

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.¹,
Petitioner,

v.

PROXENSE, LLC,
Patent Owner.

IPR2024-00782
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 IPR2024-01399, which were granted, and, therefore, Apple Inc. has been joined as petitioner in this proceeding. We also granted a Joint Motion to Terminate Inter Partes Review Proceeding as to the other petitioner, leaving Apple Inc. as the sole petitioner.

I. INTRODUCTION

A. Background

In response to a Petition (Paper 1, “Pet.”) filed by Google LLC (“Google”), we instituted *inter partes* review of claims 1–6, 8–15, and 17–20 (the “challenged claims”) of U.S. Patent No. 8,646,042 B1 (Ex. 1001, “the ’042 patent”). See Paper 13 (“Decision to Institute” or “Dec. Inst.”). During trial, we granted a Motion for Joinder in IPR2024-01399 by Apple Inc. (“Apple”). Paper 15. We also granted a Joint Motion to Terminate *Inter Partes* Review Proceeding as to Google, leaving Apple as the sole petitioner (“Petitioner”). Paper 19.

Proxense, LLC (“Patent Owner”) filed a Response (Paper 20 (“PO Resp.”)), to which Petitioner filed a Reply (Paper 22 (“Pet. Reply”)). In turn, Patent Owner filed a Sur-reply. Paper 23 (“PO Sur-reply”). An oral hearing was held on August 18, 2025. A transcript of the hearing has been entered into the record. Paper 28 (“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 1–6, 8–15, and 17–20 of the ’042 patent are unpatentable under 35 U.S.C. § 103.

B. Related Proceedings

The parties identify the following litigations as involving the ’042 patent: *Proxense, LLC v. Microsoft Corporation*, No. 6:23-cv-00319 (W.D. Tex.) (the “Microsoft litigation”); *Proxense, LLC v. Google LLC*, No. 6:23-cv-00320 (W.D. Tex.); and *Proxense, LLC v. Apple, Inc.*, No. 6:24-cv-00143 (W.D. Tex.). See Pet. 84–85; Paper 4, 1. Further, claims of the ’042 patent

are also challenged in IPR2024-00573. *Id.* Claims of U.S. Patent Nos. 10,073,960 and 9,679,289, similar in scope to the claims of the '042 patent, are respectively challenged in the inter partes reviews of *Microsoft Corp. v. Proxense*, IPR2024-00405 and IPR2024-00407.

C. 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:

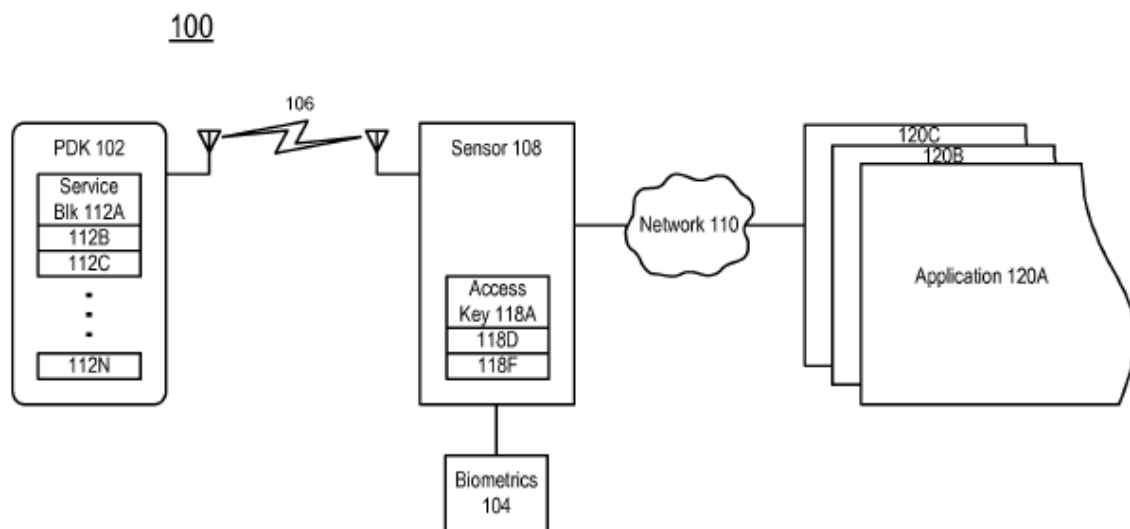


FIG. 1

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:

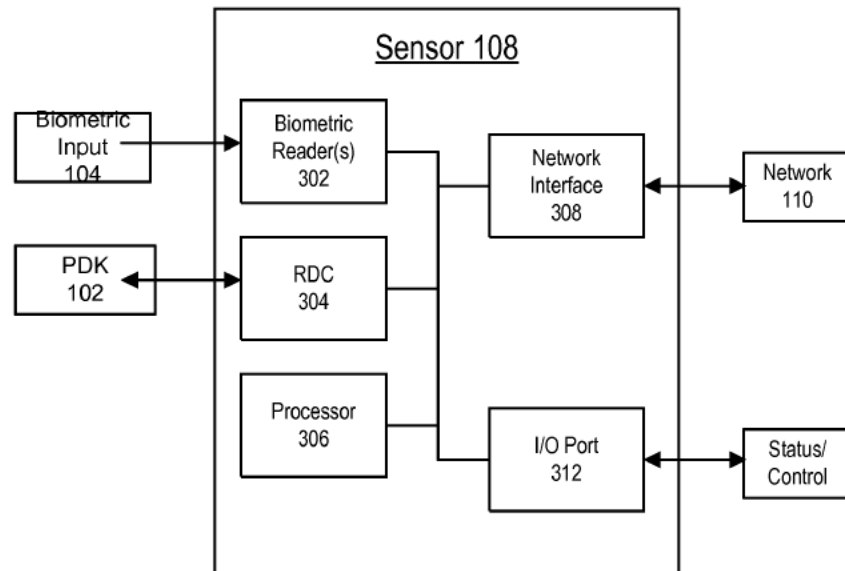


FIG. 3

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.

D. The Challenged Claims

Of the challenged claims, claims 1 and 10 are independent. Claims 2–6, 8, and 9 depend from claim 1, and claims 11–15, and 17–20 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.

E. Asserted Grounds of Unpatentability

We instituted *inter partes* review of all challenged claims on all challenges in the Petition. Petitioner asserts that claims 1–6, 8–15, and 17–20 of the '042 patent are unpatentable based on the following grounds (Pet. 1):

Claim(s) Challenged	35 U.S.C. § ²	Reference(s)/Basis
1, 3–6, 8–15, 17	103(a)	Buer ³

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 European Patent Application No. EP 1,536,306 A1, published June 1, 2005, filed September 30, 2004 (Ex. 1005, “Buer”).

Claim(s) Challenged	35 U.S.C. §²	Reference(s)/Basis
2	103(a)	Buer, Lee ⁴
12	103(a)	Buer, Nishikawa ⁵
3, 18–20	103(a)	Buer, Hoffmann ⁶
10	103(a)	Dua ⁷
10	103(a)	Dua, Kotola ⁸

Petitioner relies on the Declarations of Dr. Andrew Wolfe, 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. 2011. Petitioner deposed Dr. Jakobsson and entered the transcript of the deposition into the record. Ex. 1055.

⁴ PCT Application No. WO 90/06633 A1 published, June 14, 1990, filed December 8, 1989 (Ex. 1008, “Lee”).

⁵ European Patent Application No. EP 1,600,885 A1, published November 30, 2005, filed February 25, 2004 (Ex. 1014, “Nishikawa”).

⁶ U.S. Patent Publication No. 2005/0151623 A1, published July 14, 2005, filed August 26, 2004 (Ex. 1019, “Hoffman”).

⁷ U.S. Patent No. 2006/0258289 A1, published November 16, 2006, filed May 12, 2005 (Ex. 1007, “Dua”).

⁸ U.S. Patent Publication No. 2004/0176032 A1, published September 9, 2004, filed March 19, 2004 (Ex. 1017, “Kotola”).

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. 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)).

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 that 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 “[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, because claims 1 and 10 “do not recite a sufficiently definite structure” for performing the recited “enabling” function, “the claims invoke 35 U.S.C. § 112, ¶ 6.” PO Resp. 4. Thus, Patent Owner contends that, “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.* That is, according to Patent Owner, “[w]hen properly construed, claims 1 and 1[0] are computer implement inventions invoking 35 U.S.C. § 112, ¶ 6,” and thus, “include the algorithm disclosed in the specification.” PO Sur-reply 9.

Petitioner points out that Patent Owner “does not dispute the teachings of the prior art, Petitioner’s characterization of the prior art, or the combinations asserted in the Petition” against the challenged claims. Pet. Reply 2. That is, according to Petitioner, “[b]esides its attempt to improperly construe the claims narrowly under 35 U.S.C. § 112, ¶ 6 and add limitations, [Patent Owner] has no arguments to distinguish over the prior art.” *Id.* at 1. Petitioner then 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, ¶ 6 treatment” of these limitations. *Id.* at 20.

The parties’ arguments and evidence turn on whether the claims invoke 35 U.S.C. § 112 ¶ 6. *See* PO Resp. 4; Pet. Reply 2; PO Sur-reply 8. However, we addressed similar arguments with respect to this issue in previous related proceedings. *See* IPR2024-00405, Paper 24 at 8–25;

IPR2024-00407, Paper 25 at 8–26; IPR2024-00573, Paper 27 at 8–29. In fact, during Oral Argument in this proceeding, Patent Owner acknowledged that “this panel construed the claims at issue in [previous proceedings,] IPR2024-573 and 2024-407.” Tr. 20:3–5. In particular, Patent Owner acknowledged that “the Board would rely on and import the construction from those IPRs, . . . 2024-407 and ’573 for the sake of consistent office determination.” *Id.* at 20:9–11. That is, Patent Owner agreed that the Board should use the prior constructions for the same claim terms at issue in this proceeding. *Id.* at 26:12–16 (“JUDGE MCKONE: -- it sounds like everybody agrees, that we should use the prior claim constructions from [the] other proceedings . . . Do you agree? MR. HECHT: -- if the Board agrees, absolutely.”). Petitioner also agreed that the Board should use the prior constructions. *See id.* at 31:23–32:3 (“JUDGE MCKONE: And so I assume you want us to use the same claim construction in this case as the previous case[s]; is that correct? MR WOO: That is correct, Your Honor.”).

We agree with the parties that, for the sake of consistency, we apply our claim constructions from the previous proceedings. Tr. 20:22–25. As set forth in the previous related proceedings, we determined that the claims do not invoke 35 U.S.C. § 112 ¶ 6. *See* IPR2024-00405, Paper 24 at 8–25; IPR2024-00407, Paper 25 at 8–26; IPR2024-00573, Paper 27 at 8–29. Thus, for consistency, and for the reasons given in the previous related proceedings, in this proceeding, we also determine that the claims do not invoke 35 U.S.C. § 112 ¶ 6, as discussed below.

1) 35 U.S.C. § 112 ¶ 6.

35 U.S.C. § 112 ¶ 6 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 ¶ 6 allows claiming the means of or step of accomplishing a particular function using purely functional language. Section 112 ¶ 6 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 ¶ 6 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 Med. Tech. 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 U.S.C. § 112 ¶ 6. Although MPEP § 2181 is provided as guidance to patent examiners, it reflects existing practices identifying and interpreting 35 U.S.C. § 112 ¶ 6 limitations. In particular, § 2181 guides examiners in determining whether a claim limitation invokes 35 U.S.C. § 112 ¶ 6 by using the three-prong analysis, wherein examiners will apply § 112 ¶ 6 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. Therefore, Patent Owner contends that “the claims invoke 35 U.S.C. § 112, ¶ 6, and the claims must be construed to cover only the structure, material, or acts described in the specification as corresponding to the claimed structure.” *Id.* According to Patent Owner, in the claimed invention, “the structure is the algorithm the general-purpose computers are programed to perform.” *Id.* Thus, according to Patent Owner, “[w]hen the structure disclosed for performing the function is a general-purpose computer,” the construction of the claim term “requires identifying an algorithm disclosed in the specification for accomplishing the function.” *Id.* at 6.

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 Elecs. Am. Inc.*, 989 F.3d 1002, 1005 (Fed. Cir. 2021)).

Patent Owner contends that “[t]he term ‘integrated PDK’ (Personal Digital Key) [of claim 1] 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. 8–9 (citing Ex. 2011 ¶ 18). In particular, according to Patent Owner, the Specification states that “the PDK 102a includes *an antenna and a transceiver for communicating* with a RDC . . . and *a controller and memory* for storing information particular to a user.” *Id.* at 9 (quoting Ex. 1001, 13:46–49). Patent Owner argues that “[a] PDK, therefore, legally and factually amounts to nothing more than a general-purpose computer.” *Id.* at 10.

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. 19 (citing Ex. 2011 ¶¶ 18, 53). 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 20 (citing Ex. 2011 ¶¶ 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. 2011 ¶ 55). Patent Owner contends that the parties are in agreement that “an RDC is nothing more than a receiver.” *Id.*

Patent Owner then contends that the District Court in related litigation “construed each of the terms PDK and RDC.” PO Resp. 26 (citing Ex. 2002, 27). In particular, Patent Owner contends that the District Court construed “PDK” as an “operably connected collection of elements including an antenna and a transceiver for communicating with a RDC and a controller and memory for storing information particular to a user.” *Id.* Patent Owner further contends that the District Court construed “RDC” as a “component or collection of components, capable of wirelessly receiving data in an encrypted format and decoding the encrypted data for processing.” *Id.* at 27 (citing Ex. 2002, 36). Thus, according to Patent owner, the District Court is construing “PDK” and “RDC” as “nothing more than a general-purpose computer.” *Id.* at 26–27.

Petitioner replies by arguing that “it is presumed that § 112, ¶ 6 does not apply” because “[n]one of the elements of the Challenged Claims . . . use the word ‘means,’” and arguing that Patent Owner “fails to overcome the presumption against construing the terms ‘integrated RDC,’ ‘integrated PDK,’ . . . under §112, ¶ 6.” Pet. Reply 2–3 (citing *Williamson*, 792 F.3d at 1348–49). Petitioner argues that “[t]he essential inquiry remains ‘whether the words of the claims are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure’” (*id.*), and points to our claim constructions for the “very same claim terms” in prior related Decisions. *Id.* at 3–7. Petitioner then points out that Dr. Jakobsson

“recognizes that the ’042 patent describes structure for each of the disputed claim terms.” *Id.* at 8 (citing Ex. 2011 ¶¶ 37, 53–54, 57–58).

Petitioner contends that *Rain*, as cited by Patent Owner and applied by Dr. Jakobsson in his testimony, is “inapposite” because the statement “when a claim term recites a function performed by a general-purpose computer” only applies “if it is already clear or has been determined that the claim terms are means-plus-function terms.” Pet. Reply 9 (citing *Rain*, 989 F.3d at 1006; *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339 (Fed. Cir. 1999)). As to Dr. Jakobsson’s testimony that the “integrated PDK” and “integrated RDC” terms “lack structure” (Ex. 2011 ¶ 36), Petitioner argues that “Dr. Jakobsson’s construction of the claim terms stand in stark contrast to, and is completely contradicted by, the construction agreed upon by the court, the parties to the litigation, and the other experts.”⁹ Pet. Reply 10. Petitioner instead points to Dr. Wolfe’s testimony and argues that “the claim terms should not be construed under §112, ¶ 6.” *Id.* at 17. In particular, “[t]he terms ‘PDK,’ ‘RDC,’ . . . provide sufficiently definite structure or an act” (*id.* at 11–17), and thus, “are ‘not used as ‘generic terms or black box

⁹ Petitioner also contends that Dr. Jakobsson “stands alone” in his testimony (Pet. Reply 8 (citing Ex. 2011 ¶¶ 18, 37, 54, 56)), wherein experts in the related proceedings, including Patent Owner’s own expert, Dr. Eldering, “agree that the claim terms should not be construed under §112, ¶ 6.” *Id.* at 17. However, Patent Owner argued during Oral Argument that these experts “did not testify in these proceedings,” that “their declarations are hearsay,” wherein “introducing [the experts’ declarations] as testimony would have deprived [Patent Owner] for the right of cross examination.” Tr. 23:22–24:5. Because we did not give consideration to the declarations of these experts from the other proceeding when determining whether claim terms should not be construed under §112 ¶ 6, we do not address whether these declarations are hearsay.

recitations of structure or abstractions.” *Id.* at 16–17 (citing *Dyfan*, 28 F.4th at 1368).

Based on the complete record before us, and consistent with our determinations in the previous proceedings (*see* IPR2024-00405, Paper 24 at 8–21; IPR2024-00407, Paper 25 at 8–22; IPR2024-00573, Paper 27 at 8–24), we determine that claim 1 does not invoke 35 U.S.C. § 112 ¶ 6.

Here, as Petitioner points out, “[n]one of the elements of the Challenged Claims . . . use the word ‘means,’” similar to the challenged claims in the previous related proceedings. Pet. Reply 2–3; *see also* IPR2024-00405, Ex. 1001, 22:43–60; IPR2024-00407, Ex. 1001, 22:36–49; IPR2024-00573, Ex. 1001, 21:51–65. 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 ¶ 6. *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 ¶ 6 is not overcome.

Although Patent Owner argues that, because the claims invoke 35 U.S.C. § 112 ¶ 6, “the claims must be construed to cover only the structure, material, or acts described in the specification as corresponding to the claimed structure” (PO Resp. 4), the question here is whether “means for” analysis under § 112 ¶ 6 applies at all. That is, we must determine first whether the claim is even claiming a “means for” performing a function before determining whether the structure designed to perform that function is a general purpose computer, as asserted. *Id.* As set forth in MPEP § 2181, the three-step analysis in determining whether § 112 ¶ 6 applies begins with determining whether a claim limitation uses 1) the term “means”

or 2) a nonce term used as a substitute for “means” that is a generic placeholder. *See* MPEP § 2181(I).

Accordingly, although Patent Owner argues that claim 1 invokes § 112 ¶ 6 (PO Resp. 4), the presumption that each of the terms is not subject to § 112 ¶ 6 is not overcome. Thus, as in the prior proceedings (IPR2024-00405, Paper 24 at 8–21; IPR2024-00407, Paper 25 at 8–22; IPR2024-00573, Paper 27 at 8–24), we decline Patent Owner’s invitation to proceed to determining the corresponding algorithm.

In *Williamson*, the determination of whether a particular term invoked § 112 ¶ 6 came down to “whether the words of the claims are understood by persons of ordinary skill in the art to have a sufficiently definite meaning 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 ¶ 6. *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,” conveyed sufficient structure to a person of ordinary skill in the art. *Id.*

Patent Owner acknowledges that a “PDK” includes “an antenna and a transceiver for communicating with a RDC . . . and a controller and memory for storing information particular to a user.” PO Resp. 9 (emphasis omitted). Similarly, Patent Owner acknowledges that an “RDC” is “the ability to receive data via Bluetooth, Wi-Fi, and other wireless protocols,” i.e., a “receiver.” *Id.* at 20. In fact, Patent Owner acknowledges that the District Court in related litigations construed these terms as “collection” of “elements” or “components.” *Id.* at 26–27.

We are unpersuaded that Patent Owner has demonstrated that these terms fail to connote sufficiently definite structure. PO Resp. 4. That is, similar to our findings in prior proceedings (*see*, for example, IPR2024-00573, Paper 27 at 21–24), we find that the “PDK” and “RDC” would be understood by a person of ordinary skill in the art to recite sufficiently definite structure.

Although Patent Owner cites to *Rain* as applicable law (PO Resp. 4–5), we agree with Petitioner that *Rain* is “inapposite” because the question of “when a claim term recites a function performed by a general-purpose computer” only applies “if it is already clear or has been determined that the claim terms are means-plus-function terms.” Pet. Reply 9. That is, like *Williamson*, the Court in *Rain* addressed the question of whether a claim term triggers § 112 ¶ 6 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 1348–49.

In the current proceeding, we find persuasive Dr. Wolfe’s testimony that a POSITA would have understood the terms “PDK” and “RDC” to have “definite structure.” Ex. 1032, 9–23. In particular, we find persuasive Dr. Wolfe’s testimony that the term “PDK” alone has definite structure, and, for example, “encompasses at least ‘a collection of circuit components that includes an antenna, a transceiver, and a controller and memory for storing information particular to a user.’” *Id.* at 11. Dr. Wolfe’s testimony is consistent with the Specification of the ’042 patent. *See* Ex. 1001, 3:46–61, 5:41–6:6. In particular, the Specification of the ’042 patent describes a

microchip that stores information in memory and responds through an antenna when probed. *Id.*; Ex. 1001, 1:28–61.

We similarly find persuasive Dr. Wolfe’s testimony that “a POSITA would have understood that the term ‘RDC’ alone is a definite structure.” Ex. 1032, 19–20. In particular, we find persuasive Dr. Wolfe’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.* at 20. Dr. Wolfe’s testimony is consistent with the Specification of the ’042 patent. *See* Ex. 1001, 1:38–61, 7:4–22.

Thus, although Patent Owner argues that claim 1 invokes § 112 ¶ 6 (PO Resp. 4), and provides extensive arguments with supporting testimony from Dr. Jakobsson (*see id.* at 7–21 (citing Ex. 2011 ¶¶ 18, 36–55)), like in the previous related proceedings (IPR2024-00405, Paper 24 at 8–21; IPR2024-00407, Paper 25 at 8–22; IPR2024-00573, Paper 27 at 8–24), the presumption that claim 1 is not subject to § 112 ¶ 6 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 “sending 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 ¶ 6. PO Resp. 21–26.

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 one 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 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 22 (citing *Rain*, 989 F.3d at 1007).

Petitioner provides the same arguments for claim 10 as it does for claim 1. *See* Pet. Reply 2–19. Petitioner argues that it is presumed that § 112 ¶ 6 also does not apply to claim 10 because claim 10 does not recite “step for,” wherein Patent Owner “fails to overcome the presumption against construing the term[] . . . ‘enablement signal’” under § 112 ¶ 6. Pet. Reply 2–3 (citing *Williamson*, 792 F.3d at 1348–49).

Based on the complete record before us, we are unpersuaded that claim 10 invokes 35 U.S.C. § 112 ¶ 6.

Claim 10 is a method claim comparable to the device in claim 1, and 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. 22), claim 10 is not means-plus-function, but rather should be step-plus-function. As we determined in the previous proceedings, *Williamson* guides that step-plus-function analysis follows a similar approach as means-plus-function analysis (IPR2024-00405, Paper 24 at 21–

25; IPR2024-00407, Paper 25 at 22–26; IPR2024-00573, Paper 27 at 24–29; *see also Williamson*, 792 F.3d at 1349), wherein triggering the step-plus-function provisions of § 112 ¶ 6 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 ¶ 6.

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 ¶ 6. *See Seal-Flex, Inc. v. Athletic Track and Court Const.*, 172 F.3d 836, 849 (Fed. Cir. 1999); *Generation II Orthotics*, 263 F.3d at 1368; *see also Watts v. XL Sys., Inc.*, 232 F.3d 877, 881 (Fed. Cir. 2000). Whereas claim 1 does not recite “means” language, here, claim 10 does not recite “step” for performing a function. *Compare* Ex. 1001, 21:52–65, *with id.* at 22:41–42. Because the absence of the word “step” sets up a rebuttable presumption that § 112 ¶ 6 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.

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 find that the act and function are apparent such that step-plus-function is not invoked. *Id.*; *see also Generation II Orthotics*, 263 F.3d at 1368. This is similar to our findings in the previous proceedings. *See* IPR2024-00405, Paper 24 at 21–25; IPR2024-00407, Paper 25 at 22–26; IPR2024-00573, Paper 27 at 24–29.

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. 22), we find Dr. Wolfe’s testimony that claim 10 recites sufficiently definite structure persuasive. Ex. 1032. In particular, we find persuasive Dr. Wolfe’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.* at 26. For example, Dr. Wolfe testified, “a POSITA would have understood an ‘enablement signal’ 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.” *Id.* (quoting Ex. 1060 ¶ 69).

Although Patent Owner contends that “enablement signal” is a “meaningless nonce merely reciting the function [it performs]” and cites to *Rain* (PO Resp. 21), Patent Owner neither provides evidence that “enablement signal” in claim 10 is a generic placeholder like “means” (*see Dyfan*, 28 F.4th at 1368–69), nor provides evidence that “enablement signal” sets forth a “black box recitation of structure” (*see Williamson*, 792 F.3d at 1350–51). We find unavailing 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 ¶ 6 (PO Resp. 21–26), and provides extensive arguments with supporting testimony from Dr. Jakobsson (*id.* (citing Ex. 2011 ¶ 56)), similar to our determination in the previous proceedings (IPR2024-00405, Paper 24 at 21–25; IPR2024-00407, Paper 25 at 22–26; IPR2024-00573, paper 27 at 24–29), we find availing Petitioner’s argument and evidence that claim 10 is not subject to § 112 ¶ 6.

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.¹⁰ *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

C. Claims 1, 3–6, 8–15, and 17 as Allegedly Obvious over Buer; Claim 2 as Allegedly Obvious over Buer in Further View of Lee; Claim 12 as Allegedly Obvious over Buer in Further View of Nishikawa; Claims 3 and 18–20 as Allegedly Obvious over Buer in Further View of Hoffmann.

According to Petitioner, the claims of the ’042 patent are directed to a “hybrid device” that includes a “personal digital key (PDK)” and a “receiver-decoder circuit (RDC).” Pet. 1. Petitioner provides an annotated Figure 12 of the ’042 patent (*id.* at 3), reproduced below, to illustrate its contentions.

¹⁰ Neither party presents evidence or arguments regarding objective evidence of non-obviousness.

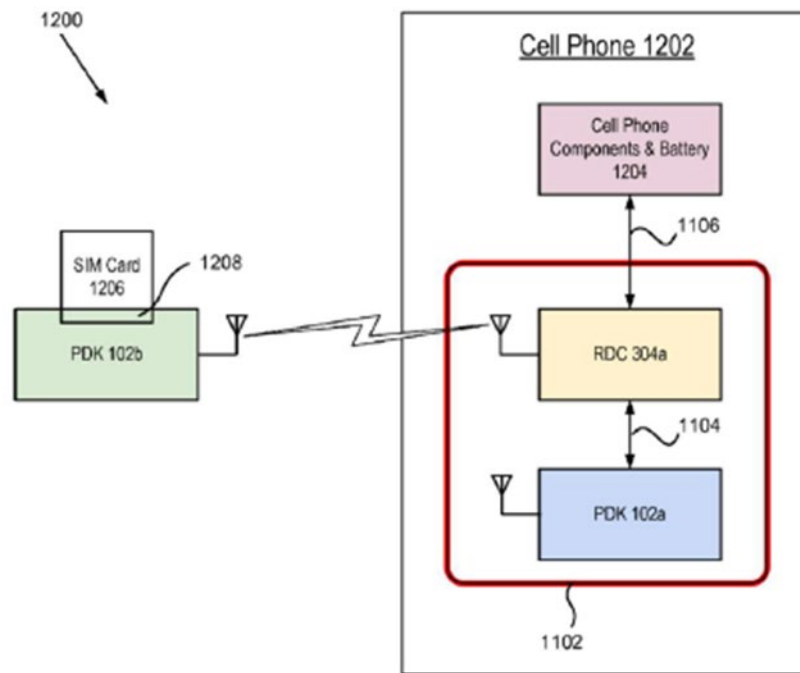


FIG. 12

The above annotated Figure 12 of the '042 patent in the Petition shows device 1102 (red), i.e., “hybrid device,” that includes integrated PDK 102a (blue) and integrated RDC 304a (yellow) that communicate with each other via signal line 1104. Pet. 2; *see also* Ex. 1001, 1:65–2:2, Fig. 12. Petitioner contends that, as shown, battery 1204 (pink) may be coupled to integrated RDC 304a by signal line 1106, and integrated RDC 304a may further communicate wirelessly with external PDK 102b (green) within its proximity zone. Pet. 3; Ex. 1001, 14:18–20.

Petitioner further contends that the '042 patent's hybrid device may interconnect with other external devices. Pet. 3. Petitioner provides an annotated Figure 13 of the '042 patent, reproduced below, to illustrate its contentions.

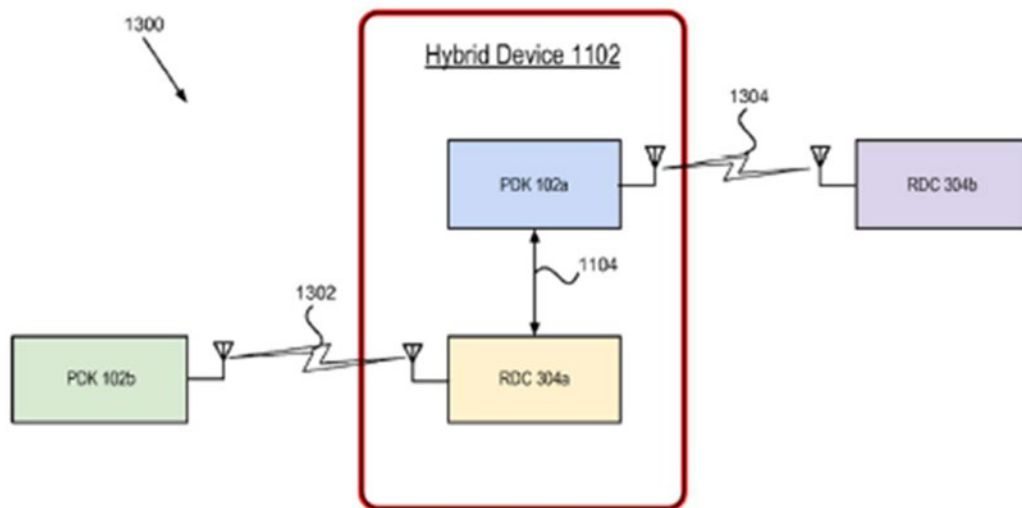


FIG. 13

The above annotated Figure 13 of the '042 patent, according to Petitioner, shows hybrid device 1102 (red) interconnected with other external devices so that integrated PDK 102a (blue) communicates wirelessly with external RDC 304b (purple), and integrated RDC 304a (yellow) communicates wirelessly with external PDK 102b (green) within its proximity zone. Pet. 3–4; *see also* Ex. 1001, 16:3–19, 21:52–57, Fig. 13. According to Petitioner, “[t]he purpose of the integrated PDK and RDC is to enable various applications, functions, or services either on an external device or on the hybrid device using information stored on the integrated or external PDKs.” Pet. 4 (citing Ex. 1001, 4:5–15, 6:40–59, 16:20–27).

Petitioner contends that, similar to the '042 patent, Buer teaches “a hybrid device . . . an access device that combines an authentication circuitry . . . and a proximity reader.” Pet. 30–31 (citing Ex. 1005 ¶¶ 159–164, Fig. 1). In particular, according to Petitioner, Buer’s authentication system

“provides access to a secured service, where the access is controlled based on the proximity of a wireless token to an access device.” *Id.*

Accordingly, Petitioner contends that claims 1, 3–6, 8–15, and 17 of the '042 patent would have been obvious over Buer. Pet. 29–70. Petitioner further contends that dependent claim 2 would have been obvious over Buer in further view of Lee (*id.* at 70–71), that dependent claim 12 would have been obvious over Buer in further view of Nishikawa (*id.* at 71–72), and that dependent claims 3 and 18–20 would have been obvious over Buer in further view of Hoffmann (*id.* at 73–81).

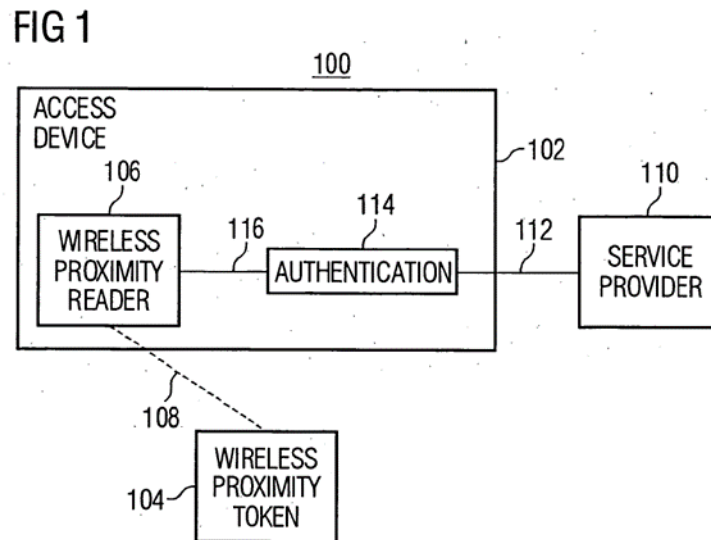
In response, Patent Owner contends the Petition fails to establish that Buer renders these claims obvious. PO Resp. 31–34. In particular, Patent Owner contends that the Petition “fails to demonstrate that Buer . . . discloses or renders obvious the claim limitation ‘enabling one or more of an application, a function, and a service.’” *Id.* at 31.

We briefly summarize Buer, Lee, Nishikawa, and Hoffmann below.

1. Buer

Buer, titled “Proximity Authentication System,” published on June 1, 2005, with a filing date of September 30, 2004. Ex. 1005, codes (54), (43), (22). Buer discloses controlling access to secured services based on the proximity of a wireless token to a computing device through which access to the secured services is obtained, wherein an authorized user is provided access to a service only when the wireless token assigned to the user is in the proximity of the computing device. *Id.* at code (57). A user’s credential may be stored on the token and a reader may be implemented within a security boundary on the computing device, and thus, the credential may be passed to the security boundary without passing through the computing

device via software messages or applications. *Id.* An illustration of Buer's proximity-based authentication system is depicted in Figure 1, reproduced below.



Buer's Figure 1 is a block diagram of system 100 comprising access device 102 used to determine whether wireless token 104 assigned to a user or users is proximate to access device 102. *Id.* ¶¶ 110–111. As shown in Figure 1, wireless proximity reader 106 is configured to receive signals 108 from wireless proximity token 104, wherein signals 108 includes information that uniquely identifies wireless proximity token 104 and includes credentials (e.g., a password) that may be used to access a secured service provided by service provider 110. *Id.* ¶ 111.

Additional details of Buer's proximity-based authentication system are depicted in Figure 3, reproduced below.

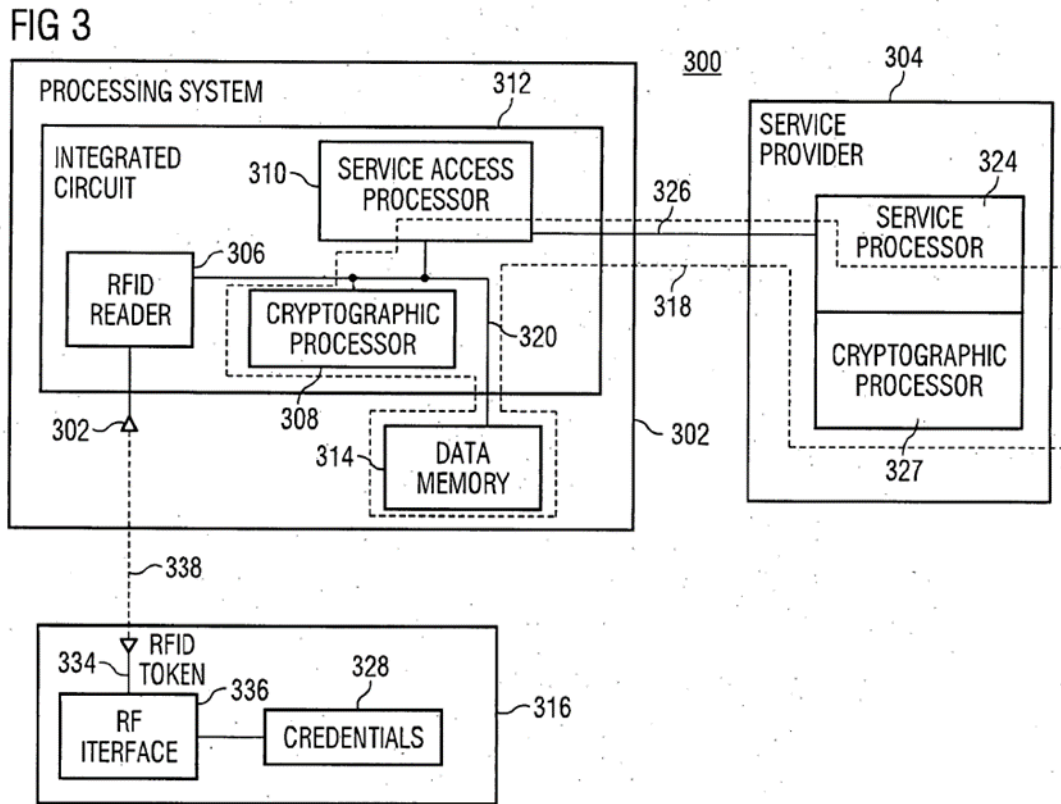


Figure 3 shows proximity-based authentication system 300 that includes processing system 302 for accessing services provided by secure provider 304. Ex. 1005 ¶ 131. System 300 demonstrates a hardware technique for providing a security boundary within processing system 302 by incorporating RFID reader 306, cryptographic processor 308, and service access processor 310 within a single integrated circuit 312. *Id.* ¶ 133. Absent physical access to integrated circuit 312 and use of an invasive technique, no internal processes or information may be compromised. *Id.* System 300 also demonstrates a cryptographic technique for providing a security boundary, illustrated by dashed line 318. *Id.* ¶ 137. Dashed line 318 indicates “that encrypted information may be sent between [] cryptographic processor 308, [] service access processor 310 and [] data

memory 314” within processing system 302, and that “[e]ncrypted information also may be sent between [] integrated circuit 312 and [] cryptographic processor 322 and [] service processor 324 in [] service provider 304 via [] communication link 326.” *Id.* ¶¶ 137–138.

2. Lee

Lee, titled “Micropowered RF Data Modules,” discloses a low-power wireless data communication system, in which base stations can automatically interface with battery-powered portable data modules as they are brought within range. Ex. 1008, codes (54), (57). The portable module is extremely compact and powered by a small non-rechargeable battery (*id.* at 26:26–31), and can store extensive identification parameters for the person to whom it is assigned (*id.* at 31:30–32:2).

3. Nishikawa

Nishikawa, titled “SIM Reader/Writer and Mobile Phone,” discloses improving the convenience of a key holder type ID module by combining an IC chip of a SIM with contact and noncontact interfaces to provide the key holder type ID module with noncontact communication function. Ex. 1014, code (54), ¶ 17. Nishikawa also discloses combining a coil antenna and a display with a reader/writer to be used in combination with the SIM to provide the reader/writer with a short-distance communication function and a fingerprint sensing function. *Id.* ¶ 17.

4. Hoffmann

Hoffmann, titled “PDA Security System,” discloses a personalized security system for use with portable electronic devices. Ex. 1019, codes (54), (57). An interrogator signal is transmitted from the portable electronic device, triggering a responsive transmission of a password from an

electronic key carried by the wearer, wherein certain selected functions or all functions of the electronic device are therefore only enabled if the electronic device is within a predetermined operating proximity of the electronic key.

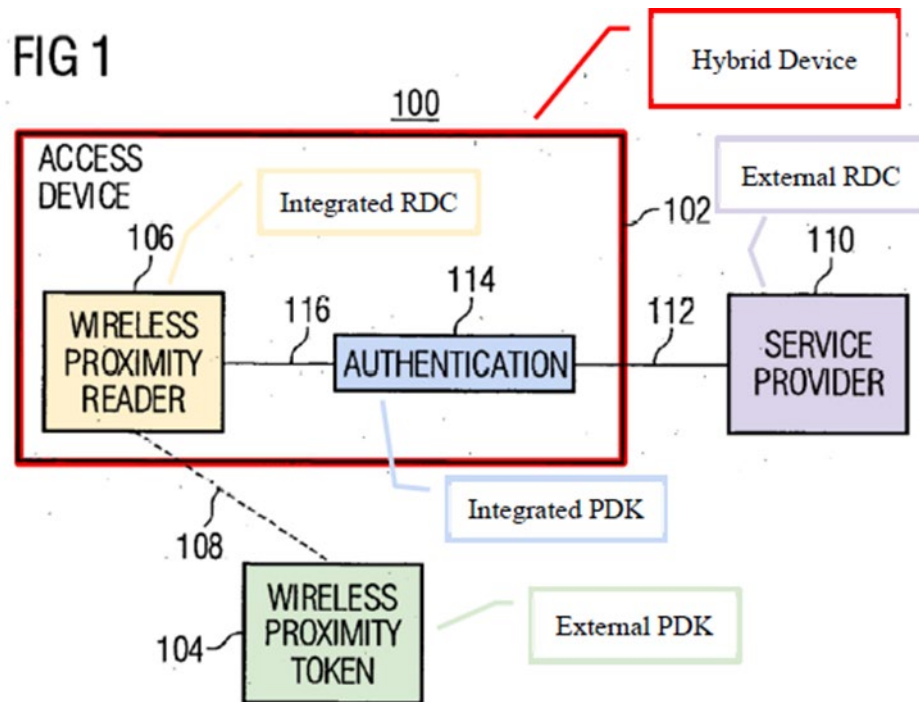
Id. at code (57).

5. Analysis of Claims 1, 3–6, 8–15, and 17 as Allegedly Obvious over Buer

We begin by addressing in detail Petitioner’s contentions and Patent Owner’s responses with respect to the limitations of representative claim 1 in sections i-v, with respect to the limitations of claim 10 in section vi, and with respect to the limitations in the dependent claims in section vii.

i. Preamble, a “hybrid device” (claim 1)

Petitioner contends that Buer discloses “an access device that combines an authentication circuitry (an integrated PDK) and a proximity reader (an integrated RDC)” to provide the claimed “hybrid device.” Pet. 30 (citing Ex. 1003 ¶¶ 159–164), 48 (citing Ex. 1003 ¶ 207). Petitioner provides an annotated Figure 1 of Buer, shown below, to illustrate its contentions.



The above annotated Figure 1 of Buer, according to Petitioner, illustrates “access device 102 (‘hybrid device,’ red)” that includes “two components: [] authentication component 114 (‘integrated PDK,’ blue) and [] proximity reader 106 (‘integrated RDC,’ yellow).” Pet. 30–31 (citing Ex. 1005 ¶¶ 111–112, Fig. 1). Petitioner contends that, in Buer, “authentication component 114 is configured to process (e.g., encrypt or sign) the information before sending it to [] service provider 110 (purple),” and “proximity reader 106 is configured to receive information from [] token 104 (‘external PDK,’ green) when the token is proximate to the access device.” *Id.* at 31.

Patent Owner does not present arguments in its Response addressing the specific merits of Petitioner’s contentions with respect to the preamble of

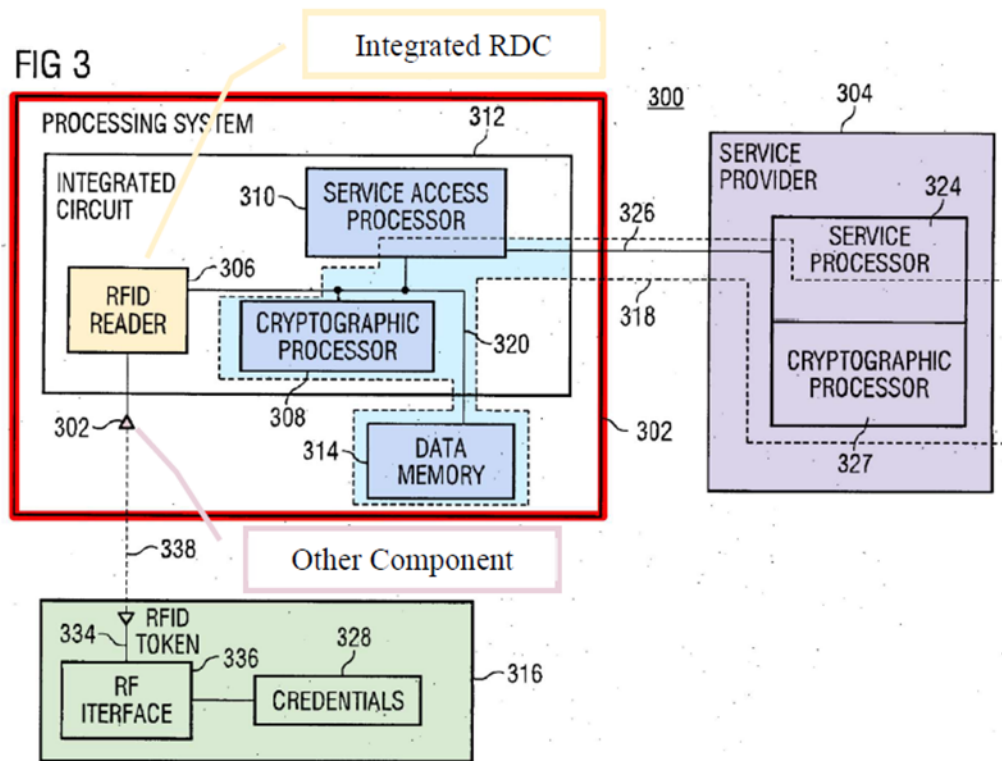
claim 1. *See generally* PO Resp. 31–33.¹¹ We have reviewed Petitioner’s explanations and supporting evidence regarding the preamble and we agree with and adopt them as our own. Pet. 30–33. Because Patent Owner does not separately address the preamble, Petitioner’s positions regarding the preamble of 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 Buer teaches a “hybrid device” as set forth in the preamble of claim 1.

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

Petitioner contends that, in Buer, “the authentication component discloses the integrated PDK” as claimed. Pet. 31 (citing Ex. 1003 ¶¶ 164–174). Petitioner provides an annotated Figure 3 of Buer, shown below, to illustrate its contentions.

¹¹ Because there is no dispute that Buer teaches a “hybrid device,” as recited in the preamble of claim 1, there is no need to determine whether the preamble in claim 1 is limiting. *See Nidec*, 868 F.3d at 1017.



The above annotated Figure 3 of Buer, according to Petitioner, shows “the authentication component . . . implemented as a cryptographic processing system,” and “is a ‘personal digital key.’” Pet. 32. According to Petitioner, in Buer, the authentication component is “an operably connected collection of circuit components (blue)” that includes “a service access processor for communicating with an external service provider (‘an antenna and a transceiver for communicating with a[n] RDC’) and a cryptographic processor and data memory.” *Id.* at 32–33 (citing Ex. 1005, Figs. 1, 3, 6).

Petitioner contends that, in the authentication component (blue), cryptographic processor 308 “acts as a controller for encrypting any important information” such as users’ credentials received from an external token, and then service access provider 310 sends encrypted information via communication link 326 to external cryptographic processor 322, 327

(purple) for decryption and/or authentication processing as necessary. Pet. 33–34 (Ex. 1005 ¶¶ 135, 137–138, 141, 150, 152–153, Fig. 3). According to Petitioner, Buer discloses that service provider 304 (purple), as a whole, or each of internal cryptographic processor 322, 327 therein, “is an external RDC.” *Id.* at 49.

Thus, Petitioner contends, Buer discloses “an integrated PDK . . . for storing information, and is capable of communicating wirelessly with an external RDC.” Pet. 49 (citing Ex. 1005, Figs. 1, 3, 6; Ex. 1003 ¶¶ 208–213).

Petitioner points to the annotated Figure 1 of Buer in the Petition to contend that Buer further discloses “a proximity reader 106 (‘integrated RDC,’ yellow)” (Pet. 31 (citing Ex. 1005 ¶¶ 111–112, Fig. 1)), then contends that the “integrated proximity reader (RDC) communicates ‘wirelessly with at least’ an external token ‘within a proximity zone.’” *Id.* at 50 (citing Ex. 1003 ¶¶ 214–216). In particular, Petitioner contends that “Buer’s proximity reader is configured to receive RF signals when the token is ‘proximate to the access device’ such as ‘when they are within a predefined distance of each other.’” *Id.* (citing Ex. 1005 ¶¶ 111, 146; Ex. 1003 ¶ 216).

Patent Owner does not present arguments in its Response addressing the specific merits of Petitioner’s contentions with respect to these limitations in claim 1. *See generally* PO Resp. 31–33. We have reviewed Petitioner’s explanations and supporting evidence regarding these limitations, and we agree with and adopt them as our own. Pet. 31–34,

49–50. Because Patent Owner does not separately address the Petitioner’s positions regarding these limitations of independent claim 1, Petitioner’s positions regarding these limitations stand unopposed as a part of this trial.

Based on the complete record presented, we determine that Petitioner has persuasively shown that Buer teaches “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 wireless with at least one external PDK within a proximity zone,” as recited in claim 1.

iii. *“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” (claim 1)*

Petitioner contends that, as shown in Buer’s Figure 1, Buer discloses that integrated proximity reader 106 is coupled to integrated authentication component 114 via connection 116 within a common integrated circuit. Pet. 50 (citing Ex. 1005 ¶ 116; Ex. 1003 ¶¶ 217–219). According to Petitioner, when Buer’s authentication component 114 is implemented as a cryptographic processing system, “it is coupled to [wireless proximity] reader [106] via [] first data bus 320 in Figure 3.” *Id.* at 51 (citing Ex. 1005 ¶¶ 137, 167).

Petitioner then contends that Buer’s integrated proximity reader “is coupled to at least one other component of Buer’s hybrid device by a second signal line.” Pet. 51–52. In particular, Petitioner contends that, as shown in Buer’s Figure 3, Buer’s RFID reader 306 is shown coupled to antenna 302

for broadcasting RFID signaling and receiving RFID data. *Id.* at 52 (citing Ex. 1005 ¶ 146, Fig. 3; Ex. 1003 ¶¶ 220–221).

Patent Owner does not present arguments in the Response addressing the specific merits of Petitioner’s contentions with respect to these limitations of claim 1. *See generally* PO Resp. 31–33.

We have reviewed Petitioner’s explanations and supporting evidence regarding these limitations, and we agree with and adopt them as our own. Pet. 50–52. Because Patent Owner does not separately address these limitations, 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 Buer teaches that the integrated RDC is “coupled to the integrated PDK by a first signal line for communication,” and the integrated RDC is “coupled to at least one other component of the hybrid device by a second signal line,” as recited in claim 1.

- iv. *“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 Buer’s authentication component enables a wide variety of applications, functions, or services. Pet. 56 (citing Ex. 1003 ¶ 229). In particular, Petitioner contends that Buer’s authentication component “provides encrypted or signed credentials to a service provider to enable access to secured services.” *Id.* at 43 (citing Ex. 1003 ¶¶ 189–203). According to Petitioner, in Buer, “after a proximity reader verifies a user . . . , the authentication component generates an enablement signal (e.g., RF

signal) providing the necessary authentication information . . . to a service provider to enable a wide variety of applications, functions, or services on the hybrid device.” *Id.* at 44–45 (citing Ex. 1005 ¶¶ 152, 174; Ex. 1003 ¶¶ 192–199).

Alternatively, Petitioner contends that Buer’s “mobile device may also ‘be used to authenticate a user to another processing system’ (external device) . . . , which includes ‘point-of-sale components,’ to ‘perform a sales transaction.’” Pet. 47 (citing Ex. 1005 ¶¶ 194–196). In such case, the mobile device’s trusted platform module “may include an RFID client, which generates an enablement signal . . . that is transmitted to another processing system, such as a computer with a point-of-sale device.” *Id.* (citing Ex. 1005 ¶¶ 192–195).

Patent Owner contends that the Petition fails to demonstrate that Buer discloses or render obvious the claim limitation “enabling one or more of an application, a function, and a service.” PO Resp. 31–33. Patent Owner contends that the Petition fails to establish Buer “enables” as that term “has been construed by the District Court” in a related litigation. *Id.* Patent Owner contends that “in response to arguments . . . that the term ‘hybrid device was indefinite” in the related litigation, “the District Court found it necessary to construe the term ‘enabled’ such that: ‘An application, function or service is “enabled” by a PDK when it receives information from a PDK in exchange for an access key.’” *Id.* at 32 (citing Ex. 2002, 26). According to Patent Owner, “such a construction of ‘enable’ conf[o]rms with a means-plus-function analysis and the [*Phillips*] Standard.” *Id.*

Patent Owner then contends that, in Buer, “no key is provided in exchange for the information” as required by claim 1 as “construed by the

District Court.” PO Resp. 33. Thus, according to Patent Owner, “the Buer messages between token and reader and reader and service provider are not ‘enabling one or more of an application, a function, and a service.’” *Id.*

We find Patent Owner’s arguments unavailing. In particular, we disagree with Patent Owner’s contention that the District Court provided a construction for “one or more of the integrated RDC and integrated PDK enabling one or more of an application, a function, and a service,” as recited in claim 1. Although Patent Owner points to the District Court’s Memorandum in Support of Claim Construction Order (*id.* at 32 (citing Ex. 2002, 26)) to support its contention that the District Court construed the term “enabled,” as we determined in the Decision to Institute, this portion of the District Court’s Memorandum merely discusses that “hybrid device” is not indefinite, and discusses exemplary operations of the “hybrid device” from which a POSITA “could reasonably ascertain the scope of the claim.” *See* Dec. Inst. 9. As we explained, a determination of whether a term is indefinite is not the same thing as construing a claim term. *Id.* Thus, as we previously explained, by determining that “hybrid device” is not indefinite, the District Court did not construe the term “enabled.” *Id.*; *see also* Ex. 2002, 26. Accordingly, nothing in the Memorandum provides a construction of “enabled” as Patent Owner contends. *Id.*

Thus, we find unavailing Patent Owner’s contention that Buer does not disclose the “enabled” limitation because, in Buer, “no key is provided in exchange for the information.” PO Resp. 33. That is, we decline to adopt Patent Owner’s proposed construction that an application, function or service is “enabled” by a PDK “when it receives information from a PDK in exchange for an access key.” *Id.* at 32.

Here, as Petitioner points out, Buer discloses an authentication component for providing credentials to a service provider to authenticate access to secured services, wherein the authentication component generates an RF signal providing the necessary authentication information to a service provider. Pet. 45; *see* Ex. 1005 ¶¶ 152, 174. Buer further discloses a mobile device with an RFID client to authenticate a user to another processing system, the mobile device transmitting an enablement signal to a computer with a point-of-sale device. Pet. 47; *see* Ex. 1005 ¶¶ 192–195. We find availing Petitioner’s contention that Buer’s authentication component “enables” a wide variety of applications, functions, or services. Pet. 56. Petitioner’s contention is supported by Dr. Wolfe’s testimony and is consistent with the teachings of Buer. *See* Ex. 1003 ¶ 229.

Based on the complete record presented, we determine that Petitioner has persuasively shown that Buer 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.

v. *Claim 1 Conclusion*

Based on the complete record presented, Petitioner has shown that Buer 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 Buer.

vi. *Claim 10*

As discussed above, claim 10 is a method claim comparable to the device in claim 1, and 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. Petitioner contends Buer renders the limitations as recited in independent claim 10 obvious, citing Dr. Wolfe’s testimony for support. Pet. 29–48 (citing Ex. 1005 ¶¶ 11, 97, 111–114, 119–122, 128, 130, 135–138–142, 146–153, 155, 157–159, 162–163, 165, 170, 173–175, 184–185, 190–196, 199–201, Figs. 1, 3–7, 9; Ex. 1003 ¶¶ 158–206). In particular, Petitioner contends that Buer discloses “a method for an access device to access a secured service” (*id.* at 29), wherein an “authentication component” generates an “enablement signal” enabling a wide variety of applications, functions, or services, as claimed, because it provides encrypted or signed credentials to a service provider to enable access to service. *Id.* at 43 (citing Ex. 1003 ¶¶ 189–203). According to Petitioner, in Buer, “after a proximity reader verifies a user (via an external token), the authentication component generates an enablement signal (e.g., RF signal) providing the necessary authentication information (e.g., signed information” to a service provider. *Id.* at 44–45 (citing Ex. 1005 ¶ 152, 174). That is, “like the ’042 patent, Buer discloses enabling network access on a hybrid device.” *Id.* at 45. In particular, Petitioner contends that “Buer discloses that the network interface 606 performs ‘network authentication and connection processing’ by ‘communicating with a respective access controller 610 in one or more access point(s) 608 via RF signals 612,’” wherein “[t]he RF signals generated by the wireless network interface are enablement signals that contain the encrypted or signed information” sent to the network access provider. *Id.* at 45–46 (citing Ex. 1005 ¶¶ 165, 174).

Petitioner contends that Buer also discloses that “its mobile device may also ‘be used to authenticate a user to another processing system’ (external device) associated with an external proximity reader 1120 (external

RDC),” which includes “‘point-of-sale components,’ to ‘perform a sales transaction,’ such as ‘credit card transactions.’” Pet. 47 (citing Ex. 1005 ¶¶ 194–196). In particular, Petitioner contends that “the mobile device’s TPM may include an RFID client, which generates an enablement signal (e.g., RF signal containing credit card information) that is transmitted to another processing system.” *Id.* (citing Ex. 1005 ¶¶ 192–195).

Patent Owner provides the same arguments for claim 10 as it does for claim 1. PO Resp. 31–33. In particular, Patent Owner also contends that, in Buer, “no key is provided in exchange for the information” as required by claim 1 as “construed by the District Court,” and thus, “the Buer messages between token and reader and reader and service provider are not ‘enabling one or more of an application, a function, and a service.’” *Id.* at 33.

We find Patent Owner’s arguments unavailing, as they rely on Patent Owner’s proposed construction that an application, function or service is “enabled” by a PDK “when it receives information from a PDK in exchange for an access key,” with which, as discussed above, we do not agree.

Here, as Petitioner contends, Buer teaches that, after a proximity reader verifies a user via an external token, the authentication component generates an RF signal (i.e., enabling signal) providing the necessary signed information to a service provider. Pet. 44–45; *see* Ex. 1005 ¶¶ 152, 174. We agree with Petitioner that, “like the ’042 patent, Buer discloses enabling network access on a hybrid device.” Pet. 45. Accordingly, based on the complete record presented, we determine that Petitioner has persuasively shown that Buer teaches “generating an enablement signal enabling one or more of an application, a function and a service,” as 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. 29–43, 48. Patent Owner does not separately address these limitations (*see* PO Resp. 31–33), 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 shown by a preponderance of the evidence that the subject matter of claim 10 would have been obvious over Buer.

vi. Dependent Claims 3–6, 8, 9, 11–15, and 17

Petitioner provides detailed explanations as to how Buer renders obvious the limitations as recited in claims 3–6, 8, 9, 11–15, and 17, respectively depending from claims 1 and 10, citing Dr. Wolfe's testimony for support. Pet. 57–70 (citing Ex. 1005 ¶¶ 7–8, 11, 97, 111–114, 116, 119–122, 128–130, 132, 135–143, 145–153, 155–159, 162–165, 168, 170, 172–177, 184–185, 190–196, 199–201, Figs. 1, 3–9, 11; Ex. 1003 ¶¶ 158–206, 235, 237–242, 245–263, 265–277, 279–282, 284–294).

Patent Owner does not separately address Petitioner's explanations and supporting evidence regarding the limitations in dependent claims 3–6, 8, 9, 11–15, and 17 with respect to Buer. *See generally* PO Resp. 31–33. We have reviewed Petitioner's explanations and supporting evidence regarding the limitations of claims 3–6, 8, 9, 11–15, and 17, and we agree with and adopt them as our own. Pet. 57–79. Because Patent Owner does not separately address the limitations in these claims, Petitioner's positions regarding the limitations of dependent claims 3–6, 8, 9, 11–15, and 17 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 3–6, 8, 9, 11–15, and 17 would have been obvious over Buer.

6. Analysis of claim 2 as Allegedly Obvious over Buer in Further View of Lee; Claim 12 as Allegedly Obvious over Buer in Further View of Nishikawa; Claims 3 and 18–20 as Allegedly Obvious over Buer in Further View of Hoffmann

Petitioner provides detailed explanations as to how the combination of Buer and Lee allegedly renders obvious claim 2 of the '042 patent, how the combination of Buer and Nishikawa allegedly renders obvious claim 12 of the '042 patent, and how the combination of Buer and Hoffmann allegedly renders obvious claims 3 and 18–20 of the '042 patent, citing Dr. Wolfe's testimony for support. Pet. 70–81 (citing Ex. 1005 ¶¶ 11, 89, 111, 114, 127, 154, 176–177, Fig. 11; Ex. 1008, 31:30–32:2, 78:16–24, 79:21–25, 80:20–26; Ex. 1014 ¶¶ 1, 6, 17, 21–26, 65, 73, 111, 114; Ex. 1019 ¶¶ 2, 10, 21, 25–26, 28, 31, 36–37, 40–41, 81, Fig. 2; Ex. 1003 ¶¶ 295–303, 306, 308–314, 316–319, 321–326, 328–330). With respect to claim 2, Petitioner contends that a POSITA would have been motivated to “duplicate Buer's PDK to include another integrated PDK, as Lee teaches,” because “doing so would enhance Buer's key management functions to separately provide secured storage of electronic keys.” *Id.* at 70 (citing Ex. 1008, 31:30–32:2, 78:16–24, 79:21–25, 80:20–26; Ex. 1005 ¶¶ 154, 177; Ex. 1003 ¶ 297). With respect to claim 12, Petitioner contends that a POSITA would have been motivated to “adapt Buer's wireless token to receive a conventional SIM card, as Nishikawa teaches,” to “improve the convenience of Buer's token and to add additional capability (storing electronic money and electronic

ticket).” *Id.* at 72 (citing Ex. 1014 ¶¶ 1, 6, 17, 21–26, 65, 73, 111, 114; Ex. 1003 ¶ 306). With respect to claims 3 and 18–20, Petitioner contends that a POSITA would have been motivated to “use multiple antennas for the transmitter and receiver to provide parallel data streams, as Hoffmann teaches,” so that “Buer’s authentication system (integrated PDK) would communicate with the external service provider (external RDC) to obtain a service,” while “Buer’s proximity reader (integrated RDC) is communicating with the external proximity token (external PDK) *at the same time*” to “ensure that the request was not being made while the ‘token may not be in the proximity of the computing device.’” *Id.* at 74 (citing Ex. 1019, Fig. 2, ¶¶ 43, 81; Ex. 1005 ¶ 11; Ex. 1003 ¶ 312).

Patent Owner does not separately address Petitioner’s explanations and supporting evidence regarding the limitations in dependent claims 2, 3, 12, and 18–20 with respect to these grounds, nor Petitioner’s positions on combining the references, but merely contends that “Lee, Nishikawa, and Hoffmann each fail to cure the deficiencies of Buer,” and thus “the Petition fails to establish that Buer in combination with Lee, Nishikawa, and/or Hoffmann invalidates [these] claims.” PO Resp. 34.

We have reviewed Petitioner’s explanations and supporting evidence regarding these limitations, and we agree with and adopt them as our own. Pet. 70–81. Further, we have also reviewed and agreed with Petitioner’s explanations and supporting evidence regarding Petitioner’s proffered reasoning to combine the references, and similarly adopt them as our own. *Id.* Because Patent Owner does not separately address the limitations in these claims, the Petitioner’s positions regarding the limitations of dependent claims 2, 3, 12, and 18–20 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 claim 2 would have been obvious over Buer and Lee; of claim 12 would have been obvious over Buer and Nishikawa; and of claims 3 and 18–20 would have been obvious over Buer and Hoffmann.

D. Claim 10 as Allegedly Obvious over Dua, and over Dua in View of Kotola

Petitioner contends that claim 10 of the '042 patent also would have been obvious over Dua alone, or, in the alternative, Dua in view of Kotola. Pet. 15–29. In particular, Petitioner contends that, similar to the '042 patent, Dua teaches “a hybrid device—e.g., a ‘cellular phone[,]’” containing an RFID tag and an RFID reader, wherein the cellular phone “establishes wireless connections with other devices to enable functions and to exchange data.” *Id.* at 7–8.

In response, Patent Owner contends that the Petition fails to demonstrate that Dua alone or in view of Kotola renders claim 10 obvious. PO Resp. 30–31. In particular, Patent Owner contends that the Petition fails to demonstrate that Dua or Dua in combination with Kotola discloses “enabling one or more of an application, a function, and a service.” *Id.* at 30.

We briefly summarize Dua and Kotola below.

1. Dua

Dua, titled “Wireless Media System and Player and Method of Operation,” published on November 16, 2006, with a filing date of May 12, 2005. Ex. 1004, codes (54), (43), (22). Dua discloses a wireless media system “for the automatic establishment of wireless connectivity with other

electronic devices” using an integrated RFID to exchange communication settings, media capability, and other parameters with an external device that also has integrated RFID technology. *Id.* at code (57). Exchange of settings and other information is automatic by using a proximity-based RFID data exchange that allows a media player to quickly establish a secure communication link with another device. *Id.*

In particular, Dua discloses a media player with an RFID Tag-Reader Module. Ex. 1004 ¶ 24, Fig. 1. 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.* ¶ 15. A functional diagram of Dua’s RFID tag-reader module is shown in Figure 4B, reproduced below.

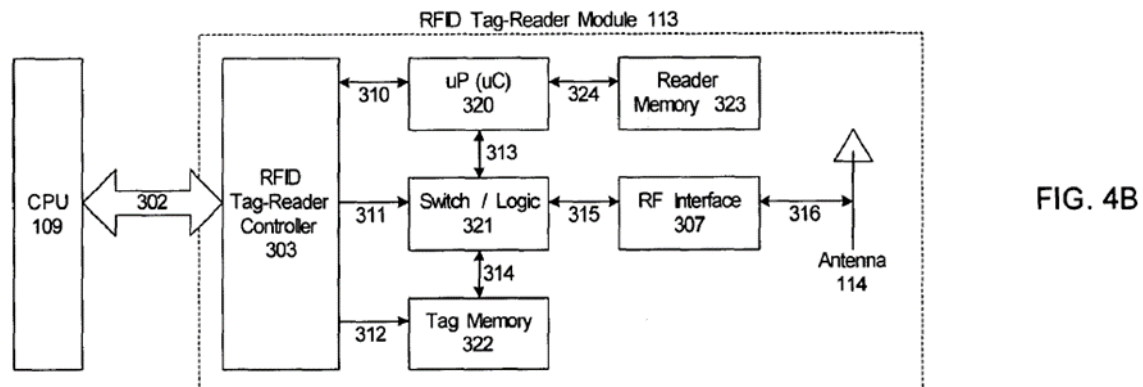


Figure 4B is block diagram of RFID Tag-Reader Module 113, including integrated RFID Tag-Reader Controller 303 that manages all communication between CPU 109 and the functional components of RFID Tag-Reader Module 113. *Id.* ¶ 106. Hardware and software interface 302 between CPU 109 and RFID Tag-Reader Controller 303 allows an application operating a media player to control functions of RFID Tag-Reader Module 113 and to exchange data with it. *Id.* RF interface 307 and antenna 114 “are used by the RFID reader functionality and RFID tag

functionality.” *Id.* Reader logic 320 provides a data communication interface to the media player 100 and the application executed thereon and “operates the interface and protocol framework for communicating with RFID tags . . . and in particular, when supporting active communication mode, for communicating with RFID tag reader devices.” *Id.*

The reader component of RFID Tag-Reader Module 113 is “used for transmitting interrogation signals via its antenna to an external electronic device’s RFID tag when in close proximity, and receiving a response signal from the external device’s RFID tag.” Ex. 1004 ¶ 71. Reader memory 323 is used as a buffer storage for communication with the media player as well as with an RFID tag or another RFID tag reader device. *Id.* ¶ 107.

Switch/logic component 321 interposed between RF interface 307 and reader logic 320 allows switching between RFID reader functionality and RFID tag functionality. *Id.* ¶ 108. Tag memory 322 is used to receive configuration data from applications operating on the media player. *Id.* “[M]emory components in RFID Tag-Reader Module 113 may be tamper resistant as to prevent hackers from retrieving confidential information and encryption keys.” *Id.* ¶ 109. In one embodiment, enhanced security is provided as “both devices can share each other’s encryption keys via the RFID exchange.” *Id.* ¶ 152.

2. Kotola

Kotola, titled “Radio Frequency Identification (RF-ID) Based Discovery for Short Range Radio Communication with Reader Device Having Transponder Functionality,” discloses an RF-ID based wireless terminal with a reader device that may operate in an active or passive mode. Ex. 1017, codes (54), (57). “During the active mode, one RF-ID tag reader

simulates a RF-ID tag while the other simulates a RF-ID tag reader.” *Id.* at code (57). A terminal 102 may use a reader module 220 to transmit an interrogation signal via antenna 219 for receiving the Bluetooth serial number and possibly other information within proximity to the reader module 220. *Id.* ¶ 58. “The module disables the RF-ID tag 215 when sending the interrogation signals to other handheld terminals.” *Id.*

3. Analysis of Claim 10 as Allegedly Obvious over Dua

i. *Preamble, “A method”*

Petitioner contends that, “[t]o the extent the preamble for claim 10 is limiting,” Dua discloses the preamble because it discloses a “method” that “automatically set[s] up and establish[es] a wireless connection between two devices based on their proximity.” Pet. 15 (citing Ex. 1004 ¶ 13; Ex. 1003 ¶ 104). Patent Owner does not present arguments in its Response addressing the specific merits of Petitioner’s contentions with respect to the preamble of claim 10. *See generally* PO Resp. 30–31.

Having reviewed all of Petitioner’s assertions regarding the preamble of claim 10, as well as the supporting evidence, we determine on this record that Petitioner has made a sufficient showing that Dua teaches a “method.”¹²

¹² Because there is no dispute that Dua teaches a “method,” as recited in the preamble of claim 10, there is no need to determine whether the preamble in claim 10 is limiting. *See Nidec*, 868 F.3d at 1017.

- ii. “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”

Petitioner contends that Dua discloses a hybrid device because it discloses a media player that includes an RFID Tag-Reader Module. Pet. 15–16 (citing Ex. 1004 ¶¶ 57, 70; Ex. 1003 ¶¶ 105–107). Petitioner provides an annotated Figure 6 of Dua, shown below, to illustrate its contentions.

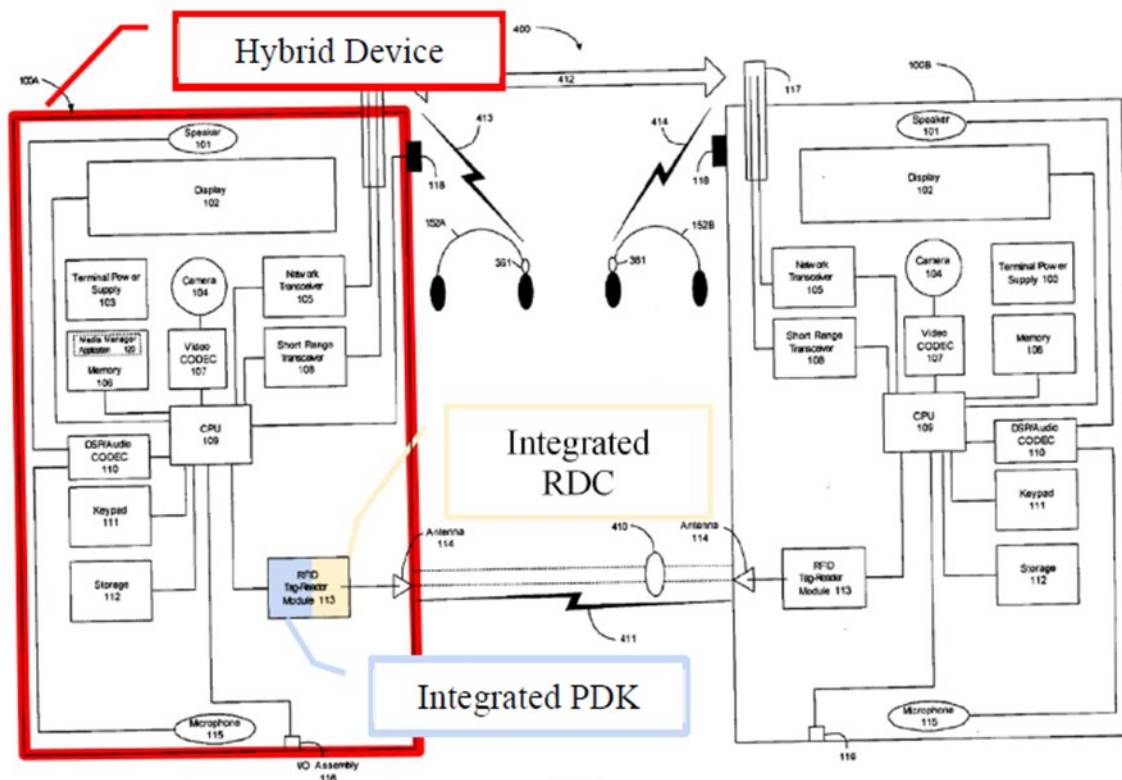
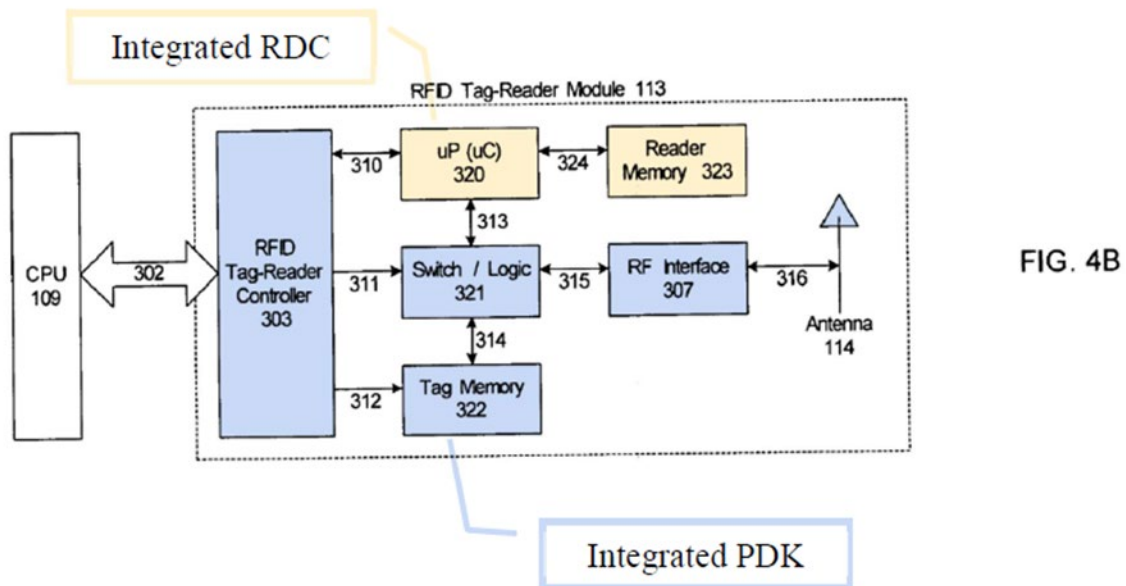


FIG. 6

The above annotated Figure 6 of Dua, according to Petitioner, illustrates “Dua’s media player (‘hybrid device,’ [red])” which includes “an RFID Tag-Reader Module 113 (e.g., ‘integrated PDK,’ blue; ‘integrated RDC,’ yellow)” that “can ‘exchange information with an electronic device that is in

close proximity.” Pet. 15–16 (citing Ex. 1004, Fig. 6, ¶¶ 57, 70).

According to Petitioner, Dua’s Tag-Reader Module 113 includes both “an RFID tag” (“integrated PDK”) and “an RFID reader” (“integrated RDC”). *Id.* at 16 (citing Ex. 1004, Fig. 4B, ¶ 89). Petitioner provides an annotated Figure 4B of Dua, shown below, showing the Tag-Reader Module in greater detail.



The above annotated Figure 4B of Dua, according to Petitioner, illustrates “Dua’s RFID Tag-Reader Module” which includes “both an RFID tag [(‘integrated PDK,’ blue)] and an RFID reader [(‘integrated RDC,’ yellow)].” Pet. 16–17 (citing Ex. 1004, Fig. 4B, ¶ 89). Petitioner contends that, as shown in annotated Figure 4B, Dua’s Tag-Reader Module “includes a collection of circuit components (blue) that makes up a ‘personal digital key,’” wherein “[t]his operably connected collection of components includes [] antenna 114 and [] RF Interface 307 (a transceiver) . . . for communications with an external tag reader (an RDC).” *Id.* at 17 (citing Ex. 1003 ¶¶ 110–113).

Further, Petitioner contends that, as shown in annotated Figure 4B, Dua's Tag-Reader Module also "includes a collection of circuit components (yellow) that makes up a 'receiver-decoder circuit,'" wherein "[t]hese operably connected components include [] reader logic 320 that is implemented as a microcontroller (μ C) and a microprocessor (μ P)," and "[t]he reader logic operates the interface an protocol framework for communicating with RFID tags . . . for communicating with RFID tag reader devices." Pet. 18 (citing Ex. 1004 ¶ 106; Ex. 1003 ¶¶ 114–117). Petitioner contends that the RFID reader component is used for transmitting interrogation signals via its antenna to an external electronic device's RFID tag when in close proximity, and receiving a response signal from the external device's RFID tag. *Id.* at 18–19 (citing Ex. 1004 ¶¶ 71, 100).

According to Petitioner, "Dua discloses creating a first wireless link during an RFID-discovery process" because "the RFID-reader component generates and transmits interrogation signals to create an RFID link between the integrated RFID reader in the hybrid device and an external RFID tag." Pet. 22. Petitioner provides an annotated Figure 6 of Dua, shown below, to illustrate its contentions.

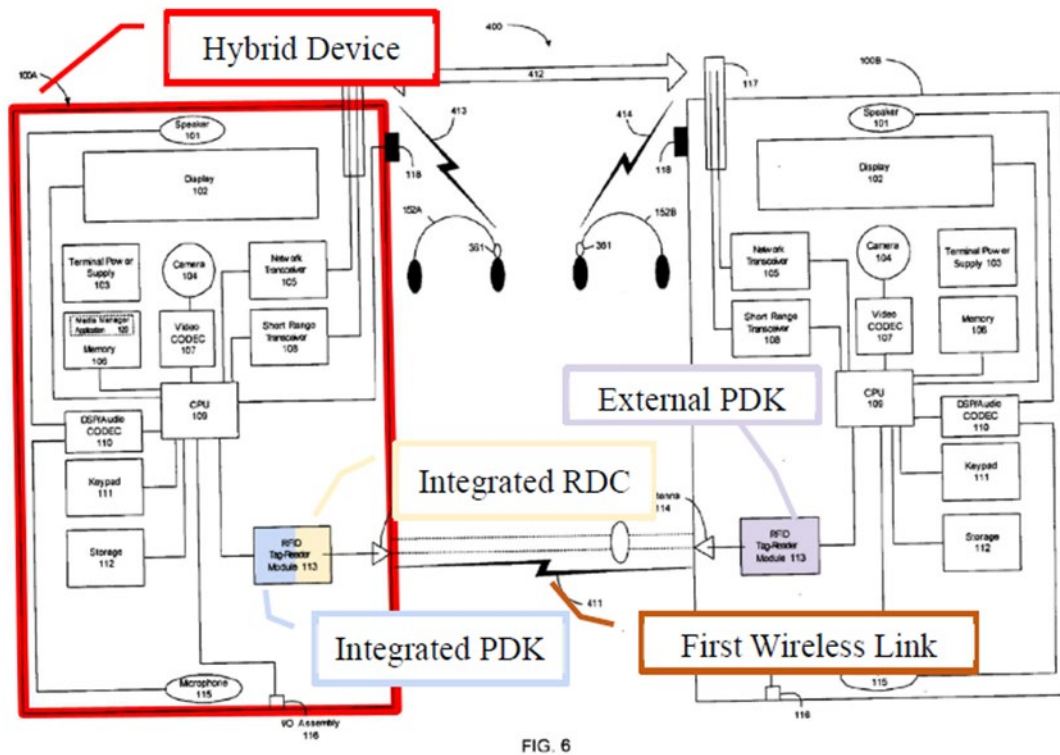


FIG. 6

The above annotated Figure 6 of Dua, according to Petitioner, illustrates the RFID-reader component (“[i]ntegrated RDC,” yellow) in the hybrid device (red) generating and transmitting interrogation signals to create an RFID link (“[f]irst [w]ireless [l]ink,” brown) between the integrated RFID-reader component and an external RFID tag (“[e]xternal PDK,” purple). Pet. 22–23 (citing Ex. 1004, Fig. 6, ¶ 122).

Petitioner further contends that, as shown in annotated Figure 6, Dua also discloses “receiving ‘RFID transmission data’ (a first signal) at the hybrid device’s reader component (the integrated RDC) via the first wireless link from the external RFID tag (the external PDK).” Pet. 24 (citing Ex.1004, Fig. 6, ¶¶ 127, 130). According to Petitioner, Dua explains that, during the RFID discovery process, “after the external device’s RFID tag receives the interrogation signals, the external device’s RFID tag transmits RFID transmission data to the hybrid device . . . for establishing a wireless

connection with the external device.” *Id.* (citing Ex. 1004 ¶¶ 127–144; Ex. 1003 ¶ 136).

Patent Owner does not present arguments in its Response addressing the specific merits of Petitioner’s contentions with respect to these limitations of claim 10. *See generally* PO Resp. 30–31. Having reviewed all of Petitioner’s assertions regarding these limitations of claim 10, as well as the supporting evidence, we determine on this record that Petitioner has made a sufficient showing that Dua teaches “creating a first wireless link between an integrated receiver-decoder circuit (RDC) of a hybrid device and an external personal digital key (PDK),” and “receiving a first signal at the integrated RDC via the first wireless link from the external PDK.”

- iii. *“generating an enablement signal 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 an external RDC,” “sending the enablement signal to one or more of the hybrid device and the device associated with an external RDC”*

Petitioner contends Dua discloses that, after an RFID tag-reader module receives the external device’s RFID transmission data, “Dua’s hybrid device automatically generates, ‘a Bluetooth paging message’ (an enablement signal) to enable an application, function, or service.” Pet. 25 (citing Ex. 1004 ¶¶ 123, 128; Ex. 1003 ¶¶ 138–150). Petitioner contends that, as Dua explains, “[b]y bringing the external device into proximity with the hybrid device, the hybrid device’s integrated RFID reader (RDC) wirelessly communicates interrogation signals to the external device’s RFID tag,” which in turn “wirelessly communicates RFID transmission data to the integrated RFID reader (RDC),” which then “causes the integrated RFID

reader to transfer the data to the CPU to generate a Bluetooth paging message (enablement signal) to enable a service (e.g., wireless connection and transmission of media) on the external device.” *Id.* (citing Ex. 1004 ¶¶ 123, 127–142).

Alternatively, Petitioner contends that “[Dua’s] Bluetooth paging message is generated to enable a function (e.g., wireless connection) between the hybrid device and external device.” Pet. 26 (citing Ex. 1004 ¶¶ 123, 127, 144). According to Petitioner, “the RFID transmission data helps . . . exchanging Bluetooth paging messages, to enable wireless connectivity functions in the two devices,” and thus, “the function (e.g., wireless connection) is enabled on both the hybrid device and external device based on the Bluetooth paging message (enablement signal).” *Id.* (citing Ex. 1004 ¶ 144; Ex. 1003 ¶ 145).

Petitioner contends that, as Dua explains, “its integrated RFID tag could establish ‘wireless communication between a diverse set of [external] devices’ for various purposes, including ‘for electronic payment,’” wherein, during electronic payments using RFID technology, “the integrated RFID tag (integrated PDK) would generate an RFID signal (enablement signal) to exchange financial information with the external point-of-sale device that is in close proximity to enable electronic payment.” Pet. 26–27 (citing Ex. 1004 ¶¶ 52, 70, 224; Ex. 1003 ¶¶ 146–147). Thus, Petitioner contends that, in such embodiment, “the function (e.g., point-of-sale transaction) is enabled on the external device.” *Id.* at 27 (citing Ex. 1003 ¶ 147).

According to Petitioner, Dua discloses “sending the enablement signal to one or more of the hybrid device and the device associated with an external RDC” as claimed, because Dua discloses “sending the Bluetooth

paging message (the enablement signal) to the external device to enable an application, function, or service.” Pet. 29 (citing Ex. 1004 ¶¶ 123, 128, 159; Ex. 1003 ¶¶ 151–156).

Patent Owner responds that “Dua does not contemplate that information is received in exchange for an access key provided to the PDK.” PO Resp. 30. Patent Owner acknowledges Dua discloses “the use of RFID technology to establish wireless communication between a media player and a diverse set of devices,” wherein the media player “sends a ‘Bluetooth paging message’ to a headphone unit or target media player,” and in response to the page, “the headphone unit/target media player performs a ‘connection setup’ with media player.” *Id.* (citing Ex. 1004 ¶¶ 51–52, 123, 128). However, Patent Owner contends that “nowhere does Dua teach or describe that this ‘connection setup’ is accomplished by providing an access key in exchange for information held locally in the PDK’s service blocks.” *Id.*

We find Patent Owner’s arguments unavailing. In particular Patent Owner is relying on a claim construction of “enabling” requiring “providing an access key in exchange for information held locally in the PDK’s service blocks” (PO Resp. 30) that is not required by our construction set forth above. As discussed above, we determine that the term “enabling an application, [a] function or a service” is not limited to “receiv[ing] information from a PDK in exchange for an access key.”

We find availing Petitioner’s reliance on Dua for teaching “‘a Bluetooth paging message’ (an enablement signal) to enable an application, function or service.” Pet. 25; *see* Ex. 1004 ¶¶ 123, 128. As Petitioner explains, in Dua, when bringing the external device into proximity with the

hybrid device, a Bluetooth paging message is generated “to enable a service (e.g., wireless connection and transmission of media) on the external device.” Pet. 25; *see* Ex. 1004 ¶¶ 123, 127–142. We also find availing Petitioner’s contention that Dua’s Bluetooth paging message is generated “to enable a function (e.g., wireless connection) between the hybrid device and external device.” Pet. 26; *see* Ex. 1004 ¶¶ 123, 127, 144. As Petitioner explains, “the function (e.g., wireless connection) is enabled on both the hybrid device and external device based on the Bluetooth paging message (enablement signal).” *Id.*

Thus, we find availing Petitioner’s contention that Dua discloses “sending the enablement signal to one or more of the hybrid device and the device associated with an external RDC” as claimed, because Dua discloses “sending the Bluetooth paging message (the enablement signal) to the external device to enable an application, function, or service.” Pet. 29.

On this complete record, we find availing that Petitioner has made a sufficient showing that Dua teaches “generating an enablement signal 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 an external RDC,” and “sending the enablement signal to one or more of the hybrid device and the device associated with an external RDC.”

4. Analysis of Claim 10 as Allegedly Obvious over Dua in further view of Kotola

Petitioner contends that claim 10 of the ’042 patent would also have been obvious over Dua further in view of Kotola, providing the arguments discussed above with respect to Dua. Pet. 15–29. Further, Petitioner contends that “Kotola discloses an integrated RFID tag and an integrated

RFID reader,” where “the RFID tag is connected to ‘[a]n antenna film or coil 220’ and ‘analog circuit 223 for converting the RF signals . . . into digital signals,’” and “the separate RFID reader is connected to ‘antenna 219.’” *Id.* at 21 (citing Ex. 1017 ¶¶ 56–58, Fig. 4; Ex. 1003 ¶¶ 124–127). Petitioner then contends that it would have been obvious “to implement Kotola’s separate antennas in Dua’s hybrid device,” because “Dua’s citation to Kotola ‘provide[s] a justification for combining the references for obviousness purposes.’” *Id.* Further, according to Petitioner, a POSITA would have been motivated to “use multiple antennas” because “doing so enables simultaneous transmission and reception of signals,” and “[u]sing separate RF interface and antenna in Dua’s RFID Tag-Reader Module would have been no more than adding prior art elements using known methods to yield predictable results.” *Id.* at 21–22.

Patent Owner provides the same arguments discussed above for the obviousness ground based on Dua, and further contends that, “given that the Petition fails to assert Kotola discloses this [‘enabling’] element, the Petition fails to establish the combination of Dua and Kotola invalidates claim 10.” PO Resp. 30–31.

As discussed above, we have reviewed and agreed with Petitioner’s assertions with respect to Dua, as well as the supporting evidence. Pet. 15–29. Further, we have also reviewed and agreed with Petitioner’s explanations and supporting evidence regarding Petitioner’s proffered reasoning to combine Dua and Kotola, and adopt them as our own. *Id.*

Based on this complete record, we determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claim

10 of the '042 patent would also have been obvious over Dua in further view of Kotola.

III. CONCLUSION¹³

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, 3–6, 8–15, 17	103(a)	Buer	1, 3–6, 8–15, 17	
2	103(a)	Buer, Lee	2	
12	103(a)	Buer, Nishikawa	12	
3, 18–20		Buer, Hoffman	3, 18–20	
10		Dua	10	
10		Dua, Kotola	10	
Overall Outcome			1–6, 8–15, 17–20	

¹³ 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).

IV. ORDER

For the reasons given, it is

ORDERED that, based on the preponderance of the evidence, claims 1–6, 8–15, and 17–20 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.

IPR2024-00782
Patent 8,646,042 B1

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