

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DECURTIS LLC
Petitioner,

v.

CARNIVAL CORPORATION,
Patent Owner.

IPR2021-00784
Patent 10,049,516 B1

Before THOMAS L. GIANNETTI, NEIL T. POWELL, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

CYGAN, Administrative Patent Judge.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. BACKGROUND

A. Background and Summary

DeCurtis LLC (“Petitioner”) filed a Petition for *inter partes* review (“IPR”) of claims 1–22 of U.S. Patent No. 10,049,516 (Ex. 1001, “the ’516 patent”). Paper 3 (“Pet.”). Patent Owner, Carnival Corporation, filed a Preliminary Response. Paper 9 (“Prelim. Resp.”). Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018). An *inter partes* review may not be instituted on fewer than all claims challenged in the Petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

Having considered the Petition and the Preliminary Response, we deny institution of *inter partes* review for the reasons provided below.

B. Real Party in Interest

Petitioner identifies itself as the only real party in interest to this IPR petition. Pet. 2. Patent Owner identifies only itself as a real party in interest. Paper 7, 2.

C. Related Matters

The parties indicate that the ’516 patent is involved in *DeCurtis LLC v. Carnival Corp*, Case No. 1:20-cv-22945-RNS (S.D. Fla.). Pet. 3. Petitioner indicates that two additional patents (US 10,045,184 and US 10,157,514) are the subject of petitions for *inter partes* review proceedings. *Id.*

D. The '516 Patent

The '516 patent (Ex. 1001) generally relates to electronic door locks and assemblies. Ex. 1001, code (57). Individual devices may be carried by guests to identify the guests and authenticate the guests, such as by unlocking doors. *Id.* A door lock system may include an access plate mounted near a door lock. *Id.* at Fig. 7B, 17:45–61. The door lock includes a latch assembly, which includes a latch, door handle or knob, and an electronically controlled locking and unlocking mechanism, which may include a solenoid. *Id.* at 17:57–67. The locking mechanism of the latch assembly is electrically connected to a door lock module, which is battery powered and communicates wirelessly with the access panel from which it receives instructions to unlock the door. *Id.* at 18:8–24. The access panel wirelessly receives instructions from a reservation server. *Id.* at 4:17–31. Petitioner characterizes the '516 patent as “allegedly address[ing] the issue of guests having to ‘tap or swipe an access card to activate elevators or unlock doors of health facilities and guest rooms during their stay.’” Pet. 7.

E. Challenged Claims

Petitioner challenges claims 1–22 of the '516 patent. Claim 13, reproduced below (with brackets identifying labels added), is an independent claim that is representative of claims 7–22:

13. [13pre] An electronic door lock assembly comprising:
- [13a] a latch assembly including a latch and an electronically controlled locking mechanism operative to selectively unlock a door;
 - [13b] a door lock communication module electrically connected to the electronically controlled locking mechanism of the latch assembly, and including a radio configured for wireless communication; and

[13c] an access panel separate from and fixedly mounted proximate to the door lock communication module and latch assembly, and including a radio configured for wireless communication with the door lock communication module,

[13d] a first transceiver configured for wireless communication with a portable user device, and a second transceiver for communication with a reservation server,

[13e] wherein the access panel separate from and fixedly mounted proximate to the door lock communication module is configured to receive door access information from the reservation server via the second transceiver, determine whether the door should be unlocked based on the door access information received from the reservation server, and transmit an instruction to unlock the door to the door lock communication module via the radio based on the determination.

Ex. 1001, 41:55–42:12.

Claim 1, reproduced below (with brackets identifying labels added), is an independent claim that is representative of claims 1–6:

1. [1pre] A door latch assembly comprising:

[1a] a door knob;

[1b] a latch selectively operated by operation of the door knob;

[1c] an electrical isolation sleeve mounted on a spindle of the door latch assembly and configured to electrically isolate the door knob from other portions of the door latch assembly;

[1d] an electronically controlled locking mechanism operative to selectively unlock the latch;

[1e] a proximity sensor operative to sense contact or proximity of a user with the door knob; and

[1f] an access panel separate from the door knob and the latch, and including a radio configured for wireless communication with the electronically controlled locking mechanism,

[1g] a first transceiver configured for wireless communication with a portable user device, and a second transceiver for communication with a reservation server,

[1h] wherein the electronically controlled locking mechanism is operative to selectively unlock the latch based on the contact or proximity of the user with the door knob sensed by the proximity sensor,

[1i] the door knob is electrically isolated from a ground potential,

[1j] the proximity sensor is a capacitive touch sensor electrically connected to the electrically isolated door knob and operative to sense contact or proximity of the user with the electrically isolated door knob, and

[1k] the access panel is configured to receive door access information from the reservation server via the second transceiver, determine whether the latch should be unlocked based on the door access information received from the reservation server, and transmit an instruction to unlock the latch to the electronically controlled locking mechanism via the radio based on the determination.

Id. at 40:24–59.

F. Prior Art Relied Upon

Petitioner relies upon the prior art references listed below. Pet. 8–13.

U.S. Patent 9,483,887 B1 (filed Dec. 31, 2015; patented Nov. 1, 2016) (“Soleimani,” Ex. 1005);

U.S. Patent 8,730,004 B2 (filed Jan. 29, 2010; patented May 20, 2014) (“Elfström,” Ex. 1006);

U.S. Patent Application Publication 2016/0308859 A1 (filed Apr. 14, 2016; published Oct. 20, 2016) (“Barry,” Ex. 1007);

U.S. Patent Application Publication 2012/0218076 A1 (filed Oct. 28, 2009; published Aug. 30, 2012) (“Zacchio,” Ex. 1008);

European Patent Application EP 2514888 A1 (published Oct. 24, 2012) (“Bliding,” Ex. 1009).

Based on the current record, we determine Petitioner has made a threshold showing that these references are prior art patents or printed publications under 35 U.S.C. § 102. *See* Pet. 8; Ex. 1005, codes (22), (45); Ex. 1006, codes (22), (45); Ex. 1007, codes (22), (43); Ex. 1008, codes (22), (43); Ex. 1009, code (43).

G. Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 1–22 of the ’516 patent on the following grounds (Pet. 6):

Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)
13–16, 18	103	Soleimani, Elfström
17, 19	103	Soleimani, Elfström, Barry
1–4, 6–9, 11–12, 20–22	103	Soleimani, Elfström, Zacchio, Bliding
5, 10	103	Soleimani, Elfström, Zacchio, Bliding, Barry

II. DISCUSSION

A. Legal Standards

1. § 103(a)

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Because the application from which the ’516 patent issued was filed after that date, with no benefit claim prior to that date, the AIA versions of §§ 102 and 103 apply.

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).² *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We analyze the asserted grounds based on obviousness with these principles in mind.

B. Level of Skill in the Art

Petitioner offers an assessment as to the level of skill in the art as of the time the ’516 patent was filed. Pet. 7–8. Relying upon a Declaration of Dr. Kevin Almeroth, Petitioner asserts a person of ordinary skill in the art would have had a “Bachelor of Science degree in electrical engineering, computer science, or a related subject matter, plus at least two years of professional experience in the field of computer networks, wireless communications, or a similar field” and that “more experience would compensate for less formal education.” *Id.* (citing Ex. 1002 ¶¶ 48–50 (“Almeroth Decl.”)). Patent Owner has not provided an assessment of the level of ordinary skill in the art. To the extent necessary, and for purposes of this Decision, we accept the assessment offered by Petitioner as it is supported by the Almeroth Declaration and is consistent with the ’516 patent and the asserted prior art.

² Patent Owner does not identify any secondary considerations to be considered. Accordingly, we do not consider this aspect of the obviousness analysis at this stage of the proceeding.

C. Claim Construction

Petitioner states that it applies the plain and ordinary meaning of all claim terms for purposes of this Petition. Pet. 8. Petitioner notes, “Petitioner intends to argue in the related district court litigation that the ‘second transceiver’ is limited to wireless communication based on prosecution disclaimer,” but that for purposes of this Petition, “the proposed construction does not matter because the challenged claims are satisfied regardless of whether the second transceiver is limited to wireless communication.” *Id.* In its Preliminary Response, Patent Owner does not propose any explicit claim constructions. However, Patent Owner does contend that the language in claim limitation 13[b] of “a door lock communication module electrically connected to the electronically controlled locking mechanism of the latch assembly” requires two separate elements. Prelim. Resp. 17. We address this contention as part of the discussion of the prior art. *See infra* at II(D)(3)(a).

The Petition was filed on April 7, 2021, after the effective date of the rule change that replaced the broadest reasonable interpretation standard. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.100(b) (2019)).

Accordingly, we apply the same standard that is used to construe a patent claim in a civil action under 35 U.S.C. § 282(b), and construe each claim in accordance with the ordinary and customary meaning of such claim, as understood by one of ordinary skill in the art in the context of the patent,

and the prosecution history pertaining to the patent, as articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). “[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Matal*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). For the purposes of institution, however, we do not expressly construe any claim terms beyond our discussion of the parties’ arguments below.

D. Asserted Obviousness of Claims over Soleimani in view of Elfström

Petitioner contends that claims 13–16 and 18 of the ’516 patent are unpatentable as obvious under 35 U.S.C. § 103 over the combined teachings of Soleimani and Elfström. Pet. 13. Petitioner also relies upon the Almeroth Declaration to support its positions. Ex. 1002. We determine that the Petition does not show a reasonable likelihood that Petitioner would prevail on this ground. We begin our analysis with a brief overview of Soleimani and Elfström.

1. Overview of Soleimani

Soleimani relates to access control of a secured area using a wireless device, such as a smart phone. Ex. 1005, 1:6–11. Figure 3 is reproduced below.

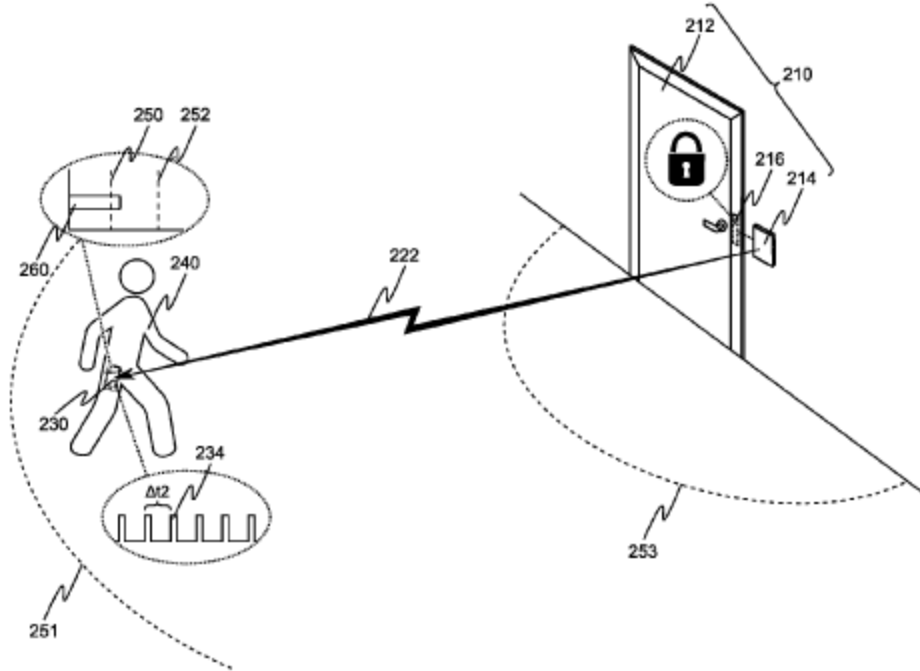


FIG. 3

Figure 3 portrays a user 240 walking towards locked door 212. *Id.* at 5:42–54, 10:22–26. Here, the wireless device 230 has determined that the signal strength 260 of the radiofrequency (RF) signal 22 from wall-mounted device 214 exceeds a first threshold 250. *Id.* at 10:24–34. When the signal strength reaches or exceeds second threshold 252, the wireless device 230 or other aspects of the access control system may perform certain operations. *Id.* at 12:34–39. For example, wireless device 230 may transmit an RF message to device 214 and/or a cellular or wireless message to access control server 110. *Id.* at 12:52–67. Receipt of the message triggers a determination of whether access should be granted. *Id.* at 13:15–18.

When access is granted, electronically actuated lock 216 is unlocked. *Id.* at 13:45–48. Electronically actuated lock 216 may include a physical lock that is coupled to a lock actuator. *Id.* at 6:4–18. The physical lock may

be a catch or a solenoid. *Id.* at 6:5–7. The lock actuator may be networked, receiving a control signal via a specified network address from access control server 110 or RF device 214, or via communication directly from device 214. *Id.* at 6:8–14.

2. *Overview of Elfström*

Elfström relates to access control mechanisms for multi-room facilities that permit a guest to remotely check-in and have access data automatically written to their access credential. Ex. 1006, 1:35–52. A processor communicates with an access control device, such as an electronic lock, via a network interface. *Id.* at 6:6–16. The processor contains a locally maintained list that is used by the processor to transmit messages to access control modules and to the guest. *Id.* at 10:27–65.

3. *Analysis*

a) *Claim 13[a]–[c] sets forth four distinct elements*

Upon review of Petitioner’s explanation and supporting evidence, and Patent Owner’s Preliminary Response, we determine that the Petition does not show a reasonable likelihood that Petitioner would prevail in showing the combination of Soleimani and Elfström would have made obvious the challenged claims. In particular, we are persuaded by Patent Owner’s argument that the claim requires four elements, and that Petitioner’s combined references teach or suggest, at best, three of those elements.

Patent Owner argues, and we agree, that claim 13 explicitly sets forth four elements: a latch, an electronically controlled locking mechanism, a door lock communication module electronically connected to the locking mechanism, and an access panel. Prelim. Resp. 16; Ex. 1001, 41:56–67 (Claim 13, limitations [13a], [13b], and [13c]). Patent Owner does not

specifically contest, and we agree, that the combined references teach or suggest a latch, in the form of Soleimani's catch or solenoid. Ex. 1005, 6:4–6 (“electronically actuated lock 216 . . . may be by way of a physical lock (such as a catch or solenoid)”); *see* Prelim. Resp. 15–22. Patent Owner does not specifically contest, and we agree, that the combined references teach or suggest an access panel, in the form of RF communication device 214, that provides a control signal to the lock 216. Ex. 1005, 5:55–6:18 (“RF communication unit 214 may be affixed to a surface or structure defined by or proximal to the secured door 212” and “may be configured to provide a control signal to lock 216”); *see* Prelim. Resp. 15–22. For these elements, Petitioner and Patent Owner are not in substantial disagreement.

With respect to the claimed electronically controlled locking mechanism element, Petitioner asserts this is met by Soleimani's electronically actuated lock 216. Pet. 17 (“Soleimani discloses an electronically controlled locking mechanism operative to unlock a door. Soleimani teaches an ‘electronically actuated lock 216’”) (citing Ex. 1005, 6:4-5, Fig. 4). Petitioner limits the teachings of Soleimani's lock 216 to the “catch” embodiment (of alternate catch or solenoid embodiments) in order to provide the “latch” required for limitation 13[a]. *See* Pet. 17 (“A catch is operable with a latch. FIG. 9, shown below, depicts a latch.”) (citing Ex. 1005, 6:5–7). Petitioner characterizes electronically actuated lock 216 as being unlocked from a control signal transmitted to a network address associated with the lock. *Id.* at 19 (citing Ex. 1002 ¶ 90 (Almeroth Decl.)).

With respect to the claimed door lock communication module electrically connected to the electronically controlled locking mechanism of the latch assembly, Petitioner asserts this module limitation is taught by

Soleimani’s “network lock actuator,” which Petitioner characterizes as being “electrically connected to lock 216.” Pet. 19 (citing Ex. 1002 ¶ 92).

Petitioner characterizes Soleimani’s network lock actuator as being unlocked by a control signal transmitted to a specified address associated with lock 216; “[t]hat is, RF communication unit 214 communicates with ‘networked lock actuator’ (*i.e.*, the ‘door lock communication module’).” *Id.* at 20 (citing Ex. 1002 ¶ 93).

We agree with Patent Owner that the communication module and locking mechanism are separate and distinct components because claim limitation 13[b] sets forth a “door lock communication module” that is “electrically connected to the electronically controlled locking mechanism of the latch assembly.” Prelim. Resp. 17–18. We begin with the language of the claim. The listing of the door lock communication module and locking mechanism as separate and distinct elements clearly implies that they are distinct components. *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (“Where a claim lists elements separately, ‘the clear implication of the claim language’ is that those elements are ‘distinct component[s]’ of the patented invention.”) (quoting *Gaus v. Conair Corp.*, 363 F.3d 1284, 1288 (Fed. Cir. 2004)).

Furthermore, not only are the communication module and locking mechanism recited as separate elements, the phrase “electrically connected to each other” denotes a further level of distinction between those two components. *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (finding the word “other” to “denote[] a further level of distinction” between separately recited components); *see also Comcast Cable Commc’ns, LLC v. Promptu Sys. Corp.*, 838 F. App’x 551, 553 (Fed.

Cir. 2021) (unpublished) (“Claim 14 recites ‘a speech recognition system coupled to a wireline node.’ By listing the elements separately and by using the word ‘coupled,’ claim 14 strongly indicates the ‘speech recognition system’ is distinct from the ‘wireline node.’”).

The Specification further supports Patent Owner’s assertion that the communication module and locking mechanism are separate and distinct components. The Specification describes a door lock assembly in which latch assembly 701, including an “electronically controlled locking and unlocking mechanism,” is selectively unlocked by a “door lock module” 703. Ex. 1001, 17:56–67. The door lock module is “an electronic module operative to send locking and unlocking signals to the electronically controlled locking mechanism.” *Id.* at 17:67–18:4.

Figure 7 further illustrates these as separate and distinct components. Figure 7A, reproduced below, depicts separately spaced elements 701 and 703:

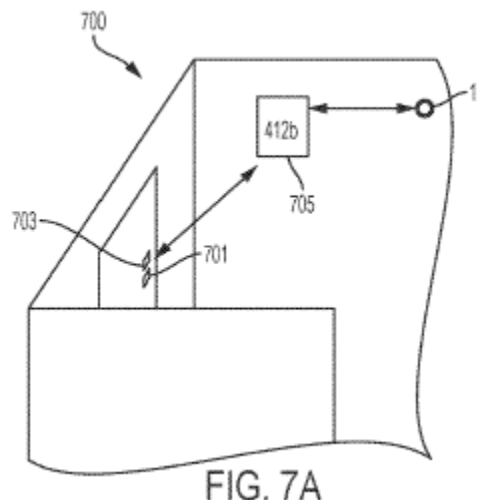


Figure 7A shows a door having thereon two separate boxes labeled as 701 and 703, with box 703 connected by a double-headed arrow to a box 705,

representing the access panel, on a neighboring wall. Ex. 1001, 17:47–61.

Figure 7E, reproduced below, further depicts a door lock module 703 separate from other components of the lock:

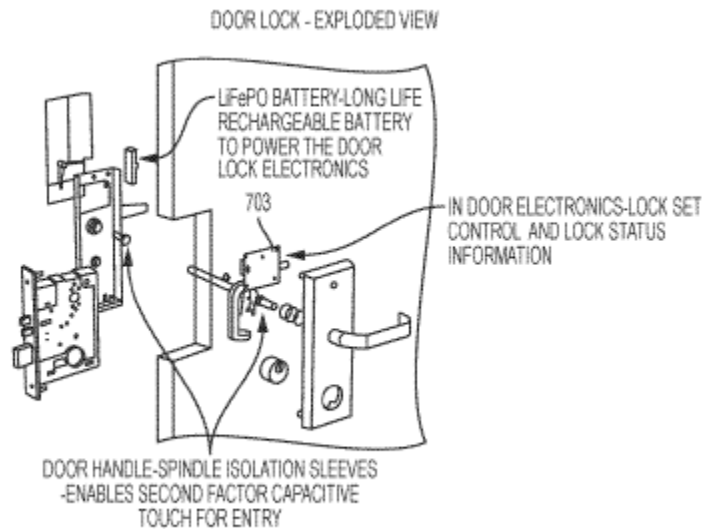


FIG. 7E

Figure 7E shows a door having a component 703 labeled “in door electronics-lock set control and lock status information,” separate from a door handle, a battery powering the door lock electronics, door handle-spindle isolation sleeves, and other components of the latch assembly not specifically described. Ex. 1001, 18:61–19:23. Figure 7H, reproduced below, further depicts component parts of the door lock module 703:

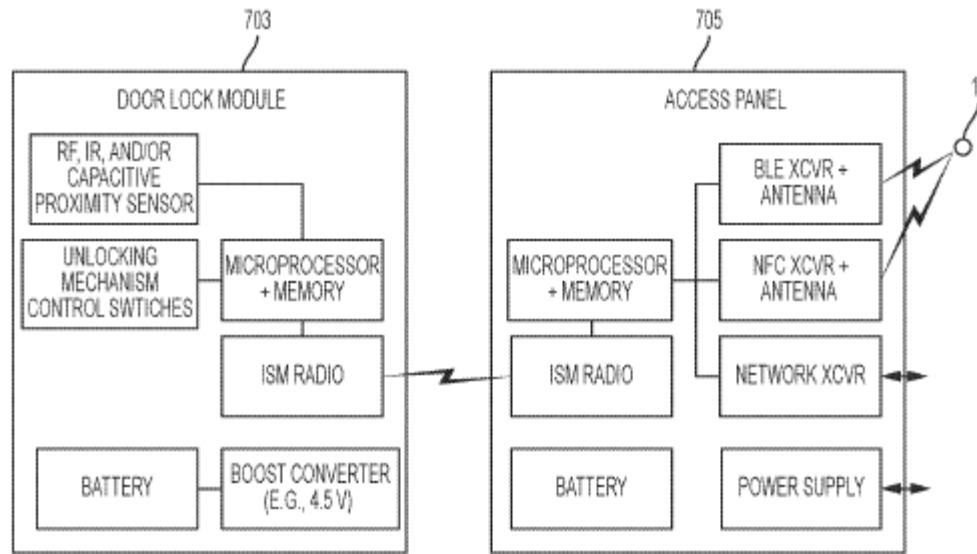


FIG. 7H

Figure 7H shows a door lock module 703 having therein several components, including a proximity sensor and unlocking mechanism control switches communicating to a microprocessor and memory, a battery connected to a boost converter, and an ISM radio (a radio operating on the ISM, i.e., “Industrial, Scientific, and Medical,” band) connected to the microprocessor and memory and connected by a lightning bolt connection (representing radio communication) to the ISM radio of an access panel 705. Ex. 1001, 19:33–53.

Thus, Patent Owner’s characterization of the claimed door lock communication module as a distinct element and component from the electronically controlled locking mechanism is reasonably reflected in the language of the claim and the Specification’s descriptions of door lock module 703 and the locking mechanism within latch assembly 701. *See Microsoft*, 789 F.3d at 1299–1300 (looking to the claim language and specification in finding that separately recited caching computer and other

computers were “separate and distinct”). Accordingly, Petitioner must show that the combination of Soleimani and Elfström applied to claim 13 teaches or suggest a door lock communication module and an electronically controlled locking mechanism that are distinct, separate, and electrically connected to each other.

b) *Soleimani does not teach or suggest a locking mechanism and communication module that are separate, distinct, and electrically connected to each other*

We are persuaded by Patent Owner’s argument that Petitioner has not shown Soleimani to teach or suggest both an “electronically controlled locking mechanism” and a “door lock communication module” electrically connected thereto in the claimed configuration. Prelim. Resp. 16–17. Although Petitioner identifies the claimed locking mechanism as Soleimani’s “electronically actuated lock 216,” and the claimed door lock communication module as Soleimani’s “networked lock actuator” (Pet. 19), we are not persuaded that these elements of Soleimani teach locking mechanism and communication module that are electrically connected to each other as claimed.

Petitioner points to electronically actuated lock 216 as the electronically controlled locking mechanism and to a networked lock actuator as the communication module. Pet. 17. Petitioner does not clearly specify whether the electronically controlled locking mechanism is alleged to be the entire electronically actuated lock 216 or merely the physical catch portion therein. We consider both possibilities.

Should Petitioner’s contention be that the physical catch is the claimed “electronically controlled locking mechanism,” Petitioner does not

allege that the catch is “electrically connected to” the door lock communication module as recited in claim limitation 13[b]. Rather, Petitioner only characterizes Soleimani’s catch as being “actuated” by the network lock actuator (Petitioner’s alleged “door lock communication module”). Pet. 61–62 (addressing claim 1). We note the Petition includes evidence that this action need not involve an electrical connection to the latch. In Petitioner’s discussion of Bliding (not applied to claim 13), Petitioner’s declarant discusses an example of a mechanical, not electrical, connection between catch and actuator. Ex. 1002 ¶ 71 (“an electric motor to actuate a catch”) (citing Ex. 1009 ¶ 21, in which “rotation of the rotatable axle . . . actuates the lock catch”). Thus, to the extent Petitioner attempts to allege the catch portion of lock 216 teaches or suggests the electronically controlled locking mechanism electrically connected to the door lock communication module, Petitioner has not explained how Soleimani’s catch is “electrically connected” in any manner, much less to the door lock communication module as claimed. Thus, a reliance solely on Soleimani’s catch as the electronically controlled locking mechanism would fail to teach the “electrically connected” limitation, and as such, would lack a reasonable likelihood of prevailing on the merits of the obviousness ground for claim 13.

Nor is the “electrically connected” limitation taught by an interpretation of the Petition in which the Soleimani’s electronically actuated lock teaches the claimed electronically controlled locking mechanism. Petitioner, citing its declarant, alleges that Soleimani describes “‘an electronically actuated lock 216’ coupled to a ‘networked lock actuator.’” Pet. 19 (citing Ex. 1005, 6:4–7). However, Soleimani instead states that the

physical lock, e.g., the catch, is coupled to a networked lock actuator. Ex. 1005, 6:4–7 (describing electronically actuated lock 216 as being “by way of a physical lock (such as a catch[]) . . . coupled to a networked lock actuator”). The networked lock actuator is described by Soleimani as being included in the electronically actuated lock 216. *Id.* Similarly, Soleimani describes its non-networked electronic door actuator as being included in the electronically actuated lock 216. *Id.* at 6:10–12 (“Lock 216 may include a physical lock that is coupled to an electronic door actuator” (emphasis added)). Thus, Petitioner’s assertion of a networked lock actuator “coupled to” lock 216 is not supported by the cited section of Soleimani.

The integral nature of Soleimani’s lock 216 and its network lock actuator is further evidenced by Petitioner’s characterization of both the electronically actuated lock 216 and the network lock actuator as receiving the same unlocking signal and performing the same action of causing the lock to be unlocked. *Compare* Pet. 19 (citing Ex. 1002 ¶ 90) (“Electronically actuated lock 216 is selectively unlocked ‘by transmitting a control signal (from, for example, access control server 110 or RF communication unit 214) to a specified network address associated with lock 216’”) *with* Pet. 20 (citing Ex. 1002 ¶ 92) (substantially repeating the prior quote, and adding, “That is, RF communication unit 214 communicates with ‘networked lock actuator’ (*i.e.*, the ‘door lock communication module’)”).

Thus, Petitioner alleges the door lock communication module is taught by Soleimani’s network lock actuator. However, Petitioner does not explain how that is electrically connected to Soleimani’s electronically actuated lock 216, *i.e.*, Petitioner’s alleged “electronically controlled locking mechanism.” Instead, under Petitioner’s characterization, the control signal

is sent from RF communication unit to both the network lock actuator and to a specified network address associated with lock 216. Petitioner does not allege that there are two control signals being sent in Soleimani. Instead, Petitioner appears to equate the “networked lock actuator” to the “specified network address associated with lock 216.” Petitioner does not explore this relationship further, such as whether the network address is a separate component and whether such a network address component is electrically connected to lock 216.

The more plausible explanation, offered by Patent Owner, is that Soleimani describes only a single lock actuator controlled by a single signal, where that actuator may be networked to receive a signal sent to a specified network address. Prelim. Resp. 16–21 (stating, “Soleimani thus teaches that the actuator is ‘networked’ because there is a network address associated with lock 216, which, as explained above, includes the actuator as an integral part.”).

Further, although Petitioner’s declarant asserts that Soleimani’s networked lock actuator is electrically connected to lock 216, Petitioner’s declarant does not provide evidence or reasoning to support that assertion. Ex. 1002 ¶ 92. While opinion testimony is given consideration, lack of factual support for factual determinations may render the testimony of little probative value. *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985). Our proper role is to consider all of the evidence before us and accord the proper and appropriate weight to the evidence. *Velandar v. Garner*, 348 F. 3d 1359, 1371 (Fed. Cir. 2003). After weighing all evidence, we determine if the Petitioner’s burden of proof has

been met. *See Newell Cos., Inc. v. Kenney Mfg. Co.*, 864 F.2d 757, 787–88 (Fed. Cir. 1988).

Here, Petitioner’s declarant’s testimony conflicts with Soleimani’s own description, upon which the declarant solely relies. Soleimani describes its network lock actuator being part of lock 216, and connected (with no mention of electrical connectivity) to the physical lock (another component of lock 216). Ex. 1005, 6:4–7. We further consider, as evidence that an actuator and lock may be mechanically, not electrically, connected, the testimony by Petitioner’s declarant with regard to the connection between a lock and its actuator in Bliding, which Bliding describes as mechanical. Ex. 1002 ¶ 71 (citing Ex. 1009 ¶ 21 (which states, “rotation of the rotatable axle . . . actuates the lock catch”)). Accordingly, in view of the totality of the evidence, we determine that Petitioner’s declarant’s single, conclusory statement on Soleimani’s teachings is insufficient to show an electrical connection between network lock actuator and lock 216.

For the foregoing reasons, we are not persuaded that Petitioner has sufficiently show that Soleimani, standing alone, teaches or suggests limitation 13[b].

We note that Petitioner provides an alternative theory in which limitation 13[b] is met by a combination of Soleimani and Elfström. Pet. 21. However, Petitioner’s proposed combination addresses the “radio” limitation of limitation 13[b], not the door lock communication module otherwise missing from Soleimani. *Id.* at 21–22.

Consequently, we determine that Petitioner’s proffered explanation is insufficient to support a determination that each element of claim 13 is

taught or suggested by the combination of Soleimani and Elfström.³ Because this explanation is relied upon by Petitioner to support its allegations of obviousness for claims 14–16 and 18 (Pet. 13), we further determine that Petitioner has not shown these claims to be taught or suggested by Petitioner’s proffered combination of Soleimani and Elfström.

Petitioner further relies upon the same explanation for claims 17 and 19, dependent on claim 13, for which Barry is added to the combination of Soleimani and Elfström to teach or suggest the additional elements of claim 17’s encryption and claim 19’s display of information. Pet. 40. Petitioner does not allege that Barry provides a teaching of a door lock communication module. *Id.* Accordingly, claims 17 and 19 are not taught or suggested by Petitioner’s proffered combination.

Petitioner further relies on the combination of Soleimani and Elfström to teach or suggest a door lock communication module electrically connected to the electronically controlled locking mechanism of the latch assembly for claim 7. Pet. 64–65. Claims 8–12 depend from claim 7, and Claims 20–22 depend from claim 13, and thus contain the same limitation. Ex. 1001, 42:54–43:4. Although the asserted ground of claims 7–12 and 20–22 is based upon the additional teachings of Zacchio and Bliding in addition of the teachings of Soleimani and Elfström, and the asserted ground of claim 10 is further based on the additional teachings of Barry, Petitioner presents no different theory for these limitations than presented for claim 13.

³ Accordingly, we need not address Patent Owner’s additional arguments.

Accordingly, claims 7–12 and 20–22 are not taught or suggested by Petitioner’s proffered combination.

For the reasons set forth above, the Petition does not show a reasonable likelihood that Petitioner would prevail on its obviousness contentions for claims 7–22.

E. Obviousness of Claims 1–6

Claims 1–6 do not recite a door lock communication module electrically connected to the electronically controlled locking mechanism of the latch assembly, as recited in claims 7–22. Ex. 1001, 40:24–41:25. Claim 1 requires, *inter alia*, “an access panel separate from the door knob and the latch, and including a radio configured for wireless communication with the electronically controlled locking mechanism.” Ex. 1001, 40:35–38.

Petitioner alleges this limitation, denoted “1[f],” is taught by the combination of Soleimani and Elfström for the reasons provided in Petitioner’s discussion of element 13[b]. Pet. 57. Petitioner challenges claim 1 over the combination of Soleimani and Elfström, as applied to claim 1, further in view of Zacchio and Bliding; however, Petitioner does not rely on either Zacchio or Bliding for limitation 1[f]. Pet. 47, 57. Petitioner’s discussion of element 13[b] does not explicitly identify an “access panel,” but does discuss Soleimani’s lock 216 as receiving a wireless radio signal “via a network from the access control server 110 or RF communication unit 214.” Pet. 21. Petitioner, in the discussion of element 13[c], identifies the RF communication unit 214 as meeting the “access panel” limitation. *Id.* at 22–23. Thus, Petitioner has identified RF communication unit 214 as the claimed access device including a radio configured for wireless

communication with the electronically controlled locking mechanism, through its discussion of element 13[b], and therefore element 1[f].

1. *Soleimani's express teachings*

Patent Owner argues that Petitioner's combination of references fails to show obviousness of claims 1–6 because Soleimani does not teach an access panel radio “configured” for wireless communication with the electronically controlled locking mechanism. Prelim. Resp. 22. Patent Owner argues that Soleimani's electronically controlled locking mechanism is described as receiving a signal either via wiring or via a control signal sent to the lock's network address, but not as receiving a signal via a radio signal from the access panel. *Id.* at 19 (stating, “the actuator is a ‘networked lock actuator’ not because it is a communication module comprising a radio, but because it is a part of a networked door lock”). Patent Owner contends that there is no description in Soleimani of complementary radios in lock 216 and RF unit 214 for wireless communication therebetween. Prelim. Resp. 19–20.

We agree with Petitioner that RF communication unit 214 includes a radio capable of radiofrequency communication. Petitioner's expert, Dr. Almeroth, states that the “RF” communication unit 214 of Soleimani is a “radio frequency” communication unit. Ex. 1002 ¶ 57. We find nothing in the record to contradict the interpretation of “RF” as “radio frequency;” thus, the record reflects that there exists a radiofrequency-producing radio in Soleimani's RF communication unit. However, the RF signal broadcast by the RF communication unit is specifically described for communicating with a wireless mobile device 230, which determines from the strength of that signal the distance between mobile device and RF unit 214. *Id.* at 8:11–51.

The RF radio in the RF unit is thus described as being used to determine distance between the RF unit 214 and a user's mobile device. *Id.* However, claim 1 requires “a radio configured for wireless communication with the electronically controlled locking mechanism,” not with a mobile device.

Petitioner has not clearly explained how the radio in Soleimani's RF unit 214 is configured for communication with the electronically controlled locking mechanism. As noted *supra*, Petitioner finds this electronically controlled locking mechanism to be taught by Soleimani's electronically actuated lock 216. Pet. 17. Petitioner characterizes electronically actuated lock 216 as receiving a control signal from RF communication unit 214, either through a direct wiring connection or through a control signal transmitted to a network address associated with the lock. *Id.* at 19 (citing Ex. 1005, 6:7–10, 13:50–54; Ex. 1002 ¶ 90 (Almeroth Decl.)). Petitioner relies upon its declarant in asserting that one having ordinary skill in the art would recognize the control signal transmitted to the lock's network address to be a wireless, radio signal. *Id.* at 21 (citing Ex. 1002 ¶ 95).

However, this assertion has two weaknesses: first, it is not clearly commensurate with the claim scope, and second, it is undermined by Soleimani's description of a wired network used to transmit control signals from the RF communication unit.

Claim 1 requires a “radio configured for wireless communication with the electronically controlled locking mechanism.” Petitioner's assertion of a wireless radio signal instead addresses the “control signal transmitted to the lock's network address.” Pet. 21. This assertion addresses the signal being received by the lock's network address, not the transmitted signal from the RF unit. Further, the assertion addresses the “lock's network address” rather

which may be the Internet, wireless network via router 130, and/or cellular network 132, to computer system 134, mobile devices 140a-140c, and vehicle barrier gate 168. *Id.* at 4:4–34, 4:56–63.

Thus, despite Petitioner’s declaration evidence supporting a radio control signal sent to the lock’s network address, Soleimani describes that the RF unit may send its control signal via a wired network rather than via its radio functionality.⁴ Figure 1 depicts multiple mechanisms by which a signal sent through a wired network connection from a door-controlling RF unit may be wirelessly retransmitted, e.g., through the Internet, wireless router, or cellular network. *Id.* at 4:4–34. Thus, evidence that the lock receives a wirelessly transmitted control signal does not necessarily show that the RF unit that originally sent that control signal did so via a “radio configured for wireless communication,” as required by claim 1.

2. Soleimani’s combined teachings

Petitioner further points to description in Soleimani that “[w]ireless links may also be implemented” for a communication interface 1118. Pet. 21. However, those wireless links are described as being alternatives to other types of interfaces in the computer that communicate via a local network 1120 to an internet service provider, such as a local area network card, telephone modem, or integrated services digital network card in the

⁴ Note that we discuss here the communication to the network address of the networked lock actuator embodiment of Soleimani. We are not discussing Soleimani’s separate description of wiring between the RF unit 214 and lock 216 for the non-networked lock embodiment, as addressed at page 20 of the Petition.

computer system. Ex. 1005, 20:9–24. Petitioner has not persuasively explained how such “wireless links” teach a radio in an access panel, much less a radio that is configured for wireless communication with the electronically controlled locking mechanism.

Nor has Petitioner provided sufficient explanation of why one of ordinary skill in the art would have made such a wireless link modification to other parts of the system beyond the computer’s communication interface, so as to modify Soleimani to have a wireless link in the access panel communicating with the electronically controlled locking mechanism. Petitioner merely alleges that communication “may be accomplished by radio.” However, whether a modification may be performed is insufficient to show obviousness. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention”).

3. *Combined teachings of Soleimani and Elfström*

Petitioner further asserts that any lack of an express teaching in Soleimani is met by teachings in Elfström. Pet. 21. Petitioner asserts that Elfström teaches an access control device for controlling access to a door. *Id.* at 22 (citing Ex. 1006, 6:6–31). Petitioner asserts that Elfström teaches an access control module 116 communicating with a guest credential, and that there exists a wired or wireless communication interface between the access control module and the access control device. *Id.* (citing Ex. 1006, 6:23–31). Petitioner further asserts that the wireless interface may be Bluetooth, citing its declarant’s statement that a person having ordinary skill

in the art would recognize Bluetooth as a “radio” communication. *Id.* (citing Ex. 1002 ¶ 97). Petitioner alleges that combining this aspect of Elfström with Soleimani would teach the claimed limitation. *Id.* Petitioner further argues that a person of ordinary skill in the art would be motivated to make this combination because both Soleimani and Elfström use Bluetooth, it would be easy to make this modification, and there would be a reasonable expectation of success. *Id.* (citing Ex. 1005, 6:25–30).

Patent Owner asserts that the access control device is analogous to Soleimani’s lock 216 and that the access control module is analogous to Soleimani’s RF unit 214. Prelim. Resp. 20. Patent Owner argues that Petitioner has not provided sufficient reason to combine the teachings of Soleimani and Elfström. *Id.* at 24. Patent Owner argues that Petitioner alleges no more than the use of similar Bluetooth techniques and a reasonable expectation of success. *Id.* (citing Pet. 22).

An explanation of why prior art elements would be combined is an important part of the obviousness analysis. The Supreme Court has stated,

Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

KSR v. Teleflex, Inc., 550 U.S. 398, 418–19 (2007).

We are not persuaded that Petitioner has shown adequate rationale for the combination. Petitioner alleges that it would be “easy” to make such a

modification because both Soleimani and Elfström describe the use of Bluetooth. Pet. 22. Petitioner’s mere statement that it would be “easy” to modify Soleimani in view of Elfström because both use Bluetooth is insufficient to provide an explanation of why one would make that modification. Obviousness requires more than a mere showing that two references could be combined. *Belden*, 805 F.3d at 1073; *Pers. Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 993 (Fed. Cir. 2017).

Further, it is uncontested that both Soleimani and Elfström use Bluetooth as the specific type of radio communications being discussed. *See* Ex. 1005, 6:25–35. Thus, the question is not whether Soleimani would use Bluetooth, but instead, whether it would be obvious to use Soleimani’s radio, described as communicating with the user’s mobile device, to communicate with Soleimani’s RF communication unit 214. As pointed out by Patent Owner, Petitioner does not explain why a person having ordinary skill in the art would have used Soleimani’s radio to communicate instead with Soleimani’s networked lock actuator.

Furthermore, Soleimani describes its Bluetooth radio as being used for a different purpose; i.e., for repeatedly (10 times per second) transmitting an “RF advertisement” that is to be received by a wireless mobile device. Ex. 1005, 6:19–30. The RF/Bluetooth communication from Soleimani’s RF radio to the mobile device is a key feature of Soleimani, used to determine when a user is within specified distances from the RF communications unit, and analyzing the received signal strength of the RF signal to determine that distance. *Id.* at 6:25–18:7. Soleimani further relies on the RF signal-based distance analysis for triggering the procedure for determining whether the door should be unlocked. *Id.* Particularly in view of the continual use of the

RF Bluetooth radio in Soleimani for communicating with the mobile device, Petitioner's mere mention that it would be "easy" to modify Soleimani's Bluetooth radio for communication with Soleimani's lock is insufficient to explain why a person having ordinary skill in the art would make such a modification to the use of Soleimani's Bluetooth radio.

For the foregoing reasons Petitioner has not met its burden under *KSR* to clearly articulate the reason why limitation 1[f] of claim 1 would have been obvious over the applied prior art. Accordingly, we do not determine that the Petition shows a reasonable likelihood that Petitioner would prevail on its obviousness contentions for claim 1, and at least claims 2–6 for which Petitioner argues limitation 1[f] on the same reasoning.

III. SUMMARY

For the foregoing reasons, the Petition does not show a reasonable likelihood that Petitioner would prevail on its obviousness contentions for any claim being challenged. Consequently, we need not consider further considerations relating to discretionary denial discussed in the Petition and the Preliminary Response. Pet. 72–76; Prelim. Resp. 25–43.

IV. ORDER

Accordingly, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), the Petition is denied and no *inter partes* review is instituted.

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