

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNIFIED PATENTS, LLC,
Petitioner,

v.

LIBERTY PEAK VENTURES, LLC,
Patent Owner.

IPR2022-00024
Patent 8,066,181 B2

Before MEREDITH C. PETRAVICK, DAVID C. MCKONE, and
SCOTT RAEVSKY, *Administrative Patent Judges*.

PETRAVICK, *Administrative Patent Judge*.

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

I. INTRODUCTION

On October 21, 2021, Unified Patents, LLC (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1, 2, 4, 6, and 7 of U.S. Patent No. 8,066,181 B2 (Ex. 1001, “the ’181 patent”). On January 21, 2022, Liberty Peak Ventures, LLC (“Patent Owner”) filed a disclaimer disclaiming claims 6 and 7. Ex. 2001. Claims 6 and 7, therefore, are no longer regarded as challenged claims. 37 C.F.R. § 42.107(e) (2021) (“[n]o *inter partes* review will be instituted based on disclaimed claims.”); *see also Intuitive Surgical, Inc. v. Ethicon LLC*, IPR2018-01248, Paper 7 at 2 n.1, 9–10 (PTAB Feb. 7, 2019) (discussing effect of disclaimer, the Board’s governing regulations, and Federal Circuit precedent). Prelim. Resp. 4. Accordingly, claims 6 and 7 are not addressed in our analysis.

Patent Owner filed a Preliminary Response (Paper 5, “Prelim. Resp.”). With our authorization (Ex. 3001), Petitioner filed a Preliminary Reply to Patent Owner’s Preliminary Response (Paper 6, “Prelim. Reply”) and Patent Owner filed a Preliminary Sur-Reply (Paper 7, “Prelim. Sur-reply”).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the Petition and any response thereto shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Having considered the Petition, the Preliminary Response, the Preliminary Reply, and the Preliminary Sur-reply, as well as all supporting evidence, we determine that Petitioner shows a reasonable likelihood that at least one of the challenged claims is unpatentable. Accordingly, we institute *inter partes* review.

A. Related Matters

Patent Owner has not asserted the '181 patent in district court litigation against Petitioner. Pet. 70, 75; Paper 4, 2. Patent Owner, however, has asserted the '181 patent in *Liberty Peak Ventures, LLC v. Citigroup Inc. et al.*, No. 6:21-cv-00710-ADA (W.D. Tex.). *Id.*

B. The '181 Patent

1. Summary

The '181 patent is titled “RF Authentication Using Random Number.” Ex. 1001, codes (54). The '181 patent describes systems and methods for securing Radio Frequency Identification (“RFID”) transactions. *Id.* at 1:43–48. Figure 1 of the '181 patent is reproduced below.

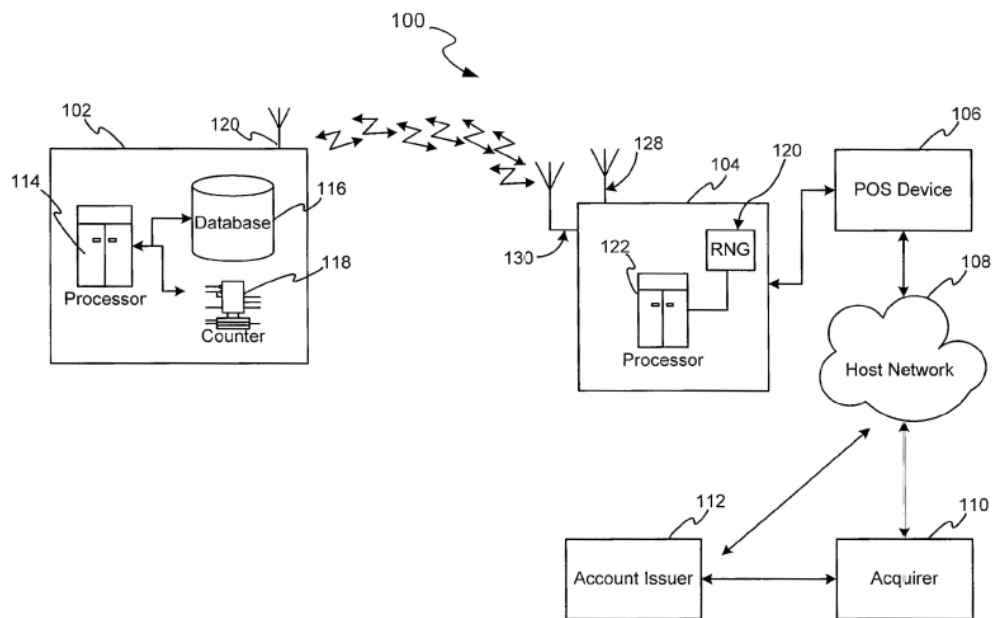


FIGURE 1

Figure 1 depicts the components of a RFID system used to complete RFID transactions. *Id.* at 3:56–58, 7:13–16. RFID system 100 include a RFID transaction device 102 and RFID reader 104. *Id.* at 7:16–18. RFID reader

104 may communicate with a merchant point-of-sale device (“POS”) 106 for completing a transaction. *Id.* at 7:18–25.

Figure 4 of the ’181 patent is reproduced below.

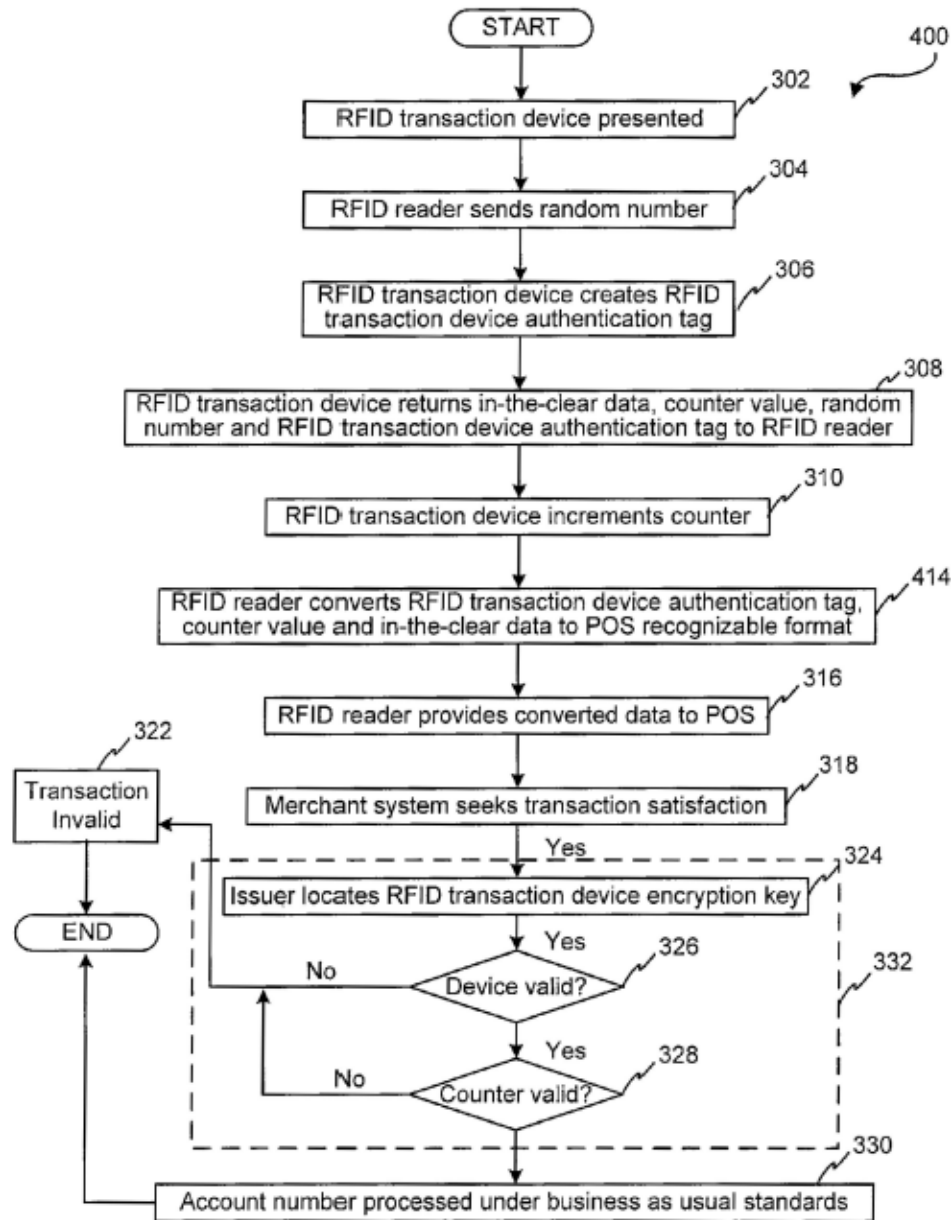


FIGURE 4

Figure 4 depicts “a flow diagram of an exemplary RFID transaction device authentication” where “RFID transaction device 102 is validated using the

counter value.” *Id.* at 3:65–67, 12:43–45. At step 304, RFID reader sends a random number to RFID transaction device 102. *Id.* at 12:45–48. At step 306, “RFID transaction device 102 . . . creates a RFID transaction device authentication tag using a random number, the in-the-clear data, and a counter value.” *Id.* at 12:49–52. At step 308, RFID transaction device 102 provides the RFID transaction device authentication tag to RFID reader 104. *Id.* at 12:51–54. At step 310, RFID transaction device 102 increments the counter value. *Id.* at 12:54–56. The RFID reader 104 and the POS then communicate to complete the transaction. *Id.* at 12:57–67.

2. *Priority Date*

The ’181 patent issued on November 29, 2011, from an application filed on October 22, 2008. Ex. 1001, codes (22), (45). The ’181 patent claims priority to numerous patent applications. *Id.* codes (63), (60), 1:6–39.

Petitioner argues that the ’181 patent is not entitled to a priority date back to the filing of the earliest patent applications (i.e., July 10, 2001) because these applications lack sufficient written description support for a counter and a random number received from an RFID reader and used in the manner claimed in the ’181 patent. Pet. 6–9. According to Petitioner, “[t]he earliest application cited by the ’181 Patent that references both a counter and a random number is U.S. Provisional Application 60/507,803, filed on September 30, 2003. *Id.* at 9 (citing Ex. 1007, 8–9); Ex. 1001, code (60).

At this stage of the proceeding, Patent Owner does not respond to Petitioner’s argument. *See generally* Prelim. Resp.

After reviewing Petitioner’s evidence and analysis, and absent any evidence or argument to the contrary, we determine Petitioner has sufficiently established for the purposes of this Decision that the earliest

priority date to which claims 1, 2, and 4 of the '181 patent are entitled to is September 30, 2003.

C. Challenged Claims

Petitioner challenges claims 1, 2, and 4. Claim 1 is an independent claim. Claims 2 and 4 depend from claim 1.

Claim 1 is illustrative and is reproduced below.

1. A method comprising:

generating, in a radio frequency identification (RFID) transaction device, an RFID transaction device authentication tag using a random number, a transaction device identifier, and a counter value, wherein the random number is received from an RFID reader;

transmitting the RFID transaction device authentication tag to the RFID reader; and

incrementing the counter value;

wherein an RFID transaction is authorized in response to verification of the RFID transaction device authentication tag.

Ex. 1001, 16:43–54.

D. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

No.	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1	1	102	Wankmueller ¹
2	1, 4	103	Wankmueller

¹ Wankmueller, Int'l Publication No. WO 2003/050749, published June 19, 2003 (Ex. 1008) ("Wankmueller").

No.	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
3	1, 2, 4,	103	Johnson, ² Walker ³
4	1, 2, 4	103	Johnson, Walker, Davis ⁴
5	1, 2, 4	103	Johnson, Walker, Nerlikar ⁵
6	1, 2, 4	103	Johnson, Walker, Davis, Nerlikar

Pet. 26. In addition to the references listed above, Petitioner relies on the declaration of Bruce McNair (Ex. 1015).

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art (“POSA”) at the time of the invention of the ’181 patent would have had the following education and experience:

(1) at least an undergraduate degree in computer science or closely-related field, or similar advanced post-graduate education; and (2) 1–2 years of experience with systems related to secure communications systems, particularly in the transaction context, where more experience may substitute for less education and vice versa.

² Johnson, U.S. Patent No. 6,078,888, issued June 20, 2000 (Ex. 1011) (“Johnson”).

³ Walker et al., U.S. Patent No. 6,163,771, issued Dec. 19, 2000 (Ex. 1012) (“Walker”).

⁴ Davis et al., U.S. Patent No. 5,577,121, issued Nov. 19, 1996 (Ex. 1013) (“Davis”).

⁵ Nerlikar, U.S. Patent No. 5,629,981, issued May 13, 1997 (Ex. 1014) (“Nerlikar”).

Pet. 10 (citing Ex. 1015 ¶¶ 29–32). Patent Owner does not dispute this level of skill at this stage of the proceeding. *See generally* Prelim. Resp.

For purposes of this Decision, we adopt Petitioner’s proposal as reasonable and consistent with the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art may reflect an appropriate level of skill in the art).

B. Claim Construction

In an *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b), including construing the claims in accordance with the ordinary and customary meaning of such claims 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). Thus, we apply the claim construction standard as set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). In addition to the specification and prosecution history, we also consider use of the terms in other claims and extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises, although extrinsic evidence is less significant than the intrinsic record. *Id.* at 1312–17. Usually, the specification is dispositive, and “it is the single best guide to the meaning of a disputed term.” *Id.* at 1315.

Petitioner states that “no construction is necessary for the determination of unpatentability.” Pet. 10. Likewise, Patent Owner does not explicitly request construction of any claim term other than “counter value.” *See generally* Prelim. Resp.

Only terms that are in controversy need be construed. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Other than to the extent we construe the term “counter value” below, no explicit construction of any claim term is required for the purposes of this Decision.

Claim 1 recites a method including the steps of:

generating, in a radio frequency identification (RFID) transaction device, an RFID transaction device authentication tag using a random number, a transaction device identifier, and a counter value, wherein the random number is received from an RFID reader;

. . . and,

incrementing the counter value.

Ex. 1001, 16:44–51. According to Patent Owner, the generating step requires using a pre-incremented instance of the counter value to generate the RFID transaction device authentication tag. Prelim. Resp. at 7. Patent Owner argues:

Challenged claim 1 of the ’181 patent recites, among other things, generating . . . an RFID transaction device authentication tag using . . . a counter value . . . ; transmitting the RFID transaction device authentication tag to the RFID reader; and incrementing the counter value . . .” Ex. 1001 at 16:44–54. Use of the term “the” when reciting “incrementing *the* counter value” indicates unequivocally that the counter value being incremented is the same counter value used as part of the generating step. In other words, claim 1 recites an authentication tag that is generated using a pre-incremented instance of a counter value.

Id. at 7 (emphasis original); *see also* Prelim. Sur-Reply 2–4.

Petitioner responds that the steps of claim 1 do not require a specific order, and that logic does not mandate reading in a pre-incremented counter

value. Prelim. Reply 1–4 (citing *Interactive Gift Exp., Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1342 (Fed. Cir. 2001) (In method claims, unless the steps “actually recite an order, the steps are not ordinarily constructed to require one.”). Petitioner points out that the ’181 patent specifically states that “the steps recited in any of the method or process claims may be executed in any order.” Prelim. Reply 2 (citing Ex. 1001, 16:33–36).

Patent Owner replies that it is not arguing that the generating and incrementing have to be done in a specific order, only that it is the counter value used as part of the generating step that is a pre-incremented instance of the counter value. Prelim. Sur-reply 2–4. According to Patent Owner, “[t]he language of the claims specifies which counter value is used to generate the authentication tag, and it is not the order in which the steps of the claim are performed that demand this reading, but rather the language of the claim itself.” *Id.* at 4. Patent Owner asserts that its understanding of the claim is supported by the ’181 patent. *Id.* at 3 (citing Ex. 1001, 11:43–59 (describing the embodiment of method 300)).

We are not persuaded by Patent Owner at this stage that the language of the claims requires the counter value in the generating step to be a pre-incremented instance of the counter value. We are not persuaded that the claim’s use of the article “a” before counter value in the generating step and “the” before in the incrementing provides anything more than proper antecedent basis for the counter value. And, Patent Owner apprises us of no other claim language that would require a pre-incremented instance of the counter value. *See generally* Prelim. Resp.; Prelim. Reply. Further, we are not persuaded that the generating step’s counter value is required to be “pre-incremented” for claim 1 to be consistent with the ’181 patent because,

according to Patent Owner, the embodiment of method 300 discloses the creating the RFID transaction device authentication tag (step 306) before incrementing the counter value (step 310) (Ex. 1001, 11:37–59). Contrary to Patent Owner’s argument, the ’181 patent specifically states that “the steps recited in any of the method or process claims may be executed in any order and are not limited to the order present.” Ex. 1001, 16:33–36.

For these reasons, we are not persuaded by Patent Owner at this stage that the language of the claims requires the counter value in the generating step to be a pre-incremented instance of the counter value.

C. Overview of the Asserted Prior Art

1. Wankmueller

Wankmueller is a published Patent Cooperation Treaty application titled “Method and System for Conducting Transactions Using a Payment Card with Two Technologies” published June 19, 2003, and filed December 6, 2002.⁶ Ex. 1008, codes (54), (43), (22).

Wankmueller discloses payment card 10 having a bar code 20 and RFID chip 30. 4:27–29; Fig. 1. The bar code is encoded with a payment account number (“PAN”) and has other account information, including “Track 2” data, such as expiration date, stored in RFID chip 30. *Id.* at 4:30–31, 5:5–11.

A conventional POS terminal equipped with both an optical bar code reader and a RF receiver is needed to read the information from the card.

⁶ Petitioner argues that Wankmueller is entitled to a priority date of December 6, 2001. Pet. 18–21. Petitioner, however, states that “[t]he Board need not reach this question if the ’181 Patent lacks priority to either its 2001 or 2002 provisional.” *Id.* at 18, n. 10.

Id. at 5:21–23. From the information, the Terminal prepares an authorization request, and the authorization request is then processed in the same manner as conventional payment cards over existing payment networks. *Id.* at 5:24–26.

Figure 2 of Wankmueller is reproduced below.

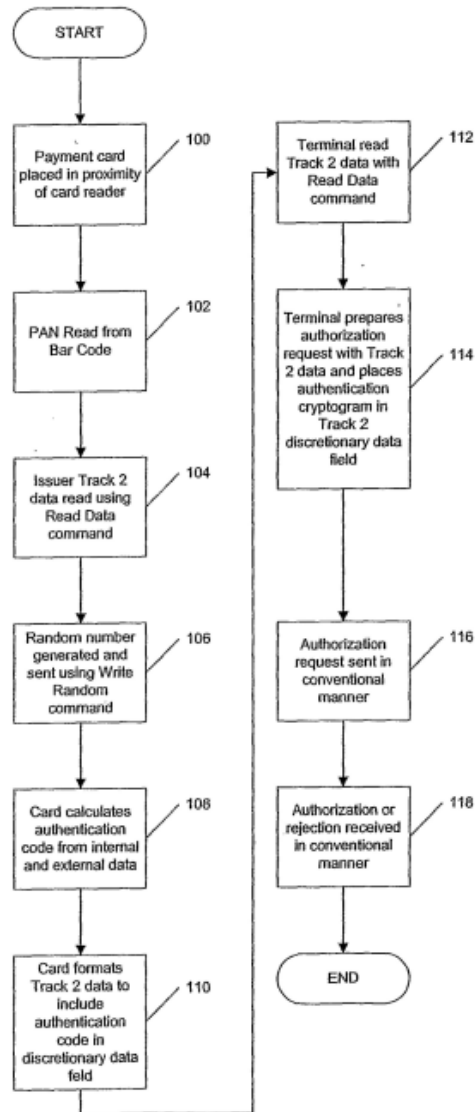


FIG. 2

Figure 2 illustrates “a flow chart of an authorization and authentication process between a payment card and a terminal.” Ex. 1008,

5:1–3, 6:6–8. First, the card reader reads the PAN data from the card’s bar code. *Id.* at 9:23–24; Fig. 2, step 102. “In step 104 (which could be performed before, after, or simultaneously with step 102), the terminal optionally sends a Read Data command to read the Track 2 data stored in the RF chip.” *Id.* at 9:25–27. “In step 106, the terminal sends a Write Data command with a challenge number to the payment card.” *Id.* at 9:29–30. “In step 108, the RF chip on the payment card calculates an authentication code using its cryptographic key with its internal data . . . and the challenge number sent by the terminal.” *Id.* at 10:1–3. “In step 110, the RF chip formats the Track 2 data to be sent to the terminal, replacing the discretionary data with the authentication code[.]” *Id.* at 10:4–6. “In step 112, the terminal performs a Read Data command and reads the new Track 2 data, [which] include[es] the authentication code . . . [and] may include a portion of the PAN [(if only a portion is encoded in the bar code)].” *Id.* at 10:7–10. “In step 114, the terminal prepares an authorization request . . . [that] is generated from the PAN . . . and the remaining Track 2 data[.]” *Id.* at 10:13–15. The terminal then processes the information to complete the transaction. *Id.* at 10:17–27; Fig. 2, steps 116, 118.

Wankmueller describes the RFID chip performing the following functions:

- securely store a unique per-card cryptographic key;

- support a cryptographic algorithm to calculate an authentication code;

- maintain a transaction counter and increment the transaction counter before a predefined event, such as before each transaction or after each time a challenge number is presented to the card;*

- store Track 2 data (as issued by the payment card issuer);

format the Track 2 discretionary data field with the chip-calculated authentication data; and

support the following commands for the transaction processing:

[the] Write Data . . . command [that] is needed to send a challenge number produced by the terminal to the RFID device. Upon receipt of the challenge number, the RFID device should increase its transaction counter, calculate the authentication code, and format Track 2 discretionary data with the chip authentication data. . . .

[the] Read Data . . . command [that] is needed to read Track 2 data. When the Read Data command is performed before the Write Data command, the chip returns Track 2 data as stored in the device without authentication data. . . . When the Read Data command is performed after the Write Data command, the chip returns Track 2 with the discretionary data replaced with the authentication data.

Id. at 6:11–7:10 (formatting edited) (emphasis added). And, “[p]referably, the RF chip calculates an authentication code for verification by the issuer using its unique cryptographic authentication key and the following data” (*id.* at 7:11–13):

the PAN digits, if any, from the RF chip Track 2 data;
the Expiry Date . . . from the RF chip Track 2 data;
the Service Code . . . from the RF chip Track 2 data;
the value from the counter maintained by the RF chip . . . ;
and
the challenge number . . . provided by the terminal.

Id. at 7:14–22 (formatting edited).

2. Johnson

Johnson is a U.S. patent titled “Cryptography Security for Remote Dispenser Transactions” and published June 20, 2000. Ex. 1011, codes (54), (45). Johnson describes a secure transaction system that includes a tag 100, a POS device 200, and a host network 300. *Id.* at 5:48–51.

Importantly, the tag 100 and host network 300 are adapted to encrypt and decrypt certain communications there-between, while the POS device 200 primarily only relays the encrypted information sent between the tag 100 and the host network 300. *Id.* at 5:59–63. The POS device 200 is not able to decrypt the information. *Id.* at 5:63–65. Host network 300 maintains account and financial information associated with tag 100, which has a unique identifier. *Id.* at 2:13–15. Figure 5 of Johnson is reproduced below.

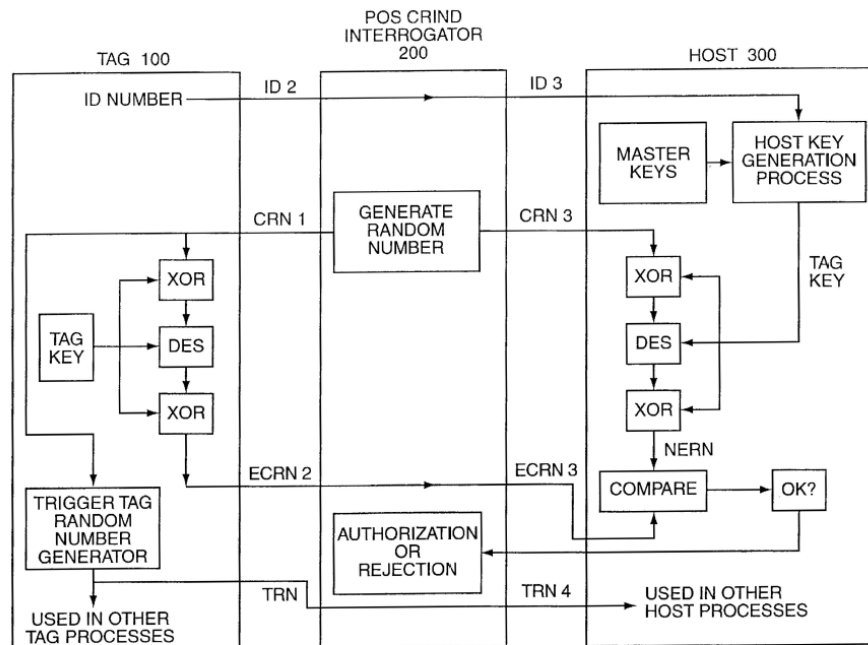


FIG. 5

Figure 5 depicts a tag authentication process. *Id.* at 5:1, 10:16. First, POS device 200 generates and sends random number CRN to tag 100 and to host network 300. *Id.* at 10:54–56. Tag 100 encrypts random number CRN to

create an encrypted random number ECRN and returns encrypted random number ECRN to POS device 200. *Id.* at 10:56–59. POS device 200 relays the encrypted random number ECRN, the tag ID, and random number CRN to Host network 300. *Id.* 10:59–62. Host network 300 encrypts the random number CRN in the same manner as tag 100 and compares the result to the encrypted random number ECRN for a match. *Id.* at 10:65–11:5. Tag 100 and Host network 300 use identical cryptography techniques known only by tag 100 and host network 300, but not by POS device 200. *Id.* at 3:22–24.

3. *Walker*

Walker is a U.S. patent titled “Method and Device for Generating a Single-use Financial Account Number” and published December 19, 2000. Ex. 1012, codes (54), (45). Walker describes generating a single-use, transaction-specific financial account number for credit card transactions. *Id.* at 1:6–10.

Figure 8 of Walker is reproduced below.

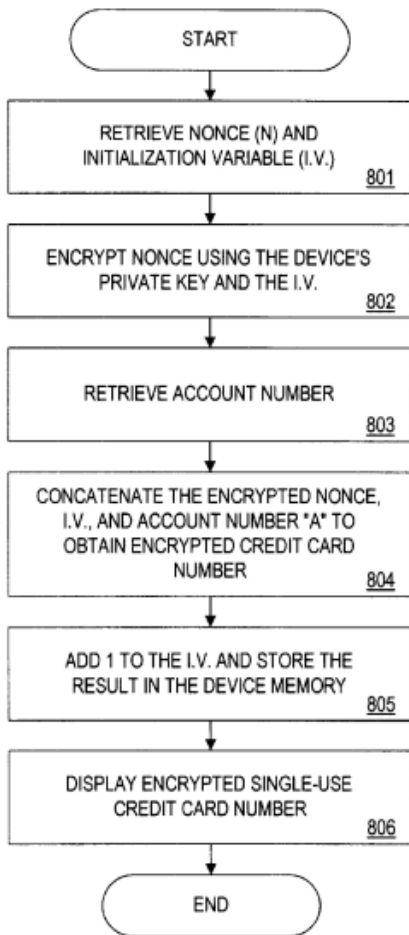
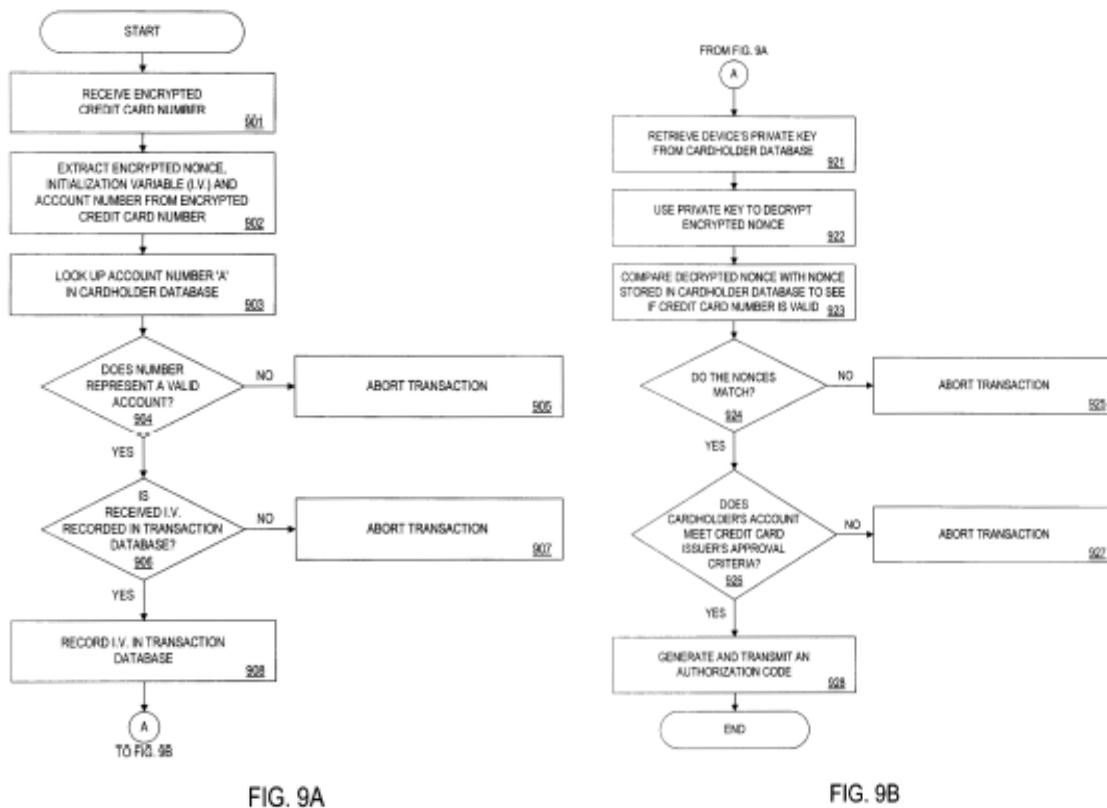


FIG. 8

Figure 8 depicts the steps for generating an encrypted single-use credit card number. *Id.* at 8:9–11. “In step 801, the device central processor 101 retrieves the nonce 602 and the initialization variable 704 from the device memory 104.” *Id.* at 8:11–13. “In step 802, the nonce is encrypted using the user’s private key K and the IV.” *Id.* at 8:13–14. “[After t]he central processor 101 then retrieves the account number from the device memory 104 (step 803)” (*id.* at 8:19–20), “[i]n step 804, the encrypted nonce C, the

initialization variable IV, and account number A are concatenated to form an encrypted, single-use credit card number CCN” (*id.* at 8:20–23). Credit card number CCN is transmitted, via a merchant, to the issuer’s central processor 400 for authorization of the transaction. *Id.* at 8:31–35.

Figures 9A and 9B of Walker are reproduced side-by-side below.



Figures 9A and 9B, collectively, depict a connected flowchart showing the central processor of a credit card issuer generating an authorization code. *Id.* at 5:24–27. The credit card issuer’s central processor verifies the card number by extracting the encrypted nonce C, the initialization variable IV, and account number A from the credit card number. *Id.* at 8:41–43, Fig. 9A, step 902. “The processor then retrieves the extracted account number from the cardholder account database 411 (step 903), and determines whether the

account number is valid (step 904).” *Id.* at 8:43–46. “If the account number is valid, the processor looks up the account number in the credit card transaction database 413 to determine whether the card holder has previously used the initialization variable IV (step 906).” *Id.* at 8:47–51. “If the cardholder has done so, the transaction is aborted (step 908).” *Id.* at 8:51–52. “If the initialization variable has not been used, the incremented initialization variable is stored in the credit card transaction database 413 (step 908).” *Id.* at 8:52–54.

“In step 921, the processor retrieves the card holder’s private key K in the private key database 412.” *Id.* at 8:55–56. “The private key K then is used to decrypt the encrypted nonce (step 922).” *Id.* at 8:56–57. This recovers the original “nonce N . . . [that] is compared against the nonce 602 stored in the account private key database 412 (step 923).” *Id.* at 8:62–63. “If they match (step 924) then the credit card number is considered valid; otherwise the transaction is aborted (step 925).” *Id.* at 8:62–64.

“If the card is found to be valid, and if the cardholder’s account meets the credit card issuer’s approval criteria (step 926), then the issuer’s central processor generates an authorization code and transmits the code to the merchant (step 928).” *Id.* at 8:66–9:3. “If not, then the transaction is aborted (step 927).” *Id.* at 8:9:3–4.

D. Principles of Law

Petitioner bears the burden of demonstrating a reasonable likelihood that it would prevail with respect to at least one challenged claim for a petition to be granted. 35 U.S.C. § 314(a).

Anticipation requires that a prior art reference set forth each and every element of a claim as set forth in the claim. *Verdegaal Bros. v. Union Oil*

Co. of Cal., 814 F.2d 628,631 (Fed. Cir. 1987); *see also Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008) (anticipation not only requires that each element of a claim be present in a prior art reference, but also the “arrangement or combination” of those elements).

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

E. Grounds 1 and 2: Anticipation or Obviousness of Claims 1 and 4 over Wankmueller

1. Independent Claim 1

Petitioner contends that independent claim 1 is anticipated or, alternatively, obvious over Wankmueller. Pet. 22–27. In particular, Petitioner argues that Wankmueller meets the claimed steps of generating an RFID transaction device authentication tag and incrementing the counter value by disclosing generating an authentication code from a challenge number, a PAN, and a counter value and incrementing a transaction counter Pet. 22–27 (citing Ex. 1008, 6:8–30, 7:11–8:27).

On this record, we are persuaded by Petitioner’s evidence and analysis that there is a reasonable likelihood that Wankmueller anticipates or alternatively renders obvious claim 1.⁷ In particular, we are persuaded that Wankmueller meets the steps of generating an RFID transaction device authentication tag and incrementing the counter value because Wankmueller discloses generating an authentication code using a challenge number, a PAN, and a value from a counter (Ex. 1008, 6:8–30, 7:11–8:27, Fig. 2) and incrementing the counter value (*id.* at 6:14–17, 6:24–27).

Patent Owner responds that Wankmueller does not render claim 1 anticipated or obvious because Wankmueller does not disclose generating an authentication tag using a *pre-incremented* instance of a counter value. Prelim. Resp. 4–10. On this record, Patent Owner’s argument is unpersuasive because, as discussed above, it is predicated on a construction that we have not adopted. That is, we preliminarily determine that claim 1 does not require using a pre-incremented counter value in the steps of generating an authentication tag.

On this record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in demonstrating that claim 1 is anticipated or obvious over Wankmueller.

⁷ Patent Owner argues that Petitioner raises new arguments not set forth in the Petition in the Preliminary Reply because Petitioner includes an explanation that the claims are unpatentable over Wankmueller even if the claims require a pre-incremented counter value. Prelim. Sur-reply 1. As we determine that claim 1 does not require a pre-incremented counter value, Patent Owner’s argument is moot.

2. *Dependent Claim 4*

Claim 4 depends from claim 1 and recites: “wherein the counter value is incremented a predetermined amount.” Pet. 27–28.

As Petitioner contends:

Given Wankmueller’s disclosure that the counter is a transaction counter, a POSA would have understood, or at least found obvious that the increment is by a predetermined amount (e.g., one) for each transaction or challenge number received, as that is how transactions would typically be counted. [Ex. 1015], ¶¶ 46, 52.

Pet. 28. At this stage of the proceeding, Patent Owner does not respond to Petitioner’s contentions. *See generally* Prelim. Resp.

On this record, the evidence and analysis in the Petition is sufficient to show that Wankmueller teaches or suggests claim 4. Accordingly, we determine Petitioner has demonstrated a reasonable likelihood of prevailing in demonstrating that claim 4 is anticipated or obvious over Wankmueller.

F. Ground 3: Obviousness of Claims 1, 2, and 4 over Johnson and Walker

Petitioner contends that independent claim 1, from which claims 2 and 4 depend, is obvious over a combination of Johnson and Walker. Pet. 43–55. To meet the claimed step of generating an RFID transaction device authentication tag, Petitioner proposes to modify Johnson in light of Walker to

use an encryption technique that incorporates the use of a counter value . . . to encrypt a challenge random number received from a point-of-sale device and concatenate the result with a tag ID to generate a short code for authentication by a host.

Pet. 43–44. Petitioner states:

As combined with Walker, Johnson’s tag would generate the ECRN (i.e., an *authentication tag*) by encrypting the challenge

random number CRN received from the point-of sale terminal (i.e., *a random number . . . received from the RFID reader*) using the main tag key, analogous to Walker's private key, and a current sequence number, analogous to Walker's initialization variable (i.e., *a counter value*) and then concatenating this result with all or part of the tag ID (i.e., *the transaction device identifier*).

Id. at 49–50 (coloring omitted). Petitioner argues that a POSA would be motivated to make this modification 1) to prevent replay attacks by having credit card numbers that are unique to a given transaction; 2) to add security by including a variable value as an added check of the validity of the transaction; and 3) because it is a simple substitution of one known element for another. Pet. 50–51.

On this record, we have concerns about Petitioner's proposed combination of Johnson and Walker. As Patent Owner points out, "Johnson[']s tag ID is *not* a value that is generated using the random number sent by the POS device and it is provided to the POS device separately from any value computed using the random number." Prelim. Resp. 13 (emphasis original). Johnson's tag 100 separately provides the tag ID to POS device 200 prior to receiving the random number CRN and after encrypting random number ECRN. *See, e.g.*, Ex. 1011, 10:53–62. This is unlike Walker, which discloses only transmitting a single-use credit card number CCN to the merchant after encryption. *See, e.g.*, Ex. 1012, 3:11–36. Given these differences in Johnson and Walker, we question whether a POSA would have modified Johnson in the manner and for the reasons proposed in the Petition if Johnson discloses separately providing the tag ID to POS device 200 from the encrypted random number ECRN. And, in particular, why a

POSA would have modified Johnson to concatenate the ECRN with the tag ID to form a short code.

G. Grounds 4–6: Obviousness of Claims 1, 2, and 4 over Johnson, Walker, and Davis; Obviousness of Claims 1, 2, and 4 over Johnson, Walker, and Nerlikar; Obviousness of Claims 1, 2, and 4 over Johnson, Walker, Davis, and Nerlikar

Petitioner additionally challenges claims 1, 2, and 4 based on the combination of Johnson, Walker, and Davis; the combination of Johnson, Walker, and Nerlikar; and the combination of Johnson, Walker, Davis, and Nerlikar. Pet. 59–66. For each of these grounds, Petitioner relies upon its evidence and analysis for the combination of Johnson and Walker proposed in ground 3. *See id.* at 61, 64 (referring to ground 3). Our concern discussed above with respect to ground 3 also applies to these grounds.

III. CONCLUSION

After considering the evidence and arguments presented in the Petition, the Preliminary Response, the Prelim. Reply, and the Prelim. Sur-reply, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one of the challenged claims, and thus, we institute an *inter partes* review of all challenged claims on all presented challenges. 37 C.F.R. § 42.108(a); *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (interpreting the statute to require “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”).

At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claim or any underlying factual and legal issues.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1, 2, and 4 of U.S. Patent No. 8,066,181 B2 is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 8,066,181 B2 shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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Patent 8,066,181 B2

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