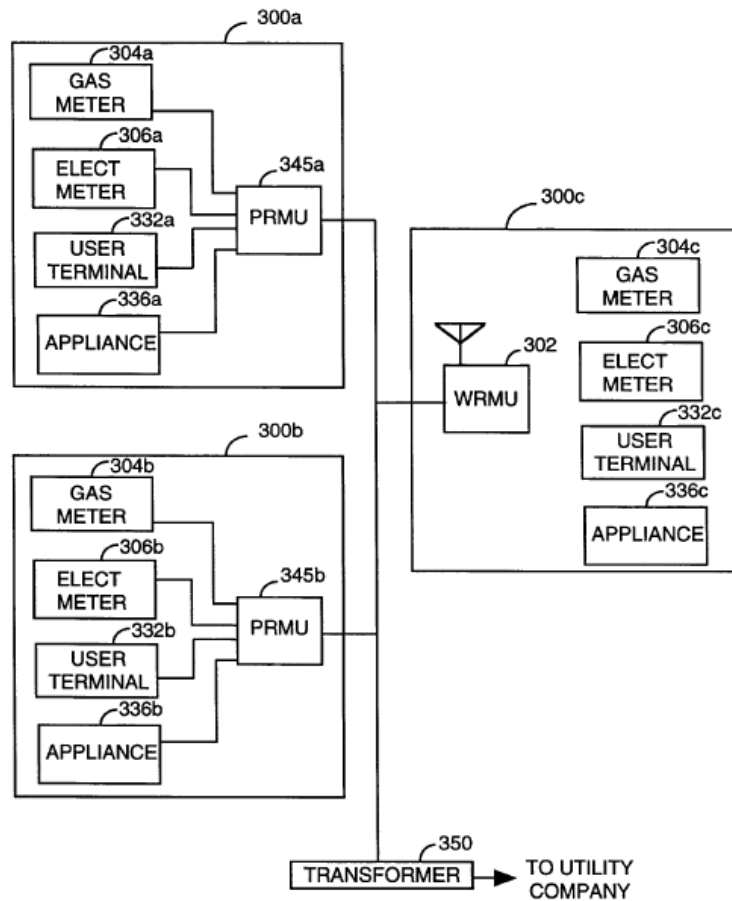


FIG. 3

Figure 3 depicts a concentrator network embodiment that involves two distinct types of remote metering units—one or more powerline remote metering units (PRMU) 345a and 345b, and wireless remote metering unit (WRMU) 302, wherein WRMU 302 is structurally and functionally similar to wireless remote metering units 102a–102n of Figure 1. *Id.* at 16:11–19. The information signals originating in, for example, gas meter 304a are sent to PRMU 345a where they are routed with other information signals from the other remote devices of building 300a to WRMU 302 for further wireless

reporting as described with reference to Figure 1. *Id.* at 16:59–66. The hierarchical reporting and routing structure enables a single WRMU 302 to service many PRMUs 345a and 345b according to networking principles similar to those used in a Local Area Network (LAN). *Id.* at 17:4–8.

5. *Analysis*

a. Argyroudis as Prior Art

Patent Owner asserts that Argyroudis, either by itself or in combination with Selph, does not render the invention disclosed in the '574 patent obvious, because the sole inventor, Panayotis Argyroudis, did not conceive the concentrator solution claimed therein. PO Resp. 20. Rather, Patent Owner contends that the concentrator solution was conceived by Laurence Colton, the named inventor of the '574 patent, and then disclosed to Mr. Argyroudis while Qualcomm, the assignee of Argyroudis, was consulting with PECO. *Id.* Patent Owner relies on Mr. Colton's declaration, and contends that Mr. Colton's declaration and "PECO's contemporaneous business records demonstrat[e] that PECO disclosed its AMR concepts and, most importantly, Mr. Colton's idea of utilizing a concentrator as the communication link to Qualcomm." *Id.* (citing Ex. 2006 ¶¶ 29–30, 35–36, 67–68; Ex. 2012). In particular, Patent Owner asserts that "in a July 1, 1996 letter, PECO requested Qualcomm's analysis of a 'Concentrator' Approach," and that "[t]he Argyroudis [sic] patent was filed less than three months after this disclosure." *Id.* at 21 (citing Ex. 2012, 2). Patent Owner notes that the Argyroudis patent is a "continuation-in-part of Patent Number 5,748,104 ('Argyroudis 104')," and contends that this "initial Patent on July 11, 1996 does not make any mention of a so-called concentrator solution." *Id.* at 21–22. According to Patent Owner, the concentrator

solution is subsequently claimed in Argyroudis “based upon disclosures Mr. Colton and other PECO project team members made to Qualcomm.” *Id.*

We have reviewed Patent Owner’s supporting evidence regarding these assertions that the Argyroudis patent is based upon disclosures from the inventor of the ’574 patent and thus cannot be used as prior art against the ’574 patent. However, we do not find Patent Owner’s assertions persuasive or supported by sufficient evidence.

“To prove derivation under § 102(f), ‘the party asserting invalidity must prove both prior conception of the invention by another and communication of that conception to the patentee’” *Eaton Corp. v. Rockwell Int’l Corp.*, 323 F.3d 1332, 1344 (Fed. Cir. 2003)(quoting *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1576 (Fed. Cir. 1997)). “The communication must be sufficient to enable one of ordinary skill in the art to make the patented invention.” *Id.* (citing *Gambro Lundia*, 110 F.3d at 1578).

Here, Patent Owner merely asserts that Argyroudis is derived from disclosures Mr. Colton and other PECO project team members made to Qualcomm. PO Resp. 21–22; Ex. 2006 ¶¶ 29–30, 35–36, 67–68; Ex. 2012, 2. However, as Petitioner points out, Patent Owner does not show conception of the claimed invention prior to the filing date of Argyroudis, of September 27, 1996. Pet. Reply 16. In particular, as Petitioner asserts, Patent Owner merely provides “the uncorroborated testimony” of Mr. Colton, Mr. Colton’s “purported handwritten notes” of a September 19, 1996 meeting, and a July 1, 1996 letter between PECO and Qualcomm, but “[n]one of these materials show conception of a concentrator that comprises a meter.” *Id.* at 16–17.

On this record, we are unpersuaded Patent Owner provides sufficient supporting evidence that the disclosures Mr. Colton and other PECO project team members made to Qualcomm (PO Resp. 22) were accessed (or at least accessible) to the inventor(s) of Argyroudis, that the disclosures were sufficient to enable one of ordinary skill in the art to make the patented invention, *and* that the patentable subject matter in Argyroudis was developed from the information disclosed. Therefore, based on a lack of factual support on this record, we conclude Patent Owner has not satisfied its burden of production under § 102(f) to establish that both prior conception of the invention by someone other than Argyroudis, and communication of that conception to Argyroudis. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015).

b. Independent Claim 1

Petitioner primarily relies on Argyroudis to teach and suggest all the limitations of independent claim 1. Pet. 18–36. In particular, Petitioner contends that Argyroudis teaches “a ‘control means’ in the form of ‘central controller 116’ in Figure 1.” *Id.* at 24–25. Petitioner also contends that Argyroudis teaches “a ‘plurality of metering devices’ in the form of the ‘powerline remote metering units’ or ‘PRMUs’ (and, optionally, the ‘wireless remote metering units’ or ‘WRMUs’) shown in Figure 3.” *Id.* at 25.

Petitioner then contends that “Argyroudis expressly refers to ‘the concentrator network of FIG. 3’ because the WRMU is a concentrator.” *Id.* at 29–30. According to Petitioner, “Argyroudis explains that the WRMU acts as a concentrator with respect to a plurality of metering devices” since “the hierarchical reporting and routing structure enables a single WRMU

302 to service many PRMU 345a and 345b,” wherein “the WRMU shown in Figure 3 has the structure of a concentrator.” *Id.* at 30 (citing Ex. 1007, 17:4–6).

In response, Patent Owner contends that Argyroudis “does not teach combining the concentrator and meter into one physical device or in the same housing,” wherein Petitioner “does not identify any previously known means to combine elements to create a single device containing a concentrator, meter, monitoring means and communication devices.” PO Resp. 3. In particular, Patent Owner disputes Petitioner’s contentions for the limitation a “concentrator further comprises a metering device and includes means for monitoring an amount of usage of a utility.” *Id.* at 39–47.

We focus on the “concentrator” excerpt from the following limitation in claim 1:

a defined number of concentrator[s], . . .
wherein said concentrator further comprises a metering
device and includes means for monitoring an amount of usage of
a utility.

Ex. 1001, 7:41–54.

i. “concentrator further comprises a
metering device and includes means for
monitoring an amount of usage of a utility”

Petitioner contends that, in Argyroudis, “WRMU 302 is structurally and functionally similar to the wireless remote metering units 102a–102n of FIG. 1,” wherein “units 102a–102n may be *comprised of*, for example, a basic transceiver coupled to a pre-existing conventional electro-mechanical *utility meter* by an interface device which is adapted to the type of meter (i.e. dial or odometer type).” Pet. 34–35 (citing Ex. 1007, 4:50–54, 16:16–22).

Thus, Petitioner contends “[t]his means that the WRMU includes a *metering device*.” *Id.* at 35.

Petitioner further contends “Argyroudis teaches that measurement device 202 ‘may be an electromechanical *power consumption monitor and display* of the rotating disk or odometer types as are known in the art.’” *Id.* (citing Ex. 1007, 10:24–26). Thus, Petitioner asserts that Argyroudis also teaches that the WRMU contains “means for monitoring an amount of usage of a utility” as recited in claim 1. *Id.* at 36.

In response, Patent Owner contends, “to overcome the Examiner’s initial rejection,” the claims of application that matured into the ’574 patent were amended to recite “a concentrator that is actually a utility meter and that also includes components for monitoring an amount of usage of a utility.” PO Resp. 39. According to Patent Owner, contrary to the invention in the ’574 patent, in Argyroudis, “[m]ultiple meters and other such devices could not be contained within the same unit because they must separately interface with their respective utility service or appliance,” and, as such, “the meters are distinct from the PRMUs.” *Id.* at 41. That is, “Figures 1 and 2 of Argyroudis provide for the e [sic] meter and transceiver to be ‘coupled,’” which “involves linking two devices,” and “not the existence of one physical device.” *Id.* at 44. Although Patent Owner concedes that Argyroudis provides “alternate embodiments” wherein “the remote metering units are integral units which combine the utility measurement and communication circuits into one device,” Patent Owner contends “this embodiment was not disclosed in Figures 1 and 2” of Argyroudis, “was [not] disclosed in Argyroudis 104 before the so-called concentrator system was disclosed,”

and thus “it cannot be read as suggesting a concentrator, meter and monitoring means in the same device.” *Id.* at 45.

Patent Owner also contends that Argyroudis’s PRMU route data received from meters to the WRMU, and thus, “WRMUs do not directly communicate with meters.” *Id.* at 41. Patent Owner contends, Argyroudis’s Figure 3 places PRMU and WRMU “in their own boxes,” which “indicates that they are separate devices.” *Id.* at 42–43 (citing Ex 1007, Fig. 3). According to Patent Owner, “Argyroudis does not provide for WRMUs (or even PRMUs) to replace one set of meters and serve a metering function.” *Id.* at 42. Thus, “[t]here is also no discussion in the Specifications of a WRMU or PRMU actually measuring the consumption of utility services.” *Id.* at 43. Although Patent Owner concedes that Argyroudis discusses that WRMUs and PRMUs are “structurally and functionally similar to the wireless remote metering units,” Patent Owner argues that “[i]t does not mean that any specific component of [a remote metering unit] are encompassed in a PRMU or WRMU.” *Id.* at 44.

In weighing the evidence before us, we find more persuasive the position of Petitioner.

Although Patent Owner contends Argyroudis’s “[m]ultiple meters and other such devices could not be contained within the same unit” (PO Resp. 41) or combined “in a single device” (*id.* at 44), as discussed above with respect to the construction of the claim language, claim 1 does not require that meters and other devices be contained “within the same unit” or combined “in a single device.” Similarly, although Patent Owner contends “WRMUs do not directly communicate with meters” (*id.* at 41), claim 1 also does not require any “directly” communicating step.

Argyroudis discloses a concentrator network embodiment comprising WRMU 302, which is structurally and functionally similar to the wireless remote metering units, and which receives gas meter information signals from gas meter 304a sent via PRMU 345a for further wireless reporting. Ex. 1007, 16:11–19, 16:59–66. The hierarchical reporting and routing structure enables WRMU 302 to service PRMUs 345a and 345b. *Id.* at 17:4–8. Thus, in Argyroudis, as Petitioner asserts, “the WRMU is a concentrator.” Pet. 29–30.

Furthermore, as Petitioner asserts, in Argyroudis, “WRMU 302 is structurally and functionally similar to the wireless remote metering units 102a–102n of FIG. 1.” Pet. 34–35 (citing Ex. 1007, 16:16–22). The remote metering units 102a–102n may be comprised of a basic transceiver coupled to a pre-existing conventional electro-mechanical utility meter, may be integral units, which combine the utility measurement and communication circuits into a single device, and may be part of a concentrator network. Ex. 1007, 4:50–5:6. Patent Owner concedes Argyroudis provides embodiments wherein “the remote metering units are integral units which combine the utility measurement and communication circuits into one device.” PO Resp. 45.

Furthermore, as Petitioner further points out, “WRMU is an abbreviation for Wireless Remote *Metering* Unit.” Pet. Reply 20 (citing Ex. 1007, 16:16). In Argyroudis, the meter is called “measurement device 202.” Ex. 1007, 10:23–26. Figure 2 of Argyroudis depicts a remote metering unit 102 (to which WRMU 302 is structurally and functionally similar) comprising a measurement device 202 such as a power consumption monitor, and a microprocessor 214, which calculates and stores the total

consumption in kilowatt hours. *Id.* at 10:21–50. That is, as shown in Figure 2 of Argyroudis, a remote metering unit such as a WRMU comprises a measurement device 202 such as a power consumption monitor. *Id.*

In view of Figures 1–3 of Argyroudis, we find Argyroudis’s WRMU 302 comprises a meter/metering device and that includes means for monitoring an amount of usage of a utility. Pet. 34–36. That is, we find Patent Owner’s contention that a WRMU or PRMU do not have the function of “measuring the consumption of utility services” (PO Resp. 43) unpersuasive.

On this record, Petitioner sufficiently shows that Argyroudis teaches or suggests a “concentrator” that further “comprises a metering device and includes means for monitoring an amount of usage of a utility” of claim 1.

ii. *Enabling Disclosure*

Patent Owner contends that Argyroudis lacks any disclosure of how to create a device that combines a concentrator in the form of a meter with monitor means. PO Resp. 46. According to Patent Owner,

Where it is claimed that disclosures in the art suggest a reason to attempt to develop the invention claimed in a patent, those claims are not obvious unless the prior disclosures “contain a sufficient teaching of how to obtain the desired result, or that the claimed result would be obtained if certain directions were pursued.”

Id. (citing *In re Eli Lilly & Co.*, 902 F.2d 943, 945 (Fed. Cir. 1990); *Leo Pharm. Products, Ltd. v. Rea*, 726 F.3d 1346, 1356 (Fed. Cir. 2013)).

However, we note the Specification of the ’574 patent is also lacking in many details (e.g., how to create a device that combines a concentrator in the form of a meter with monitor means). *Cf. In re Epstein*, 32 F.3d 1559, 1568 (Fed. Cir. 1994) (noting that a lack of detail in the Specification may

“support[] the Board’s finding that one skilled in the art would have known how to implement the features of the references”). Given the level of skill we have adopted and as reflected by the limited detail in the ’574 patent, we are unpersuaded that Argyroudis, which depicts a remote metering unit such as a WRMU comprising a measurement device 202 such as a power consumption monitor (Ex. 1007, 10:21–50, Fig. 2), lacks sufficient disclosure of how to create a device that “combine[s] a concentrator in the form of a meter with monitor means.” PO Resp. 46. As Petitioner asserts, relying on the declaration of Dr. Soliman, a person of ordinary skill in the art would have known how to mount components inside a housing. Pet. Reply 25 (citing Ex. 1003 ¶¶ 96–97).

iii. *Remaining limitations*

Patent Owner does not address separately Petitioner’s explanations and supporting evidence regarding the remaining limitations in independent claim 1. *See generally*, PO Resp. 39–47. We have reviewed Petitioner’s explanations and supporting evidence regarding these remaining limitations, and find them sufficient. *See* Pet. 18–36 (citing to various portions of Exs. 1007 and 1003). Based on the record before us, we conclude that Petitioner demonstrates, by a preponderance of the evidence, that independent claim 1 would have been obvious over Argyroudis.

c. Claim 3

Petitioner then contends that “Argyroudis discloses that the WRMU includes a wireless transmitter, receiver and antenna (216, 218, and 222), which it uses to communicate with . . . the central controller over the existing wireless communications networks.” Pet. 41 (citing Ex. 1007, 3:32–39). According to Petitioner, “[a]lthough Argyroudis does not

expressly label this wireless ‘shared random access channel’ a ‘wide area network’ a POSITA would understand it to be such a network.” *Id.*

In response, Patent Owner contends Argyroudis “does not disclose use of the general voice and data transmission capabilities of a publicly available WAN.” PO Resp. 47. According to Patent Owner, “exchanging data between a wireless remote unit and the control through the control channels of a wireless system that is claimed in Argyroudis is different than exchanging data over a publicly available WAN.” *Id.* at 48 (citing Ex. 2005, 41:8–43:17; Ex. 1110, 2:63–67; Ex. 2006 ¶ 70).

We focus on the “WAN means” excerpt from the following limitation in claim 3:

wherein said relay means comprises . . . WAN means for transmitting data for receipt by said control means over a wide area network.

Ex. 1001, 7:67–8:3.

As discussed above in constructing the claim language, we conclude that “WAN means” defined by the claims and consistent with the Specification can be means “for communicating (receiving and transmitting) data over the wide area network.” Ex. 1001, 5:3–10. However, we conclude that “WAN means” is not limited to a “public” WAN, as Patent Owner contends. PO Resp. 29.

Argyroudis discloses that the wireless remote metering unit transmits messages to the central controller over a shared random access channel. Ex. 1007, 3:32–41. In weighing the evidence before us, we find more persuasive the position of Petitioner that a POSITA would understand Argyroudis’s shared random access channel to be a “wide area network.” Pet. 41. On this

record, we conclude that Petitioner demonstrates, by a preponderance of the evidence, that Argyroudis teaches or suggests the “WAN means for transmitting data for receipt by said control means over a wide area network” of claim 3.

d. Claims 2, 6, 8, 9, 11, 23, 25, and 27–30

Patent Owner does not address separately Petitioner’s explanations and supporting evidence regarding these remaining claims. As a result, the Petitioner’s positions on the unpatentability of claims 2, 6, 8, 9, 11, 23, 25, and 27–30 stand unopposed as a part of this trial. Based on the record developed during trial, Petitioner has demonstrated by a preponderance of the evidence that those claims would have been obvious over Argyroudis.

C. *Claims 16, 17, and 20— Asserted Obviousness over Argyroudis and Selph*

Petitioner alleges that claims 16, 17, and 20 would have been obvious over Argyroudis and Selph. Pet. 55–65. Patent Owner raises several arguments in response. PO Resp. 49–53. We begin with a brief overview of Selph.

1. *Selph*

Selph, titled “Utility Meter and Submetering System,” issued February 14, 1989, from an application filed September 17, 1986. Ex. 1008, at [54], [45], [22]. Figure 9, reproduced below, shows a meter with a protective enclosure and face plate.

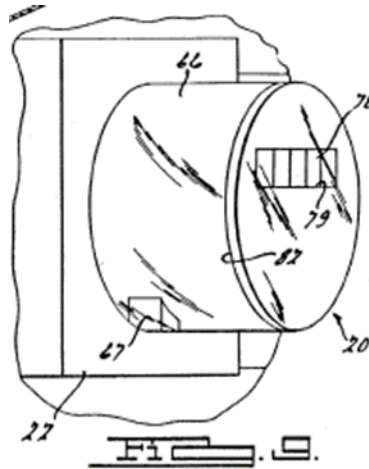


Figure 9 shows utility meter 20 adapted to plug directly into existing four-jaw meter sockets, such as socket 22. *Id.* at 6:53–55. The circuitry is housed within protective glass or plastic enclosure 66, which has an overall size and shape comparable to the glass enclosure found on conventional electromechanical watt-hour meters. *Id.* at 6:55–59. The components are housed in an enclosure to prevent physical tampering with the electronic circuitry. *Id.* at 3:35–36.

2. Analysis

a. Independent Claim 16

Petitioner primarily relies on Argyroudis to teach and suggest the limitations of independent claim 16. Pet. 59–61. To the extent Argyroudis does not teach all the limitations of independent claim 16, Petitioner relies on Selph to teach and suggest the missing limitations. *Id.* at 61–62.

In response, Patent Owner disputes Petitioner’s contention that “it would have been obvious in light of Selph to enclose the integral unit Argyroudis supposedly discloses in a housing.” PO Resp. 49–50 (citing Pet. 61–62).

We focus on the “housing” excerpt from the following limitations in claim 16:

a housing comprising a meter receiving said monitoring means, said LAN means and said WAN means

Ex. 1001, 9:34–35.

i. *“a housing comprising a meter receiving said monitoring means, said LAN means and said WAN means”*

Petitioner contends that, in Argyroudis, “the WRMU includes all of a measurement device 202 and reading interface 204 (‘a meter receiving said monitoring means’),” wherein “all of these components are part of an *integral* device.” Pet. 61. Petitioner then relies on Selph to teach that the invention “is housed in an enclosure which prevents physical tampering with the electronic circuitry.” *Id.* at 62 (citing Ex. 1008, 3:35–36). Thus, Petitioner contend “the WRMU as taught by Argyroudis in view of Selph’s teaching of enclosing a meter and its associated telemetry electronics in a housing, render this limitation obvious.” *Id.*

According to Petitioner, one of ordinary skill in the art would have been motivated to combine the teachings of Argyroudis and Selph. *Id.* at 58–59. Petitioner explains “both describe automatic remote metering system[s] for measuring the consumption of utilities using telemetry.” *Id.* at 58. Petitioner contends modifying Argyroudis’s metering units to include a housing “would have been predictable to a person of ordinary skill” because “[u]tility meters are customarily enclosed within housings because those housings provide protection from the elements, theft and damage,” and “Selph teaches that the housing can provide tamper resistance.” *Id.*

In response, Patent Owner contends that “Selph merely discloses a meter,” and then contends that “[i]t was recognized in the art that there would be significant obstacles to combining a concentrator, meter and monitoring, LAN and WAN means in a single device or in a housing that may be impossible to overcome.” PO Resp. 50 (citing Ex. 2006 ¶ 52). According to Patent Owner, “[e]lectronic components generate heat and create interference for other components,” and “[e]nclosing these components in a housing impedes the dissipation of this thermal energy,” for example. *Id.* (citing Ex. 2006 ¶¶ 47–50, 52). Patent Owner contends “[t]he claims of the ’574 Patent represented a significant technical achievement that required thousands of hours to accomplish” and thus “are not obvious.” *Id.* at 53 (citing Ex. 2006 ¶ 46).

In weighing the evidence before us, we find more persuasive the position of Petitioner. As Petitioner points out, although Patent Owner makes assertions about how difficult and time consuming it was to make a prototype concentrator meter, “the only support for these assertions is the uncorroborated and conclusory testimony of named inventor Mr. Colton and ATI’s CEO.” Pet. Reply 23–24. According to Petitioner, “[n]either of these declarants point to any disclosure of the ’574 patent that references any of the challenges they purportedly faced and overcame,” and “neither of ATI’s declarants addresses obviousness of this claim element from the perspective of a POSA or suggests that simply putting a housing around the claimed components was not obvious.” *Id.* at 24. Petitioner relies on Dr. Soliman’s declaration, contending that “enclosing the WRMU of Argyroudis in a housing would have been obvious to a POSA based on Selph, because enclosing electronic components in a housing was a known, predictable

solution to provide protection from the elements and tampering.” *Id.* at 24–25 (citing Ex. 1003 ¶¶ 92–94). Further, “a POSA would know how to modify the housing of Selph to accommodate the WRMU components of Argyroudis and how to mount components inside the housing.” *Id.* at 25 (citing Ex. 1003 ¶¶ 96–97).

On this record, we are persuaded that one of ordinary skill in the art would have been motivated to combine the teachings of Argyroudis and Selph, directed to the same field of endeavor of an “automatic remote metering system for measuring the consumption of utilities using telemetry.” Pet. 58. In particular, we are persuaded by Petitioner’s contention that modifying Argyroudis’s metering units to include a housing “would have been predictable to a person of ordinary skill” because “[u]tility meters are customarily enclosed within housings because those housings provide protection from the elements, theft and damage,” as supported by Selph. *Id.*

On this record, we are persuaded Petitioner has demonstrated by a preponderance of the evidence that the combination of Argyroudis and Selph teaches or suggests this claimed limitation of claim 16.

ii. Remaining limitations

Patent Owner does not address separately Petitioner’s explanations and supporting evidence regarding the remaining limitations in independent claim 16. *See generally*, PO Resp. 39–53. We have reviewed Petitioner’s explanations and supporting evidence regarding these remaining limitations, as well as Petitioner’s assertion that a person of ordinary skill in the art would have had a sufficient reason to combine or modify the teachings of the references, and we find them sufficiently persuasive. *See* Pet. 59–61 (citing to various portions of Exs. 1007, 1008 and 1003). On this record, we

are persuaded Petitioner has demonstrated by a preponderance of the evidence that independent claim 16 would have been obvious over the combination of Argyroudis and Selph.

b. Claims 17 and 20

Patent Owner does not address separately Petitioner's explanations and supporting evidence regarding claims 17 and 20. As a result, the Petitioner's positions on the unpatentability of claims 17 and 20 stand unopposed as a part of this trial. Based on the record developed during trial, Petitioner has demonstrated by a preponderance of the evidence that claims 17 and 20 would have been obvious over Argyroudis in view of Selph.

III. MOTIONS TO EXCLUDE

Petitioner requests that various content of the record should be excluded and not considered by the Board. Pet. Mot. 1. In summary, Petitioner seeks exclusion of:

- (1) Certain paragraphs of Exhibit 2006 under Fed. R. Evid. 602, 701, and/or 702 (*see id.* at 2–9); and
- (2) Exhibits 2007, 2012, 2013, 2021, and 2022 under Fed. R. Evid. 802 and/or 901 (*id.* at 10–15).

As discussed above, we conclude that Petitioner has shown by a preponderance of the evidence that claims 1–3, 6, 8, 9, 11, 16, 17, 20, 23, 25, and 27–30 are unpatentable under 35 U.S.C. § 103 based on Argyroudis either alone or in combination with Selph. None of the content that Petitioner seeks to have excluded factored into that conclusion. Thus, the consideration of whether the above listed content “should be excluded” or “not considered” is immaterial to our decision in connection with the patentability of claims 1–3, 6, 8, 9, 11, 16, 17, 20, 23, 25, and 27–30.

Petitioner's Motion to Exclude, thus, is moot, and we dismiss it for that reason.

IV. CONCLUSION

For the foregoing reasons, we are persuaded on the record at hand that Petitioner has shown by a preponderance of the evidence that claims 1–3, 6, 8, 9, 11, 23, 25, and 27–30 are unpatentable under 35 U.S.C. § 103 as obvious over Argyroudis, and that claims 16, 17, and 20 are unpatentable under 35 U.S.C. § 103 as obvious over Argyroudis and Selph.

V. ORDER

For the reasons given, it is

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 1–3, 6, 8, 9, 11, 16, 17, 20, 23, 25, and 27–30 of the '574 patent are unpatentable; and

FURTHER ORDERED that this is a Final Written Decision under 35 U.S.C. § 318(a), and that parties to the proceeding seeking judicial review of the decision under 35 U.S.C. § 319 must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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