

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

EARLY WARNING SERVICES, LLC,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

IPR2024-01221
Patent 7,314,167 B1

Before KEVIN F. TURNER, JOHN D. HAMANN, and
IFTIKHAR AHMED, *Administrative Patent Judges*.

AHMED, *Administrative Patent Judge*.

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

I. INTRODUCTION

Early Warning Services, LLC (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1, 2, 4, 5, 7, 8, 12, 13, 17, 19–21, 23, 24, 26, 27, 29, 30, 34, 39–41, and 43 (the “challenged claims”) of U.S. Patent No. 7,314,167 B1 (Ex. 1001, “the ’167 patent”). Intellectual Ventures II LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”). Following our authorization, Petitioner filed a Preliminary Reply (Paper 7, “Prelim. Reply”) and Patent Owner filed a Preliminary Sur-reply (Paper 8, “Prelim. Sur-reply”).

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2022). To institute an *inter partes* review, we must determine that the information presented in the Petition shows “a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Based on the information presented in the Petition and the supporting evidence, we are persuaded that there is a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims. Accordingly, we institute an *inter partes* review of the challenged claims on the grounds set forth in the Petition.

Our factual findings and conclusions at this stage of the proceeding are based on the evidentiary record developed thus far. This is not a final decision as to patentability of the challenged claims. Any final decision will be based on the full trial record, including any response to the Petition timely filed by Patent Owner.

II. BACKGROUND

A. Real Parties in Interest

Petitioner identifies itself as the real party in interest. Pet. 8. Petitioner further identifies the following entities having “minority interests” in Petitioner: Bank of America, JPMorgan Chase Bank, PNC Bank, Wells Fargo Bank, Truist (formerly BB&T), Capital One, and U.S. Bank. *Id.* at 9. Patent Owner identifies itself as the real party in interest. Paper 4, 1.

B. Related Matters

The parties identify the following proceeding as a related matter involving the ’167 patent: *Assurant, Inc. v. Intellectual Ventures II LLC*, No. 24-cv-344 (D. Del.) and *Intellectual Ventures II LLC v. JPMorgan Chase & Co.*, No. 2:23-vc-00523 (E.D. Tex.) (dismissed). Pet. 9; Paper 4, 1.

C. The ’167 patent

The ’167 patent, titled “Method and Apparatus for Providing Secure Identification, Verification and Authorization,” issued on January 1, 2008. Ex. 1001, codes (45), (54). The ’167 patent relates to “methods and devices for providing secure identification, verification, and authorization using a portable secure device.” *Id.* at 1:8–11. The ’167 patent explains that providing authentication for online and e-commerce transactions is necessary to prevent credit card fraud but if such authentication relies on information that is static, it “may be of nominal effectiveness.” *Id.* at 1:13–38. Moreover, even if a system employs a dynamic variable to generate a password, that “dynamic variable is time-dependent” and “requires time-dependent synchronization and shared secret keys.” *Id.* at 1:39–63.

The '167 patent discloses an apparatus for providing a secure transaction. *Id.* at 3:17–4:8. Figure 1 of the '167 patent is reproduced below.

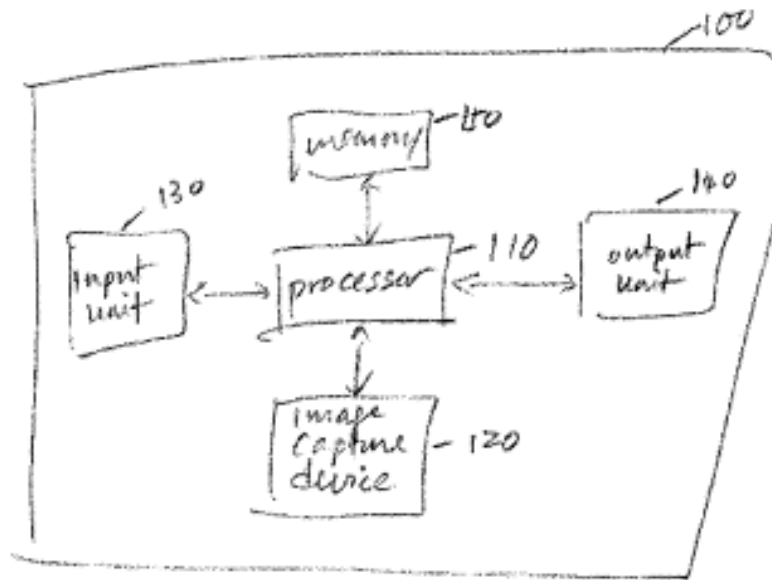


FIG. 1

Figure 1 shows secure device 100 having processor 110, image capture device 120, input unit 130, output unit 140, and memory 130. *Id.* at 5:6–11. Secure device 100 “may be incorporated as part of a token, card, badge, key fob, personal digital assistant (PDA), and cellphone.” *Id.* at 5:11–13. Processor 110 may include control logic configured to control operations of secure device 100 such as managing decryption and encryption functions. *Id.* at 5:14–16. Image capture circuit 120 may include a digital camera used to capture image and/or video information such as a one-dimensional barcode or a multi-dimensional barcode. *Id.* at 5:21–32. Input device 130 may include a keypad, a touch sensitive screen, a biometric input unit, or other types of devices that are capable of allowing a user to provide input information. *Id.* at 5:33–41. Output unit 140 may include a Liquid

Crystal Display (LCD) used to display information to a user and memory 150 may include any type of storage devices that can be used to store information. *Id.* at 5:42–46.

Figure 2 is a flow diagram illustrating general operations of the secure device, and is reproduced below. *Id.* at 4:18–20.

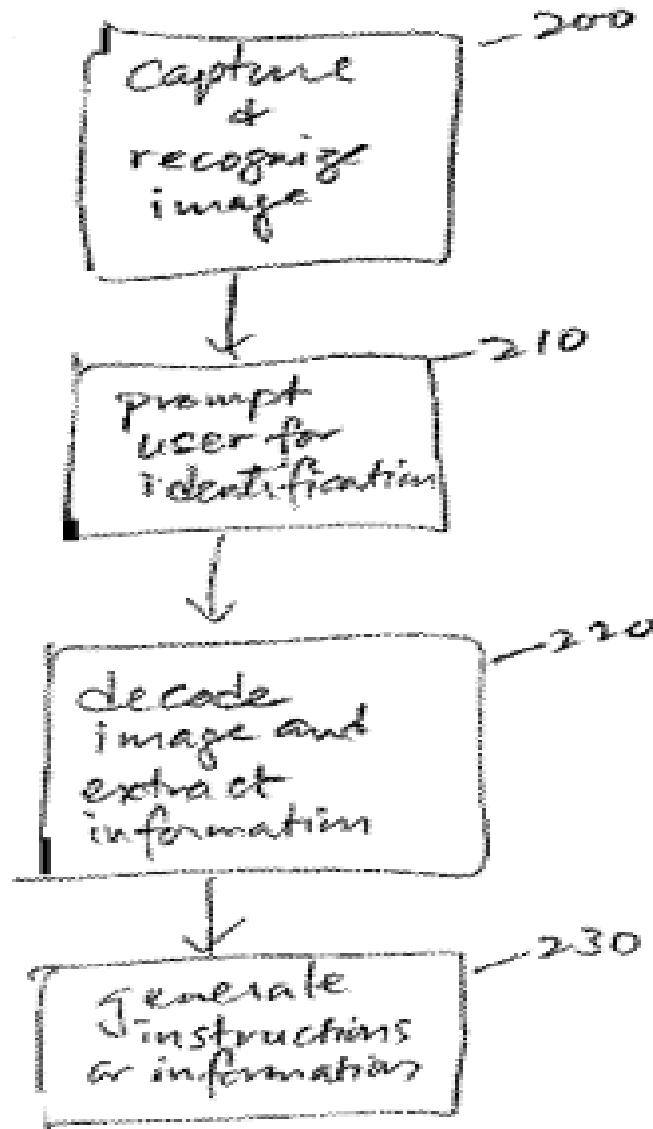


FIG. 2

Figure 2 shows that the image capture device captures information from an image such as a barcode with embedded information that is relevant to a transaction (step 200). *Id.* at 5:47–67. The secure device then prompts a user to provide identification information via the input unit (step 210), and that information “may include a personal identification number (PIN), a password, and/or biometric information . . . to ensure that the user is authorized to use the secure device.” *Id.* at 6:1–7. The processor then decodes the captured image and extracts the relevant embedded information (step 220). *Id.* at 6:8–22. The device then checks the identification information provided by the user to verify or authenticate the user’s identity and upon successful verification, generates appropriate instructions or information for the user (step 230). *Id.* at 6:22–33. In one embodiment, the secure device “can be used to provide offline digital signature to effect authorization.” *Id.* at 9:36–42, 10:29–31, Fig. 7. The secure device may also generate a confirmation signature or an authorization code that may be transmitted in as an email or SMS message. *Id.* at 9:62–10:4.

D. Challenged Claims

Petitioner challenges claims 1, 2, 4, 5, 7, 8, 12, 13, 17, 19–21, 23, 24, 26, 27, 29, 30, 34, 39–41, and 43 of the ’167 patent. Claims 1, 19, 23, 39, and 43 are independent. Claim 1 is illustrative of the claimed subject matter and is reproduced below:

1. [Preamble 1] An apparatus for providing a secure transaction, the apparatus comprising:
 - [1a] an image capture device configured to capture an image, the image having information embedded therein including information relating to a transaction;
 - [1b] a memory configured to store predetermined information;

- [1c] an input unit configured to receive input information provided by a user;
- [1d] a processor configured to:
- [1e] verify the user based on the input information to ensure that the user is authorized to use the apparatus; and
- [1f] generate an output based on the information embedded in the image and the predetermined information; and
- [1g] an output unit configured to forward the output generated by the processor, wherein
- [1h] the output includes a digital signature to be used to signify authorization by the user with respect to the transaction.

Ex. 1001, 16:22–38 (Petitioner’s annotations added); Pet. 71–80.

E. Asserted Grounds of Unpatentability

Petitioner contends that the challenged claims are unpatentable based on the following grounds:

Claims Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, 43 ²	102(b)	Wang ³

¹ Because the challenged claims of the ’167 patent have an effective filing date before March 16, 2013, patentability is governed by the pre-AIA versions of 35 U.S.C. §§ 102, 103.

² Petitioner groups claims 1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, and 43 for its Ground 1 and asserts both anticipation by Wang and obviousness over the combination of Wang and Drummond under Ground 1. Pet. 29. For clarity, we group these anticipation contentions as Ground 1a and the obviousness contentions as Ground 1b.

³ U.S. Patent Appl. Pub. No. 2002/0023215 A1, published Feb. 21, 2002 (Ex. 1004, “Wang”).

Claims Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, 43	103	Wang, Drummond ⁴
1, 2, 4, 7, 12, 13, 17	102(b)	Wang
19–21, 39–41	103	Wang, Drummond
8, 30	103	Wang, Denso ⁵
13	103	Wang, Raines ⁶
1, 4, 5, 7, 23, 26, 27, 29, 43	103	TAO, ⁷ PTM, ⁸ Wang

Pet. 29–30. Petitioner relies on declaration testimony of Thomas Purves (Exs. 1002, 1036) to support its challenges. Patent Owner relies on declaration testimony of Kai Johnson (Ex. 2001) to support its arguments.

III. ANALYSIS

A. Legal Standards – Obviousness

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review

⁴ U.S. Patent Appl. Pub. No. 2003/0217005 A1, published Nov. 20, 2003 (Ex. 1008, “Drummond”).

⁵ JP Patent Appl. Pub. No. 2002-109420 A, published Apr. 12, 2002, with English Language Translation (Ex. 1026, “Denso”). We refer to portions of the English Language Translation portion of this exhibit herein.

⁶ U.S. Patent Appl. Pub. No. 2004/0193538 A1, published Sept. 30, 2004 (Ex. 1009, “Raines”).

⁷ Wayback Machine Capture dated July 26, 2024 of Stevens Creek, *Take An Order!* (Aug. 25, 2004), <http://www.stevenscreek.com/palm/takeanorder.html> (retrieved from <https://web.archive.org/web/20040825011003/http://www.stevenscreek.com/palm/takeanorder.html>) (*see* Pet. 22, n3; Ex. 1034)) (Ex. 1005, “TAO”).

⁸ Palm Treo Manual (using your Treo), 2004 (Ex. 1006, “PTM”).

petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). Although the elements must be arranged or combined in the *same way* as in the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); *accord In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). Further, to be anticipating, a prior art reference must be enabling and must describe the claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the field of the invention. *Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 1346 (Fed. Cir. 2000); *In re Paulsen*, 30 F.3d 1475, 1479 (Fed. Cir. 1994).

As set forth in 35 U.S.C. § 103(a),

[a] patent may not be obtained . . . if the differences between the subject matter sought to be patented 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.

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) when in evidence, objective evidence of

nonobviousness.⁹ *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). An obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007); *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). However, Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Instead, Petitioner must articulate a reason why a person of ordinary skill in the art would have combined the prior art references. *In re NuVasive, Inc.*, 842 F.3d 1376, 1382 (Fed. Cir. 2016).

B. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, 35 U.S.C. § 103 requires us to resolve the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. *Id.* In a given case, one or more factors may predominate. *Id.*

⁹ Neither party presents evidence of objective considerations of non-obviousness.

Petitioner contends that a person having ordinary skill in the art would have had “a relatively high level of skill, such as having at least a bachelor’s degree in the field of computer science and/or electrical engineering, together with 2–3 years in the financial technology sector.” Pet. 16. Petitioner adds that a person having ordinary skill in the art “would have knowledge of the commercial and scientific literature pertaining to securing transactions” and “would also have knowledge of processing devices.” *Id.* at 16–17 (citing Ex. 1002 ¶ 19). Patent Owner does not address the level of ordinary skill in the art in its Preliminary Response. *See* Prelim. Resp.

Based on our review of the record before us, we determine that Petitioner’s stated level of ordinary skill in the art is reasonable because it appears consistent with the evidence of record, including the asserted prior art. Accordingly, for the purposes of this Decision, we adopt Petitioner’s definition.

C. Claim Construction

In *inter partes* reviews, the Board interprets claim language using the district-court-type standard, as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). Under that standard, we generally give claim terms their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing claim terms under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *See id.* at 1317–19.

Petitioner contends that all but three claim terms should be given their plain and ordinary meaning. Pet. 13–16. Patent Owner proposes

construction of four claim terms. Prelim. Resp. 34–43. Below, we address the parties’ claim construction disputes to the extent necessary to decide whether to institute trial.

1. Embedded

Each of the independent claims recite information that is “embedded” in an image, and according to Patent Owner, that should be construed as “information that is hidden in the image and used to provide security for the transaction.” Prelim. Resp. 34 (citing Ex. 2001 ¶ 81).

Patent Owner argues that its proposed construction is correct for three reasons. *Id.* at 34–39. First, Patent Owner contends that every embodiment disclosed in the specification supports its construction. *Id.* at 34. Second, Patent Owner contends that its construction is consistent with the ’167 patent’s claims, which are directed to providing a secure transaction. *Id.* at 34–35. Third, Patent Owner relies on extrinsic evidence to argue that “embedding” data or information in an image is a term of art that refers to hiding the data or information in the image. *Id.* at 35–38.

Petitioner responds that the term “embedded” should be given its plain and ordinary meaning. Prelim. Reply 1. Petitioner argues that “several embodiments” disclosed in the ’167 patent describe “‘embedded’ without any discussion of hidden, encrypted or otherwise secured data.” *Id.* at 2 (citing Ex. 2036 ¶ 10). Specifically, Petitioner directs us to descriptions for Figures 10 and 11 of the ’167 patent. *Id.* (citing Ex. 1001 at 13:43–59; 14:8–15). Petitioner also offers extrinsic evidence that it argues supports its position. *Id.* at 3–4 (citing Ex. 1036 ¶¶ 12–19; Ex. 1037–1042).

In its Preliminary Sur-reply, Patent Owner argues that (a) embedding information in an image is different from encryption, (b) barcode images can include both hidden and unhidden information, (c) Petitioner’s construction

renders the claim term “embedding” superfluous, (d) Petitioner conflates embedding data in an image with embedding data in a code, and (e) the ’167 patent disparaged systems that relied solely on user information, such as a PIN, for security. Prelim. Sur-reply 1–5.

“[T]he words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history.” *Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). Two exceptions exist, (1) “when a patentee sets out a definition” and (2) “when the patentee disavows the full scope of the claim term either in the specification or prosecution.” *Id.* (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1580 (Fed. Cir. 1996)). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005 (Fed. Cir. 2006).

At this stage of the proceeding, we are not persuaded that the term “embedded” should be narrowly construed in the manner proposed by Patent Owner. We find nothing in the claims that requires us to import a “hidden” or a “provide security” limitation into the claims. Claim 1, for example, merely recites “the image having information embedded therein, *including* information related to a transaction,” and “generat[ing] an output based on the information embedded in the image.” Ex. 1001, 16:24–33 (emphasis added). The claim language therefore does not require limiting embedded information in the proposed way.

Turning to the Specification, “the single best guide to the meaning of a disputed term” (*Phillips*, 415 F.3d at 1315), we find that it describes Figures 10 and 11 as follows:

In another illustrative application, the secure device 100 can be used in a checkout process, as shown in FIG. 10. . . . The image or stream of images includes *embedding¹⁰ information relating to the transaction*. The image or stream of images is presented to the user. The user then uses secure device 100 to scan the image or stream of images. *The secure device 100 then derives the relevant information relating to the transaction from the barcode* and displays such information to the user, as shown in block 1010.

Ex. 1001, 13:40–41, 43–50 (emphasis added).

In a further illustrative application, the secure device 100 can be used in a checkout process in an alternative manner, as shown in FIG. 11. The image or stream of images includes *embedded information relating to the transaction*. The image or stream of images is presented to the user. The user then uses secure device 100 to scan the image or stream of images. The secure device 100 then derives *the relevant information relating to the transaction from the image* or stream of images and displays such information to the user, as shown in block 1110.

Ex. 1001, 14:4–6, 8–15 (emphasis added); *see also* Prelim. Reply 2 (citing Ex. 1036 ¶ 10).

Neither of these portions suggests that embedded information needs to be hidden in the image or used to provide security. Specifically, these portions state that the secure device derives “relevant information relating to the transaction from the image,” and displays that information to the user.

Ex. 1001, 13:40–50; 14:4–15. The Specification does not specifically disclose that the embedded information needs to be hidden, and Patent

¹⁰ We treat the Specification’s use of “embedding” here to be the same as “embedded.”

Owner does not point us to any such disclosure. Moreover, embedded information is any information “relating to the transaction,” and the information shown in block 1010 of Figure 10 or block 1110 of Figure 11 does not appear to be information that provides security. Mr. Purves testifies, that as shown in blocks 1010 and 1110, “the transaction information derived from the barcode involves only information that [a person of ordinary skill in the art] would recognize as being readily known by both parties of the transaction: a merchant name, the sender’s identifier, and a transaction amount.” Ex. 1036 ¶ 10. At this stage, we find Mr. Purves’s testimony consistent with the disclosure of the ’167 patent. Thus, we are not persuaded that an ordinarily skilled artisan would have understood the Specification as supporting Patent Owner’s limiting construction.

For the same reason, Patent Owner’s assertion that “in *every* embodiment disclosed in the specification, the information embedded in an image corresponds to information that is hidden in the image and used to provide security for the transaction” (Prelim. Resp. 34 (citing Ex. 2001 ¶ 82)) is simply incorrect. Patent Owner cites to Mr. Johnson’s testimony for support but Mr. Johnson makes the same claim without specifically identifying portions of the Specification that expressly require Patent Owner’s construction. *See* Ex. 2001 ¶ 82.

Next, Patent Owner argues that the very first sentence of the Specification limits the scope of the invention because it states that “[t]he *present invention* relates generally to secure transactions, and more specifically, to methods and devices for providing *secure identification, verification and authorization* using a portable secure device.” Prelim. Resp. 34–35 (citing *Pacing Techs., LLC v. Garmin Int’l, Inc.*, 778 F.3d 1021

(Fed. Cir. 2015); Ex. 2001 ¶ 84; quoting Ex. 1001, 1:8–11). We disagree. Unlike in *Pacing Techs*, the statement here has little relevance to the claim term to be construed, and therefore, cannot be considered “a clear and unmistakable statement of disavowal or disclaimer” as to the meaning of “embedded.” Moreover, *Pacing Techs* requires us to view the statement “[i]n the context of this patent,” and, as discussed above, the Specification here supports a broader reading of the term “embedded” than that argued by the Patent Owner. 778 F.3d at 1025.

Although we have considered Patent Owner’s extrinsic evidence (*see* Prelim. Resp. 35–38), we find it “less significant than the intrinsic record in determining the legally operative meaning of” the term “embedded.” *Phillips*, 415 F.3d at 1317 (internal quotations and citations omitted). None of Patent Owner’s cited evidence conclusively establishes that “embedded,” as used in the claims, necessarily requires hiding information. Prelim. Resp. 35–38 (citing Exs. 2003–2008). Moreover, Petitioner’s extrinsic evidence supports that “embedded” is not a term of art limited to hidden information used for security purposes. Prelim. Reply 3–4 (citing Exs. 1037–1042). At this stage, however, we do not find it necessary to evaluate the parties’ extrinsic evidence in detail because we determine that the intrinsic evidence does not support Patent Owner’s limiting construction. *See Pickholtz v. Rainbow Techs., Inc.*, 284 F.3d 1365, 1372–73 (Fed. Cir. 2002) (citing *Vitronics*, F.3d at 1583 (stating “[only] if a disputed claim term remains ambiguous after analysis of the intrinsic evidence should the court rely on extrinsic evidence”)).

Lastly, we have considered additional arguments that Patent Owner makes in its Preliminary Sur-reply (Prelim. Sur-reply 1–5), and do not find

those persuasive because none of those arguments address the Specification's broad disclosure of embedded information, discussed above.

For the purposes of institution, we thus reject Patent Owner's proposed construction of "embedded" as meaning "information that is hidden in the image and used to provide security for the transaction." Instead, we apply the plain and ordinary meaning of the claim term.

2. Predetermined information

According to Petitioner, "predetermined information" should be construed as "any information that is established and stored in memory in advance of generating the output." Pet. 16 (citing Ex. 1002 ¶ 59). Patent Owner argues that "predetermined information" should be construed as "information 'other than' either a private key or identification information provided by the user to verify or authenticate the user's identity." Prelim. Resp. 39 (citing Ex. 2001 ¶ 92). Patent Owner therefore seeks to construe the term to *exclude* two types of information from claim scope. We address each of these in turn.

a) Private key

Patent Owner argues that the Specification disclaims the term "predetermined information" from including "a private key." Prelim. Resp. 39 (citing *Pacing Techs.*, 778 F.3d at 1024; Ex. 2001 ¶ 92). In support, Patent Owner contends that the following portion of the Specification distinguishes "predetermined information" from a "private key":

The decryption algorithm may use one or more input parameters for decoding. For example, if the image is created using a public key, *the corresponding private key (as well as other information, such as, predetermined information stored in memory 150 and the input information provided by the user)* may be used to decrypt or decode the captured image. *The predetermined*

information may include, for example, address information, personal profile information and payment account information.

Ex. 1001, 6:13–22 (Patent Owner’s emphasis); Prelim. Resp. 39. Patent Owner contends that this disclosure “clearly distinguishes a ‘private key’ from ‘*other* information,’ such as ‘predetermined information.’” Prelim. Resp. 39 (citing Ex. 2001 ¶ 93).

As discussed above, disclaiming or disavowing claim scope requires a “clear and unmistakable disclaimer.” *Thorner*, 669 F.3d at 1367. We are not persuaded that the cited portion can be read to clearly and unmistakably disavow claim scope. The cited portion of the Specification discusses various input parameters for decoding a captured image. Ex. 1001, 6:8–10. When viewed in context, “other information” refers to other *predetermined* information, including “the corresponding private key,” “stored in the memory 150,” which “may be used to decrypt or decode the captured image.” *Id.* at 6:13–22; *see also id.* at 5:18–20 (private keys are stored in memory). We therefore read the Specification as merely listing possible input parameters for decoding an image and not disclaiming “the corresponding private key” from the scope of “predetermined information.” After all, the very next sentence states that “predetermined information may include, *for example*, address information, personal profile information, and payment account information.” *Id.* at 6:17–22 (emphasis added). Given the various broad categories included in “predetermined information,” we are not persuaded, for purposes of institution, that “predetermined information” excludes a private key. We further determine that this preliminary construction is sufficient to resolve the Petitioner’s anticipation and obviousness contentions presented under Petitioner’s Ground 1, and no further construction of the term is necessary.

b) Identification information

Patent Owner also argues that the Specification disclaims “identification information provided by the user to verify or authenticate the user’s identity” from the scope of the claimed “predetermined information.” Prelim. Resp. 40 (citing Ex. 2001 ¶ 94). For support, Patent Owner cites the following portion of the Specification:

The user activates the secure device 100 and uses the secure device 100 to scan the image or video 340. As part of the activation process, the user may need to enter *a password or other types of information* into the secure device 100 to ensure that the user is authorized to use the secure device 100. The secure device 100 then derives the authentication code 350 and other relevant information 360 based on the embedded information stored in the scanned image or video 340 and, optionally, *other types of information* including, for example, *predetermined information* stored in the secure device 100 and *identification information* provided by the user.

Ex. 1001, 6:55–66 (Patent Owner’s emphasis); Prelim. Resp. 40. Patent Owner contends that this passage “makes clear that ‘predetermined information’ is a separate and distinct type of information than ‘identification information.’” Prelim. Resp. 40 (citing Ex. 2001 ¶ 95).

On the present record, we are doubtful that Patent Owner’s cited portions of the Specification constitute a disclaimer for reasons similar to those discussed above. As discussed above, however, we need not resolve this aspect of the parties’ claim construction dispute in order to determine whether to institute, but we encourage the parties to address this claim construction issue in further detail in subsequent briefing.

3. Digital signature

According to Patent Owner, information that is “a digital signature to be used to signify authorization by the user with respect to the transaction”

should be construed as “a digital signature that is necessary to effectuate (or complete) the transaction.” Prelim. Resp. 41 (citing Ex. 2001 ¶ 97); Ex. 1001, 16:36–38; 17:62–64. Patent Owner argues that the Specification discloses that the digital signature “is a prerequisite to completion of the transaction i.e., the confirmation signature is *necessary for the transaction to be effectuated*.” *Id.* (citing Ex. 1001, 9:52–54, 9:64–10:13).

At this stage, we do not view the claims or the Specification as mandating Patent Owner’s proposed construction. The claim language recites “a digital signature *to be used* to signify authorization by the user with respect to the transaction.” *See, e.g.*, Ex. 1001, 16:36–38 (emphasis added). The claim therefore recites that the digital signature *will* be used to signify a user’s authorization for a transaction; it does not require that the digital signature be “a prerequisite to completion of the transaction.” Prelim. Resp. 41. Importantly, the claims do not address the “completion of the transaction” aspect that Patent Owner seeks to read into the claims. The Specification discloses:

If the generated confirmation signature is correct for a specific user and/or secure device 100, the transfer transaction will be completed.

Id. at 9:52–54.

[U]pon receiving the generated confirmation signature or authorization code, the transaction server 600 *may then use* the transaction number to identify the session and check the generated confirmation signature or authorization code . . . and, if appropriate, effect the transaction.”

Id. at 9:64–10:13 (emphasis added).

These portions echo the claim language and discuss using a digital signature (“generated confirmation signature”) to signify authorization; they

do not require us to import “the completion of a transaction” into the meaning of a digital signature.

For the purposes of institution, we reject Patent Owner’s proposed construction of “a digital signature to be used to signify authorization by the user with respect to the transaction” as “a digital signature that is necessary to effectuate (or complete) the transaction.”

4. Image capture device

Petitioner proposes that “image capture device” be construed as “any device that can capture an image, such as a barcode scanner.” Pet. 15 (citing Ex. 1002 ¶ 58). Patent Owner responds that “image capture device” means “a device that can capture an image or video, such as a still-image camera or video camera.” Prelim. Resp. 43 (citing Ex. 2001 ¶ 80).

Patent Owner defines “image” as a “visual representation of something: such as (1) a likeness of an object produced on photographic material (2) a picture produced on an electronic display.” Prelim. Resp. 42 (citing Ex. 2012). Patent Owner argues that, at the time of the ’167 patent, linear barcode scanners “could not capture an image or read two-dimensional barcodes”; instead, two-dimensional barcodes must have been read with an “image-based reader.” *Id.* (citing Ex. 2001 ¶ 79; Ex. 2011, 1). Patent Owner further argues that because the Specification discloses that “the image capture device . . . could capture linear barcodes, two-dimensional barcodes, multiple barcodes in a single image, or multiple barcodes in a video,” the claim term should be limited to “a device that can capture an image or video, such as a still-image camera or video camera.” *Id.* at 43 (citing Ex. 2001 ¶ 80).

On the current record, we are not persuaded that “image capture device” should be limited to a camera that can capture an image or video.

The Specification discloses that the captured image does not require a “2D barcode”:

The image circuit 120 *may* include a digital camera *or other types of image capturing devices*. The image capture circuit 120 is used to capture image and/or video information. The captured image and/or video information *may include a barcode* including an *one-dimensional barcode*, such as a *linear barcode*, or a multi-dimensional barcode, such as a 2D barcode [. . .].”

Ex. 1001, 5:21–29 (emphasis added). This disclosure encompasses devices that may be used to read “one-dimensional barcode” or linear barcodes, which as Patent Owner acknowledges, can be read by barcode scanners or laser scanners. Prelim. Resp. 42. The fact that the Specification also discloses image capture devices that *could* capture two-dimensional barcodes or multiple barcodes in a single image does not mandate that claim term be limited to those devices. Accordingly, on this record, we do not adopt Patent Owner’s proposed construction of “image capture device.”

5. *Remaining Claim Terms*

On the present record, we do not discern a need to expressly construe any other claim terms because doing so would have no effect on our analyses of Petitioner’s asserted grounds and will not assist in resolving the present controversy between the parties. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms that . . . are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

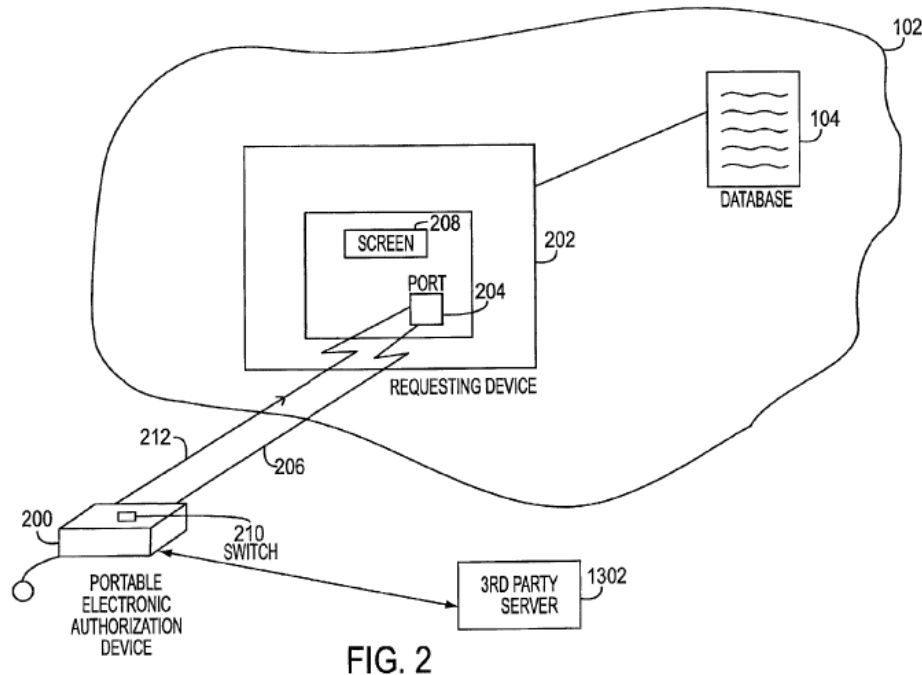
D. Ground 1a: Asserted Anticipation Based on Wang

Petitioner asserts that Wang anticipates claims 1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, and 43.¹¹ Pet. 30–49.

1. Wang

Wang is a patent titled “Electronic Transaction Systems and Methods Therefor,” relating to “portable electronic authorization devices (PEADs) which advantageously and substantially eliminate the security risks associated with prior art techniques of approving transactions between a user and an electronic transaction system.” Ex. 1004, code (54), ¶ 2.

Figure 2 of Wang illustrates a PEAD for securely approving transactions vis-à-vis an electronic transaction system, and is reproduced below. *Id.* ¶ 19.



¹¹ As discussed above, we separate out Petitioner’s contentions presented in its Ground 1 as Grounds 1a and 1b.

Figure 2 above shows transaction system 202 including database 104 and requesting device 202, such as “an ATM machine, a computer terminal in a network, an automated library checkout terminal, a portable device, hand-held device or similar devices for permitting the user to transact business with the electronic transaction system,” that initiates a transaction approval process with PEAD 200 by transmitting, via communication port 204 and path 206 to PEAD 200, a transaction request pertaining to a proposed transaction. *Id.* ¶ 37. “The transaction request itself may include, for example, the transaction ID, the merchant’s name, the merchant’s ID, the time of the proposed purchase, and the like,” and may be encrypted for enhanced security. *Id.* The data pertaining to a proposed transaction may be reviewed by the user on screen 208 of requesting device 202 or on a display screen on PEAD 200. *Id.* ¶ 39. The user may then signify approval of the transaction by activating switch 210 on PEAD 200, which transmits an encrypted approval message with the user’s identification data, to requesting device 202 via path 212. *Id.*

Wang further discloses using a third-party server to implement an added level of security when a portable device, such as a cellphone, incorporates the functions of the PEAD. *Id.* ¶ 121. A decryption key is stored at the third-party server while a private is encrypted and stored on the portable device. *Id.* User authentication “may require the user to enter a password, to furnish fingerprints or a voice print, or other biometrics and/or identifying characteristics specific to the authorized user before PEAD 200 can be activated and employed for approving transactions.” *Id.* ¶ 72. Wang also discloses that the PEAD may be used as a self-checkout terminal, allowing the user to scan barcodes and generating a receipt that the user can sign electronically. *Id.* ¶ 115.

2. Independent Claim 1

a) *[Preamble 1]: An apparatus for providing a secure transaction, the apparatus comprising:*

Petitioner contends that, if the preamble is limiting, Wang discloses it. Pet. 33. Petitioner contends that “Wang discloses an apparatus for providing a secure transaction,” and discloses “portable electronic authorization devices (PEADs) which eliminate security risks associated with . . . approving transactions.” *Id.* (citing Ex. 1004 ¶ 2; Ex. 1002 ¶ 63). Petitioner further contends that Wang discloses an “Internet enabled cellular telephone . . . may be used to implement a . . . PEAD.” *Id.* (citing Ex. 1004 ¶ 108).

Patent Owner does not specifically respond to these arguments. *See generally* Prelim. Resp. Based on our review of the current record, at this stage of the proceeding, we determine that the information presented sufficiently supports Petitioner’s assertions relating to the preamble of claim 1.¹²

b) *Limitation 1[a]: an image capture device configured to capture an image, the image having information embedded therein including information relating to a transaction;*

Petitioner contends that Wang discloses this limitation. Pet. 33. Petitioner contends that Wang discloses a “barcode or OCR scanner” that can capture a barcode or OCR image. *Id.* (citing Ex. 1002 ¶¶ 59, 62–63; Ex. 1004 ¶ 115). Petitioner further contends that Wang discloses a “barcode or OCR image,” which contains “index data for price lookup,” i.e., embedded information, “that is usable for generating an electronically signed receipt relating to a purchase *transaction*.” *Id.* Petitioner asserts that

¹² At this stage in the proceeding, we do not decide whether the preamble of claim 1 is limiting.

Wang’s PEAD, with a barcode scanner or OCR reader, may be used as a self-checkout terminal to carry out a transaction and generate a receipt. *Id.* (citing Ex. 1004 ¶ 115).

Patent Owner argues that the claim language “information embedded therein” should be construed as “information that is hidden in the image and use to provide security for the transaction.” Prelim. Resp. 46 (citing Ex. 2001 ¶ 111). Patent Owner argues that Wang’s barcodes and OCR images do not meet this limitation because “the data stored in bar codes can be decoded by anyone with a conventional barcode scanner.” *Id.* at 46–47 (citing Ex. 2001 ¶¶ 113–114).

As discussed above, we do not agree with Patent Owner’s proposed construction of “embedded” information as requiring information to be hidden in the image and used to provide security for the transaction. *See supra* § III.C.1. Wang expressly discloses UPC codes or barcodes that have information related to the transaction “embedded” in them. *See* Ex. 1004 ¶ 115 (“By entering the UPC code or barcode using keypad on the PEAD or scanning in the UPC code or barcode using the input device built into the PEAD, such as a barcode scanner or OCR reader, the PEAD can generate the receipt with the list of item prices.”). We therefore do not find Patent Owner’s argument persuasive at this stage.

Based on our review of the current record, at this stage of the proceeding, we determine that the information presented supports sufficiently Petitioner’s assertions as to this limitation.

c) Limitation 1[b]: a memory configured to store predetermined information;

Petitioner contends that Wang discloses this limitation because it discloses a “private key” stored in “memory portion 304.” Pet. 33–34

(citing Ex. 1004 ¶ 50). Petitioner contends that Wang’s “private key is predetermined information because it is stored in the PEAD memory prior to initiation of any secure transactions.” *Id.* at 34 (citing Ex. 1002 ¶¶ 62–63). Petitioner further contends that Wang discloses that the PEAD may be used to sign any computer file for authentication purposes and discloses that authentication is based on encryption using the user’s private key. *Id.* (citing Ex. 1004 ¶ 85).

Patent Owner relies on its proposed claim construction of “predetermined information” and argues that that Petitioner’s mapping is deficient because it maps Wang’s private key to the claimed “predetermined information.” Prelim. Resp. 47 (citing Ex. 2001 ¶¶ 117–121).

As discussed above, we do not agree with Patent Owner that the claim term “predetermined information” should be construed to exclude a private key. *See supra* § III.C.2.a. Wang discloses a private key that is stored in the PEAD’s memory beforehand and is used for encryption and authentication purposes. Ex. 1004 ¶¶ 50, 85. We therefore do not find Patent Owner’s argument persuasive at this stage.

Based on our review of the current record, at this stage of the proceeding, we determine that the information presented supports sufficiently Petitioner’s assertions to this limitation.

d) Limitation 1[c]: an input unit configured to receive input information provided by a user;

Petitioner contends that Wang discloses a user authentication mechanism that requires “the user to enter a password, to furnish fingerprints or a voice print, or other biometrics.” Pet. 34 (citing Ex. 1004 ¶ 73). Petitioner argues that Wang’s password or fingerprint input is input information provided by a user. *Id.* (citing Ex. 1002 ¶¶ 62–63).

Patent Owner does not specifically respond to these arguments. *See generally* Prelim. Resp. Based on our review of the current record, at this stage of the proceeding, we determine that the information presented sufficiently supports Petitioner’s assertions as to this limitation.

e) Limitation 1[d]: a processor configured to:

Petitioner contends that Wang discloses a microcontroller that executes code stored in flash memory. Pet. 34 (citing Ex. 1004 ¶ 74; Ex. 1002 ¶¶ 62–63, 74–77). Petitioner further contends that a person of ordinary skill in the art would have understood that Wang’s microcontroller is configured to perform claim elements 1[e]–[g], discussed below. *Id.* (citing Ex. 1002 ¶¶ 62–63, 74–77).

Patent Owner does not specifically respond to these arguments. *See generally* Prelim. Resp. Based on our review of the current record, at this stage of the proceeding, we determine that the information presented sufficiently supports Petitioner’s assertions as to this limitation.

f) Limitation 1[e]: verify the user based on input information to ensure that the user is authorized to use the apparatus; and

Petitioner contends that Wang discloses requiring “the user to enter a password, to furnish fingerprints or a voice print, or other biometrics and/or identifying characteristics specific to the authorized user before PEAD 200 can be activated.” Pet. 35 (citing Ex. 1004 ¶ 72).

Patent Owner does not specifically respond to these arguments. *See generally* Prelim. Resp. Based on our review of the current record, at this stage of the proceeding, we determine that the information presented sufficiently supports Petitioner’s assertions as to this limitation.

g) Limitation 1[f]: generate an output based on the information embedded in the image and the predetermined information; and

Petitioner contends that Wang discloses digitally signed receipts that are “based on image information (data from barcodes) and predetermined information (private key).” Pet. 35 (citing Ex. 1004 ¶¶ 85, 115; Ex. 1002 ¶¶ 62–63). Petitioner further contends that Wang discloses that a user may approve the transaction by pressing the button on the phone, generating a digitally signed receipt, which is an output based on the information embedded in the image and the predetermined information. *Id.* (citing Ex. 1004 ¶ 115). Petitioner argues that Wang’s digitally signed receipt is based on “information embedded in the image” because the PEAD generates the receipt using the barcode for price lookup. *Id.* (citing Ex. 1004 ¶ 115; Ex. 1002 ¶ 78). Petitioner argues that Wang’s receipt is also based on “predetermined information” because authentication is based on encryption using the user’s private key. *Id.* (citing Ex. 1002 ¶¶ 79–81, 85, 115).

Patent Owner does not specifically respond to these arguments. *See generally* Prelim. Resp. Based on our review of the current record, at this stage of the proceeding, we determine that the information presented sufficiently supports Petitioner’s assertions as to this limitation.

h) Limitation 1[g]: an output unit configured to forward the output generated by the processor,

Petitioner contends that Wang discloses “two types of output devices, a display and a ‘local wireless communication port.’” Pet. 35–36. Petitioner contends that these devices forward the output either by “presenting the electronic receipt over the phone” or by establishing a connection between the phone and the receipt printer. *Id.* at 36 (citing Ex. 1004 ¶ 115).

Patent Owner does not specifically respond to these arguments. *See generally* Prelim. Resp. Based on our review of the current record, at this stage of the proceeding, we determine that the information presented sufficiently supports Petitioner’s assertions as to this limitation.

- i) *Limitation 1[h]: wherein the output includes a digital signature to be used to signify authorization by the user with respect to the transaction.*

Petitioner contends that Wang discloses that “the PEAD user can sign the receipt electronically using PEAD,” and that the electronic signature is a digital signature. Pet. 36 (citing Ex. 1004 ¶¶ 88, 108, 112, 115, 123; Ex. 1002, 62–63, 85–88).

Patent Owner responds that the claims require that the digital signature “be necessary to effectuate (or complete) the transaction.” Prelim. Resp. 48 (citing Ex. 2001 ¶ 131). Patent owner argues that Petitioner maps a “digitally signed receipt” to this claim limitation but fails to “explain how a digitally signed receipt is used to signify authorization by the user of the transaction.” *Id.* (citing Ex. 2001 ¶ 128). Patent Owner further argues that “a digital signature created by the user would signify nothing more than that the user signed the receipt and that the receipt had not been modified since the signing.” *Id.* (citing Ex. 2001 ¶ 131). According to Patent Owner, “it does not follow from the fact that the user has a signed receipt that the underlying transaction that led to the receipt was in fact authorized by the user, as claimed.” *Id.* (citing Ex. 2001 ¶ 133).

As discussed above, we do not agree with Patent Owner’s proposed construction that the claimed digital signature “is necessary to effectuate (or complete) the transaction.” *See supra* § III.C.3. Wang discloses using a PEAD as a self-checkout terminal in a point-of-sale transaction and further

discloses that a “user can sign the receipt electronically using [the] PEAD.” Ex. 1004 ¶ 115 (incorporating by reference U.S. Patent No. 5,917,913). Mr. Purves testifies that Wang discloses that a transaction embodied in a transaction request may be appended with data representative of an electronic signature prior to being encrypted and retransmitted back to the electronic transaction system, and that that description “is consistent with Wang’s electronic signature being ‘used to signify authorization by the user with respect to the transaction.’” Ex. 1002 ¶ 88 (citing Ex. 1004 ¶¶ 51, 115). Mr. Purves further testifies that Wang’s description is consistent with the well-understood meaning of the term “digital signature.” *Id.*; Pet. 36.¹³ Petitioner, supported by Mr. Purves testimony, sufficiently shows, for the purposes of institution that Wang discloses a digital signature as claimed.

Based on our review of the current record, at this stage of the proceeding, we determine that the information presented sufficiently supports Petitioner’s assertions as to this limitation.

3. Independent Claims 23 and 43

Claim 23 and 43 recite “a method of providing secure transaction,” and also recite other limitations that are similar to those in claim 1. Ex. 1001, 17:48–64, 19:1–20:5. Additionally, claim 43 recites “the portable device includes one of a cell phone, a personal digital assistant, and a smartcard.” *Id.* at 20:4–5 (limitation 43[h]).

¹³ Petitioner also points us to other disclosure in Wang, detailing an example of using the PEAD in a hotel reservation transaction, where once a user approves a transaction, the PEAD sends out a transaction confirmation, signed by the user’s private key, which then results in the merchant validating the transaction. Ex. 1004 ¶ 108; Pet. 36.

Petitioner contends that Wang anticipates independent claims 23 and 43. Pet. 38–41, 43. For limitation 43[h], Petitioner contends that Wang discloses that an “Internet enabled cellular telephone” may be used to implement a PEAD. *Id.* at 43 (citing Ex. 1004 ¶ 108; Ex. 1002 ¶ 102). For the remaining limitations of claims 23 and 43, Petitioner relies on similar contentions as those directed to claim 1. *Id.* at 38–41, 43. Petitioner therefore contends that claims 23 and 43 are anticipated by Wang.

Patent Owner’s arguments for claims 23 and 43 are the same as those directed to claim 1, discussed above. *See* Prelim. Resp. 46–49 (arguing the three claims together).

For the reasons discussed above with regard to claim 1, and because Petitioner sufficiently shows that Wang discloses limitation 43[h], we determine that the information presented supports sufficiently, for purposes of institution, Petitioner’s assertions as to claims 23 and 43.

4. Claims 4, 5, 7, 12, 17, 26, 27, 29, and 34

Claims 4, 5, 7, 12, and 17 depend from claim 1. Claims 26, 27, 29, and 34 depend from 23. Petitioner contends that Wang anticipates these claims. Pet. 36–37.

a) Claims 4 and 26

Claim 4 recites: “[t]he apparatus of claim 1 wherein the input information includes one of a personal identification number and biometric information.” Ex. 1001, 16:46–48. Claim 26 recites a similar limitation. *Id.* at 18:5–7. Petitioner contends that Wang discloses requiring “the user to enter a password, to furnish fingerprints or a voice print, or other biometrics.” Pet. 36 (citing Ex. 1004 ¶¶ 45, 72; Ex. 1002 ¶ 89), 42 (citing Ex. 1002 ¶ 97).

b) Claims 5 and 27

Claim 5 recites: “[t]he apparatus of claim 1 wherein the output unit is a display.” Ex. 1001, 16:49–50. Claim 27 recites a similar limitation. *Id.* at 18:8–9. Petitioner contends that Wang discloses “presenting the electronic receipt over the phone.” Pet. 37 (citing Ex. 1004 ¶ 115; Ex. 1002 ¶ 90). Petitioner further contends that “presenting the electronic receipt over the phone equates to displaying the receipt (i.e., the output).” *Id.* (citing Ex. 1002 ¶ 90), 42 (citing Ex. 1002 ¶¶ 98–99).

c) Claim 7 and 29

Claim 7 recites: “[t]he apparatus of claim 1 wherein the image includes a barcode.” Ex. 1001, 16:55–54. Claim 29 recites a similar limitation. *Id.* at 18:13–14. Petitioner contends that Wang discloses this limitation because it describes scanning in a barcode. Pet. 37 (citing Ex. 1004 ¶ 115; Ex. 1002 ¶ 91), 42 (citing Ex. 1002 ¶ 100).

d) Claim 12 and 24

Claim 12 recites: “[t]he apparatus of claim 1 wherein the transaction includes an online transaction.” Ex. 1001, 16:66–67. Claim 34 recites a similar limitation. *Id.* at 18:24–25. Petitioner contends that Wang discloses this limitation because it describes “employ[ing] the PEAD to perform any type of authentication tasks online.” Pet. 37 (citing Ex. 1004 ¶ 84). Petitioner further contends that Wang describes the transaction as being performed through the wireless network and Internet, i.e., online. *Id.* (citing Ex. 1004 ¶ 115; Ex. 1002 ¶ 92), 42 (citing Ex. 1002 ¶ 101).

e) Claim 17

Claim 17 recites: “[t]he apparatus of claim 1, wherein the apparatus is a cellphone.” Ex. 1001, 17:23–24. Petitioner contends that Wang discloses

“[a]n internet enabled cellular telephone” that may be used to implement a PEAD. Pet. 37 (citing Ex. 1004 ¶ 108; Ex. 1002 ¶ 93).

Patent Owner does not present separate arguments for claims 4, 5, 7, 12, 17, 26, 27, 29, and 34. *See* Prelim. Resp. 49. Based on our review and consideration of the current record, at this stage of the proceeding, we determine that the information presented sufficiently supports Petitioner’s assertions that Wang anticipates limitations of claims 4, 5, 7, 12, 17, 26, 27, 29, and 34.

5. Preliminary Determination as to Petitioner’s Ground 1a

On the current record, we determine Petitioner has established a reasonable likelihood that it would prevail in showing Wang anticipates claims 1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, and 43.

E. Ground 1b: Asserted Obviousness Based on Wang and Drummond

Petitioner contends that claims 1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, and 43 are unpatentable as obvious over the combination of Wang and Drummond. Pet. 30–43.

1. Drummond

Drummond is a patent titled “Automated Banking Machine System and Method,” and “relates to an automated banking machine apparatus and system that are capable of use in a wide area network, and which provides a user with a remote electronic receipt or other record related to a transaction performed at the machine.” Ex. 1008, code (54), ¶ 2. Drummond discloses that its automated banking machine, may “initiate the sending of a non-paper transaction receipt to the customer,” “[t]he receipt may be sent using a wide area network, such as the Internet,” and “[t]he receipt may be an electronic receipt, for example a receipt in the form of an e-mail message.” *Id.* ¶ 247.

2. *Claims 1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, and 43.*

For this obviousness ground, Petitioner relies on the same arguments and evidence as its Ground 1a (anticipation by Wang), discussed above. *See* Pet. 33–43. Alternatively, Petitioner relies on the combination of Wang and Drummond as teaching independent claim limitations [1g], [23g], and [43g]. Pet. 36, 41, 43.

a) Limitation 1[g]: An output unit configured to forward the output generated by the processor,

Petitioner contends that it would have been obvious to modify Wang with the teachings of Drummond to send or forward the digitally signed receipt to the user, in an email or text for the purpose of memorializing the transaction. Pet. 31, 36 (citing Ex. 1008 ¶¶ 246–251, 301, 307; Ex. 1002 ¶¶ 62–63, 82–84). Petitioner contends that Drummond discloses that it was known to forward receipts using conventional output units to notify users of the status of a transaction. *Id.* at 31 (citing Ex. 1008 ¶¶ 246–251, 301, 307). Petitioner further contends that a person of ordinary skill in the art would have understood that by “forwarding receipts via emails or SMS, the receipts could be sent to [a user’s] personal device for record keeping purposes” or to “merchants and/or to other interested individuals” for processing invoices or obtaining reimbursements. *Id.* Petitioner further contends that Drummond describes three benefits to using electronic receipts over the hard copy receipts of Wang, such as enabling the customer to:

- (1) choose to receive the receipt at a computer, such as their home computer (e.g., pc), work computer, mobile phone, pager, PDA, other hand-held or portable computing device, or another device capable of receiving a message; (2) determine the level

of information in the receipt; and (3) send additional receipt copies to additional selected systems and systems addresses.

Id. at 32 (citing Ex. 1006 ¶¶ 246–251). Petitioner therefore contends that person of ordinary skill in the art would have been motivated to modify Wang to forward its receipt outputs via email or SMS as taught by Drummond, and would have had a reasonable expectation of success in doing so. *Id.* (citing Ex. 1002 ¶¶ 62, 115–116).

Patent Owner does not specifically respond to Petitioner’s obviousness arguments. *See generally* Prelim. Resp. Based on our review of the current record, at this stage of the proceeding, we determine that the information presented sufficiently supports Petitioner’s assertion to this limitation.

b) Limitation 23[g] and 43[g]: forward the generated output to the user

For claim limitations 23[g] and 43[g], Petitioner relies on the same arguments and evidence as claim limitation 1[g]. Pet. 41, 43. Patent Owner does not specifically respond to these arguments. *See generally* Prelim. Resp. Based on our review of the current record, at this stage of the proceeding, we determine that the information presented sufficiently supports Petitioner’s assertion to this limitation.

3. Preliminary Determination as to Petitioner’s Ground 1b

As discussed above, we preliminarily determine that Wang teaches each of the limitations of claims 1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, and 43. On the current record, we therefore determine Petitioner has established a reasonable likelihood that it would prevail in showing that the combination of Wang and Drummond renders claims 1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, and 43 obvious.

F. Ground 2: Asserted Anticipation Based on Wang

In addition to Ground 1a based on anticipation by Wang, discussed above, Petitioner provides alternate contentions that Wang anticipates claims 1, 2, 4, 7, 12, 13, and 17. Pet. 45–49. Patent Owner responds with arguments based on its proposed claim constructions for the claim terms “embedded,” “predetermined information,” and “digital signature,” that we address above. *See* Prelim. Resp. 49–51.

Because we determine above that Petitioner has shown a reasonable likelihood of prevailing with respect to Ground 1a (anticipation by Wang) as to most of the claims challenged under this ground, we do not find it necessary to not address Petitioner’s challenge under this alternate ground.

G. Ground 3: Asserted Obviousness Based on Wang and Drummond

Petitioner asserts that claims 19–21 and 39–41 are unpatentable based on Wang and Drummond. Pet. 49–54.

1. Independent Claims 19 and 39

Claim 19 recites an “apparatus for providing a secure transaction,” and recites limitations that are similar to those in claim 1. Ex. 1001, 17:27–41. Additionally, claim 19 recites “an output unit configured to forward the output generated by the processor” (limitation 19[g]), and recites “wherein the output unit includes control logic configured to forward the output using a message delivery protocol” (limitation 19[h]). *Id.* at 17:36–41. Claim 39 recites a “method for providing a secure transaction,” and recites limitations that are similar to those in claim 19. *Id.* at 18:48–64.

Petitioner contends that the combination of Wang and Drummond renders independent claims 19 and 39 obvious. Pet. 352–54.

a) Limitations [19g]: an output unit configured to forward the output generated by the processor, wherein

Petitioner contends that Drummond teaches this limitation because it discloses “output units configured to forward the outputs (receipts) generated by the processor via email or SMS.” Pet. 52 (citing Ex. 1008 ¶¶ 247, 301, Fig. 65; Ex. 1002 ¶¶ 62, 82–84, 117). Petitioner argues that combining Wang’s teachings with Drummond’s output unit would have been obvious to a person of ordinary skill in the art because “[f]orwarding the receipts using a message delivery protocol (such as SMS or email) would enable any number of devices, including computers, cellular phones, and the like, to receive such outputs using standard delivery protocols without modification.” *Id.* at 50 (citing Ex. 1008 ¶¶ 246–251, 301, 307). Petitioner further argues that “email and SMS communications constitute a finite number of identified, predictable solutions for cellular communications under *KSR*,” and a person of ordinary skill in the art would have been motivated to use these protocols because it would “eliminate the need to install any specialized software on either the transmitting or receiving device.” *Id.* at 50–51 (citing Ex. 1002 ¶¶ 62, 82–84). Further, Petitioner repeats its motivation to combine arguments discussed above with reference to Ground 1b. *Id.* at 51; *see supra* §III.E.2.a.

b) Limitation [19h]: the output includes control logic configured to forward the output using a message delivery protocol.

Petitioner contends that the combination of Drummond and Wang teaches this limitation because Wang discloses “presenting an electronic receipt over the phone” and “establishing the connection between the cellular phone and the receipt printer.” Pet. 52 (Ex. 1004 ¶ 115). Petitioner further contends that Drummond discloses that a receipt may be an email

message or a text message capable of being sent to various devices. *Id.* at 52 (citing Ex. 1008 ¶¶ 247, 301). Petitioner argues that a person of ordinary skill in the art would have understood that sending e-mail or text messages requires using a message delivery protocol. *Id.* at 53 (citing Ex. 1002 ¶¶ 117–126).

For the remaining limitations of claims 19 and 39, Petitioner relies on similar contentions as those directed to claim 1. *Id.* at 52–54. Petitioner thus contends that claims 19 and 39 are obvious over Wang and Drummond.

Patent Owner’s arguments for claims 19 and 39 are the same as those directed to claim 1, discussed above. *See* Prelim. Resp. 51–52 (referring to its arguments directed to claim 1).

For the reasons discussed above with regard to claim 1, and because Petitioner sufficiently shows that Wang discloses limitations 19[g] and 19[h], we determine that the information presented supports sufficiently, for purposes of institution, Petitioner’s assertions as to claims 19 and 39.

2. Claims 20, 21, 40, and 41

Claims 20 and 21 depend from claim 19. Petitioner contends that the combination of Wang and Drummond render these claims obvious. Pet. 53.

a) Claims 20 and 40

Claim 20 recites: “[t]he apparatus of claim 19 wherein the message delivery protocol includes the Short Message Service.” Ex. 1001, 17:42–43. Claim 40 recites a similar limitation. *Id.* at 18:62–63. Petitioner contends that Drummond teaches this limitation because it discloses that an “electronic receipt may also be a text message sent to a phone number of a mobile phone.” Pet. 53 (citing Ex. 1008 ¶¶ 247, 301; *see also* Ex. 1002

¶ 127). Petitioner further contends that Drummond’s “receipt may be sent ‘using the SMS protocol.’” *Id.* (Ex. 1008 ¶ 301; Ex. 1002 ¶ 127).

b) Claims 21 and 41

Claim 21 recites: “[t]he apparatus of claim 19 wherein the message delivery protocol includes email.” Ex. 1001, 17:44–45. Claim 41 recites a similar limitation. *Id.* at 18:64–45. Petitioner contends that Drummond teaches this limitation because it discloses that a “receipt may be . . . in the form of an e-mail message sent to one or more e-mail addresses.” *Id.* (citing Ex. 1008 ¶ 247; Ex. 1002 ¶ 128).

Patent Owner does not present separate arguments for claims 20, 21, 40, and 41. *See* Prelim. Resp. 51–52. Based on our review and consideration of the current record, at this stage of the proceeding, we determine that the information presented sufficiently supports Petitioner’s assertions that the combination of Wang of Drummond renders claims 20, 21, 40, and 41 obvious.

3. Preliminary Determination as to Petitioner’s Ground 3

On the current record, we determine Petitioner has established a reasonable likelihood that it would prevail in showing the combination of Wang and Drummond renders claims 19–21 and 39–41 obvious.

H. Ground 4: Asserted Obviousness Based on Wang and Denso

Petitioner contends that claims 8 and 30 are unpatentable as obvious over the combination of Wang and Denso. Pet. 54–56.

1. Denso

Denso is a patent titled “Communication System,” and discloses a quick response (QR) code that is a matrix-type, two-dimensional code used as an “information code for transfer processing.” Ex. 1026, code (54), ¶ 19.

2. Claims 8 and 30

Dependent claims 8 and 30 both recite an additional limitation that “the barcode includes a multi-dimensional barcode.” Ex. 1001, 16:56–57, 18:15–16. Petitioner contends that Denso teaches “an information code such as a barcode or a two-dimensional code.” Pet. 56 (citing Ex. 1026 ¶ 13). Petitioner argues that a person of ordinary skill in the art would have been motivated to combine Denso’s teachings with Wang because the “use of a two-dimensional barcode in place of a standard barcode would enable more data to be encoded within the same space.” *Id.* at 55–56 (citing Ex. 1002 134–135).

Patent Owner responds “Ground 4 is deficient because it fails to explain how the elements in the base claims (i.e., claim 1 is the base claim for claim 8, and claim 23 is the base claim for claim 30) are being mapped to the cited references.” Prelim. Resp. 52. For example, Patent Owner argues, “it is not apparent whether the Petitioner is relying on its mapping of claim 1 as set forth in Ground 1 or its mapping of claim 1 as set forth in Ground 2 in connection with the mapping of claim 8 in Ground 4.” *Id.* Patent Owner further argues, that “[t]o the extent the Petitioner intended to rely on the analysis of claims 1 and 23 set forth in Ground 1 for the limitations in the base claim for claims 8 and 30, respectively, in Ground 4, the confusion is further complicated by the fact that the analysis of claims 1 and 23 in Ground 1 relies in part on *Drummond*, which is absent from Ground 4.” *Id.* Prelim. Resp. 52 (Patent Owner’s emphasis).

Because we determine above that Petitioner has shown a reasonable likelihood of prevailing with respect to other grounds, discussed above, we need not resolve the parties’ dispute as to this ground at this stage. We do, however, find some merit to Patent Owner’s argument that Petitioner does

not clearly tie its contentions as to dependent claim 8 and 30 to one of the multiple challenges that Petitioner presents to independent claims 1 and 23, from which claims 8 and 30 depend, respectively. Pet. 54–55 (discussing both Ground 1 (which we break up as Grounds 1a and 1b) and Ground 2).

I. Ground 5: Asserted Obviousness over Wang and Raines

Petitioner contends that claim 13 is unpatentable as obvious over the combination of Wang and Raines. Pet. 57–59.

1. Raines

Raines is a patent publication titled “Receipt Processing and Method.” Ex. 1009, code (54). Raines discloses that in order to process a credit card transaction, a merchant must collect a variety of data associated with the transaction, such as “the purchase price and date of the transaction, the account number and expiration date of the credit card, and the cardholder’s name and signature.” *Id.* ¶ 8.

2. Claim 13

Dependent claim 13 recites two additional limitations: “wherein the predetermined information includes information relating to a payment card account,” and “wherein the output further includes some or all of the information relating to the payment card account to be used for payment with respect to the transaction.” Ex. 1001, 16:56–57, 18:15–16. Petitioner contends that the combination of Wang and Raines teaches both of those limitation. Pet. 59. Petitioner contends that in light of Wang’s disclosure, a person of ordinary skill in the art would have understood transaction data in Wang would include information relating to a payment card account to the extent a card was used for the transaction. *Id.* (citing Ex. 1004 ¶¶ 51, 93, 98; Ex. 1002 at 140–142). Petitioner further contends that a person of ordinary

skill in the art would have understood that for a transaction funded with a card account, the transaction approval data in Wang would include some or all such credit card information as relevant transaction data. *Id.* (citing Ex. 1004 ¶ 51; Ex. 1002, 144).

Patent Owner does not present separate arguments for claim 13. *See* Prelim. Resp. 53. We have reviewed Petitioner’s contentions, and we are sufficiently persuaded, on this record, that Petitioner has shown a reasonable likelihood of prevailing in its argument that claim 13 is unpatentable as obvious over the combined teachings of Wang and Raines.

J. Ground 6: Asserted Obviousness Based on TAO, PTM, and Wang

Petitioner asserts that claims 1, 4, 5, 7, 23, 26, 27, 29, and 43 are unpatentable based on TAO, PTM, and Wang. Pet. 59–70.

1. Take an Order (TAO)

TAO is a product advertisement, titled “Take an Order,” for point-of sale software for the Palm computing devices from Stevens Creek Software. Ex. 1005, 1. The point-of-sale includes products at a trade show, orders from customers in their home or office, and bids in a field. *Id.* TAO provides issuance of a receipt for delivered products from any Palm computing devices that can scan barcodes. *Id.* For credit card sales, a user gets a popup form to input information such as a customer’s name and a credit card number. *Id.* Information on existing customers can be accessed from a “Sold To” button. *Id.* at 2. TAO uses its PalmPrint software to print receipts on printers. *Id.* A HotSync button allows upload of data to a desktop. *Id.* at 3. TAO’s Palm operating system can be used on PalmOne devices such as the Treo, Zire, and Tungsten lines of devices. *Id.*

2. *Palm Treo Manual (PTM)*

PTM is a user manual titled “using your Treo.” Ex. 1006, 1.¹⁴ PTM provides setup information and instructions to use a PalmOne device, particularly, the Treo phone. *Id.* at 1–3. The Treo phone is “an advanced mobile phone” that has a digital camera, email capability with SMS and MMS, and can browse on the web. *Id.* at 3. PTM discloses that contacts and other personal information can be synchronized between the Treo phone and desktop computer. *Id.* at 16. A password is required to see data on the Treo phone. *Id.* at 61–63. The Treo phone uses a Texas Instruments OMAP 1510 (ARM) processor. *Id.* at 81.

3. *Claims 1, 4, 5, 7, 23, 26, 27, 29, and 43*

Petitioner contends that the combination of TAO, PTM, and Wang teaches each of the limitations of that claims 1, 4, 5, 7, 23, 26, 27, 29, and 43. Pet. 64–70. Petitioner further offers reasons why a person of ordinary skill in the art would have combined the teachings of TAO with PTM and Wang. *Id.* at 60–64.

Patent Owner raises three arguments for this ground. Prelim. Resp. 53–57. First, Patent Owner argues that Petitioner maps the claimed embedded information to TAO’s disclosure of a product barcode but there is nothing to show that the product information in a barcode is “is hidden in the image and used to provide security for the transaction.” *Id.* at 54 (citing Ex. 2001 ¶¶ 168–169). As discussed above, we do not agree with Patent Owner’s proposed construction of the claim term “embedded” information, and are therefore not persuaded by this argument. *See supra* § III.C.1.

¹⁴ We refer to the added pdf page numbers at the bottom right corner of Exhibit 1006.

Second, Patent Owner argues that Petitioner maps the claimed image capture device to TAO's barcode scanning capability but the scanners disclosed in TAO are limited to *linear* scanning capabilities. Prelim. Resp. 54–55 (citing Ex. 2001 ¶¶ 172–174; Exs. 2009, 2010). As discussed above, we do not agree with Patent Owner that the claim term “image capture device” should be limited to “a device that can capture an image or video, such as a still-image camera or video camera,” and are therefore not persuaded by this argument. *See supra* § III.C.4.

Lastly, Patent Owner contends Petitioner's mapping of element [1e] is deficient because Petitioner's citation to pages 24 and 129 of the Palm Treo Manual are incorrect and do not mention the password functionality that Petitioner cites them for. Prelim. Resp. 56–57 (citing Ex. 2001 ¶¶ 177–178). Petitioner responds that the citation to page 24 is accurate but refers to the added pdf page number, not the internal page number that Patent Owner points us to. Prelim. Reply 5. Petitioner states that the citation to page 129 is a clerical error, and the correct citation is to page 121 of the reference (pdf page 61). *Id.* Petitioner contends that the clerical error is readily apparent from the text quoted in the Petition. We accept Petitioner's corrections to these two citations.

We have reviewed Petitioner's contentions, and we are sufficiently persuaded, on this record, that Petitioner has shown a reasonable likelihood of prevailing in its argument that claims 1, 4, 5, 7, 23, 26, 27, 29, and 43 are unpatentable as obvious over the combined teachings of TAO, PTM, and Wang.

IV. CONCLUSION

After considering the evidence and arguments presented in the Petition, Preliminary Response, Reply, and Sur-reply, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that at least one of the challenged claims of the '167 patent is unpatentable. Thus, we institute an *inter partes* review of all challenged claims on all presented challenges. *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”).

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted for claims 1, 2, 4, 5, 7, 8, 12, 13, 17, 19–21, 23, 24, 26, 27, 29, 30, 34, 39–41, and 43 of the '167 patent on the unpatentability grounds asserted in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this decision.

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