

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROSOFT CORPORATION and APPLE INC.¹,
Petitioner,

v.

PROXENSE, LLC,
Patent Owner.

IPR2024-00573
Patent 8,646,042 B1

Before THU A. DANG, DAVID C. McKONE, and
NORMAN H. BEAMER, *Administrative Patent Judges*.

DANG, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

¹ Apple Inc. filed a motion for joinder and a petition in IPR2024-01398, which were granted, and, therefore, has been joined as petitioner in this proceeding.

I. INTRODUCTION

A. *Background*

In response to a Petition (Paper 2, “Pet.”) filed by Microsoft Corporation (“Petitioner”), we instituted *inter partes* review of claims 1, 5, 6, 8–11, 13, and 14 (the “challenged claims”) of U.S. Patent No. 8,646,042 B1 (Ex. 1001, “the ’042 patent”). See Paper 11 (“Dec. Inst.”).

During trial, Proxense, LLC (“Patent Owner”) filed a Response (Paper 15 (“PO Resp.”)), to which Petitioner filed a Reply (Paper 18 (“Pet. Reply”)). In turn, Patent Owner filed a Sur-reply. Paper 19 (“PO Sur-reply”). An oral hearing was held on May 13, 2025. A transcript of the hearing has been entered into the record. Paper 26 (“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 the claims on which we instituted trial. Based on the record before us, Petitioner has shown by a preponderance of the evidence that claims 1, 5, 6, 8–11, 13, and 14 of the ’042 patent are unpatentable under 35 U.S.C. § 103.

B. *Real Parties in Interest*

Petitioner identifies itself, Microsoft Corporation, as the real party-in-interest. Pet. 89. Patent Owner identifies itself, Proxense, LLC, as the real party-in-interest. Paper 5, 1.

C. *Related Proceedings*

Petitioner identifies the ’042 patent as the subject of *Proxense, LLC v. Microsoft Corporation*, No. 6.23-cv-00319 (W.D. Tex.) and *Proxense, LLC v. Google LLC*, No. 6.23-cv-00320 (W.D. Tex.). Pet. 89. Other patents in the family of the ’042 patent are challenged by a different petitioner in

Samsung Electronics America, Inc. v. Proxense, LLC, IPR2021-01438, Paper 1; and *Samsung Electronics America, Inc. v. Proxense, LLC*, IPR2021-01439, Paper 2. *Id.* at 89–90.

D. The '042 Patent

The '042 patent, titled “Hybrid Device Having a Personal Digital Key and Receiver-Decoder Circuit and Methods of Use,” issued on February 4, 2014, from Application No. 13/445,825, with a filing date of April 12, 2012. Ex. 1001, codes (54), (45), (21), (22). The '042 patent provides a hybrid device including a personal digital key (PDK) and a receiver-decoder circuit (RDC) that are coupled for communication with each other. *Id.* at code (57).

An illustration of the embodiment of the '042 patent's hybrid device is depicted in Figure 1, reproduced below:

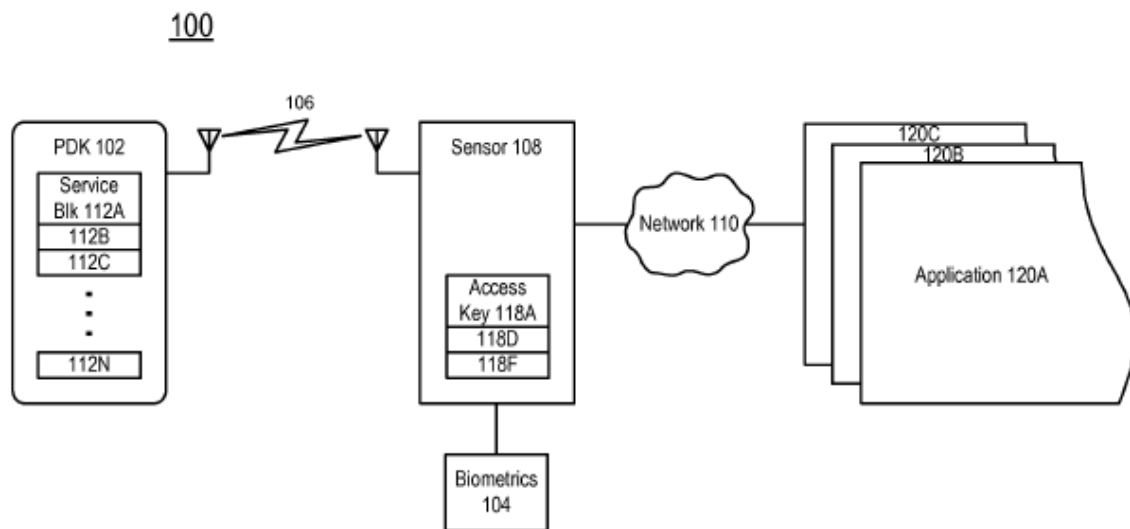


FIG. 1

Figure 1 is a block diagram of system 100 comprising PDK 102, sensor 108, network 110, and one or more applications 120 (including services). Ex. 1001, 2:64–3:1. In Figure 1, sensor 108 is coupled to PDK 102 by wireless link 106 and coupled to network 110 by a wired or wireless link. *Id.*

at 3:1–3. In the exemplary embodiment shown in Figure 1, applications 120 are accessed over network 110, with sensor 108 being adapted to receive biometric input 104 from a user and displaying status to the user. *Id.*

at 3:3–6.

In the example shown in Figure 1, sensor 108 contains three service block access keys 118A, 118D, 118F, wherein service block access keys 118 allow sensor 108 to unlock information stored in corresponding service blocks 112, which information is used as local secured information. Ex. 1001, 3:13–20. In one example in which a biometric input is required in order to access specific service blocks in PDK 102, service block 112A is used for verification of the biometric input and sensor 108 uses stored corresponding service block access key 118A to unlock biometric service 112A. *Id.* at 3:21–26. A current biometric information is received using biometric input 104, and sensor 108 verifies the stored biometric input (from service block 112A) against the recently acquired biometric information (from input 104). *Id.* at 3:26–29.

An exemplary embodiment of sensor 108 is depicted in Figure 3, reproduced below:

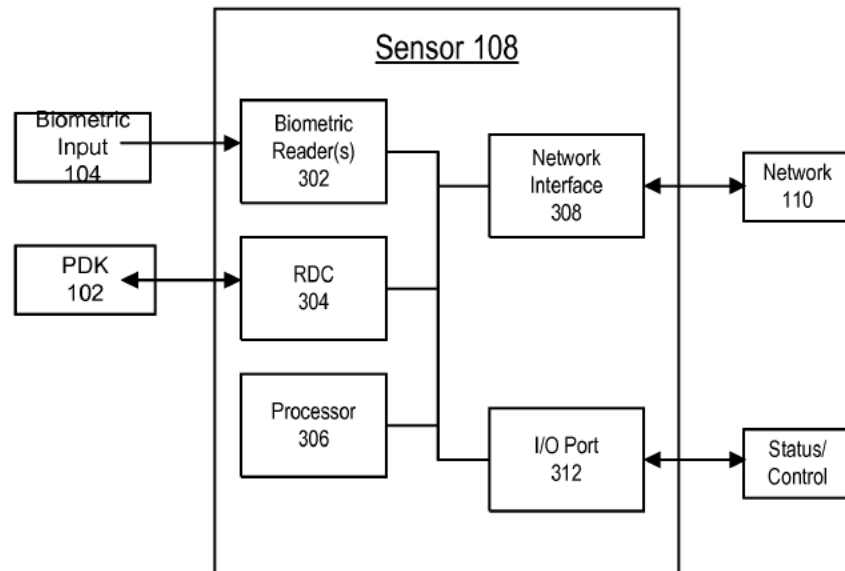


FIG. 3

Figure 3 is a block diagram of sensor 108 comprising one or more biometric readers 302, RDC 304, processor 306, network interface 308, and I/O port 312. Ex. 1001, 7:4–7. As shown in Figure 3, RDC 304 provides the wireless interface to PDK 102. *Id.* at 7:10–11.

Biometric reader 302 receives and processes biometric input 104 from an individual. Ex. 1001, 7:23–7:30. I/O port 312 provides general input and output interface to sensor 108. *Id.* at 7:42–48.

E. The Challenged Claims

Of the challenged claims, claims 1 and 10 are independent. Claims 5, 6, 8, and 9 depend from claim 1, and claims 11, 13, and 14 depend from claim 10. Independent claim 1 is illustrative of the challenged claims, and is reproduced below:

1. A hybrid device comprising:

an integrated personal digital key (PDK) for storing information and capable of communicating wirelessly with at least one external receiver-decoder circuit (RDC); and

an integrated RDC for communicating wirelessly with at least one external PDK within a proximity zone, the integrated RDC coupled to the integrated PDK by a first signal line for communication, the integrated RDC coupled to at least one other component of the hybrid device by a second signal line, one or more of the integrated RDC and integrated PDK enabling one or more of an application, a function, and a service on one or more of the hybrid device and a device associated with the external RDC.

Ex. 1001, 21:52–65.

F. Asserted Grounds of Unpatentability

We instituted *inter partes* review of all challenged claims on all challenges in the Petition. Petitioner asserts that claims 1, 5, 6, 8–11, 13, and 14 of the '042 patent are unpatentable based on the following grounds (Pet. 1–2):

Claim(s) Challenged	35 U.S.C. §²	Reference(s)/Basis
1, 5, 6, 8–11, 13, 14	103	Giobbi '157 ³ , Giobbi '139 ⁴
1, 5, 6, 8–11, 13, 14	103	Giobbi '157, Giobbi '139, Dua ⁵
10, 11, 13, 14	103	Broadcom ⁶

Petitioner relies on the Declarations of Dr. Patrick Traynor, Ph.D., in support of its unpatentability contentions. Ex. 1003 (in support of the Petition); Ex. 1032 (in support of Petitioner's Reply). Patent Owner relies on the Declaration of Markus Jakobsson, Ph.D., in support of Patent Owner Response. Ex. 2016. Petitioner deposed Dr. Jakobsson and entered the transcript of the deposition into the record. Ex. 1030.

² The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102, 103, effective March 16, 2013. Because the application from which the '042 patent issued was a continuation of applications filed before this date, the pre-AIA versions of §§ 102, 103 apply.

³ U.S. Patent Publication No. 2007/0245157 A1, published October 18, 2007, filed May 5, 2007 (Ex. 1005, "Giobbi '157").

⁴ U.S. Patent Publication No. 2004/0255139 A1, published December 16, 2004, filed May 17, 2004 (Ex. 1006, "Giobbi '139").

⁵ U.S. Patent No. 9,042,819 B2, issued May 26, 2015, filed September 30, 2014 (Ex. 1007, "Dua").

⁶ European Patent Application No. EP 1,536,306 A1 published June 1, 2005, filed September 30, 2004 (Ex. 1008, "Broadcom").

II. ANALYSIS

A. Claim Construction

We construe each claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b) (2020). Under this standard, claim terms are generally given their plain and ordinary meaning as would have been understood by a person of ordinary skill in the art (POSITA) at the time of the invention and in the context of the entire patent disclosure. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

Only those terms in controversy need to be construed, and only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 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)).

Patent Owner contends that “[d]etermining whether the Petitions provide sufficient grounds of invalidity requires construing claim terms present in independent claims 1 and 10.” PO Resp. 4. Patent Owner points out that independent claim 1 recites that the function of “enabling one or more of an application, a function and a service” is performed by an “integrated PDK” and/or an “integrated RDC,” while independent claim 10 recites the function is performed by an “enablement signal” generated by a “hybrid device.” *Id.* According to Patent Owner, “[t]hese terms must be construed in order to determine the corresponding structures performing the recited function,” and that “[o]nly then can it be determined whether the

Petitions demonstrate all elements of claims 1 and 10 can be found in the asserted references.” *Id.*

Patent Owner then asserts that claims 1 and 10 “do not recite a sufficiently definite structure for performing the [recited ‘enabling’] function,” and therefore, “the claims invoke 35 U.S.C. § 112, ¶ 6.” PO Resp. 4. Thus, according to Patent Owner, “the claims must be construed to cover only the structure, material, or acts described in the specification as corresponding to the claimed structure,” wherein “the structure is the algorithm the general-purpose computers are programmed to perform.” *Id.*

Petitioner points out that Patent Owner never raised the 35 U.S.C. § 112(f) (previously 35 U.S.C. § 112 ¶ 6) constructions “in any previous proceeding for the same or similar terms supported by the same or largely the same specification as the ’042 patent.” Pet. Reply 2–3. According to Petitioner, Patent Owner “does not dispute the characterization of the prior art, or the combinations advanced in the Petition” against the challenged claims, but instead “advances and relies on very narrow constructions of various limitations of the Challenged Claims based on a legally unsupported belief that these limitations trigger 35 U.S.C. § 112(f) (‘means-plus-function,’ ‘112(f),’ ‘112(6),’ or ‘MPF’).” *Id.* at 1. Petitioner further argues that Patent Owner’s proposed constructions for the claims which lack “means for” language should be denied because Patent Owner “has failed to overcome the rebuttable presumption against 112(f) treatment” of these limitations. *Id.* at 29.

In light of the parties’ arguments and evidence, we address whether the claims invoke 35 U.S.C. § 112(f) to the extent necessary to resolve the controversy. *See Nidec*, 868 F.3d at 1017. As for the claim limitations

themselves, for the reasons set forth below, the explicit requirements set forth in claims themselves sufficiently limit the claims without requiring further construction.

1) 35 U.S.C. § 112(f).

35 U.S.C. § 112(f) is a provision in patent law that allows an element in a claim to be expressed as a means or step for performing a specific function without reciting the structure, material, or acts in support thereof. That is, § 112(f) allows claiming the means of or step of accomplishing a particular function using purely functional language. Section 112(f) reads as follows:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalent thereof.

A claim element using the term “means” is generally presumed to be a means-plus-function element. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348–49 (Fed. Cir. 2015). There is a rebuttable presumption that a claim limitation is not drafted in a means-plus-function format and conveys sufficient definite structure if it does not contain the term “means.” *Id.*; *see also Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1365 (Fed. Cir. 2022).

Rather than “means for,” “nonce” terms have been used, which appear as a structure, but fail to identify a specific structure. If it is shown that a claim uses a “nonce” word lacking in sufficiently definite structure that substitutes for the term “means,” the presumption that the claim is not drafted in a means-plus-function format can be rebutted. *See Williamson*,

792 F.3d at 1348, 1350–51. In *Williamson*, the Court determined that the term “module” does not provide any indication of structure because “it sets forth the same black box recitation of structure for providing the same specified function as if the term ‘means’ had been used.” *Id.* That is, the rebuttable presumption can be overcome if a challenger demonstrates that the term fails to recite sufficiently definite structure. *See Dyfan*, 28 F.4th at 1367. However, in *Dyfan*, the Court found that the terms “code” and “application” are not generic place holders (i.e., terms that are substitutes for the term “means”) where persons of ordinary skill in the art would understand the terms in combination with the function performed as connoting structure. *Id.* at 1368–69.

In step-plus-function analysis, the absence of the word “step” sets up a rebuttable presumption that § 112(f) is not invoked, but that presumption can be overcome if the claim element only recites a function without any associated acts for accomplishing that function. *See Generation II Orthotics Inc. v Medical Technology Inc.*, 263 F.3d 1356, 1368 (Fed. Cir. 2001).

The Manual for Patent Examining Procedures (MPEP) § 2181 provides guidance on means-plus-function and step-plus-function claim limitations under 35 USC § 112(f). Although MPEP § 2181 is provided as guidance to patent examiners, it reflects existing practices identifying and interpreting 35 USC § 112(f) limitations. In particular, § 2181 guides examiners in determining whether a claim limitation invokes 35 USC § 112(f) by using the three-prong analysis, wherein examiners will apply § 112(f) to a claim limitation if:

- (a) The claim limitation uses the term “means” or “step” or a term used as a substitute for “means” that is a generic placeholder (also called a nonce term or a non-structural term

having specific structural meaning) for performing the claimed function;

(b) The term “means” or “step” or the generic placeholder is modified by functional language, typically, but not always linked by the transitional word “for” (e.g., “means for”) or another linking word or phrase, such as “configured to” or “so that”; and

(c) The term “means” or “step” or the generic placeholder is not modified by sufficient structure, material, or acts for performing the claimed function.

See MPEP § 2181(I).

2) *Analysis*

a. Claim 1

Claim 1 recites, *inter alia*, “an integrated personal digital key (PDK) for storing information” and “an integrated [reader-decoder circuit (RDC)] for communicating wirelessly with at least one external PDK within a proximity zone,” wherein “one or more of the integrated RDC and integrated PDK enabling one or more of an application, a function, and a service.” Ex. 1001, 21:53–65.

Patent Owner asserts that claim 1 does not recite “a sufficiently definite structure for performing the [recited ‘enabling’] function, but rather a general-purpose computer.” PO Resp. 4. In particular, Patent Owner contends that “the structure is the algorithm the general-purpose computers are programed to perform.” *Id.* According to Patent Owner, “the established principle [is] that for a special purpose computer-implemented means-plus-function limitation, the structure must be more than a ***general purpose computer or microprocessor*** and that the specification must disclose an algorithm for performing the claimed function.” PO Sur-reply 1.

Patent Owner argues that “[t]he law has been consistent and clear: to claim a means for performing a specific computer-implemented function, and then to disclose only a **general purpose computer** as the structure designed to perform that function, amounts to pure functional claiming.” *Id.* at 5 (citing *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008)).

Patent Owner cites to *Rain* as “Applicable Law”:

To determine whether § 112 ¶ 6 applies to a claim limitation, we must inquire whether the words of the claim are understood by persons of ordinary skill in the art to have a **sufficiently definite meaning as the name for structure. If those words lack a sufficiently definite meaning, § 112 ¶ 6 applies.** If the limitation uses the word ‘means,’ there is a rebuttable presumption that § 112 ¶ 6 applies. If not, there is a rebuttable presumption that the provision does not apply. But that presumption can be overcome and § 112 para. 6 will apply if the challenger demonstrates that **the claim term fails to recite sufficiently definite structure** or else recites function without reciting sufficient structure for performing that function.

PO Resp. 4–5 (citing *Rain Computing Inc. v. Samsung Electrs. Am. Inc.*, 989 F.3d 1002, 1005 (Fed. Cir. 2021)).

In particular, Patent Owner contends that “[t]he term ‘integrated PDK’ (Personal Digital Key) is not recognized by those of ordinary skill in the art to provide a sufficiently definite structure for performing the function of ‘enabling one or more of an application, a function and a service.’” PO Resp. 8 (citing Ex. 2016 ¶ 18). That is, Patent Owner argues that “‘PDK’ is not a term of art connoting sufficiently definite structure” and thus “a nonce word.” PO Sur-reply 7. According to Patent Owner, “[g]eneric terms . . . and other nonce words that reflect nothing more than verbal construct [are] used in a claim in a manner that is tantamount to using the word ‘means’”

because “they ‘typically do not connote sufficiently definite structure’” and therefore “many invoke § 112, para. 6.” *Id.* at 6–7 (citing *Williamson*, 792 F.3d at 1350) (emphasis omitted).

Patent Owner acknowledges that “the District Court construed a PDK as ‘an operably connect collection of components *including an antenna and a transceiver* for communicating with a RDC and *a controller and memory* for storing information particular to a user.’” PO Sur-reply 7. Although Patent Owner acknowledges “PDK has been constructed as a combination of concrete structures,” Patent Owner argues that such construction “does not make it more than a general-purpose computer.” *Id.* at 8. According to Patent Owner, “a PDK absent an algorithm cannot provide the requisite structure for the claimed function of ‘enabling one or more of an application, a function, and a service.’” *Id.*

Similarly, Patent Owner contends that “[t]he term ‘integrated RDC’ is not recognized . . . to provide a sufficiently definite structure for performing the function of ‘enabling [of claim 1].’” PO Resp. 18. In particular, Patent Owner contends that “the recited structure is nothing more than the ability to receive data via Bluetooth, Wi-Fi, and other wireless protocols.” *Id.* at 19 (citing Ex. 2016 ¶¶ 53–55). According to Patent Owner, “Dr. Jakobsson characterizes the RDC as ‘just a wireless interface that can decode or decrypt received data.’” *Id.* (citing Ex. 2016 ¶ 55). Patent Owner contends that the parties are in agreement that “an RDC is nothing more than a receiver.” *Id.* at 20.

Furthermore, Patent Owner contends that the Specification does not provide “any significant structure for the receiver decoder circuit,” but “merely” describes “RDC 304” as “provid[ing] the wireless interface to the

PDK 102,” wherein RDC 304 “receives data from the PDK 102 in an encrypted format and decodes the encrypted data for processing by the processor 306.” PO Resp. 19 (citing Ex. 1001, 7:10–13).

Patent Owner thus contends that the claims of the ’042 patent “do not recite the RDC performs any physical operation, but rather the *logical operation* of ‘enabling one or more of an application, a function, and a service.’” PO Sur-reply 8. According to Patent Owner, an RDC is just a “receiver,” wherein “a receiver may be structure with known physical operations, [but] without an algorithm it is insufficient to enable a logical operation.” *Id.* at 9.

Petitioner replies by pointing out that “the presumption is that § 112(f) does not apply” because “[t]he parties agree that the term ‘means’ does not appear in the claims.” Pet. Reply 8 (citing PO Resp. 4–5). Petitioner then contends that Patent Owner “fails to overcome this presumption that § 112(f) does not apply because the ‘words of the claim are understood by [a POSITA] to have a sufficiently definite meaning as the name for structure.’” *Id.* at 9 (citing *Williamson*, 792 F.3d at 1349). Further, Petitioner contends that “[n]or are the claim terms ‘black box recitations of structure or abstraction.’” *Id.* (citing *Dyfan*, 28 F.4th at 1368). According to Petitioner, Patent Owner only provides support for its assertion of 112(f) “in the form of simple conclusory statements by its expert, Dr. Jakobsson,” but “these arguments should be given little weight, not only because of their largely conclusory nature but also because the language of the claims would have been recognized as implicating structure to a POSITA.” *Id.* at 2.

Petitioner argues that “[t]he claims should be viewed as whole,” wherein “[Patent Owner] incorrectly isolates each claim term, such as

‘personal digital key’ and ‘receiver-decoder circuit,’ and accesses them out of context with respect to the ‘enabling’ function.” Pet. Reply 10.

According to Petitioner, claim 1 “describes that this function is achieved by components expressly recited in the claims in the context of the particular structural arrangement of components set forth in the claims as a whole,” e.g., “the recited components ‘integrated PDK’ and ‘integrated receiver-decoder circuit’ are structurally coupled to each other,” wherein the Federal Circuit states that “the terms should be viewed in the context of the claim as a POSITA would understand them.” *Id.*

Petitioner then argues that claim 1 recites “multiple elements that clearly impart structure,” namely:

A hybrid device comprising: . . . a personal digital key (PDK) for storing information and capable of communicating wirelessly . . . an integrated RDC [reader-decoder circuit] for communicating wirelessly . . . [and] coupled to the integrated PDK for communication.

Pet. Reply 11 (alterations in original).

According to Petitioner, in identifying the “enabling” function, a POSITA “would not only have considered the structure implicated by, for example, the terms ‘PDK’ ‘for storing information and capable of communicating’ and ‘RDC’ ‘for communicating wirelessly’” themselves, but also “the structure implicated by the connectivity between these components set forth in the claim.” Pet. Reply 11.

As to the term “integrated personal digital key (PDK),” Petitioner argues that “the term ‘PDK’ alone has a definite structure.” Pet. Reply 13. For example, Petitioner contends that “the ‘PDK’ is defined in the claim to ‘stor[e] information,’ indicating that it includes a memory structure,” which

“is supported by the specification’s examples of a PDK.” *Id.* at 13–14 (citing Ex. 1001, 5:41–6:6 (“The PDK 102 comprises a memory . . .”). Petitioner points out that Patent Owner “itself recognized this” by “expressly construing ‘PDK’ as including a ‘memory for storing information.’” *Id.* at 14 (citing Ex. 2014, 2; Ex. 1032 ¶¶ 8–9). According to Petitioner, the term “memory” is “defined as the ‘capacity of a computer or integrated computer system for short and medium-term retention of digital data’ and speaks to a broad class of structures used to retain data for various purposes.” *Id.* (citing Ex. 1020, 5). Thus, Petitioner contends that a POSITA would understand that “PDK” includes “any of multiple varieties of memory structures for storing information,” wherein a POSITA would have recognized that “memory structures can participate in ‘enabling one or more of an application, a function, and a service’ by storing, for example, access information, necessary to access.” *Id.* at 15 (citing Ex. 1032 ¶¶ 11–12).

Similarly, as to “integrated RDC,” Petitioner contends that a POSITA would have understood that the term “speaks to a class of structures used to connect to wireless networks.” Pet. Reply 19. More broadly, reader-decoder circuits such as “‘transceivers,’ ‘receivers,’ ‘decoders’ and ‘readers’ denote definite structure to a POSITA,” and “were well known examples of wireless communication interfaces.” *Id.* Thus, Petitioner contends that “a POSITA would have understood that a ‘receiver-decoder circuit’ denotes structure,” wherein “an RDC is a type of wireless communication interface that is used to ‘enable . . . an application, a function, and a service’ by enabling wireless communication of information, such as access information.” *Id.* at 20.

Based on the complete record before us, we are unpersuaded that claim 1 invokes 35 U.S.C. § 112(f).

Here, as Petitioner points out, “the Challenged Claims . . . do not recite ‘means for’ or ‘step for.’” Pet. Reply 1. As the Federal Circuit stated, when a disputed claim limitation does not employ “means for” language, the presumption is that each of the terms conveys sufficiently definite structure or act and, thus, is not subject to § 112(f). *See Dyfan*, 28 F.4th at 1367. Based on the record before us, this presumption that each of the terms is not subject to § 112(f) is not overcome.

Although Patent Owner argues that “to claim a means for performing a specific computer-implemented function and then to disclose only a *general purpose computer* as the structure designed to perform that function, amounts to pure functional claiming” (PO Sur-reply 5), the question here is whether “means for” analysis under § 112(f) applies at all. That is, as Patent Owner acknowledges, we must determine first whether the claim is even claiming a “means for” performing a function, “and then” determine whether the structure designed to perform that function is a general purpose computer. *Id.* As set forth in MPEP § 2181, the three-step analysis in determining whether § 112(f) applies begins with determining whether a claim limitation uses 1) the term “means” or “step” or 2) a nonce term used as a substitute for “means” that is a generic placeholder. *See* MPEP § 2181(I). We agree with Petitioner’s contentions during oral argument that Patent Owner’s arguments appear to be “based on adding a third general purpose computer structure category that triggers MPF treatment not supported by any case law.” Tr. 32:10–12.

Accordingly, although Patent Owner argues that “claim 1 invokes § 112[(f)]” (PO Resp. 8, 18), and then provides extensive arguments with supporting testimony from Dr. Jakobsson as to the algorithm defining “local, secured information” (*id.* at 10–20 (citing Ex. 2016 ¶¶ 18, 38–51, 53–55)) and “algorithm of control logic 250” (*id.* at 21–25 (citing Ex. 2016 ¶¶ 37, 58)), the presumption that each of the terms is not subject to § 112(f) is not overcome; thus, we decline Patent Owner’s invitation to proceed to determining the corresponding algorithm.

The fact that a particular mechanism is defined in functional terms is not sufficient to trigger § 112(f). In *Williamson*, the determination of whether a particular term invoked § 112 (f) came down to “whether the words of the claims are understood by persons of ordinary skill in the art to have a sufficiently definite means as the name for structure.” *See Williamson*, 792 F.3d at 1348.

The Federal Circuit has consistently determined that terms that connote structure do not trigger § 112(f). *See Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996). In *Greenberg*, the Court determined that the term at issue, “detent mechanism,” was not a generic placeholder like “means for” and, instead, conveyed sufficient structure to a person of ordinary skill in the art. *Id.* In particular, the Court explained that, although the term “does not call to mind single well-defined structure . . . [w]hat is important is . . . that the term, as the name for structure, has a reasonably well understood meaning in the art.” *Id.*

In the current proceeding, Patent Owner contends that “‘PDK’ is not a term of art connoting sufficiently definite structure and thus a nonce word” that “reflect[s] nothing more than verbal construct[.]” PO Sur-reply 6–7.

However, Patent Owner does not provide any evidence that “personal digital key (PDK)” in claim 1 sets forth the same black box recitation of structure (*see Williamson*, 92 F.3d at 1350–51), or a generic place holder (*see Dyfan*, 28 F.4th at 1368–69) for providing the same specified function as if the term “means” had been used. Instead, Patent Owner acknowledges that “PDK” is “a combination of concrete structures,” i.e., “a combination of a receiver, controller (processor), and memory” (although Patent Owner argues that it is no more than a “general-purpose computer”). PO Sur-reply 8. We are unpersuaded that such “combination of concrete *structures*” of receive, controller, and memory is used in claim 1 as a black box recitation of structure or generic place holder “in a manner that is tantamount to using the word ‘means.’” *Id.* at 6–8 (emphasis added).

Similarly, Patent Owner does not provide any evidence that “reader-decoder circuit” in claim 1 sets forth a black box recitation of structure or generic place holder as if “means” has been used. Instead, Patent Owner acknowledges that “an RDC” is a “structure that receives data” (PO Resp. 19) and a “structure with known physical operations” (although Patent Owner argues that, without an algorithm, it is insufficient to enable a logical operation). PO Sur-reply 9. MPEP § 2181 recognizes that certain “structural terms” can found by the Federal Circuit to not to invoke 35 U.S.C. § 112(f), wherein the term “circuit,” for example, combined with a function of the circuit has been found to be a structural term. *See* MPEP § 2181(I)(A) (“The following are examples of structural terms that have been found not to invoke 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, paragraph 6: ‘circuit,’”) (citing *Mass. Inst. Of Tech. and Elecs. For Imaging, Inc. v. Abacus Software*, 462 F.3d 1344, 1355–56 (Fed. Cir. 2006)). Here, we find the

claimed “reader-decoder circuit,” for example, to be such a circuit combined with a function (read, decode) of the circuit, such that 35 U.S.C. § 112(f) is not invoked.

Like the Court’s analysis in *Greenberg*, the question here is whether “personal digital key (PDK)” and “reader-decoder circuit (RDC)” convey “sufficient structure to a person of ordinary skill in the art.” *See Greenberg*, 91 F.3d at 1583. We are unpersuaded that Patent Owner has demonstrated that these terms fail to connote sufficiently definite structure. PO Resp. 4. That is, we find that the “PDK” and “RDC” would be understood by a person of ordinary skill in the art to recite sufficiently definite structure. *Id.*

Although Patent Owner cites to *Rain* as applicable law (PO Resp. 4–5), in *Rain*, the Federal Circuit proceeded to analyze the structures identified to perform the function of “user identification” in the specification only after having concluded that the term was a means-plus function term subject to § 112(f). That is, like *Williamson*, the Court in *Rain* addressed the question of whether a claim term triggers § 112(f) at all before proceeding to analyze the structures described in the specification to perform the claimed function. *See Rain*, 989 F.3d at 1008 (“Having concluded ‘user identification module’ is a means-plus-function term, we must consider the term’s construction”); *see also Williamson*, 792 F.3d at 1348–1349. In *Rain*, the Court reiterated that, in identifying means-plus-function terms, the absence of the signal phrase “means” creates a rebuttable presumption that § 112 ¶ 6 (or § 112(f)) does not apply. *Rain*, 989 F.3d at 1006; *Williamson*, 792 F.3d at 1348.

Because the determination of whether the claims invoke § 112(f) comes down to “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the

name for structure” (*Williamson*, 792 F.3d at 1348), we find Dr. Traynor’s testimony that claim 1 recites sufficiently definite structure persuasive. Ex. 1032. As the Federal Circuit advised in *Williamson*, declarations and/or testimony of expert witnesses can play a large role in this determination. *Williamson*, 792 F.3d at 1348. Similarly, in *Dyfan*, the Federal Circuit found the district court ignored key evidence – unrebutted deposition testimony regarding how a POSITA would have understood claim terms at issue. *Dyfan*, 28 F.4th at 1367. In particular, the Federal Circuit in *Dyfan* found to be “key evidence” the expert’s explanation that the terms, themselves, connote structure, wherein, in combination with the recitation of the code or application’s operation would have connoted structure to a POSITA. *Id.*

In this proceeding, we find persuasive Dr. Traynor’s testimony that a POSITA would have understood the terms “personal digital key (PDK),” and “integrated reader-decoder circuit (RDC),” to have “sufficient definite structure, such that a MPF interpretation is improper.” Ex. 1032 ¶ 7. In particular, we find persuasive Dr. Traynor’s testimony that the term “PDK” alone has definite structure, and, for example, “is defined in the claim to ‘stor[e] information,’ indicating that it includes a memory structure.” *Id.* ¶ 9 (alteration in original). Dr. Traynor’s testimony is consistent with the Specification of the ’042 patent. See Ex. 1001, 5:41–6:6, 3:46–61. Thus, we find persuasive Dr. Traynor’s testimony that such “memory” has a definite structure, and is “defined as the ‘capacity of a computer or integrated computer system for short and medium-term retention of digital data’ and speaks to a broad class of structures used to retain data for various purposes.” Ex. 1032 ¶ 10 (citing Ex. 1020, 5). According to Dr. Traynor,

not only would a POSITA have understood that “PDK” “includes any of multiple varieties of memory structures for storing information,” but the POSITA would have recognized that “such memory structures can participate in ‘enabling one or more of an application, a function, and a service’ by simply storing information . . . necessary to access or otherwise invoke that application.” *Id.* ¶ 11. In fact, the Specification of the ’042 patent describes a microchip that stores information in memory and responds through an antenna when probed, which is consistent with Dr. Traynor’s testimony. *Id.*; Ex. 1001, 1:28–61.

We similarly find persuasive Dr. Traynor’s testimony that an “RDC for communicating wirelessly with the at least one external PDK within the proximity zone” also has sufficiently definite structure for performing the function of “enabling one or more of an application, a function and a service.” Ex. 1032 ¶ 17. In particular, we find persuasive Dr. Traynor’s testimony that “a POSITA would have understood that a ‘reader-decoder circuit’ or ‘reader-decoder circuit (RDC)’ speaks to a class of structures used to communicate wirelessly.” *Id.* Dr. Traynor’s testimony is consistent with the Specification of the ’042 patent. *See* Ex. 1001, 1:38–61, 7:4–22. We find persuasive Dr. Traynor’s testimony that

[a] POSITA also would have readily recognized that the RDC or “wireless communication interface” is often used to “enable one or more of an application, a function, and a service” by enabling wireless communication of information . . . necessary to access or otherwise invoke that application, function, or service.

Ex. 1032 ¶ 19. Dr. Traynor cites to various technical dictionaries to persuasively support his testimony. *Id.* ¶¶ 17–18 (citing Ex. 1021 (WILEY ELECTRICAL AND ELECTRONICS ENGINEERING DICTIONARY), 7–8, 11–12; Ex.

1023 (NEWTON’S TELECOM DICTIONARY), 5; Ex. 1024 (THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS), 5–7; Ex. 1025 (MICROSOFT COMPUTER DICTIONARY), 3–4).

Thus, although Patent Owner argues that claim 1 invokes § 112(f) (PO Resp. 4–20), and provides extensive arguments with supporting testimony from Dr. Jakobsson (*id.* (citing Ex. 2016 ¶¶ 18, 36–55)), the presumption that claim 1 is not subject to § 112(f) is not overcome.

b. Claim 10

Claim 10 recites, *inter alia*, a method comprising “creating a first wireless link between an integrated receiver-decoder circuit (RDC) of a hybrid device and an external personal digital key (PDK),” “receiving a first signal at the integrated RDC via the first wireless link from the external PDK,” “generating an enablement signal enabling one or more of an application, a function and a service,” and “send the enablement signal to one or more of the hybrid device and the device associated with an external RDC.” Ex. 1001, 22:31–42.

Similar to its contentions with respect to claim 1, Patent Owner contends that claim 10 also invokes 35 U.S.C. § 112(f). PO Resp. 4–8. Patent Owner contends that the term “‘enablement signal’ is not recognized by those of ordinary skill in the art to provide a sufficiently definite structure for performing the function of ‘enabling on[e] or more of an application, a function and a service,’” but rather “it is a meaningless nonce merely reciting the function to be performed.” *Id.* at 20–21. Patent Owner then contends that “claim 10 invokes § 112, ¶ 6, by failing to recite a sufficiently definite structure for performing the recited function,” and thus, “[t]he first step in construing a means-plus function claim is to ‘identify the claimed

function.”” *Id.* at 21 (citing *Rain*, 989 F.3d at 1007). According to Patent Owner, “the recited structure is nothing more than the ability to receive data,” wherein “the mere receipt of data via a wireless link is insufficient to perform the function of ‘enabling one or more of an application, a function and service.’” *Id.* at 21–22. That is, according to Patent Owner, claim 10 “must be construed as including the algorithm of control logic 250,” because “[a]bsent such a construction, claim 10 would be indefinite.” *Id.* at 25.

Petitioner argues that, if § 112(f) is applied at all, the correct analysis of method claim 10 should be step-plus-function. Pet. Reply 25. According to Petitioner, “[Patent Owner] has failed to properly analyze the functional language of the method claim within its appropriate legal framework.” *Id.* Petitioner then cites *Seal-Flex*, where the Court considered whether § 112(f) applied to method claims. *Id.* (citing *Seal-Flex, Inc. v Athletic Track & Court Constr.*, 172 F.3d 836 (Fed. Cir. 1999)). According to Petitioner, in *Seal-Flex*, the Court established two key principles: “(1) the absence of ‘steps for’ in a method claim creates a presumption that 112(f) does not apply; and (2) if a claim limitation expresses both a function and an act, 112(f) is not invoked.” *Id.* (emphasis omitted).

Nevertheless, Petitioner contends that “‘enablement signal’ does connote structure to a POSITA.” Pet. Reply 24. According to Petitioner, in claim 10, “enablement signal” has sufficient structure similar to “height adjustment mechanism” in *Flo Healthcare Solutions*. *Id.* (citing *Flo Healthcare Solutions, LLC v. Kappos*, 697 F.3d 1367 (Fed. Cir. 2012)).

Based on the complete record before us, we are unpersuaded that claim 10 invokes 35 U.S.C. § 112(f).

Like claim 1, claim 10 does not recite “means” or “step” for performing a function. Further, claim 10 is a method claim, but unlike claim 1, recites “generating an enablement signal enabling one or more of an application, a function, and a service.” *Compare* Ex. 1001, 21:52–65, *with id.* at 22:41–42. Although Patent Owner argues that “[t]he first step in construing a means-plus function claim is to ‘identify the claimed function’” (PO Resp. 21), we agree with Petitioner that the correct analysis of method claim 14 is not means-plus-function, but rather should be step-plus-function. Pet. Reply 25. However, we agree with Patent Owner that *Williamson* guides that step-plus-function analysis follows a similar approach as means-plus-function analysis (PO Sur-reply 9–10; *see also Williamson*, 792 F.3d at 1349), wherein triggering the step-plus-function provisions of § 112(f) follows a similar approach of rebuttable presumption, with “step” replacing “means,” and with recitation of acts substituting for recitation of structure. *See* 35 U.S.C. § 112(f). That is, like the means-plus-function analysis, in the step-plus-function analysis, the absence of a particular term (“step”) sets up a rebuttable presumption that § 112(f) is not invoked, but that presumption can be overcome if the claim element only recites a function (without any associated acts for accomplishing that function). *See also Generation II Orthotics*, 263 F.3d at 1368. Based on the record before us, however, this presumption with respect to claim 10 is not overcome.

Although Patent Owner argues that step-plus-function analysis is no different than a means-plus-function analysis in claim 1 (PO Sur-reply 9–10), even if we were to determine that claim 1 recites means-plus-function language, the mere fact that a method claim is drafted with language parallel to an apparatus claim with means-plus-function language does not mean that

the method claim should be subject to an analysis under § 112(f). *See O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997). Merely claiming a step without recital of a function is not analogous to a means plus a function. *Id.* That is, claiming a step by itself, or even a series of steps, does not implicate section § 112(f). *Id.*

As discussed above, in step-plus-function analysis, if the claim does not recite the term “step for,” there is a presumption that these limitations are not subject to § 112(f). *See Seal-Flex*, 172 F.3d at 849; *Generation II Orthotics*, 263 F.3d at 1368; *see also Watts v. XL Systems, Inc.*, 232 F.3d 877, 881 (Fed. Cir. 2000). Here, we agree with Petitioner that claim 10 contains no language that would overcome the presumption.

Although Patent Owner argues that “the mere receipt of a signal starting a process or receipt of a signal via a wireless link is insufficient to perform the function of ‘enabling one or more of an application, a function and service’” (PO Sur-reply 10), the question here is whether § 112(f) applies at all. Because the absence of the word “step” sets up a rebuttable presumption that § 112(f) is not invoked, and although that presumption can be overcome if the claim element only recites a function without any associated acts for accomplishing that function, on this record, this presumption is not overcome.

In claim 10, as Petitioner explains, “‘enablement signal’ derives its name ‘from the function [it] perform[s]’—in fact the claim itself states this by reciting: ‘an enablement signal enabling one or more of an application, a function and a service.’” Pet. Reply 24 (alterations in original) (citing Ex. 1032 ¶ 22). We agree with Petitioner that “generating an enablement signal enabling one or more of an application, a function, and a service” “describes

both the function (‘enabling one or more of . . .’) and the act (‘generating an enablement signal’).” *Id.* at 26 (alteration in original). That is, claim 10 recites the function of “enabling” with an associated act for accomplishing that function, i.e., the act of “generating an enablement signal.” *See* Ex. 1001, 22:41–42. We agree with Petitioner that “the ‘act’ and ‘function’ are apparent such that step-plus-function is not invoked.” Pet. Reply 26–27; *see also Generation II Orthotics*, 263 F.3d at 1368.

Furthermore, even assuming *arguendo* that we agree with Patent Owner that claim 10 must recite a “sufficiently definite structure for performing the recited function” (PO Resp. 21), we find Dr. Traynor’s testimony that claim 10 recites sufficiently definite structure persuasive. Ex. 1032. In particular, we find persuasive Dr. Traynor’s testimony that an “enablement signal” has sufficiently definite structure for performing the function of “enabling one or more of an application, a function and a service.” *Id.* ¶ 22. As Petitioner points out, Dr. Traynor provides supporting examples of signals sent to enable a function, which “demonstrate that an ‘enablement signal’ was understood by a POSITA,” wherein “a POSITA would know how to design such a signal.” Pet. Reply 24. For example, Dr. Traynor testified, “an ‘enablement signal’ was understood by a POSITA to be capable of enabling certain functions,” such as, a “SpeedPass *enabl[ing]* ExxonMobile’s customers to pay at the pump with the wave of a key fob.” Ex. 1032 ¶ 23 (emphasis in original) (quoting Ex. 1029). Dr. Traynor’s testimony is also supported by various technical dictionaries. *Id.* ¶ 22 (citing Ex. 1026 (THE DICTIONARY OF SCIENCE AND TECHNOLOGY), 3; Ex. 1027 (MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS), 3; Ex. 1028 (THE DICTIONARY OF COMPUTING), 3).

Although Patent Owner contends that “enablement signal” is “meaningless nonce merely reciting the function [it performs]” and cites to *Rain* (PO Resp. 20–21), Patent Owner neither provides evidence that “enablement signal” in claim 10 is a generic placeholder like “means” (*see Dyfan*, 28 F.4th at 1368–1369), nor provides evidence that “enablement signal” sets forth a “black box recitation of structure” (*see Williamson*, 792 F.3d at 1350–1351). Instead, Patent Owner acknowledges that the “enablement signal” is generated by a PDK and an RDC, which, according to Patent Owner, are general purpose computers. PO Resp. 24. We are unpersuaded that such signal generated by general purpose computers is used in claim 10 as a black box recitation of structure or generic place holder in a manner that is tantamount to using the word “means.”

Thus, although Patent Owner argues that claim 10 also invokes § 112(f) (PO Resp. 20–25), and provides extensive arguments with supporting testimony from Dr. Jakobsson (*id.* at 21–24 (citing Ex. 2016 ¶ 56)), we are persuaded by Petitioner’s argument and evidence that claim 10 is not subject to § 112(f).

B. Principles of Law

A patent 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 ordinary skill in the art; and (4) objective evidence of non-obviousness.⁷ *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

C. *Claims 1, 5, 6, 8–11, 13 and 14 as Assertedly Obvious over Giobbi '157, Giobbi '139, and Dua*

Petitioner contends that claims 1, 5, 6, 8–11, 13, and 14 of the '042 patent would have been obvious over by Giobbi '157, Giobbi '139, and alternatively, over Giobbi '157, Giobbi '139, and Dua. Pet. 6–68. Patent Owner provides its response to Petitioner's contentions. PO Resp. 29–32.

We briefly summarize Giobbi '157, Giobbi '139, and Dua below.

1. Giobbi '157

Giobbi '157, titled “Two-Level Authentication for Secure Transaction,” published on October 18, 2007, with a filing date of May 5, 2007. Ex. 1005, codes (54), (43), (22). Giobbi '157 discloses a PDK that stores biometric profiles in “a tamper-proof memory that is acquired in a secure trusted process,” wherein the biometric profiles comprise a “representation of physical or behavioral characteristics that are uniquely associated with an individual that owns and carries the PDK.” *Id.* at code (57). An illustration of Giobbi '157's system for securely authenticating an individual for transaction processing and/or access control applications is depicted in Figure 1, reproduced below.

⁷ Neither party presents evidence or arguments regarding objective evidence of non-obviousness.

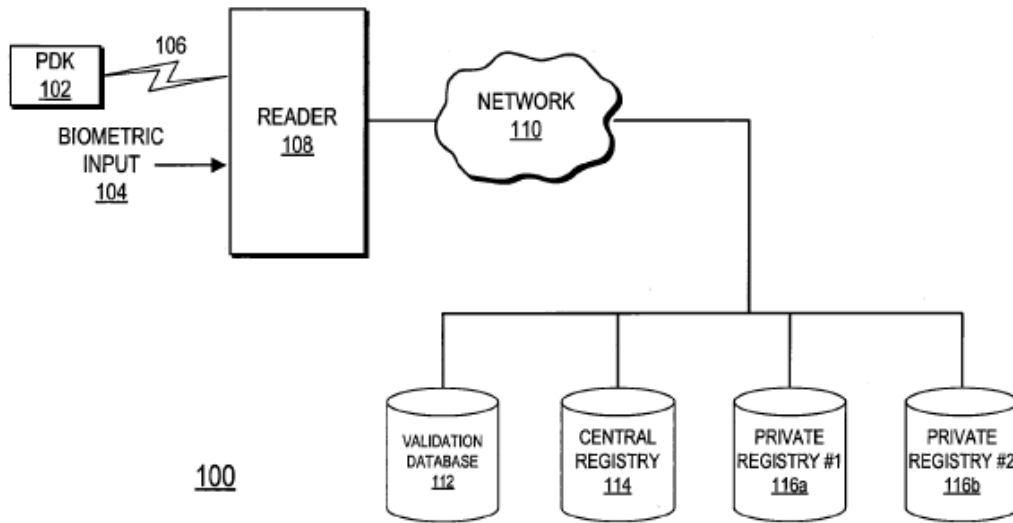


FIG. 1

Figure 1 is a block diagram of system 100 for secure electronic authentication comprising PDK 102, reader 108, network 110, and one or more external databases including validation database 112. *Id.* ¶ 26. As shown in Figure 1, reader 108 is coupled to PDK 102 by wireless link 106 and coupled to network 110 by either a wired or wireless link. *Id.* Reader 108 is also adapted to receive biometric input 104 from a user. Network 110 couples validation database 112, central registry 114, and two private registries 116 to reader 108. *Id.*

Reader 108 is depicted in Figure 3, reproduced below.

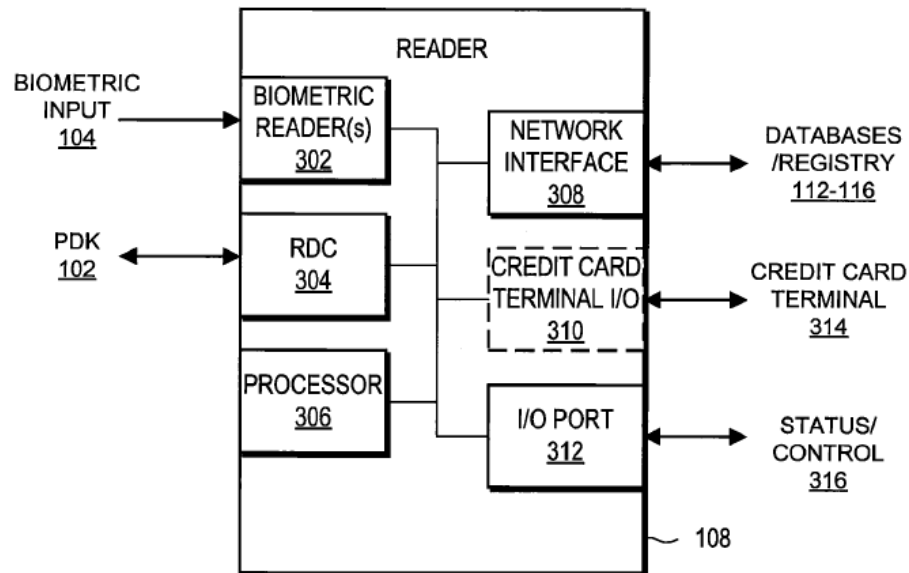


FIG. 3

Figure 3 is a block diagram of reader 108 that includes one or more biometric readers 302, receiver-decoder circuit (RDC) 304, processor 306, network interface 308, I/O port 312, and optionally credit card terminal I/O 310. Ex. 1005 ¶ 49. As shown in Figure 3, RDC 304 provides wireless interface to PDK 102, wherein RDC 304 wireless receives data from PDK 102 in an encrypted format and decodes the encrypted data for processing by processor 306. *Id.* ¶ 50. Generally, processor 306 processes data received by reader 108 or data to be transmitted by reader 108, wherein biometric input 104 received by biometric reader 302 can be processed and compared to biometric profile 220 received from PDK 102 in order to determine if a transaction should be authorized. *Id.* ¶ 52.

PDK 102 is depicted in Figure 2, reproduced below.

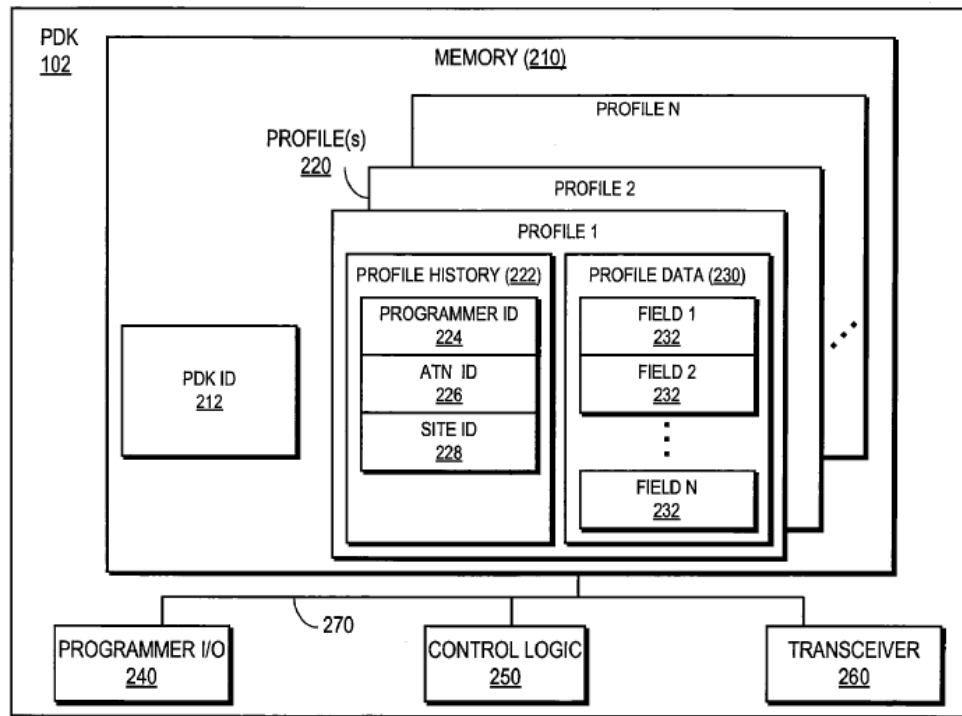


FIG. 2

Figure 2 is a block diagram of PDK 102 comprising memory 210, programmer I/O 240, control logic 250, and transceiver 260, coupled by bus 270. Ex. 1005 ¶ 35. Memory 210 can be any combination of memory types, including physical access secured and tamperproof memories, that stores unique PDK ID 212 and one or more profiles 220. *Id.* ¶ 36. Profiles 220 may comprise a biometric profile, for example, which includes profile data 230 representing physical and/or behavioral information that can uniquely identify the PDK owner. *Id.* ¶ 37.

2. Giobbi '139

Giobbi '139, titled “Digital Content Security System,” published on December 16, 2004, with a filing date of May 17, 2004. Ex. 1006, codes (54), (43), (22). Giobbi '139 discloses a personal digital key digital content security system (PDK-DCSS) that is used to protect computers from unauthorized use and protect the digital content stored on computers from

being wrongfully accessed and copied. *Id.* at code (57). Components of the PDK-DCSS are (1) a standard hard drive device, with the addition of a PDK receiver/decoder circuit (PDK-RDC) integrated into the hard drive's controller, and (2) a PDK key associated with the PDK-RDC. *Id.* To save batteries, RDCs use checks for presence of associated PDK key on a periodic basis. *Id.* ¶ 89.

3. Dua

Dua, titled “Method, System, and Apparatus Having Near Field Communication (NFC) Chip With Configurable Memory That Is Updatable Via a Host Processor,” issued on May 26, 2015, with a filing date of September 30, 2014. Ex. 1007, codes (54), (45), (22). Dua discloses the use of Radio Frequency Identification (RFID) technology to exchange communication settings, media capability, and other parameters with an external device that also has integrated RFID technology. *Id.* at code (57). In particular, Dua discloses a media player with cellular phone capability. *Id.* at 6:46–65, Fig. 1. An RFID tag-reader module is attached to or embedded within the media player, wherein the RFID tag-reader module is capable of functioning as both an RFID tag and an RFID reader, and allows interoperability with readers and tags compatible with existing international standards. *Id.* at 12:46–56. Compatibility with these standards gives the media player the ability to not only establish a wireless connection with other electronic devices using RFID for setup, but also allows the media player to function as an electronic key and wallet (for point-of-sale transactions). *Id.* at 12:56–61.

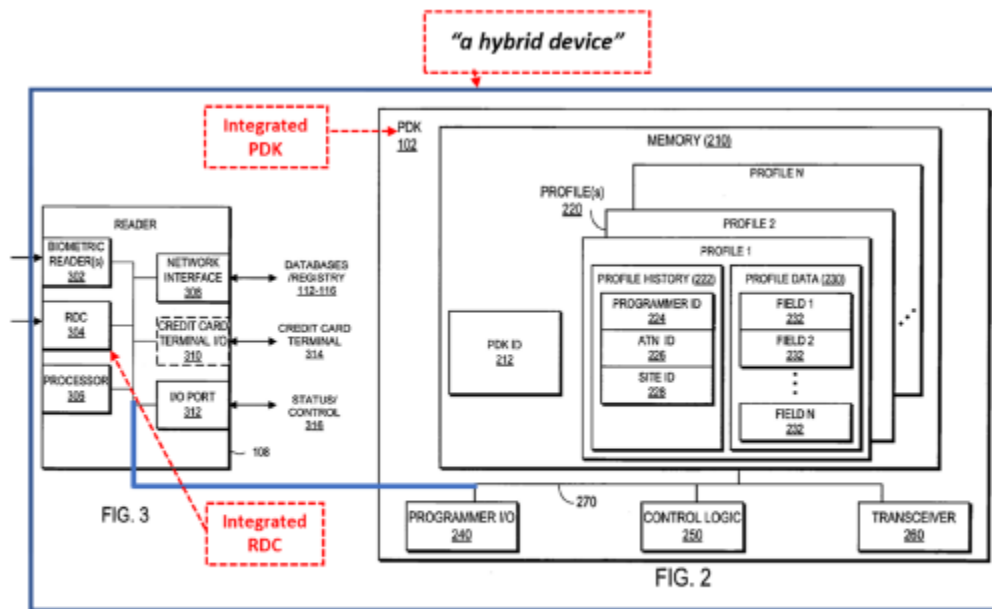
4. Analysis

- a. *Claims 1, 5, 6, 8–11, 13, and 14 as Assertedly Obvious over Giobbi '157, Giobbi '139, and Dua (Ground 2)*

We begin by addressing in detail Petitioner's contentions and Patent Owner's arguments with respect to the limitations of representative claim 1.

i. *Preamble, a "hybrid device" (claim 1)*

Petitioner contends that, "[t]o the extent that the preamble is limiting, the combination of Giobbi-157 and-139 discloses a '**hybrid device**'" as claimed. Pet. 26 (citing Ex. 1005 ¶¶ 12, 27, 30, 35; Ex. 1006 ¶¶ 22–44; Ex. 1003 ¶ 58). Petitioner provides an annotated combination of Figures 2–3 of Giobbi '157, modified to incorporate Giobbi '139's teachings, shown below, to illustrate its contentions.



MS-1005, FIGS. 2-3 (modified to incorporate Giobbi-139's teachings).

The above annotated combination of Figures 2–3 of Giobbi '157 in the Petition, according to Petitioner, illustrates "Giobbi-157's cell phone" which

“includes an integrated PDK” (second from top red box), and in the combination of Giobbi ’157 and Giobbi ’139, “this integrated PDK communicates with an integrated RDC” (bottom red box) “all within a *hybrid device*.” Pet. 26–27 (citing Ex. 1005, Figs. 2–3).

Patent Owner does not present arguments in the Response addressing the specific merits of Petitioner’s contentions with respect to the preamble. *See generally* PO Resp. 29–32.⁸

Based on the complete record presented, we determine that Petitioner has persuasively shown that the proposed combination of Giobbi ’157, Giobbi ’139, and Dua teaches a “hybrid device” as set forth in the preamble.

- ii. “an integrated personal digital key (PDK) for storing information and capable of communicating wirelessly with at least one external receiver-decoder circuit (RDC)” (claim 1)

Petitioner contends that Giobbi ’157 “discloses a ‘*Personal Digital Key (PDK)*,’ which is an example of an *integrated* secure memory *for storing information*,” wherein the PDK “is *integrated* into a hybrid device, such as a cell phone.” Pet. 27 (citing Ex. 1005 ¶¶ 11, 35). Petitioner further contends that Giobbi ’157 discloses “RDC 304,” which wirelessly receives data from the PDK 102 in an encrypted format and decodes the encrypted data for processing. *Id.* at 28 (citing Ex. 1005 ¶¶ 50, 59). According to Petitioner, Giobbi ’157 discloses establishing communication between

⁸ Because there is no dispute that Giobbi ’157 in view of Giobbi ’139 and Dua teaches a device, as recited in the preamble, there is no need to determine whether the preamble in claim 1 is limiting. *See Nidec*, 868 F.3d at 1017.

PDK 102 and RDC 304 of reader 108 once PDK 102 is within range of reader 108. *Id.* at 28–29 (citing Ex. 1005 ¶ 59). Thus, Petitioner contends that Giobbi ’157 discloses that PDK 102 “*communicat[es] wirelessly with at least one external receiver-decoder circuit (RDC) [(304)].*” *Id.* at 29 (citing Ex. 1003 ¶ 60).

In addition, Petitioner contends that “Dua’s RFID Tag Unit 306 is another example of a ‘*PDK for storing information*’ and “*capable of communicating wireless with at least one external receiver-decoder circuit (RDC)* (RFID reader).” Pet. 29 (citing Ex. 1007, 6:46–65, 12:51–64, 13:9–18, 14:53–64, 15:42–56, 16:31–34, Figs. 4A, 6; Ex. 1003 ¶ 61).

Patent Owner argues that, because claim 1 invokes 35 U.S.C. § 112(f), the algorithm represented by control logic 250 performs the claimed “enabling” function, wherein the algorithm “requires exchanging an access key to retrieve and unlock information held within a service block of a PDK.” PO Resp. 29–30. According to Patent Owner, “Giobbi 157 does not contemplate that the information is received in exchange for an access key.” *Id.* at 30. In particular, according to Patent Owner, “Giobbi 157 discloses starting an exchange with an unsecure connection,” but “nowhere does Giobbi 157 teach or describe that this unsecure exchange of information is accomplished by providing an access key in exchange for information held locally in the PDK’s service blocks, as required in the challenged claims.” *Id.*

We find Patent Owner’s arguments unavailing, as they rely on Patent Owner’s arguments that claim 1 invokes 35 U.S.C. § 112(f), with which, as discussed above, we do not agree. In particular, although Patent Owner argues that Giobbi ’157 does not teach or describe that the unsecure

exchange of information is accomplished by providing an access key in exchange for information held locally in the PDK's service blocks "as required in the challenged claims" (PO Resp. 30), claim 1 merely recites that the integrated PDK stores information and is capable of communicating wirelessly with at least one external RDC.

Dua discloses information stored in RFID tag unit 306 that can be retrieved by an RFID reader device that is stored in memory, wherein access to the configurable tag memory may be limited to one or more specific applications. *See* Ex. 1007, 14:53–57, 15:42–56. We find availing Petitioner's reliance on Dua's RFID Tag Unit 306 for teaching an "integrated personal digital key (PDK)," as claimed. Pet. 29.

Based on the complete record presented, we determine that Petitioner has persuasively shown that the proposed combination of Giobbi '157, Giobbi '139, and Dua teaches "an integrated personal digital key (PDK) for storing information and capable of communicating wirelessly with at least one external receiver-decoder circuit (RDC)," as recited in claim 1.

iii. *"an integrated RDC for communicating wireless with at least one external PDK within a proximity zone, the integrated RDC coupled to the integrated PDK by a first signal line for communication" (claim 1)*

Petitioner contends that Giobbi '157 discloses "an integrated RDC *'communicating wireless with at least one external PDK within a proximity zone,'*" because Giobbi '157's reader 108 wirelessly communicates with PDK 102 when PDK 102 is within a proximity zone of reader 108. Pet. 30 (citing Ex. 1005 ¶¶ 26–44). According to Petitioner, Giobbi '157's "hybrid device" includes "an integrated RDC" that is coupled

to the integrated PDK by a “signal line for communication.” *Id.* (citing Ex. 1005 ¶¶ 12, 27, 30, 35; Ex. 1006 ¶¶ 22–44; Ex. 1003 ¶ 62) (emphasis omitted). Further, Petitioner contends that Giobbi ’139 also discloses “an integrated RDC ‘communicating wirelessly with the at least one external device within a proximity zone.’” *Id.* at 30–31 (citing Ex. 1006 ¶¶ 26–44; Ex. 1003 ¶ 63).

In addition, Petitioner contends that “Dua’s Reader Unit 304 is another example of an ‘*integrated, reader-decoder circuit (RDC)*’” because “Reader Unit 304 also ‘*communicat[es] wirelessly with at least one external device within a proximity zone*’ and is ‘*communicatively coupled to [an] integrated PDK*’ (the RFID Tag Unit 306).” Pet. 31 (alterations in original) (citing Ex. 1007, 6:46–65, 12:51–64, 13:9–18, 14:53–64, 15:42–56, 16:31–34, Figs. 4A, 6; Ex. 1003 ¶ 64).

Patent Owner does not present arguments in the Response addressing the specific merits of Petitioner’s contentions concerning the integrated RDC as claimed. *See generally* PO Resp. 29–32.

We have reviewed Petitioner’s explanations and supporting evidence regarding these limitations, and we agree with and adopt them as our own. Pet. 29–33. In particular, Giobbi ’157’s reader 108 communicates with PDK 102 when PDK 102 is within a proximity zone of reader 108. *See* Ex. 1005 ¶¶ 26–44. We find availing Petitioner’s reliance on Giobbi ’157 for teaching a reader/RDC for communicating wireless with a PDK within a proximity zone. Pet. 30. Further, we find availing Petitioner’s reliance on Giobbi ’157 for teaching that the reader is coupled to the integrated PDK by a “signal line” for communication. *Id.*; *see* Ex. 1005 ¶¶ 12, 27, 30, 35. Because Patent Owner does not separately address these limitations concerning the

integrated RDC, the Petitioner's positions regarding these limitations of independent claim 1 stand unopposed as a part of this trial.

Based on the complete record presented, we determine that Petitioner has persuasively shown that the proposed combination of Giobbi '157, Giobbi '139, and Dua teaches "an integrated RDC for communicating wireless with at least one external PDK within a proximity zone, the integrated RDC coupled to the integrated PDK by a first signal line for communication," as recited in claim 1.

- iv. *"the integrated RDC coupled to at least one other component of the hybrid device by a second signal line" (claim 1)*

Petitioner contends that Giobbi '157 shows "***the integrated RDC 304 coupled by a second signal line*** to the biometric reader 302 (***at least one other component of the hybrid device.***)" Pet. 34 (citing Ex. 1005 ¶¶ 30, 48, 49, 51, 52, 71, Fig. 3). According to Petitioner, "[t]he integrated RDC compares the biometric input at the biometric reader to the biometric profile data received from a PDK," wherein a POSITA would have found it obvious that "the integrated RDC [is] coupled to at least one other component of the hybrid device by a second signal line." *Id.* (citing Ex. 1005 ¶¶ 30, 48–49, 51–52, 71, Fig. 3; Ex. 1003 ¶ 66) (emphasis omitted). In addition, Petitioner contends that Giobbi '139 also discloses "a storage device (***at least one other component***) (***of the hybrid device***)" that "can be controlled by a signal line from the RDC to the storage device (***the integrated RDC coupled to at least one other component of the hybrid device by a second signal line***)." *Id.* at 33 (citing Ex. 1006 ¶¶ 41, 88–90).

Further, Petitioner also contends that "Dua's teachings" render "obvious that ***the integrated RDC is coupled to at least one other***

component of the hybrid device by a second signal line, so that the RDC can enable that component or for the mere fact that the RDC must be connected to a processor, transmitter, memory, or power to function in the mobile device.” Pet. 36 (citing Ex. 1007, 6:46–65, 12:51–64, 13:9–18, 14:53–64, 15:42–56, 16:31–34, Figs. 4A, 6; Ex. 1003 ¶ 68).

Patent Owner does not present arguments in the Response addressing the specific merits of Petitioner’s contentions regarding the integrated RDC being coupled by a second signal line. *See generally* PO Resp. 29–32.

We have reviewed Petitioner’s explanations and supporting evidence regarding these limitations, and we agree with and adopt them as our own. Pet. 29–33. In particular, we find availing Petitioner’s reliance on Giobbi ’157 for teaching integrated RDC 304 being coupled by another signal line to biometric reader 302. *Id.* at 34; *see* Ex. 1005 ¶¶ 30, 48, 49, 51, 52, 71, Fig. 3. We are persuaded by Petitioner’s contention that Giobbi ’157’s integrated RDC “compares the biometric input at the biometric reader to the biometric profile data received from a PDK,” wherein a POSITA would have found it obvious that “the integrated RDC [is] coupled to at least one other component of the hybrid device by a second signal line.” Pet. 34 (emphasis omitted, alteration in original); *see* Ex. 1005 ¶¶ 30, 48–49, 51–52, 71, Fig. 3. Because Patent Owner does not separately address these limitations regarding the integrated RDC being coupled by a second signal line, the Petitioner’s positions regarding these limitations of independent claim 1 stand unopposed as a part of this trial.

Based on the complete record presented, we determine that Petitioner has persuasively shown that the proposed combination of Giobbi ’157, Giobbi ’139, and Dua teaches the integrated RDC being “coupled to at least

one other component of the hybrid device by a second signal line” as recited in claim 1.

- v. *“one or more of the integrated RDC and integrated PDK enabling one or more of an application, a function, and a service on one or more of the hybrid device and a device associated with the external RDC” (claim 1)*

Petitioner contends that Giobbi ’157 discloses “[w]hen a PDK . . . comes within range of a Reader . . . , communication is automatically established . . . between the RDC . . . and the PDK . . . when it enters a proximity zone of the [RDC].” Pet. 37 (alterations in original) (citing Ex. 1005 ¶¶ 59–63). According to Petitioner, Giobbi ’157 then provides for the RDC requesting profile data stored within the external PDK for authentication, and if the profile data received from the “secure memory” of the external PDK is valid, the RDC “completes the transaction,” wherein a “transaction” includes “enabling access to secure physical or digital assets,” i.e., *“enabling one or more of an application, a function, and service.”* *Id.* (citing Ex. 1005 ¶¶ 61, 63).

Petitioner provides an annotated Figure 4 of Giobbi ’157, shown below, to illustrate its contentions.

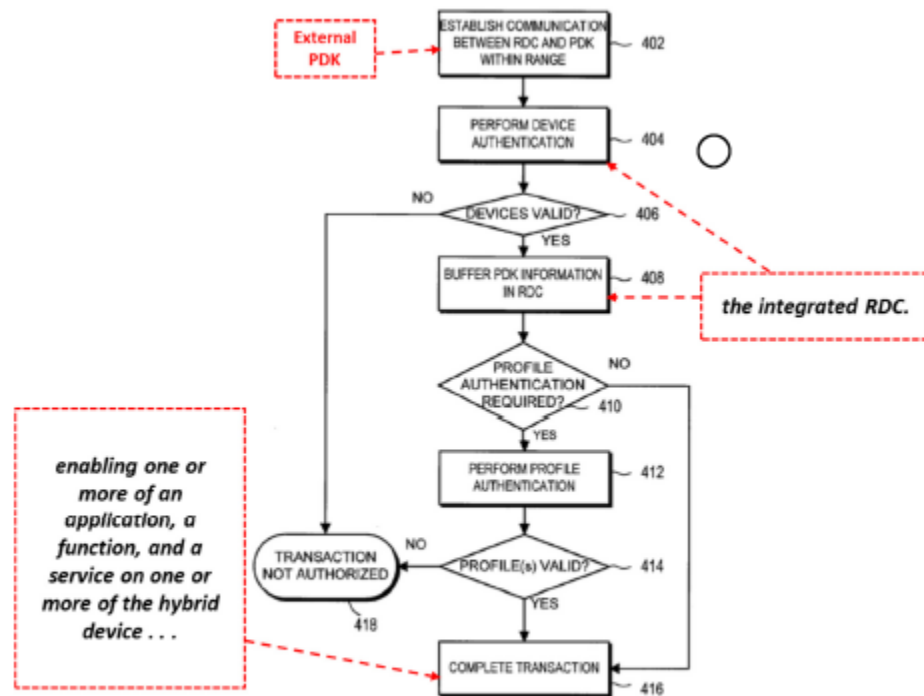


FIG. 4
MS-1005, FIG. 4.

The above annotated Figure 4 of Giobbi '157, as discussed in the Petition, is a block diagram illustrating a method for establishing communication between an RDC and a PDK within range. Pet. 38. In annotated Figure 4 of Giobbi '157, the method begins with the “External PDK” (top red box) “establish[ing] communication between RDC and PDK within range,” wherein, upon transaction completion 416, the method “enabl[es] one or more of an application, a function and a service” (bottom red box). *Id.* at 37 (emphasis omitted) (citing Ex. 1005 ¶¶ 59–63).

According to Petitioner, Giobbi '157 “explicitly” teaches that the transaction “enables one or more of an application, a function, and service” when stating that “the transaction includes enabling access to secure physical or digital assets (e.g., unlocking a door, opening a vault, providing access to a secured hard drive, etc.).” Pet. 39 (emphasis omitted) (citing Ex.

1005 ¶ 63; Ex. 1003 ¶ 71). According to Petitioner, “the external PDK can enable functions on the hybrid device, including ‘effectively enabling/disabling the device itself.’” *Id.* at 37–38 (emphasis omitted).

Alternatively, Petitioner contends the “integrated PDK” of the hybrid device in Giobbi ’157 also “enabl[es] one or more of an application, a function, and service.” Pet. 38 (emphasis omitted) (citing Ex. 1005, code (57), ¶ 11). According to Petitioner, “[t]ransactions in Giobbi-157 are performed by transmitting authenticating information from a PDK (*‘the integrated PDK’* of the hybrid device) to an RDC (*the external RDC*), for example, when completing a withdrawal from an ATM (*a device associated with the external RDC*).” *Id.* at 38–39 (citing Ex. 1005 ¶ 65; Ex. 1003 ¶ 70).

In addition, Petitioner contends Giobbi ’139 discloses “a use case where an integrated RDC can be incorporated into cell phones, PDAs, and MP3 players.” Pet. 40 (citing Ex. 1006 ¶ 88). According to Petitioner, in Giobbi ’139, “[i]f an authorized PDK is used in conjunction with the integrated RDC the application/function/service runs on the device,” e.g., “the hybrid device ‘plays the digital content,’ such as music (*‘enables one or more of an application, a function, and service’*).” *Id.* (citing Ex. 1006 ¶ 37; Ex. 1003 ¶ 72).

Patent Owner maintains its argument that claim 1 invokes 35 U.S.C. § 112(f). PO Resp. 29–32. According to Patent Owner, the algorithm presented by control logic 250 performs the function of “enabling one or more of an application, a function and service,” wherein, “[t]he Petition fails to establish Giobbi 157, Giobbi 139, or Dua, alone or in combination,

‘enables an application, a function, and a service’ using the algorithm.” *Id.* at 29.

We find Patent Owner’s arguments unavailing, as they rely on Patent Owner’s arguments that claim 1 invokes 35 U.S.C. § 112(f), with which, as discussed above, we do not agree. In particular, although Patent Owner argues that Giobbi ’157 does not teach or describe unlocking information from a service block in exchange for an access key “as required in the challenged claims” (PO Resp. 30), and thus fails to disclose the “enabling” function as required by the claim, claim 1 merely requires that one or more of the integrated RDC and integrated PDK enables one or more of an application, a function, and a service.

In Giobbi ’157, when the PDK enters a proximity zone of the RDC, the RDC requests profile data stored within the PDK for authentication, and if the profile data received from the PDK is valid, the RDC “completes the transaction.” *See* Ex. 1005 ¶¶ 59–63. We find availing Petitioner’s reliance of Giobbi ’157’s completion of a transaction by the PDK and the RDC to gain access as teaching “enabling access to secure physical or digital assets,” i.e., “enabling one or more of an application, a function, and service” by at least one of a PDK and RDC. *See* Pet. 37.

Based on the complete record presented, we determine that Petitioner has persuasively shown that the proposed combination of Giobbi ’157, Giobbi ’139, and Dua teaches “one or more of the integrated RDC and integrated PDK enabling one or more of an application, a function, and a service on one or more of the hybrid device and a device associated with the external RDC,” as recited in claim 1.

vi. *Combining Giobbi '157, Giobbi '139, and
Dua*

Petitioner further provides detailed explanations as to why a POSITA would have found it obvious to combine the teachings of Giobbi '157 and Giobbi '139 (Pet. 13–22), and furthermore combine the teachings of Dua to the teachings of Giobbi '157 and Giobbi '139 (*id.* at 23–25), citing Dr. Traynor’s testimony for support. In particular, Petitioner contends that a POSITA would have been motivated to integrate a PDK and RDC into a hybrid device by recognizing that Giobbi-157 and Giobbi-139 are “directed to similar operations,” “describe similar structures for performing those operations,” and have techniques that “are compatible with each other,” wherein combining the techniques “would have worked in the same manner already described in the references.” *Id.* at 21–22. Petitioner then contends that “Dua further corroborates the teachings of the Giobbi references and provides implementation details for integrating an RDC and PDK into the same device,” wherein “a POSITA would have been motivated to combine the teachings of the Giobbi references and Dua” because, at least “these references are all in the same field of endeavor.” *Id.* at 23–24.

Patent Owner does not address separately Petitioner’s explanations and supporting evidence regarding Petitioner’s proffered reasoning to combine the references. *See generally* PO Resp.

We have reviewed Petitioner’s explanations and supporting evidence regarding these limitations, as well as Petitioner’s proffered reasoning to combine the references, and we agree with and adopt them as our own. Pet. 13–25. Because Patent Owner does not separately address these limitations or Petitioner’s proffered reasoning for combining the references, the

Petitioner's positions regarding these limitations of independent claim 1 and the combination of references stand unopposed as a part of this trial.

Based on the complete record presented, we determine that Petitioner has persuasively shown that a person of ordinary skill in the art would have combined Giobbi '157, Giobbi '139, and Dua as proffered in the Petition.

vii. Claim 1 Conclusion

Based on the complete record presented, Petitioner has shown that the proposed combination of Giobbi '157, Giobbi '139, and Dua teaches all limitations of claim 1. Thus, we determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claim 1 would have been obvious over the proposed combination of Giobbi '157, Giobbi '139, and Dua.

vi. Claim 10

Petitioner provides detailed explanations as to how the combination of Giobbi '157, Giobbi '139, and Dua renders the limitations as recited in independent claim 10 obvious, citing Dr. Traynor's testimony for support. Pet. 47–60 (citing Ex. 1005 ¶¶ 9, 11, 26–28, 31, 33, 50, 57, 59, 61–63, 67, 65, 74, Figs. 1, 4–5; Ex. 1006 ¶¶ 37, 67–69, 81–83, 87–91, Fig. 14; Ex. 1003 ¶¶ 87–96).

In particular, Petitioner contends that, in Giobbi '157, “the wireless authentication process between the PDK and RDC ‘completes a transaction.’” Pet. 54 (citing Ex. 1005, Fig. 4). According to Petitioner, a “transaction includes **enabling** access to secure physical or digital assets (e.g., unlocking a door, opening a vault, providing access to a secured hard drive, etc.).” *Id.* Relying on Dr. Traynor's testimony, Petitioner contends that “a POSITA would have found it obvious that ‘enabling access to a

secure physical or digital assets . . . or ‘enabling/disabling the device itself’ would require an electronic signal to be ***generated*** (***‘an enablement signal’***).” *Id.* (quoting Ex. 1003 ¶ 90).

Additionally, Petitioner contends that Giobbi ’157 “discloses a ‘trigger’ that can be required to allow a transaction to complete or continue.” Pet. 55 (citing Ex. 1005 ¶ 65; Ex. 1003 ¶ 95). In particular, Petitioner contends that Giobbi ’157 provides an example where “a ‘biometric contact’ (***‘an enablement signal’***) is ***generated*** by a biometric scanner, for ‘biometric authentication’ of a service (***‘enabl[ing] one or more of an application, a function, and service’***),” and “provides examples of triggers” such as “the touch of a finger to a finger scanner” or “the positioning of a face in front of a facial or retinal scanner.” *Id.* (alteration in original) (citing Ex. 1003 ¶ 95).

Petitioner provides an annotated Figure 4 of Giobbi ’157, shown below, to illustrate its contentions.

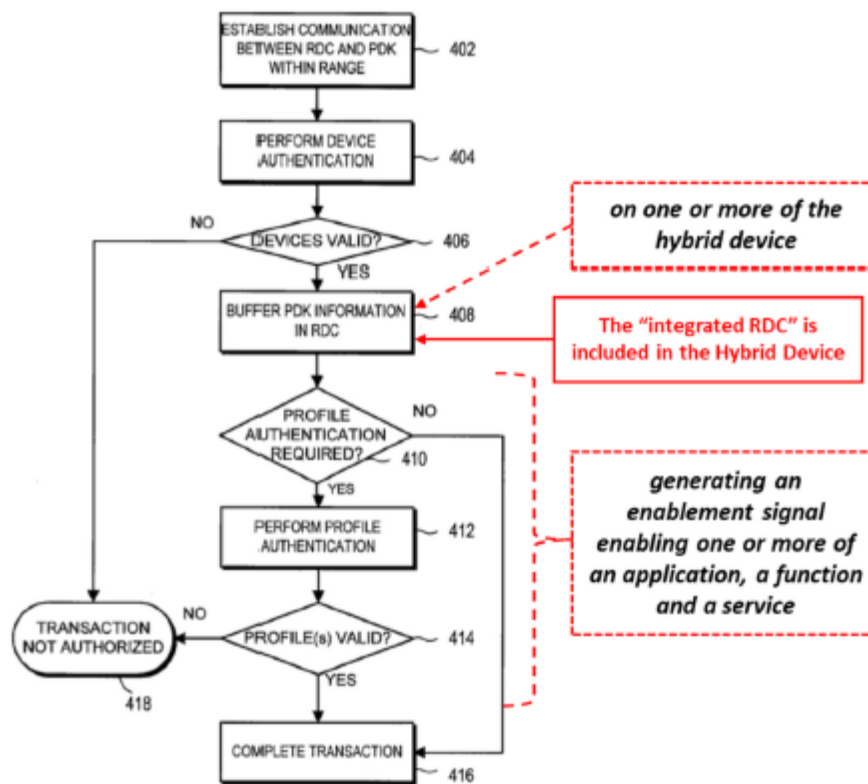


FIG. 4

MS-1005, FIGS. 4.

The above annotated Figure 4 of Giobbi '157, as discussed in the Petition, is a block diagram illustrating a method for establishing communication between an RDC and a PDK within range. Pet. 56. In annotated Figure 4 of Giobbi '157, the method includes performing device authentication (step 404), which includes the step of determining whether profile authentication is required (step 410), and if so, performing profile authentication (steps 412–414) (collective “generating an enablement signal enabling one or more of an application, a function and a service,” bottom red box). *Id.* (citing Ex. 1005, Fig. 4).

Patent Owner argues that, like claim 1, claim 10 also invokes 35 U.S.C. § 112(f). PO Resp. 29–32. Thus, for claim 10, Patent Owner also

contends that “[t]he Petition fails to establish Giobbi 157, Giobbi 139, or Dua, alone or in combination, ‘enables an application, a function, and a service’ using the algorithm.” *Id.* at 29.

We find Patent Owner’s arguments unavailing, as they rely on Patent Owner’s arguments that claim 10 invokes 35 U.S.C. § 112(f), with which, as discussed above, we do not agree.

Giobbi ’157 teaches, for example, a biometric contact being provided for biometric authentication of a service, wherein the touch of a finger to a finger scanner or the positioning of a face in front of a facial or retinal scanner can be used for the authentication. *See* Ex. 1005 ¶ 65, Fig. 4. We are persuaded by Petitioner’s reliance on Giobbi ’157’s use of biometric authentication for teaching the step of “generating an enablement signal” to enable one or more of an application, a function, and service. *See* Pet. 54.

Based on the complete record presented, we determine that Petitioner has persuasively shown that the proposed combination of Giobbi ’157, Giobbi ’139, and Dua teaches “generating an enablement signal enabling one or more of an application, a function and a service” recited in claim 10.

As to the remaining limitations of claim 10, we have reviewed Petitioner’s explanations and supporting evidence regarding the limitations, and we agree with and adopt them as our own. Pet. 47–53, 57–60. Patent Owner does not separately address these limitations (*see* PO Resp. 29–32), and, as a result, the Petitioner’s positions regarding these limitations of independent claim 10 stand unopposed as a part of this trial.

Based on the complete record presented, we determine that Petitioner has persuasively shown that the proposed combination of Giobbi ’157, Giobbi ’139, and Dua teaches the remaining limitations recited in claim 10.

Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claim 10 would have been obvious over the proposed combination of Giobbi '157, Giobbi '139, and Dua.

viii. Dependent Claims 5, 6, 8, 9, 11, 13, and 14

Petitioner provides detailed explanations as to how the combination of Giobbi '157, Giobbi '139, and Dua renders the limitations as recited in claims 5–6, 8–11, and 13–14 obvious, citing Dr. Traynor's testimony for support. Pet. 40–47, 60–68 (citing Ex. 1005, code (57), ¶¶ 9, 11–12, 26–30, 33, 35, 37, 43–44, 47, 49–59, 61–68, 74, Figs. 1–4, 7D; Ex. 1006 ¶¶ 36–37, 55, 67–69, 71, 87–91; Ex. 1007 18:60–22:6, Figs. 4A–B; Ex. 1003 ¶¶ 73–114). We find Petitioner's contentions availing. In particular, as to claim 5, we find that Giobbi '157 provides an example use of a "Notary PDK (the external PDK)" to initialize other PDKs, wherein, when initializing, "the hybrid device's PDK would enter[] the proximity zone of the integrated RDC and provide the Notary PDK ID in 'a process that is trusted, audited, and easily verified.'" *Id.* at 40 (emphasis omitted, alteration in original)) (citing Ex. 1005 ¶¶ 29, 37, 43–44). As to claim 6, we find that Giobbi '157 discloses that "[the] PDK is integrated into a hybrid device, such as a cell phone.'" *Id.* at 44 (citing Ex. 1005 ¶ 35; Ex. 1006 ¶ 88; Ex. 1003 ¶ 79).

As to claim 8, we find that Giobbi '157 teaches that "when PDKs come within range of RDCs an initial communication occurs and the RDCs retain connected PDKs in buffer memory." Pet. 45 (citing Ex. 1005 ¶ 62; Ex. 1007, 18:60–22:6, Figs. 4A–4B, 6; Ex. 1003 ¶ 83). As for claim 9, we find that "[Giobbi '157's] profile information within a PDK "contains authentication information," wherein "[w]hen the profiles are copied to another PDK, the other PDK effectively 'inherits' the information form the

first PDK,” thereby “enabling the second PDK to ‘inherit’ the permissions of the first PDK.” *Id.* at 45–46 (citing 1005 11–12, 43).

As for claim 11, Petitioner repeats its arguments for claim 6 that, in Giobbi ’157, “the hybrid device is a cell phone,” and repeats its argument from claim 10 that the enablement signal is sent to the hybrid device. Pet. 60 (emphasis omitted) (citing Ex. 1003 ¶¶ 97–98). Petitioner relies on the same contentions in claims 1, 5, 6, 8, and 10 with respect to claim 13. *Id.* at 61–67 (citing Ex. 1005 ¶¶ 11–12, 26–30, 33, 44, 50, 59, 62, Figs. 1–4; Ex. 1006 ¶¶ 71, 87–90; Ex. 1003 ¶¶ 101–109, 112). As to claim 14, we find that Giobbi ’157 teaches that “signals between a PDK and RDC can be unencrypted,” and then “the data sent from a PDK to an RDC is encrypted prior to transmission.” *Id.* at 67–68 (citing Ex. 1005 ¶ 37, 47, 50, 59; Ex. 1006 ¶ 55; Ex. 1003 ¶¶ 113–114).

Patent Owner does not address separately Petitioner’s explanations and supporting evidence regarding the limitations in depending claims 5, 6, 8, 9, 11, 13, and 14. *See generally* PO Resp. We have reviewed Petitioner’s explanations and supporting evidence regarding the limitations of claims 5, 6, 8, 9, 11, 13, and 14, and we agree with and adopt them as our own. Pet. 40–47, 60–68. Because Patent Owner does not separately address the limitations in these claims, Petitioner’s positions regarding the limitations of dependent claims 40–47, 60–68 stand unopposed as a part of this trial.

Based on the complete record presented, we determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claims 5, 6, 8, 9, 11, 13, and 14 would have been obvious over the proposed combination of Giobbi ’157, Giobbi ’139, and Dua.

b. Claims 1, 5, 6, 8–11, 13, and 14 as Assertedly Obvious over Giobbi '157 and Giobbi '139 (Ground 1)

Petitioner contends that claims 1, 5, 6, 8–11, 13, and 14 of the '042 patent would also have been obvious over just Giobbi '157 and Giobbi '139, but provides the same arguments discussed above for the obviousness ground over Giobbi '157, Giobbi '139, and Dua. Pet. 6–68. Patent Owner responds with the same arguments discussed above for the obviousness ground based on Giobbi '157, Giobbi '139, and Dua. PO Resp. 29–32.

Because the Giobbi '157/Giobbi '139/Dua ground (Ground 2) is dispositive as to all challenged claims 1, 5, 6, 8–11, 13, and 14 (*see supra* § II.C.4.a), we do not reach Petitioner's challenge of claims 1, 5, 6, 8–11, 13, and 14 based on obviousness over Giobbi '157 and Giobbi '139 alone (Ground 1). *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner "is entitled to a final written decision addressing all of the claims it has challenged"); *Bos. Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App'x 984, 990 (Fed. Cir. 2020) (non-precedential) (recognizing that "[t]he Board has the discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims").

D. Claims 10, 11, 13, and 14 as Assertedly Obvious over Broadcom (Ground 3)

Petitioner contends that claims 10, 11, 13, and 14 of the '042 patent would have been obvious over Broadcom. Pet. 68–84. Patent Owner disputes Petitioner's contentions. PO Resp. 32–34.

Because the Giobbi '157/Giobbi '139/Dua ground (Ground 2) is dispositive as to all challenged claims 1, 5, 6, 8–11, 13, and 14 (*see supra* § II.C.4.a), we do not reach Petitioner's challenge of claims 10, 11, 13, and

14 based on obviousness over Broadcom (Ground 3). *See SAS*, 138 S. Ct. at 1359 (2018); *Bos. Sci. Scimed*, 809 F. App'x at 990.

III. CONCLUSION⁹

For the foregoing reasons, we determine on the complete record at hand that Petitioner has demonstrated by a preponderance of the evidence that all challenged claims of the '042 patent are unpatentable.

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 5, 6, 8– 11, 13, 14	103	Giobbi '157, Giobbi '139 ¹⁰		
1, 5, 6, 8– 11, 13, 14	103	Giobbi '157, Giobbi '139, Dua	1, 5, 6, 8–11, 13, 14	
10, 11, 13, 14	103	Broadcom ¹¹		
Overall Outcome			1, 5, 6, 8–11, 13, 14	

⁹ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

¹⁰ We do not reach this ground because we have determined the challenged claim to be unpatentable under another ground. *See supra* § II.C.4.a.

¹¹ We do not reach this ground because we have determined the challenged claim to be unpatentable under another ground. *See supra* § II.C.4.a.

IV. ORDER

For the reasons given, it is

ORDERED that, based on the preponderance of the evidence, claims 1, 5, 6, 8–11, 13, and 14 of the '042 patent have been shown to be unpatentable; and

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

IPR2024-00573
Patent 8,646,042 B1

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