

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 IPR2017-01031
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 16, 17, 20, 23, 25, and 27–30 of U.S. Patent No. 5,986,574 (Ex. 1101, “the ’574 patent”). Paper 1 (“Pet.”). We instituted trial to determine whether claims 16, 17, 20, 23, 25, and 27–30 are unpatentable under 35 U.S.C. § 103 based on Mayo² in combination with Roach.³ See Paper 10, 27 (“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 16, 17, 20, 23, 25, and 27–30 of the ’574 patent. For the reasons discussed

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 US 4,792,946 (Dec. 20, 1988) (“Mayo”; Ex. 1107).

³ US 5,546,444 (Aug. 13, 1996) (“Roach”; Ex. 1108).

below, we hold that Petitioner has demonstrated by a preponderance of the evidence that claims 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 1–3, 6, 8, 9, 11, 16, 17, 20, 23, 25, and 27–30 of the '574 patent (IPR2017-01030). 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. 1101, at [45], [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.

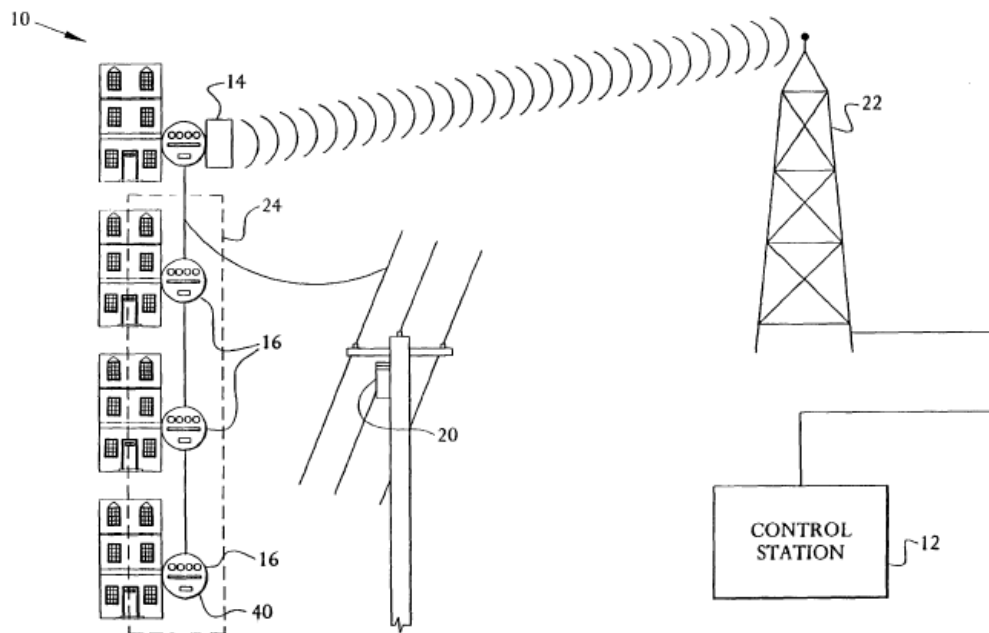
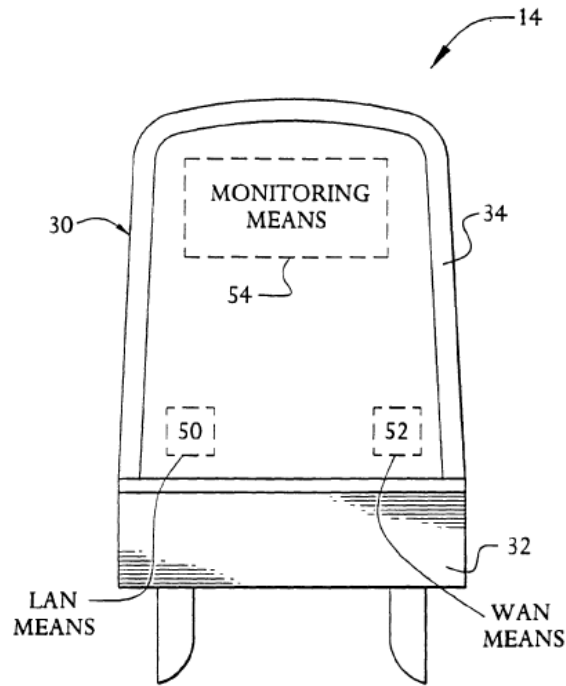


FIG. 1

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 an 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 claim 16 is illustrative of the challenged claims at issue. Claim 16 is reproduced below:

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. 1101, 9:22–35.

E. Instituted Grounds of Unpatentability

We instituted trial on the following specific ground (Pet. 8–9): Claims 16, 17, 20, 23, 25, and 27–30 are unpatentable under 35 U.S.C. § 103(a) over Mayo and Roach.

Petitioner also relies on the declaration of Dr. Samir S. Soliman. Exs. 1103, 2005. Patent Owner relies on, *inter alia*, the declarations of Laurence J. Colton, P.E., and Ray Bassiouni, Ph.D. Exs. 2006, 2012.

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, “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 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. 1101, 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. 1103 ¶¶ 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. 21. 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.”⁴ *Id.* at 22.

⁴ “POSITA” is a short-form expression of a person of ordinary skill in the art.

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 21. Although the Specification indicates that “[i]n a presently preferred embodiment,” the servicing means 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. 1101, 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 9) 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 10.

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. 1101, 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 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.* (citing Ex.1001, 4:33–34, 5:15–20). Thus, Petitioner contends term should be interpreted as “incremental type metering devices and equivalents.” *Id.* (citing Ex. 1103 ¶ 69).

Patent Owner asserts that “[m]eans for [m]onitoring 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. 23. According to Patent Owner, these interfaces or modules are essential components of an AMR system. *Id.* (citing Ex. 1114, 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 11. 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 12–13.

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 11.

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. 1101, 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. 23.

3. “concentrator” (claims 16, 23)

According to Petitioner, the various embodiments in the Specification describe features of exemplary concentrators, but the Specification does not require the “concentrator” to have any particular structure and instead describes the concentrator in terms of its functions. Pet. 11–12. Thus, Petitioner asserts “concentrator” should be construed as “a device which concentrates data from a group of meters and communicates data between those meters and a controller.” *Id.*

Patent Owner asserts that a “concentrator” is “a functional unit that receives data from (and/or relays data over) multiple sources or channels and relays it (and/or receives data) over a few channels to sources.” PO Resp. 24. According to Patent Owner, “concentrator” in the ’574 patent refers to “the concentrator components of the claimed concentrator meter,” and this “definition is derived from Institute for Telecommunication Sciences (ITS)’s definition of a concentrator.” *Id.* (citing Ex. 1101, 2:2, 4:67–5:53; Ex. 2006 ¶33). Patent Owner contends “the Patent contemplates the functionality of a concentrator” in which it “receives data from the plurality of metering devices through a LAN” and “transmits the data to a single control station through a WAN.” *Id.* at 25.

In response, Petitioner contends that Patent Owner’s proposed construction “goes beyond the online dictionary definition of ‘concentrator,’” and “introduces confusion . . . by using multiple unnecessary ‘and/or’ clauses and parentheticals.” Pet. Reply 2 (citing *Paragon Sols., LLC v. Timex Corp.*, 566 F.3d 1075, 1091 (Fed. Cir. 2009)). Although Petitioner agrees that “concentrating data requires receipt of data from multiple sources,” Petitioner contends that no evidence cited by Patent

Owner supports limiting the claimed “concentrator” by “requiring it to communicate the received data ‘over a fewer channels to sources.’” *Id.* at 3 (quoting PO Resp. 24). According to Petitioner, “the concentrator must simply transmit the concentrated data to a control.” *Id.*

We agree with Petitioner and are unpersuaded by Patent Owner’s contention that “concentrator” receives data from multiple sources or channels and “relays it (and/or receives data) *over a few channels to sources.*” PO Resp. 24 (emphasis added). In particular, claim 16 merely recites “concentrator” as having “means for relaying communication between a plurality of metering devices and at least one control station,” and comprising “a meter and means for monitoring an amount of usage of a medium.” Ex. 1101, 9:22–27. Further, the Specification merely states that relay means 14 comprises “a concentrator in the form of a meter . . .” wherein “preferably the concentrator meter 14 includes monitoring means 54 for measuring an amount of usage of a utility at a given location . . .” *Id.* at 4:65–67, 5:16–18.

We construe the term “concentrator” in accordance with its ordinary and customary meaning, namely, as a device which concentrates, i.e., collects and stores data. This construction is consistent with the Specification. Thus, in accordance with this construction, and within the context of further recitations in the claims, the “concentrator” can be any device which concentrates, i.e., collects and stores, data, which comprises a meter, means for monitoring an amount of usage, and means for relaying the data between metering devices and at least one control station. The Specification, claims, and prosecution history do not compel any different conclusion. *See DePuy Spine, Inc.*, 469 F.3d at 1014. That is,

“concentrator” is not limited to any device that relays and/or receives data “over a few channels to sources.” PO Resp. 24.

4. “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. 1101, 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 relay’” and “a corresponding structure of ‘a transmitter and receiver.’” *Id.* at 15–16 (citing Ex. 1103 ¶ 69–70).

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. 26. 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.* (citing Ex. 1101, 4:6–11)) —but contends that the ’574 patent refers to the structure of 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. 1101, 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.

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

Petitioner contends the '574 patent expressly links the function of “transmitting data” to a conventional transmitter. Pet. 16–17 (citing Ex. 1101, 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. 1103 ¶¶ 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 “conventional WAN radio capable of transmitting over public Wide Area Networks.” PO Resp. 28. 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 (citing Ex. 2006 ¶ 60). 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. 1101, 5:11).

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 28. As Petitioner contend, “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 16 (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. 1101, 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 1101, 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. 28.

6. “LAN means” for “receiving data” (16, 17, 20)

Petitioner contends the ’574 patent expressly links the function of “receiving data” to a conventional receiver. Pet. 16–17 (citing Ex. 1101, 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. 1103 ¶¶ 69–70). Thus, Petitioner contends “LAN means for receiving” should be construed as means-plus-function term with the function 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. 29–30. 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.* at 30. 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.*

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.* at 29–30. As Petitioner contends, “the claims only require receipt of data *from* meters, not receipt of data *directly from* meters.” Pet. Reply 14.

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. 1101, 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. 29–30.

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. 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 31–32 (citing Ex. 1101, 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. 1101, 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 7. 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 8–9. Although Petitioner concedes that “[t]he parties agree that a housing is an enclosure” (*id.* at 6 (citing PO Resp. 25, 34)), Petitioner disagrees that “the claimed meter must be ‘capable of being inserted into a standard meter socket.’” *Id.*

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. 34–35.⁵

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 Petitioner’s proposed constructions:

Claim Term	Construction
“means for relaying communication” (Claims 16, 17, 20) / “relay means” (Claims 23, 25, 27–30)	“a relay;” “a device that receives signals from one or more locations and then retransmits them to another location.” Pet. 13.

⁵ 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.

“control means” (Claims 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 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 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.

B. Claims 16, 17, 20, 23, 25, and 27–30 — Asserted Obviousness over Mayo and Roach

Petitioner alleges that claims 16, 17, 20, 23, 25, and 27–30 are unpatentable over Mayo and Roach. Pet. 17–38.

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. 1103 ¶ 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.* Patent Owner does not assess the level of ordinary skill in the art.⁶

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

⁶ 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.”).

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. 60 (citing *Apple Inc. v. Samsung Electronics Co., Ltd.*, 839 F.3d 1034 (Fed. Cir. 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 ¶¶ 8–20).

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, 539–39 (CCP A 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, 1324 (Fed. Cir. 2005)). 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 and 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. 62. 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 to \$5,000,000 in an arms-length transaction between PECO and

Orion in forming a joint venture and was license to Motorola.” *Id.* (citing Ex. 2006 ¶¶ 70–71).

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—Mayo*

Mayo, titled, "Wireless Local Area Network for Use in Neighborhoods," issued December 20, 1988 from an application filed April 7, 1987, assigned to Spectrum Electronics, Inc. Ex. 1107, at [54], [45], [22], [73]. Mayo is directed to a "local area network" for digital information transmission to and from each of a plurality of building units in an area, such as homes in a neighborhood, wherein each unit is provided with a transceiver station connected to a system such as "a power distribution system" in the unit in such a way that information can be gathered from said system and commands delivered to said system. Abst. In Mayo, the transceivers on the network are serially linked in a loop, and commands for the system in any building unit and data from any system in any building unit may be passed from unit to unit about the loop in either of two directions. *Id.*

Figure 1, reproduced below, shows a representation of a neighborhood in which a plurality of homes are included within the local area network.

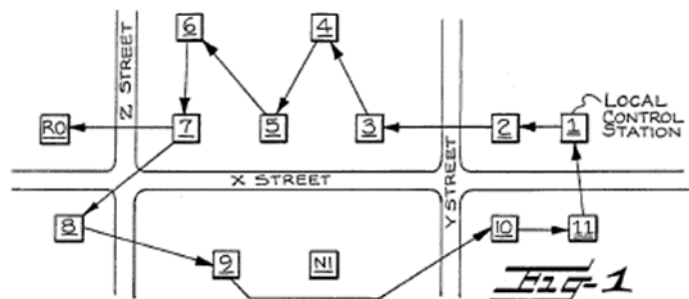


Figure 1 depicts a neighborhood comprising thirteen homes, eleven of which (1–11) are actively included in the local area network. *Id.* at 5:5–8. Each home in the network has a transceiver station installed therein, wherein the transceiver station at home 1 has been selected to act as the local control station normally included in the network. *Id.* at 5:8–12. Within each home, the transceiver station is connected to a system, which may be associated with a utility distribution system in the home, capable of ascertaining and reporting on kilowatt-hour usage. *Id.* at 5:31–40. The selected transceiver station at home 1 (local control station) includes means for generating commands addressed to any of the other transceiver stations, and means for retrievably storing data recognizably received from any of the transceiver stations in the network. *Id.* at 3:40–47.

Figure 4, reproduced below, shows a simplified version of the local area network including means for interconnecting the network with a remote central station:

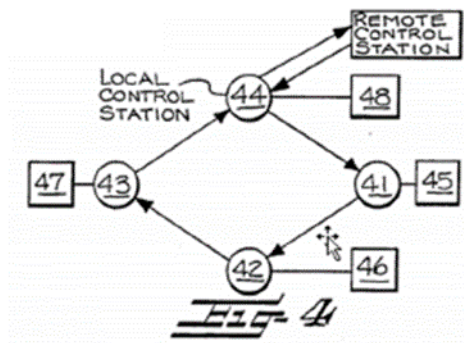


Figure 4 depicts transceiver stations 41, 42, 43, and 44 serially linked in a loop, with station 44 being the local control station. *Id.* at 9:40–43. Local control station 44 is linked with a remote control station by a two-way, long-distance radio, wherein the remote control station is an office of a public utility, for example. *Id.* at 9:47–54. Thus, information such as utility

usage would be passed over the phone lines to the remote station. *Id.* at 10:3–7.

5. *Roach*

Roach, titled, “Methods and Apparatus for Communicating Data via a Cellular Network Control Channel,” issued Aug. 13, 1996 from an application filed Mar. 11, 1994, assigned to BellSouth Corporation. Ex. 1108, [54], [45], [22], [73]. Roach is directed to a “data message system” for communicating data collected from remote data sources, which includes sets of data reporting devices, wherein each data reporting device includes a monitor and a cellular communication device. *Id.* at 4:42–48. In Roach, selected data acquired from various remote sites can be communicated to a single location, wherein the data sources include utility meters located proximate to the consumer location, and a utility meter can obtain parameters such as power demand recorded by a monitor connected to the source and communicated via the control channel of the system. *Id.* at 5:12–23.

Figure 1, reproduced below, shows a data message system in a cellular mobile radiotelephone (CMR) system:

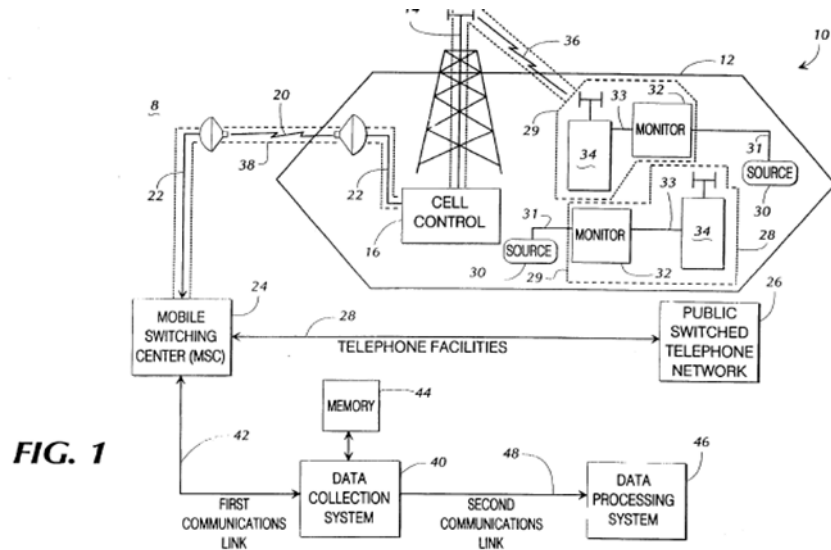


Figure 1 depicts data collection system 10, which includes a set of data reporting devices 29, each comprising at least one monitor 32 for collecting data from remote data sources 30 and a cellular communication device 34 for communicating the collected data via a control channel of the CMR system to a mobile switching center (MSC) 24. *Id.* at 9:47–52. The CMR system includes an array of cells, such as cell 12, wherein a set of reporting systems 29, each formed by monitor 32 and cellular communications device 34 are located in a cell. *Id.* at 17:7–10.

For each data source 30 within cell 12, monitor 32 and cellular communication device 34 are located proximate to data source 30 to minimize the lengths of signal paths 31, 33, and thus monitor 32 and cellular communication device 34 can be combined within the same housing and this housing is then installed either adjacent to or as an integral part of the data source 30. *Id.* at 17:11–18.

A singular cellular communications device 34 can be connected to multiple monitors 32, for example, a single cellular communication device 34 can be mounted at a central location within or along an office building

with multiple monitors 32 distributed throughout the building to permit the acquisition of data from the associated data sources, and thus permitting the transmission of selected data collected from associated data sources 30 located at a central site. *Id.* at 17:25–33.

6. *Analysis*

a. Independent Claim 16

Petitioner relies on Mayo in view of Roach to teach and suggest all the limitations of independent claim 16. Pet. 26–38. In particular, Petitioner contends that Mayo teaches a “group of transceivers coupled to utility meters,” which “constitute the claimed ‘plurality of metering devices.’” *Id.* at 26. Petitioner also contends that, in Mayo, “the local control station satisfies the requirements of a concentrator because it concentrates data from multiple metering devices coupled to transceivers and relays it to the remote control station.” *Id.* at 28.

Petitioner then contends that “Roach disclosed that ‘[t]o facilitate economical installation of the reporting device, the monitor 32 and the cellular communication device 34 can be combined within the same housing and this housing can be installed either adjacent to or as an integral part of the data source 30.’” *Id.* at 30 (quoting Ex. 1108, 17:14–18). Thus, Petitioner contends that it would have been obvious to combine Roach with Mayo “to create a concentrator that included the meter and the transceiver as part of the same integral unit, rather than just being externally connected to one or more meters.” *Id.* at 30–31.

Petitioner also contends that “Mayo discloses that each transceiver station—including the local control station (i.e., the concentrator) —includes a transceiver, which includes the required structure of a LAN means for

receiving data: a receiver and a transmitter.” *Id.* at 31. According to Petitioner, “Mayo further discloses that the local control station transmits this data associated with both said plurality of metering devices and said monitoring means to the remote control station” *Id.* at 33. Petitioner contends that Mayo’s “long-range radio requiring an FCC license, using channels shared by a large number of parties, communicates over a wide area network, satisfies the structure of the WAN means,” *Id.* at 35.

Although Petitioner concedes that “Mayo does not explicitly teach placing the transceiver at the local control station in the housing of one of the connected meters,” Petitioner contends that “this would have been obvious to one of ordinary skill in the art in view of Roach.” *Id.*

i. “A concentrator having means for relaying communications 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”

Petitioner contends that Mayo discloses “a system of networked ‘transceiver stations’ that can function as a ‘local area utility service network,’ with the transceiver stations receiving ‘information concerning utility usage’ from a connected meter in each of ‘a plurality of homes,’ and also conveying to the meter ‘appliance enabling and disabling commands.’” Pet. 26 (citing Ex. 1107, FIG. 1, 3:27–39, 5:15–17; Ex. 1103 ¶¶ 89–96). According to Petitioner, one of ordinary skill in the art “would recognize that the group of transceivers coupled to utility meters constitutes the claimed ‘plurality of metering devices.’” *Id.*

Petitioner further contends that, in Mayo, one of the plurality of transceiver stations in the set may be designated a “local control station,”

wherein “this local control station can communicate over a two-way link with a ‘remote control station.’” *Id.* at 27 (citing Ex. 1107, 9:41–49, Fig. 4). Thus, Petitioner contends that the local control station satisfies the requirements of a “concentrator” because it “concentrates data from multiple metering devices coupled to transceivers and relays it to the remote control station,” and also “relays data from the remote control station to multiple normal transceivers connected to kilowatt-hour meters” in the local area network. *Id.* at 28. Further, one of ordinary skill in the art “would recognize that the remote control station constitutes the control station as claimed.” *Id.* (citing Ex. 1103 ¶ 96).

Although Petitioner contends that Mayo does not “explicitly depict” that the transceiver at the local control station is coupled to electric meters, Petitioner contends that “it would be obvious to one of ordinary skill in the art that the transceiver at the local station can be – and in fact in the Mayo system, would be – connected to electric meters too” because “Mayo illustrate[s] that transceiver stations have input/output connections to various utility meters regardless of whether a transceiver is designated as the ‘local master.’” *Id.* at 29.

Petitioner also contends that “Roach is explicit that, like [the] local control station transceiver in Mayo, its cellular communication device collects data from a metering device” to which it is connected, and “transmits it wirelessly to a mobile switching center and from there to a data collection system (akin to the remote control station of Mayo).” *Id.* at 36 (citing Ex. 1108, 4:42–58). Further, “Roach also makes clear that its cellular communication device, like the local control station transceiver in Mayo,

can collect data from multiple monitors and data sources.” *Id.* (citing Ex. 1108, 17:25–34).

Petitioner then contends that Roach discloses that monitor 32 and cellular communication device 34 can be combined within the same housing and “this housing can be installed either adjacent to or as an integral part of the data source 30.” *Id.* at 30 (citing Ex. 1108, 17:14–18). Thus, Petitioner contends that it would have been obvious to combine Roach with Mayo “to create a concentrator that included the meter and the transceiver as part of the same integral unit, rather than just being externally connected to one or more meters.” *Id.* at 30–31.

In Patent Owner’s Response, Patent Owner contends that “Mayo does not teach the fundamental element of a concentrator,” but rather “the only additional functionality the local control station performs is to issue commands to the other transceiver stations.” PO Resp. 46 (citing Ex. 1107, 3:40–47). According to Patent Owner,” it is only in “another alternative embodiment” that “the local control station transmits data to a remote control station,” wherein “the local control station simply transmits the data it receives along the serial loop to the remote control station,” thus, acting “only as a relay.” *Id.* (citing Ex. 1107, 9:47–63, Fig. 4). Thus, Patent Owner contends, “[i]n no embodiment disclosed in Mayo does the local control station act as a concentrator in receiving data from multiple sources or over multiple channels.” *Id.*

Further, Patent Owner contends that “Mayo clearly illustrates the transceiver as being connectable to, but not integrated into, the device it monitors.” PO Resp. 48. According to Patent Owner, “[c]onnecting two units does not render them one device, and a local control unit is not

comprised of a meter and reporting means simply because it is connected to them.” *Id.* Although Patent Owner concedes “Roach states that devices may be combined into one unit” (*id.*), and that “the communication device ‘can be connected to multiple meters’” (*id.* at 49), Patent Owner contends “‘connecting’ devices suggests that they are separate.” *Id.* According to Patent Owner, “Roach teaches away from placing a communication device receiving data from multiple monitors proximate to, as an integral of, or within the same housing as a monitor or data collection device.” *Id.* Thus, “a POSITA would not understand from Roach to combine that device with a meter and monitor to create a concentrator comprising a meter and monitoring means.” *Id.* at 50.

In the Petitioner’s Reply, Petitioner responds that “the local control station in Mayo *does* receive data from multiple sources.” Pet. Reply 18–19. According to Petitioner, “receipt of data ‘over multiple channels,’” as Patent Owner contends, “is not part of the definition of a ‘concentrator.’” *Id.* Petitioner also takes issue with Patent Owner’s arguments the claims require the local control unit comprised of a meter and reporting means “within the same physical device.” *Id.* Nevertheless, Petitioner contends that “even if ‘comprising’ did require the claimed components to be part of a single, integral unit, this would have been obvious to a POSA based on Mayo and Roach.” *Id.* at 20. That is, relying on Dr. Soliman’s declaration, Petitioner argues “[a] POSA would understand the word ‘integral’ in Roach to mean that the components could all be located within the same housing.” *Id.* at 23, n.11 (citing Ex. 1103 ¶¶ 116–117). According to Petitioner, “whether two devices are hard-wired to one another does not impact the obviousness of placing them within the same housing, which is all the claim requires.” *Id.*

at 23–24. Petitioner points out that Patent Owner’s declarant, Mr. Colton, “admits that there was no ingenuity associated with placing the claimed components ‘in a single housing of unspecified size and shape.’” *Id.* at 24, fn 12 (citing Ex. 2006 ¶ 69).

In weighing the evidence before us, we find more persuasive the position of Petitioner. Mayo discloses a plurality of transceiver stations installed within respective homes, wherein one transceiver station is selected to act as the local control station normally included in the network. Ex. 1107, 5:8–12. The local control station (selected transceiver station) includes means for generating commands addressed to any of the other transceiver stations, and means for retrievably storing/concentrating data recognizably received from any of the transceiver stations in the network. *Id.* at 3:40–47. The local control station is linked with a remote control station by a two-way, long-distance radio, wherein the remote control station is an office of a public utility, for example. *Id.* at 9:47–54. Thus, information such as utility usage would be passed over the phone lines to the remote station. *Id.* at 10:3–7.

We agree with Patent Owner that Mayo’s local control station “issue[s] commands to the other transceiver stations,” and, in an embodiment, the local control station “transmits the data it receives along the serial loop to the remote control station,” thus, acting as a “relay.” PO Resp. 46 (citing Ex. 1107, 3:40–47, 9:47–63, Fig. 4). However, we are unpersuaded by Patent Owner’s contention that “[i]n no embodiment disclosed in Mayo does the local control station act as a concentrator in receiving data from multiple sources or over multiple channels.” *Id.* As discussed above with respect to the construction of the term, in accordance

with its ordinary and customary meaning, we are unpersuaded by Patent Owner's contention that "concentrator" receives data from multiple sources or channels and "relays it (and/or receives data) over a few channels to sources." PO Resp. 24. Thus, we are unpersuaded by Patent Owner's contention that Mayo's local control station does "not act as a concentrator in receiving data . . . over multiple channels." *Id.* at 46.

Instead, we agree with Petitioner's contention that Mayo's local control station satisfies the requirements of a "concentrator" because it "concentrates data from multiple metering devices coupled to transceivers and relays it to the remote control station" and also "relays data from the remote control station to multiple normal transceivers connected to kilowatt-hour meters" in the local area network. *Id.* at 28, *see* Ex. 1103 ¶ 96. That is, although it "transmits the data it receives along the serial loop to the remote control station" as Patent Owner contends (PO Resp. 46), it *does* receive data from multiple sources to transmit along the serial loop.

Furthermore, as Petitioner points out, which Patent Owner does not contest, like the local control station transceiver in Mayo, Roach's cellular communication device collects data from metering devices to which it is connected, and "transmits it wirelessly to a mobile switching center and from there to a data collection system (akin to the remote control station of Mayo)." Pet. 36 (citing Ex. 1108, 4:42–58). According to Petitioner, in Roach, the cellular communication device, "like the local control station transceiver in Mayo, also collects data from multiple monitors and data sources." *Id.* (citing Ex. 1108, 17:25–34).

In Roach, monitor 32 and cellular communication device 34 can be combined within the same housing and this housing can be installed either

adjacent to or as an integral part of the data source 30. Ex. 1108, 17:14–18. We are also unpersuaded by Patent Owner’s contention that, in Roach, “. . . ‘integral’ means connected to a device, not being a part of it” (Prelim. Resp. 29 (citing Ex. 1108, 17:19–21)). Although this portion of Roach gives an exemplary embodiment of a hard-wired connection between connected devices of an “adjacent” embodiment, we are unpersuaded by Patent Owner’s contention that “either adjacent to or as an integral part of” is limited to being “adjacent to” or “connected to” a device.” *Id.*

We also agree with Petitioner that “even if ‘comprising’ did require the claimed components to be part of a single, integral unit, this would have been obvious to a POSA based on Mayo and Roach.” Pet. Reply 20. We are not persuaded by Patent Owner’s contention that “Roach teaches away from placing a communication device receiving data from multiple monitors proximate to, as an integral of, or within the same housing as a monitor or data collection device,” or that “a POSITA would not understand from Roach to combine that device with a meter and monitor to create a concentrator comprising a meter and monitoring means.” PO Resp. 50. Instead, we agree with Petitioner that “[a] POSA would understand the word ‘integral’ in Roach to mean that the components could all be located within the same housing.” Pet. Reply 23. As Patent Owner concedes, in Roach, “the communication device ‘can be connected to multiple meters’” (PO Resp. 49), and Roach states that “devices may be combined into one unit.” *Id.* at 48.

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

ii. *“LAN means for receiving data from said plurality of metering devices over a local area network”*

Petitioner contends that Mayo discloses that “each transceiver station – including the local control station (i.e., the concentrator) – includes a transceiver, which includes the required structure of a LAN means for receiving data: a receiver and a transmitter.” Pet. 31 (citing Ex. 1107, 2:42–45; Ex. 1103 ¶ 104). According to Petitioner, relying on the declaration of Dr. Soliman, Mayo discloses that “the concentrator, i.e., the local control station receives data from a plurality of metering devices over a local area network via the LAN means.” *Id.* at 32 (citing Ex. 1103 ¶¶ 107–108).

In response, Patent Owner contends that, in Mayo, “the receiver in the local control station does not receive data from a plurality of meters.” PO Resp. 48. In particular, Patent Owner contends that, although “another transceiver station transmits data to the local control station that it has received from a data source,” that data “is not received from the data source in a direct communication path” but rather “the data source is connected to the transceiver, which retransmits the data to the local control system.” *Id.* According to Patent Owner, “the LAN in Mayo operates in a loop, so each transceiver receives data from a data source,” as such, the system in Mayo “includes multiple devices to relay data” and “lacks the efficiency of only having one relay with the LAN as disclosed in the ‘574 Patent.” *Id.* (citing Ex. 1101, 7:9–13).

In the Petitioner’s Reply, Petitioner contends that “a LAN means does not require direct communication between the meters and the concentrator.” Pet. Reply 20. Petitioner points out that “[t]he ‘574 patent explicitly states that there can be an indirect communication path, in which

certain meters communicate with the concentrator through other meters, just as in Mayo.” *Id.* (citing Ex. 1101, 4:33–39). Thus, according to Petitioner, “this element is disclosed in Mayo.” *Id.*

In weighing the evidence before us, we find more persuasive the position of Petitioner. We agree with Petitioner that Mayo discloses a network of transceiver stations, each (including the local control station) including a receiver that receives data from metering devices over the network. Pet. 31; Ex. 1107, 2:42–45. Thus, we are persuaded by Petitioner’s contentions and the declaration of Dr. Soliman that Mayo’s “local control station” includes “a transceiver, which includes the required structure of a LAN means for receiving data: a receiver and a transmitter,” and thus, Mayo discloses a “the concentrator, i.e., the local control station” that “receives data from a plurality of metering devices over a local area network via the LAN means.” *Id.* at 31–32 (citing Ex. 1103 ¶¶ 107–108).

As discussed above with respect to the construction of the term “LAN means,” 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. PO Resp. 29–30. As Petitioner contends, “the claims only require receipt of data *from* meters, not receipt of data *directly from* meters.” Pet. Reply 14.

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

iii. “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”

Petitioner contends that Mayo discloses that the local control station transmits the data associated with both the plurality of metering devices and said monitoring means to the remote control station. Pet. 33. Petitioner contends that “Mayo further discloses that the local control station and the remote control station are linked by a ‘two-way, long-distance radio . . . ,’ and that “the two way long-distance radio utilize channels shared by ‘an indefinite large number of parties,’” which “satisfies the structure of the WAN means.” *Id.* at 34–35.

In response, Patent Owner contends “Mayo discloses that the local and remote control stations exchange data through long distance radio communications,” thus “[t]he transceiving means in Mayo would accordingly be one with sufficient power to transmit long distances over radio frequencies,” and “would not be a WAN means for transmitting over a publicly available wide area network.” PO Resp. 51. According to Patent Owner,” a “[w]ide area network is defined as a ‘publicly available Wide Area Network’ maintained by a commercial provider,” wherein “[l]ong distance radio transceivers are not ‘conventional WAN radios,’ involve private communications, and utilize neither commercial providers nor switching means.” *Id.* at 52 (citing Ex. 2006 ¶60). Patent Owner contends, “the numerous references in the ’574 Patent of relaying the data through a switch establishes that the WAN is a switched telecommunications network,” whereas “a multi-channel radio transmission only offers a series of point-to-point alternative channels and is not a network.” *Id.* at 53–54.

In the Petitioner Reply, Petitioner points out, although Patent Owner contends that Mayo’s “two-way, long distance radio” is “not a ‘conventional WAN radio’” and “does not communicate over a ‘publicly available Wide Area Network,’” such limitations are not “required of the ‘WAN means’ as properly construed.” Pet. Reply 21. Petitioner relies on the declaration of Dr. Solimon, who opined that “the disclosure of a radio utilizing channels shared ‘by an indefinitely large number of parties’ means that communication is over a wide area network.” *Id.* (citing Ex. 1103 ¶ 111). According to Petitioner, Dr. Solimon testified that “‘point-to-point’ communications can be part of a WAN,” and that “[t]he FCC licensed radio disclosed in Mayo constitutes a disclosure of the claimed WAN means, and at a minimum, would have made it obvious to a POSA.” *Id.* at 22 (citing Ex. 1103 ¶ 111; Ex. 2005, 82:6–86:2, 84:17–85:5).

In weighing the evidence before us, we find more persuasive the position of Petitioner. Here, we agree with Petitioner that Mayo discloses a local control station that transmits data associated with both a plurality of metering devices and monitoring means to a remote control station. Pet. 33.

We are unpersuaded by Patent Owner’s contention that the transceiving means in Mayo “would not be a WAN means for transmitting over a publicly available wide area network.” PO Resp. 51. As discussed above regarding the construction of the term “WAN means,” we are unpersuaded by Patent Owner’s contention that a “WAN means for transmitting/receiving data” should be construed as a “conventional” WAN “radio” capable of transmitting over “public” Wide Area Networks. *Id.* at 28. We conclude that “WAN means” can be any means “for communicating

(receiving and transmitting) data over the wide area network.” See Ex. 1101, 5:3–10.

We are persuaded by Petitioner’s contention with the supporting declaration of Dr. Solimon that “the disclosure of a radio utilizing channels shared ‘by an indefinitely large number of parties’ means that communication is over a wide area network,” and that “‘point-to-point’ communications can be part of a WAN.” Pet. Reply 21–22; Ex. 1103 ¶ 111; Ex. 2005, 82:6–86:2, 84:17–85:5.

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

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

Petitioner contends that one of ordinary skill in the art “would have known that the disclosure of the housing containing the monitor and cellular communication device being installed ‘as an integral part of the data source’ meant that the data source would be contained within the same housing as the monitor and cellular communication device,” whereas “Roach contrast[s] this configuration with one where the housing is ‘adjacent to’ the data source.” Pet. 36–37 (citing Ex. 1108, 17:11–18). Thus, Petitioner contends that the ordinarily skilled artisan would have been motivated to “actively search for a solution” like the one offered by Roach, given the motivation “to enclose both metering and transmitting devices inside a housing to protect them from the elements, theft, and damage.” *Id.* at 38.

In response, Patent Owner contends that “Roach fails to disclose a concentrator made up of a meter into which a monitor, LAN transceiver and WAN transceiver are placed.” PO Resp. 54. Although Patent Owner concedes that Roach discloses that the “reporting device, monitor and the communication device can be combined within the same housing and this housing can be installed either adjacent to or as an integral part of the data source” (*id.* (citing Ex. 1108, 17:11–14)), Patent Owner contends that “[t]his language does not even disclose placing reporting device, monitor and communication device into a housing.” *Id.* Patent Owner references *Morris* in contending that “integral could also mean multiple-piece structure.” *Id.* at 55 (citing *In re Morris*, 127 F.3d 1048, 1055–56 (Fed. Cir. 1997)).

In the Petitioner’s Reply, Petitioner points out (which Patent Owner concedes (PO Resp. 54)) that “Roach expressly discloses that the various components ‘*can be combined within the same housing and this housing can be installed either adjacent to or as an integral part of the data source 30.*’” Pet. Reply 22–23 (citing Ex. 1108, 17:14–18). According to Petitioner, this claim element “would have been obvious to a POSA based on the disclosure of Mayo, in combination with Roach’s teaching that the housing (containing the monitor and cellular communication device) can be an integral part of the data source.” *Id.* (citing Ex. 1103 ¶¶ 115–117).

In weighing the evidence before us, we find more persuasive the position of Petitioner. Although we agree with Patent Owner that “integral could also mean multiple-piece structure” (PO Resp. 54 (citing Ex. 1108, 17:14–18)), we also agree with Petitioner and the supporting declaration of Dr. Soliman that it would have been obvious “to a POSA based on the disclosure of Mayo, in combination with Roach’s teaching that the housing

(containing the monitor and cellular communication device) can be an integral part of the data source.” Pet. Reply 22–23 (citing Ex. 1103 ¶¶ 115–117). Here, Petitioner contends that one of ordinary skill in the art would have known that the disclosure of “the housing containing the monitor and cellular communication device being installed ‘as an integral part of the data source’” meant that the data source “would be contained within the same housing as the monitor and cellular communication device.” Pet. 36–37 (citing Ex. 1108, 17:11–18). As Petitioner points out, “Roach contrasts this configuration [of being an integral part of the data source] with one where the housing is ‘adjacent to’ the data source.” *Id.*

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

b. Claims 17, 20, 23, 25, and 27–30

Patent Owner does not provide substantive arguments regarding claims 17, 20, 23, 25, and 27–30 separately from those of claim 16. PO Resp. 57–59. Based on the record developed during trial, Petitioner has also demonstrated by a preponderance of the evidence that claims 17, 20, 23, 25, and 27–30 would have been obvious over Mayo in view of Roach.

III. MOTIONS TO EXCLUDE

Petitioner requests that various content of the record should be excluded and not considered by the Board. Pet. Mot. 3. In summary, Petitioner seeks exclusion of:

(1) certain paragraphs of Exhibit 2006 Under Fed. R. Evid. 602 and/or 702 (see Pet. Mot. 4–10); and

(2) Exhibits 2010 and 2018 Should Be Excluded Under Fed. R. Evid. 802 and/or 901 (*id.* at 10–13).

As discussed above, we conclude that Petitioner has shown by a preponderance of the evidence that claims 16, 17, 20, 23, 25, and 27–30 are unpatentable under 35 U.S.C. § 103 based on Mayo in combination with Roach. 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 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 16, 17, 20, 23, 25, and 27–30 are unpatentable under 35 U.S.C. § 103 as obvious over Mayo and Roach.

V. ORDER

For the reasons given, it is

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 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.

IPR2017-01031
Patent 5,986,574

PETITIONER:

Adam R. Brausa
DURIE TANGRI LLP
abrausa@durietangri.com

PATENT OWNER:

Daniel C. Callaway
James L. Day
FARELLA BRAUN MARTEL LLP
dcallaway@fbm.com
jday@fbm.com