Trials@uspto.gov
571.272.7822

Paper No. 41
Filed: August 12, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG RESEARCH AMERICA, INC.,
Petitioner,

v.

DYNAMICS INC.,
Patent Owner.

IPR2020-00499
Patent 8,827,153

Before TREVOR M. JEFFERSON, GEORGIANNA W. BRADEN, and JON M. JURGOVAN, *Administrative Patent Judges*.

BRADEN, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 314(a)

I. INTRODUCTION

Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Research America, Inc.[1] (collectively "Petitioner") filed a Petition requesting an *inter partes* review of claims 1 and 5–8 of U.S. Patent No. 8, 827,153 B2 (Ex. 1001, "the '153 patent"). Paper 1 ("Pet."). Dynamics Inc.[2] ("Patent Owner") filed a Preliminary Response. Paper 8 ("Prelim. Resp.").

Under the statute, an *inter partes* review may not be instituted unless the information presented in the petition and the preliminary response shows "there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a). Moreover, the Supreme Court has held that a decision under § 314 may not institute review on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1355–56 (2018); *see also 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").

After considering the Petition, the Preliminary Response, and associated evidence, we determine Petitioner has satisfied the threshold requirement set forth in 35 U.S.C. § 314(a). Thus, based on the information

[1] Petitioner identifies itself (Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Research America, Inc.) as the real parties-in-interest pursuant to 37 C.F.R. § 42.8. Pet. 62.

[2] Patent Owner identifies only itself as the real party-in-interest pursuant to 37 C.F.R. § 42.8. Paper 6, 1.

presented, and under *SAS* and *PGS Geophysical AS*, we institute an *inter partes* review of claims 1 and 5–8 of the '153 patent.

II. BACKGROUND

A. Related Proceedings

Petitioner informs us of one pending district court proceedings based on the '153 patent that involves Petitioner, *Dynamics Inc. v. Samsung Elecs. Co., Ltd. et al.*, Case No. 1:19-cv-6479 (S.D.N.Y.), filed July 12, 2019, which was stayed on September 4, 2019. Pet. 62. Petitioner also informs us of one proceeding pending before the International Trade Commission ("ITC"), *In re Certain Mobile Devices With Multifunction Emulators*, Inv. No. 337-TA-1170 (U.S.I.T.C.), filed July 12, 2019. *Id.* According to Petitioner, an initial determination in the ITC case is expected on or around August 14, 2020. *Id.* Petitioner further informs us it is concurrently filing IPR petitions for three other patents asserted in the above-referenced District Court and ITC cases. *Id.*

Patent Owner informs us of the same pending proceedings listed above. Paper 6 (Patent Owner's Mandatory Notices), 2–3.

B. Background of Technology and the '153 Patent

The '153 patent was filed on July 17, 2012, issued on September 9, 2014, and is titled "Systems and Methods for Waveform Generation for Dynamic Magnetic Stripe Communications Devices." Ex. 1001, codes (22), (45), (54). The '153 patent relates to "[d]ynamic magnetic stripe communications devices" capable of communicating with payment terminals for carrying out purchase transactions without having to be in physical contact with the payment terminals through the use of magnetic emulation, rather than using data found on the magnetic stripe of payment cards.

Ex. 1001, Abstract. According to the '153 patent, a dynamic magnetic communication device includes two main components: (a) a magnetic emulator; and (b) a waveform generator. *Id.* at claim 1.

The '153 patent discloses that a magnetic emulator is a device that emulates the magnetic stripe of a traditional payment card. Ex. 1001, 1:22–37. By "emulating" a magnetic stripe, the magnetic stripe emulator is capable of interfacing with a magnetic stripe reader of a payment terminal. *Id.* According to the '153 patent, the magnetic stripe emulator can be "an inductor (e.g., a coil)" that "[c]urrent may be provided through . . . to create an electromagnetic field operable to communicate with the read-head of a magnetic stripe reader." *Id.*, 2:14–18.

The '153 patent describes one embodiment of a card with a magnetic strip emulator, which is illustrated in Figure 1, reproduced below.

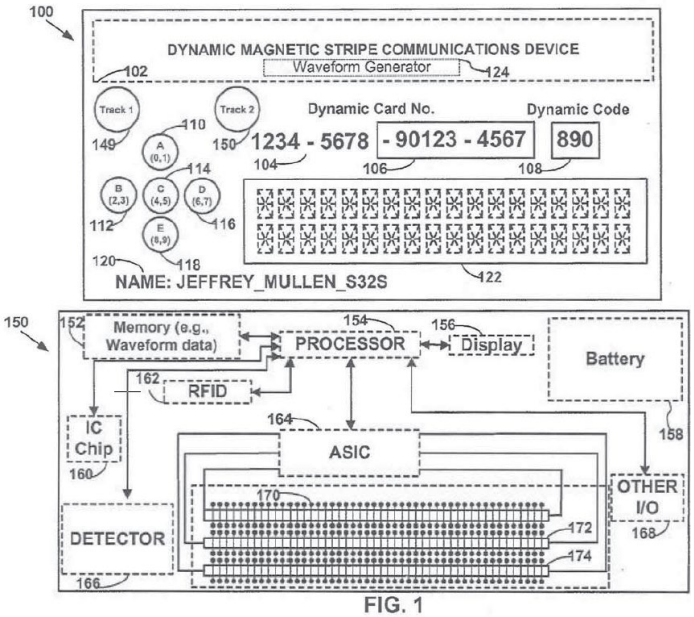

FIG. 1

Figure 1 "is an illustration of a card constructed in accordance with the principles of the present invention." Ex. 1001, 4:40–41. The '153 patent discloses that card **100** may include button **149.** *Id.* at 5:46. According to

the '153 patent, button **149** may be used, to communicate a waveform via waveform generator **124** through dynamic magnetic stripe communications device **102** indicative of a user's desire to communicate a single track of magnetic stripe information. Ex. 1001, 5:46–50.

The '153 patent describes another embodiment of a card with a magnetic strip emulator, which is illustrated in Figure 2, reproduced below.

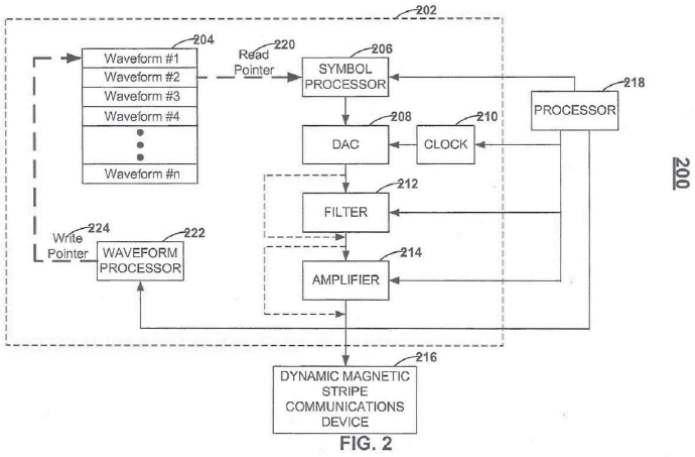

Figure. **2** is an illustration of a card, which may include component **202** (e.g., an ASIC, a mixed-signal FPGA, a data acquisition microcontroller or system on a chip), processor **218,** and dynamic magnetic stripe communications device **216.** *Id.* at 8:21–24. Component **202** may include, for example, memory **204,** symbol processor **206**, DAC **208**, clock generator **210**, filter **212**, amplifier **214**, and waveform processor **222**. *Id.* at 8:24–27.

The '153 patent further discloses that waveform generator **222** retrieves data from memory and allows the device to generate waveforms from the retrieved data to be communicated by the magnetic stripe emulator and received by a magnetic strip reader. *Id.* at Abstract, 2:18–22. The '153 patent discloses that the format of that retrieved data is similar to the format of data that is stored in a traditional payment card (e.g., "at least one track of

magnetic stripe data"). *Id.* at 2:18–22. The '153 patent explains that the waveform generator "may fluctuate the amount of current travelling through the coil such that one or more tracks of magnetic stripe data encoded within the analog waveform may be communicated to a read-head of a magnetic stripe reader." *Id.* The '153 patent teaches that the analog waveform is generated from "a numeric (e.g., digital) representation of a waveform (e.g., an F2F encoded waveform) [that] may be stored within a memory of a card" (*id.* at 2:23–25), and then provided to the magnetic emulator, which outputs a magnetic field corresponding to the analog waveform (*id.* at 1:28–29, 2:14–18). According to the '153 patent, the card may also have a digital to analog converter (or DAC) that converts the digital waveform from the memory into an analog waveform. *Id.* at 2:40–46. The '153 patent teaches that the analog waveform is "amplified and filtered before being provided to a coil of a magnetic emulator," which produces the magnetic field to be read by the magnetic card reader. *Id.* at 2:44–46; *see id.* at 1:28–29, 2:14–18.

The '153 patent teaches that "[d]ifferent waveforms may be recalled from memory based upon a detected mode of operation by a processor of a card." *Id.* at 3:27–28. In one example in the '153 patent, "a processor of a card may detect a presence of a dual-head magnetic stripe reader and may further detect a direction that the card is being swiped through the dual-head magnetic stripe reader." *Id.* at 3:29–32. According to the '153 patent, "a processor or other device on the card may recall a waveform from a memory of the card that corresponds to a forward swipe direction and may communicate a forward-swipe waveform when a forward swipe direction is detected." *Id.* at 3:32–36. Another example in the '153 patent teaches that "a processor or other device on the card may recall a waveform from a memory

of the card that corresponds to a reverse swipe direction and may communicate a reverse swipe waveform when a reverse swipe direction is detected." *Id.* at 3:36–40. As per another example in '153 patent, "each digital waveform stored within a memory of a card may contain the same magnetic stripe information, but may exhibit different characteristics when communicated to a read-head of a magnetic stripe reader." *Id.* at 3:41–45.

The '153 patent also teaches that "[e]ach digital waveform stored within memory **204** may be indicative of the same, or different, magnetic stripe information." *Id.* at 8:63–65, Fig. 2. In one example in the '153 patent, "a first waveform stored within memory **204** may, for example, be representative of a first track of magnetic stripe information that may be communicated by dynamic magnetic stripe communications device **216**." *Id.* at 8:65–9:1. According to the '153 patent, "[d]igital waveforms stored within memory **204** may, for example, represent the same magnetic stripe information, but may exhibit different characteristics." *Id.* at 9:25–27. As per another example in the '153 patent, "a first waveform may define signal characteristics that are known to be optimal based upon a particular type of magnetic stripe reader that card 200 is being presented to." *Id.* at 9:27–30. As per another example in the '153 patent, "processor **218** may detect that card 200 is being presented to, for example, a dual-head magnetic stripe reader." *Id.* at 9:36–38. In addition, "processor **218** may detect a swipe direction that card 200 is being swiped through the dual-head magnetic stripe reader." *Id.* at 9:38–40. The'153 patent teaches that "a waveform having symbols arranged in a forward direction may be retrieved by symbol processor **206,** converted to an analog waveform, and communicated by dynamic magnetic stripe communications device **216** in response to a

forward direction swipe being detected by processor **218**." *Id.* at 9:41–45. In an alternate example in the '153 patent, "a waveform having symbols arranged in a reverse direction may be retrieved by symbol processor **206,** converted to an analog waveform, and communicated by dynamic magnetic stripe communications device **216** in response to a reverse-direction swipe being detected by processor **218**." *Id.* at 9:46–51.

Another embodiment disclosed in the '153 patent indicates that a dynamic magnetic communication device may take the form of a mobile phone or personal computing device. *Id.* at 6:4–9, 14:20. The '153 patent also discloses that a dynamic magnetic communication device may store information such as a cardholder's name, username, card issue date, care expiration date, and a dynamic security code as well as graphical information such as logos and barcodes. *Id.* at 5:3–27.

C. Illustrative Claim

As noted above, Petitioner challenges claims 1, 5–8, with claim 1 being independent. Challenged independent claim 1 is illustrative of the challenged claims and is reproduced below:

> 1. A device comprising:
>
> a magnetic stripe emulator operable to communicate an analog waveform encoded with at least one track of magnetic stripe data to a magnetic stripe reader; and
>
> a waveform generator operable to generate said analog waveform from a digital representation of said at least one track of magnetic stripe data,
>
> wherein said device is operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data.

Ex. 1001, 15:14–23.

D. The Asserted Challenges to Patentability and Evidence of Record

The information presented in the Petition sets forth proposed challenges to the patentability of claims 1 and 5–8 of the '153 patent under 35 U.S.C. § 103 as follows (*see* Pet. 11, 5–8):[3]

Reference(s)/Basis	**35 U.S.C. §[4]**	**Challenged Claim(s)**
Gutman[5], Shoemaker[6]	§ 103	1, 5–8
Lessin[7], Shoemaker	§ 103	1, 5–8

III. PRELIMINARY MATTERS

A. Analysis of Discretionary Denial Under 35 U.S.C. § 314(a)

Patent Owner states that the '153 patent is the subject of a pending ITC proceeding and a stayed district court litigation. Prelim. Resp. 7–8. Patent Owner argues we should exercise discretion under 35 U.S.C. § 314(a) and deny institution based on the ITC proceeding because it involves the same parties, independent claim and prior art, and is at an advanced stage. Prelim. Resp. 3–10; PO Sur-Reply 1–10. To the contrary, Petitioner argues that

[3] Petitioner supports its challenges with the Declaration of Stephen G. Halliday, Ph.D. ("Mr. Halliday"). Ex. 1002.

[4] The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (September 16, 2011) ("AIA"), included revisions to 35 U.S.C. §103 that became effective on March 16, 2013. Because the '153 patent issued from an application filed before March 16, 2013, we apply the pre-AIA version of the statutory basis for unpatentability.

[5] U.S. Patent No. 6,206,293, issued Mar. 27, 2001 (Ex. 1005, "Gutman").

[6] U.S. Patent No. 7,2690,580, issued Apr. 6, 2010 (Ex. 1010, "Shoemaker").

[7] U.S. Patent No. 4,868,376, issued Sep. 19, 1989 (Ex. 1011, "Lessin").

evaluation of the *Apple v. Fintiv* factors demonstrates we should *not* exercise discretion to deny institution of *inter partes* review. Reply 1–10.

Petitioner filed a Reply to address this issue from Patent Owner's Preliminary Response ("Pet. Reply," Paper 39) and, per our email authorization (Ex. 3001), Patent Owner filed a Sur-Reply to Petitioner's Reply ("PO Sur-Reply," Paper 40). For the reasons stated below we are not persuaded to exercise discretion to deny institution.

Institution of an *inter partes* review is discretionary. *See* 35 U.S.C. § 314(a) (authorizing institution of an *inter partes* review under particular circumstances, but not requiring institution under any circumstances); 37 C.F.R. § 42.108(a) ("[T]he Board may authorize the review to proceed"). *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016) ("[T]he agency's decision to deny a petition is a matter committed to the Patent Office's discretion."); *SAS*, 138 S. Ct. at 1356 ("[Section] 314(a) invests the Director with discretion on the question whether to institute review . . . ." (emphasis omitted)); *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) ("[T]he PTO is permitted, but never compelled, to institute an IPR proceeding.").

In the *NHK* case, the Board denied institution relying, in part, on § 314(a), because a parallel district court proceeding was scheduled to finish before the Board reached a final decision. *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018) (precedential). "Thus, *NHK* applies to the situation where the district court has set a trial date to occur earlier than the Board's deadline to issue a final written decision in an instituted proceeding." *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11, 3 (PTAB March 20, 2020) (precedential) (Order). When

determining whether to exercise discretion to deny institution due to an earlier trial date in a parallel proceeding, we consider the following factors ("*Fintiv* factors"):

> 1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
>
> 2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
>
> 3. investment in the parallel proceeding by the court and the parties;
>
> 4. overlap between issues raised in the petition and in the parallel proceeding;
>
> 5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
>
> 6. other circumstances that impact the Board's exercise of discretion, including the merits.

Id. at 6. "These factors relate to whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding." *Id.* In evaluating these factors, we take "a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review." *Id.* (citing Patent Trial and Appeal Board Consolidated Trial Practice Guide 58 (November 2019), https://www.uspto.gov/TrialPracticeGuideConsolidated). We address the *Fintiv* factors *in seriatim* and discuss in detail our reasons for not exercising discretion to deny institution based on § 314(a).

1. Whether a Stay Exists or Is Likely to Be Granted if a Proceeding Is Instituted

The district court has stayed its proceeding since September 4, 2019, pending an outcome of the ITC proceeding. PO Sur-Reply 2 (citing

Ex. 2024). This factor weighs against exercising discretion to deny institution. The stay of the proceeding allays concerns about inefficiency and duplication of efforts as it relates to this proceeding. *See Fintiv*, Paper 11 at 6. In the event that there may be duplicative efforts with the ITC proceeding, we continue our analysis and inquire further as to whether the ITC would render a decision before this proceeding as examined below under *Fintiv* factor 2, and the degree of overlap of the proceedings under *Fintiv* factor 4. *Fintiv* at 6 (explaining that there is some overlap among the factors).

2. Proximity of the Court's Trial Date to the Board's Projected Statutory Deadline

In the ITC proceeding, trial was set to be held on June 22–26, 2020 but was adjourned until further notice due to COVID-19 concerns. PO Sur-Resp. 8 (citing Ex. 2001; Ex. 2002; Ex. 2025). Additionally, the ITC issued a new document timeline on June 29, 2020, that includes a witness statement deadline of August 14, 2020, and an objection deadline of August 21, 2020. *See* Ex. 3002, *In re Certain Mobile Devices With Multifunction Emulators*, Inv. No. 337-TA-1170, Order No. 21 at 2 (June 29, 2020). The Board's Institution Decision is due by August 15, 2020, which is before the ITC's initial determination (ID) that has been postponed indefinitely. Pet. Reply 2; *see* Ex. 3002. Yet, even given the uncertainties involved with COVID-19, it is unlikely that the ITC trial would be postponed by 14 months such that our final written decision would issue prior to the ITC trial. Accordingly, we weigh this factor in favor of discretionary denial.

3. Investment in the Parallel Proceeding by the Court and Parties

The parties have significant investments in both this proceeding and the ITC proceeding. Specifically, in the ITC proceeding, a *Markman* hearing was held November 26, 2019; an order construing only some of claims issued

on January 31, 2020; fact discovery was completed January 17, 2020; expert reports were exchanged and experts deposed; and motions for summary determination were filed on March 11, 2020. Prelim. Resp. 8.

In this proceeding, the parties have submitted a Petition (Paper 1), an Expert Declaration (Exhibit 1002), a Preliminary Response (Paper 8), a Reply (Paper 39), and a Sur-Reply (Paper 40) in addition to numerous other papers and exhibits. We note the instant proceeding here is further along than those in either the *Fintiv* case or the *Sand Revolution* case, where the parties in both cases had filed only one substantive paper each (i.e., the Petition and the Preliminary Response). *See Fintiv*, at 6; *Sand Revolution II LLC v. Continental Intermodal Group*, IPR 2019-01393, Paper 24, 10-11 (PTAB June 16, 2020) (informative, designated July 13, 2020). Thus, these case are distinguishable.

It is clear the parties' investments in both proceedings are substantial. Thus, we find this factor is neutral in our analysis regarding institution.

4. Overlap Between Issues Raised in the Petition and in the Parallel Proceeding

The ITC proceeding involves only claims 1 and 7 of the '153 Patent whereas Petitioner's challenges here involve claims 1, 5–8 of the '153 Patent. Therefore, resolution of the ITC proceeding would not resolve the parties' dispute concerning patentability of claims 5–8 of the '153 Patent.[8] Looking at the challenges before us, the dependent claims at issue in Petitioner's challenge to the '153 Patent addresses limitations not present in the ITC

[8] We further note that the ITC does not have authority to invalidate patent claims in a manner that is binding upon the Board or district courts. *See Texas Instruments Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558 (Fed. Cir. 1996).

proceeding. In particular, the claims are directed to (1) retrieval of the digital representation from member based on a signal from a button, (2) a digital representation associated with a payment account numbers, (3) an analog waveform encoded with two tracks of magnetic strip data, or (4) an analog waveform encoded with three tracks of magnetic strip data. *See* Ex. 1001, 15:35–46. These limitations are at issue in Petitioner's challenges before the Board, but are not at issue in the ITC proceeding.

Although there is overlap between the prior art challenges asserted before the Board and the ITC proceeding, the challenge to claims that do not overlap combined with the lack of definitive resolution of these claims before the stayed district court, in balance, weigh in favor of institution.

5. Whether the Petitioner and the Defendant in the Parallel Proceeding Are the Same Party

The parties in the ITC proceeding, the district court proceeding, and this proceeding are the same. Prelim. Resp. 8. Petitioner does not dispute this fact. Reply 9. This factor weighs against institution.

6. Other Circumstances that Impact the Board's Exercise of Discretion, Including the Merits

We find the merits of this case weigh in favor of Petitioner on the evidence presented thus far. For example, Petitioner presents evidence and argument regarding claim 5, 6, and 8 that are not at issue in the ITC proceeding. Pet. 41–44. Claim 5 is directed to retrieval of the digital representation from member based on a signal from a button. Ex. 1001, 15:35–37. On the present record, Petitioner contends Gutman alone, or in view of Shoemaker, teaches a button coupled to the controller to accept input from a user of card 200 (as shown in Gutman's Figure 2). See Pet. 37–38 (citing Ex. 1005, 4:66–5:11, Fig. 2). Claim 6 is a digital

representation associated with a payment account numbers. Ex. 1001, 15:38–42. Petitioner also contends Gutman alone, or in view of Shoemaker, teaches associating the digital representation with a payment account. Pet. 40–41 (citing Ex. 1005, 13:64–14:35, 10:27–34; Ex. 1010, 9:49–60; Ex. 1002 ¶¶ 93–94). Claim 8 is directed to an analog waveform from claim 1 encoded with multiple tracks of magnetic strip data. Ex. 1001, 15:43–46. Petitioner contends Gutman alone, or in view of Shoemaker, teaches a data signal encoded with multiple tracks of magnetic stripe data. Pet. 41–44 (citing Ex. 1002 ¶¶ 96–98. At this stage of the proceeding and based on the record before us currently, we find Petitioner's arguments and evidence on the merits persuasive.

Petitioner further contends a person of ordinary skill in the art would have combined the teachings of Gutman and Shoemaker, given their similarities in design and purpose, to improve the functionality and flexibility of Gutman's card. Pet. 22–23. On the evidence produced thus far, Petitioner shows a rationale to combine Gutman and Shoemaker with reasonable expectation of success, and the combination of Gutman and Shoemaker teaches all elements of claims 7 and 8.

Accordingly, we find this factor weighs in favor of institution.

7. Balancing the Fintiv Factors

The only case that Patent Owner relies upon that involves denial of institution of *inter partes* review based on a parallel ITC proceeding is *Bio-Rad Labs., Inc. v. 10X Genomics, Inc.*, IPR2019-00568, Paper 22 at 2 (PTAB Aug. 8, 2019). *See, e.g.*, Sur-Reply 3. In *Bio-Rad*, the Board denied institution based on the ITC's initial determination (ID) that the challenged patent claims were not invalid. *Bio-Rad*, Paper 22 at 22–24. The ID issued

before the Board rendered its institution decision. *Id.* In this case, our institution decision will precede the ITC's ID, so *Bio-Rad*'s holding is inapposite to the facts of this case.

We have considered the circumstances and facts before us in view of the *Apple v. Fintiv* factors. Because our analysis is fact driven, no single factor is determinative of whether we exercise our discretion to deny institution under § 314(a). Evaluating the *Apple v. Fintiv* factors with a holistic view of whether the efficiency and integrity of the system are best served by denying or instituting review, we determine that the specific facts of this case weigh against exercising discretion under § 314(a) to deny institution of *inter partes* review.

B. Claim Construction

In an *inter partes* review for a petition filed on or after November 13, 2018, a claim "shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.100(b) (2019); *see* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018). In applying this claim construction standard, we are guided by the principle that the words of a claim "are generally given their ordinary and customary meaning," as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (*en banc*) (citation omitted). "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, 1010 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). There is a "heavy presumption," however, that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp*., 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted).

Petitioner states that it does not believe any terms need be construed to resolve the prior art issues presented in this Petition. Pet. 20. Petitioner notes there were claim construction issues in the ITC proceeding. *Id.* at 20–21 (citing Ex. 1016, 4–5). Petitioner further states the challenged claims are rendered obvious by the cited prior art references under either party's proposed construction in the ITC proceeding. *Id.* at 21. Patent Owner does not indicate whether it believes any terms require construction to resolve any dispute it has with the Petition. Prelim. Resp. 21. Nonetheless, Patent Owner presents the claims constructions proposed by the parties in the ITC and the constructions rendered by the ITC's presiding ALC. *Id.* at 22–23.

Because no express construction is needed to resolve any dispute in this proceeding, we do not construe any of the claim limitations. *See, e.g.*, *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1005, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) ("[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy."). A final determination as to claim construction will be made at the close of the proceeding, after any hearing, based on all the evidence of record. The parties are expected to assert all their claim construction arguments and evidence in the Petition, Patent Owner's Response, Petitioner's Reply, or otherwise during trial, as permitted by our rules.

C. Principles of Law Regarding Obviousness

A claim is unpatentable under 35 U.S.C. § 103(a) 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." *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) objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966).

"While the sequence of these questions might be reordered in any particular case," *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007), the U.S. Court of Appeals for Federal Circuit has "repeatedly emphasized that an obviousness inquiry requires examination of all four *Graham* factors and that an obviousness determination can be made only after consideration of each factor," *Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1335 (Fed. Cir. 2016), *overruled on other grounds by Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017) (en banc). The analysis below addresses the all four *Graham* factors.

D. Burden of Proof

"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 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). Furthermore, 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).

Thus, to prevail in an *inter partes* review, Petitioner must explain how the proposed prior art or combinations of prior art would have rendered the challenged claims unpatentable. At this preliminary stage, we determine whether the information presented in the Petition shows there is a reasonable likelihood that Petitioner would prevail in establishing that one of the challenged claims is unpatentable. Additionally, the Supreme Court held that a decision to institute under 35 U.S.C. § 314(b) may not institute review on less than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1355–56 (2018). Moreover, in accordance with USPTO Guidance, "if the PTAB institutes a trial, the PTAB will institute on all challenges raised in the petition." *Guidance on the Impact of SAS on AIA Trial Proceedings* (April 26, 2018) (available at https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial) ("USPTO Guidance").

E. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. "The importance of resolving the level of ordinary skill in the art lies in the necessity of

maintaining objectivity in the obviousness inquiry." *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). Factors pertinent to a determination of the level of ordinary skill in the art include "(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field." *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.,* 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). "Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case." *Id.*

Petitioner argues that a person having ordinary skill in the art at the time of the alleged invention "would have had at least a Bachelor's degree in Electrical Engineering, or an equivalent technical degree or equivalent work experience, and knowledge regarding the use of magnetic fields to transmit or otherwise convey information." Pet. 20 (citing Ex. 1002 ¶¶ 33–34). Petitioner further argues that "[a]dditional education might supplement practice experience and vice-versa." *Id.*

Patent Owner argues that a person having ordinary skill in the art at the time of the alleged invention would have had "an undergraduate degree in computer science, electrical engineering, or the equivalent (including computer engineering) and at least three years of experience with point of sale systems and the use of magnetic fields to convey information." Prelim. Resp. 25.

Based on our review of the '153 patent, the types of problems and solutions described in the '153 patent and cited prior art, and the testimony of Mr. Halliday, for purposes of this Decision, we find that a person of ordinary skill in the art at the time of the claimed invention would have "would have had at least a Bachelor's degree in Electrical Engineering, or an equivalent technical degree and three years of experience working with magnetic fields to transmit or otherwise convey information, magnetic stripe cards and emulators, RFID systems, and cellular network communications." Although we find Patent Owner provides insufficient evidence explaining why a person of ordinary skill in the art would have experience with point of sale systems, we note that our analysis would be the same under either party's proposed level of skill in the art.

IV. ANALYSIS AND DISCUSSION

A. Alleged Obviousness of Claims 1, 5–8 of the '153 Patent in View of Gutman and Shoemaker

Petitioner contends claims 1, 5–8 of the '153 patent are unpatentable under 35 U.S.C. § 103 as obvious in view of Gutman and Shoemaker. Pet. 12, 25–44. Patent Owner disputes Petitioner's contentions. Prelim. Resp. 25–32. For reasons that follow, we determine Petitioner has demonstrated a reasonable likelihood of demonstrating that the challenged claims would have been obvious under 35 U.S.C. § 103 in view of Gutman and Shoemaker.

1. Overview of Gutman (Ex. 1005)

Gutman is a U.S. Patent titled "Magnetically Communicative Card." Ex. 1005, code (54). Gutman attempts to solve certain problems associated with conventional magnetic stripe cards (such as credit cards), including the

wear and tear of the magnetic card stripe, their susceptible to fraudulent copying, and their limited data storage capacity due to the dimensions of the card are governed by the ANSI standards. *Id.* at 2:9–31. Rather than only turning to smart cards, which would render conventional magnetic card readers "obsolete" (*id.*, 2:49–53), Gutman teaches a card that can magnetically communicate data to conventional magnetic card readers without swiping to overcome the identified problems. *Id.* at Abstract, 17:3–4.

An embodiment of Gutman is shown in Figure 2, reproduced below:

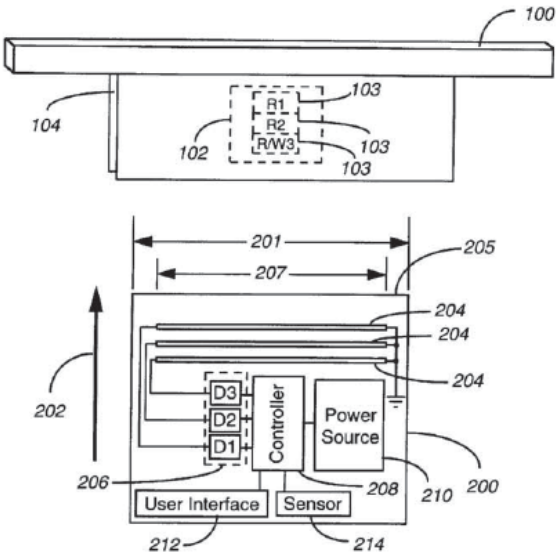

FIG. 2

Figure 2, above, is a diagrammatic representation of a conventional magnetic stripe card reader and an electrical block diagram of a magnetically communicative card having three conductors. *Id.* at 3:1–4. In Figure 2, magnetically communicative card **200** is inserted in slotted portion **104** of magnetic card reader **100**. Ex. 1005, 3:46–48. When this happens, conductor **204** corresponds to magnetic reading bead **103** of magnetic reading mechanism **102** of magnetic card reader **100.** *Id.* at 3:53–56. Conductor **204**

is electrically coupled to at least one driver circuit **206** for driving electrical signals through conductor **204.** *Id.* at 3:57–58. Controller **208** is coupled to driver circuit **206** for controlling the operation of driver circuit **206.** *Id.* at 3:59–61. Controller **208,** when coupling the data signal to the driver circuit **206,** causes driver circuit **206** to electrically drive conductor **204** in accordance with the data signal. *Id.* at 3:62–65. The electrically driven conductor **204** emits an alternating polarity magnetic field about conductor **204.** *Id.* at 3:66–67. The alternating polarity of the magnetic field about conductor **204** comprises magnetic flux transitions. *Id.* at 4:1–3. These magnetic flux transitions can be picked up by magnetic reading bead **103** and detected by magnetic card reader **100** to indicate bits of information corresponding to the data signal provided by controller **208.** *Id.* at 4:3–7.

One embodiment of conductor **204** on magnetically communicative card **200** is shown in Figure 3, reproduced below.

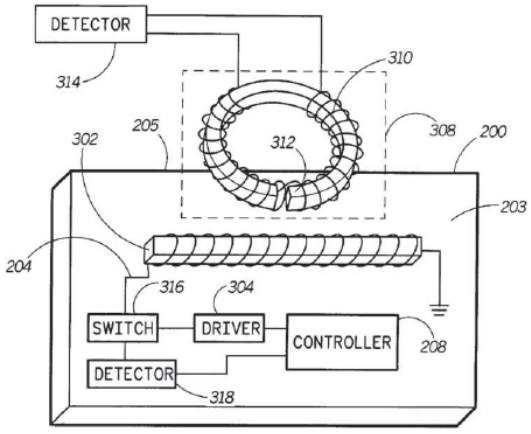

FIG.3

Figure 3, above, is a simplified diagrammatic representation of magnetic reading head in proximity to a magnetically communicative card having one conductor. Ex. 1005, 3:5–8. In Figure 3, card **200** is shown in close

proximity to magnetic reading bead **308**. *Id.* at 5:43–44. As shown in Figure 3, above, conductor 204 is wound about a ferrite core 302 in the approximate shape of a coil. *Id.* at 7:15–16. Gutman discloses that controller **208** is coupled to switch circuit **316** for selectively coupling conductor **204** to either driver circuit **304** or detector circuit **318.** *Id.* at 5:45–48. Driver circuit **304** causes a current in conductor **204,** with changes in such current producing a magnetic field in the vicinity of the conductor. *Id.* at 5:48–50. Detector circuit **318** responds to current in conductor **204,** the current changing as a result of the conductor intercepting a changing magnetic field. *Id.* at 5:51–53.

2. Overview of Shoemaker (Ex. 1010)

Shoemaker is a U.S. Patent titled "Transaction Cards Having Dynamically Reconfigurable Data Interface and Methods for Using Same." Ex. 1010, code (54). Shoemaker discloses a device that can store multiple tracks of the same or different data to address the problems associated with conventional magnetic stripe cards, such as susceptibility to fraud and damage. Ex. 1010, 1:63–2:67, 5:45–49, 6:49–60, 8:42–51. Specifically, Shoemaker discloses an "[a]ctive credit card 102 [with] a logic circuit 106, representing the electronic circuitry (such as ASIC logic, processor, clock, volatile and/or nonvolatile memory, etc.) employed to generate data for programming the data pattern that appears on dynamically reconfigurable data interface 104." *Id.* at 5:57–62.

One embodiment of Shoemaker's active card 102 is shown in Figure 1A, reproduced below.

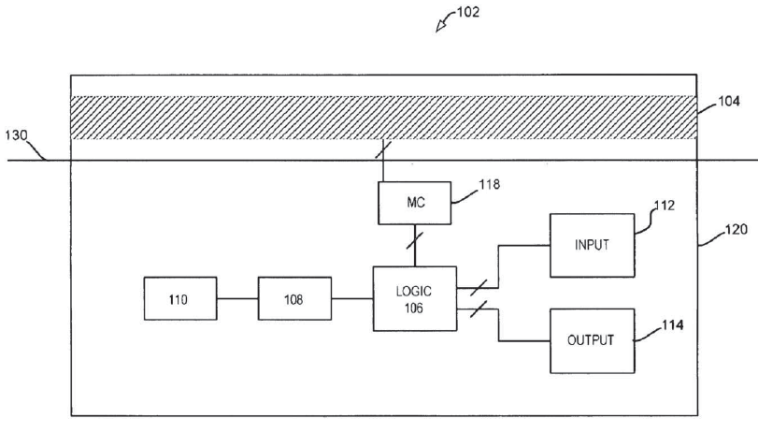

Fig. 1A

Figure 1A, above, is a diagram of an active credit card having a dynamically reconfigurable data interface attached to or formed on card base 120, where the interface is compatible with existing magnetic stripe card processing infrastructure. Ex. 1010, 3:41–43, 4:57–59, 5:45–48. Active card **102** also includes a logic circuit **106,** representing the electronic circuitry used to generate data for programming the data pattern that appears on dynamically reconfigurable data interface **104**. *Id.* at 5:56–5:62. The data pattern is "provided to a reconfiguration controller, such as a magnetizing controller 118, which generates the appropriate electrical signals to configure data interface 104 such that the data that appears on dynamically reconfigurable data interface 104 can be read by an existing magnetic stripe card reader." *Id.* at 6:4–9. The active card also include "a magnetizing controller" and "a logic circuit" and "[t]o accomplish a transaction, logic circuit provides data to magnetizing controller to enable magnetizing controller to dynamically reconfigurable data interface, thereby transmitting a data pattern to a magnetic stripe card reader." *Id.* at 6:26–30.

Shoemaker further discloses that its card can encode the same track data (such as in a forward or reverse manner) depending on the swipe

direction. *Id.* at 14:65–15:6 ("For example, if a card reader expects a left-to-right swiping direction to decode the pattern a-b-c, the swiping of the inventive card in the right-to-left direction would trigger the swipe detector on the left side of the card, thereby causing the magnetizing order to provide the data pattern in the c-b-a order on the dynamically reconfigurable data interface. In this manner, the reader will be able to decode the correct pattern a-b-c even when the card is swiped in the right-to-left direction.").

3. Analysis of Gutman and Shoemaker as Applied to Challenged Independent Claim 1

a. Preamble

Claim 1 recites "[a] device comprising." Ex. 1001, 15:14.

Petitioner contends that "Gutman discloses a device that communicates with a magnetic card reader." Pet. 25 (citing Ex. 1005, Figs. 2–3 (showing card 200), 7:48–8:18 (describing card 400 in Figure 4), 11:31–12:16 (describing card 500 in Figure 5). To support its contention, Petitioner relies on Gutman's description of "card 200 with at least one conductor 204 that emits an alternating polarity magnetic field (i.e., magnetic flux transitions) about the conductor 204 such that the card can communicate with a magnetic reading head 103 of a magnetic card reader 100." *Id.* (citing Ex. 1005, 3:62–4:1).

Patent Owner does not dispute Petitioner's contentions at this time. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

"Whether to treat a preamble term as a claim limitation is determined on the facts of each case in light of the claim as a whole and the invention described in the patent." *Am. Med. Sys., Inc. v. Biolitec, Inc.*, 618 F.3d 1354, 1358 (Fed. Cir. 2010) (internal quotation marks and citation omitted).

"Absent clear reliance on the preamble in the prosecution history, or in situations where it is necessary to provide antecedent basis for the body of the claim, the preamble generally is not limiting." *Symantec Corp. v. Computer Assoc. Int'l, Inc.*, 522 F.3d 1279, 1288 (Fed. Cir. 2008) (internal quotation marks and citation omitted). Additionally, preamble language that merely states the purpose or intended use of an invention generally is not treated as limiting the scope of a claim. *See Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 1345 (Fed. Cir. 2003); *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997). Yet, when the limitations in the body of the claim rely upon or derive essential structure from the preamble, then the preamble acts as a necessary component of the claimed invention and is limiting. *See Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003).

Based on the current record, regardless of whether the preamble is limiting, we are persuaded Petitioner has shown adequately for purposes of institution that Gutman discloses a "device."

b. a magnetic stripe emulator operable to communicate an analog waveform encoded with at least one track of magnetic stripe data to a magnetic stripe reader

Claim 1 recites "a magnetic stripe emulator operable to communicate an analog waveform encoded with at least one track of magnetic stripe data to a magnetic stripe reader." Ex. 1001, 15:15–17.

Petitioner contends that Gutman discloses this limitation because it uses conductor 204, which emits magnetic flux transitions representing tracks of magnetic stripe data that can be read by magnetic card reader 100. Pet. 26–27 (citing Ex. 1005, 3:56–4:7, 4:31–35). Petitioner, argues that"[b]ecause conductor 204 emulates a track of magnetic stripe data, no

'swiping' movement is necessary." *Id.* (citing Ex. 1005, 17:3–4). That is, according to Petitioner, "data can be magnetically communicated from the card to the magnetic stripe reader independent of the swiping movements associated with conventional magnetic stripe cards." *Id.* (citing Ex. 1005, 17:10–13). Petitioner further argues that "Figure 3 of Gutman shows that the conductor 204 of the same card 200 can be in the form of a coil." *Id.* at 28 (citing Ex. 1005, Fig. 3, 7:15–16 ("In the preferred embodiment, the conductor 204 is wound about a ferrite core 302 in the approximate shape of a coil."); Ex. 1001, 2:14–16 (describing that the claimed magnetic stripe emulator can be a coil), 7:36–43 (explaining that the coil can be wound about either a magnetic or non-magnetic material)). Therefore, Petitioner concludes "Gutman discloses that its conductor 204 is a magnetic stripe emulator" and is "operable to communicate a 'data signal,' which is encoded with three tracks of magnetic stripe data." Pet. 28–29 (citing Ex. 1002 ¶ 77).

Patent Owner does not dispute Petitioner's contentions at this time. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

At this stage of the proceeding and based on the record before us, we are persuaded Petitioner has shown adequately for purposes of institution that Gutman's conductor 204 is a magnetic stripe emulator as recited by the challenged claims.

c. a waveform generator operable to generate said analog waveform from a digital representation of said at least one track of magnetic stripe data

Claim 1 recites "a waveform generator operable to generate said analog waveform from a digital representation of said at least one track of magnetic stripe data." Ex. 1001, 15:18–20.

Petitioner contends that Gutman discloses this limitation because it uses driver circuit 206, which is coupled to controller 208. Pet. 31–32 (citing Ex. 1002 ¶ 81; Ex. 1005, 3:59–61). According to Petitioner, "driver circuit 206 is 'for driving electrical signals through the conductor 204' based on the data signal from controller 208." *Id.* at 32 (citing Ex. 1005, 3:56–59). Petitioner argues that Gutman's "data signal" discloses the claimed "at least one track of magnetic stripe data." *Id.* (citing Ex. 1005, 4:14–21; Ex. 1002 ¶ 82). Petitioner further argues that although Gutman's waveform generator generates a digital waveform, it was well known to a person of ordinary skill in the art that the waveform generator could drive conductor 204 using either an analog or digital waveform. Pet. 33 (citing Ex. 1002 ¶ 83).

Patent Owner does not dispute Petitioner's contentions at this time. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

At this stage of the proceeding and based on the record before us, we are persuaded Petitioner has shown adequately for purposes of institution that Gutman's drive circuit 206 and controller 208 are a waveform generator as recited by the challenged claims. Additionally, we credit the testimony of Mr. Halliday that a person of skill in the art at the time of the '153 patent "would have known that digital to analog conversion could be accomplished through the addition of a single, well-known circuit—the digital to analog converter." *See* Ex. 1002 ¶¶ 83–84.

d. wherein said device is operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data

Claim 1 recites "wherein said device is operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data." Ex. 1001, 15:21–23.

Petitioner contends that Gutman alone, or in view of Shoemaker, discloses this limitation because Gutman discloses that its card can be swiped like a conventional magnetic stripe card. Pet. 34 (citing Ex. 1005, 16:64–17:3). Petitioner relies on the testimony of Mr. Halliday to support its position. Pet. 34–35. Mr. Halliday testifies that "[c]onventional magnetic stripe cards can be swiped in both directions while conveying the same magnetic stripe data" and although "Gutman does not expressly state that its card can be swiped in both directions to complete a transaction," "only two possible options exist—either Gutman's card works in (1) one swipe direction or (2) both swipe directions." Ex. 1002 ¶ 86. According to Mr. Halliday, "a person of skill in the art at the time of the '153 patent would have understood that because Gutman can be swiped to emulate a conventional magnetic stripe card, it can be swiped in both directions." *Id.* Thus, Petitioner concludes that "a person of skill in the art at the time of the '153 patent would therefore have understood that Gutman teaches that its card can retrieve at least two representations (representations for forward and reverse swipe directions) of the same magnetic stripe data." Pet. 35 (citing Ex. 1002 ¶ 86).

Petitioner further contends that "to the extent that Patent Owner argues that Gutman only discloses swiping in one direction" then a person of skill in the art "would have been motivated to modify Gutman's card in view of

Shoemaker teachings regarding this limitation . . . to enable it to work in both swipe directions because it would have made the card more functional and more commercially convenient." Pet. 35 (citing Ex. 1002 ¶ 87). According to Petitioner, Shoemaker discloses a reconfigurable card that communicates the same data in a forward or reverse orientation. *Id.* (citing Ex. 1010, 14:54–15:6). Petitioner argues that Shoemaker's card can encode track data depending on the direction the card is swiped "so that the data stream is always provided in the expected order irrespective of the swipe direction." *Id.* (citing Ex. 1010, 14:56–65).

Patent Owner contends Gutman fails to teach or suggest this limitation of claim 1. Prelim. Resp. 25. Patent Owner argues that "Gutman describes two devices: a magnetically communicative card that can mimic a magnetic stripe card and an electronic wallet ('eWallet') that stores data for multiple cards and receives user input to select which card is to be used for a transaction." Prelim. Resp. 26 (citing Ex. 1005, Abstract, 7:48–11:30). According to Patent Owner, "[u]sing the Gutman eWallet a user can select, via the user interface, which card ('subscription of a particular service provider') they want to use" and then "[c]ard data associated with the user's selection is communicated from the eWallet to the magnetically communicative card of Gutman." *Id.* (citing Ex. 1005, 10:52–55, 14:19–20). Patent Owner argues that "[t]he controller on the card then prepares data on the fly, based on the user's card selection." *Id.* (citing Ex. 1005, 14:19–24). Patent Owner then states that Gutman's card can "selectively communicate the data that was prepared on the fly to 'a magnetic card reader 100 to affect a transaction with a particular Service provider that was selected by the user.'" *Id.* (citing Ex. 1005, 15:3–5). Patent Owner then argues that

"[n]othing about Gutman, however, suggests retrieving from memory a digital representation from a plurality of digital representations of at least one track of magnetic stripe data." *Id.*

Patent Owner further contends that Gutman in view of Shoemaker still does not disclose the recited limitation because Shoemaker only "describes an active stripe card that can be dynamically reconfigured with different card data from transaction to transaction." Prelim. Resp. 27 (citing Ex. 1010, 3:7–11, 5:4–6). Patent Owner argues that "Shoemaker teaches that data pattern associated with swipe direction is 'dynamically' generated not stored and retrieved." *Id.* at 28. Another words, according to Patent Owner, "Shoemaker teaches rendering data patterns, readable by magnetic stripe readers, on the fly, not retrieving them from a plurality of stored digital representations track data." *Id.* at 30 (citing Ex. 1010, 3:19–22).

Patent Owner supports its position with citations to Shoemaker's prosecution history in which Shoemaker argues that its features and limitation were not anticipated by prior art references because "each of the first data pattern and the second data pattern changes responsive to the swipe direction" and "[prior art reference] Brown does not teach that data patterns change responsive to a swipe direction." Prelim. Resp. 28 (citing Ex. 2021, 146–47). Patent Owner argues that Shoemaker differentiated itself from prior art by generating forward and reverse track data on the fly, as opposed to storing the track data in both a forward digital representation and a reverse digital representation, for security reasons. *Id.* at 28–29. Patent Owner then argues that Shoemaker teaches away from the challenged limitation because Shoemaker teaches that "the active credit card provides active anti-fraud

protection by dynamically modifying the data pattern provided to merchants." *Id.* at 28 (citing Ex. 1010, 5:28–30).

We understand Patent Owner's position regarding the "dynamic" modification of Shoemaker's card, which is supported by Petitioner's own citation to Shoemaker's disclosure that "its card can encode track data depending on the direction the card is swiped "so that the data stream is always provided in the expected order irrespective of the swipe direction." Pet. 35 (citing Ex. 1010, 14:56-65). We do not agree, however, that Shoemaker teaches away from the use of stored track data. *See* Prelim. Resp. 30. "A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). Yet, the "mere disclosure of alternative designs does not teach away." *In re Fulton,* 391 F.3d 1195, 1201 (Fed. Cir. 2004). Just because better alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes. *In re Gurley*, 27 F.3d at 553; *see also Baxter Int'l, Inc. v. McGaw, Inc.*, 149 F.3d 1321, 1328 (Fed. Cir. 1998) (finding no teaching away where nothing in the prior art device suggested that the claimed invention was unlikely to work). Nothing in Shoemaker indicates that storing the track data in both a forward digital representation and a reverse digital representation is unlikely to work. Rather, Shoemaker merely indicates a preference for using a dynamic modification of the data pattern to increase security.

Additionally, based on the current record, we do not agree with Patent Owner's assessment of Gutman. Patent Owner specifically noted that

Gutman teaches two devices: a magnetically communicative card and an eWallet. Prelim. Resp. 26. The Petition appears to base its challenge on an analysis of Gutman's magnetically communicative card (Pet. 34–35); however, Patent Owner responds with an analysis of Gutman's eWallet (Prelim. Resp. 26). Regardless, we are persuaded by Petitioner's argument. Specifically, we are persuaded at this stage of the proceeding that Gutman discloses that its card 200 can be swiped like a conventional magnetic stripe card (*see* Ex. 1005, 16:64–17:3) and conductor 204 of Gutman's card 200 emits magnetic flux transitions, which represent tracks of magnetic stripe data, that can be read by a magnetic card reader 100 (*see id.* at 3:56–4:7, 4:31–35). Moreover, we credit the testimony from Mr. Halliday that it would have been obvious for Gutman's card 200 to swipe in the forward or reverse direction and that a person of ordinary skill in the art at the time of the '153 patent would have stored at least three tracks of data. *See* Ex. 1002 ¶¶ 78, 86; *see also* Ex. 1005, claim 3 (reciting that Gutman's card "include[s] more than one conductor and . . . each conductor mimics a read/write track of a conventional magnetic stripe card.")

At this stage of the proceeding and based on the current record before us, we are persuaded Petitioner has shown adequately for purposes of institution that Gutman's card 200 alone or in combination with applicable teachings from Shoemaker would have been "operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data," thereby satisfying the challenged claim limitation. We find the testimony of Mr. Halliday supports a finding of a reasonable likelihood that Petitioner would prevail in showing that

challenged independent claim 1 would have been obvious under 35 U.S.C. § 103 in view of Gutman and Shoemaker. *See* Ex. 1002 ¶¶ 75–88.

4. Analysis of Gutman and Shoemaker as Applied to Challenged Dependent Claims 5–8

Petitioner contends dependent claims 5–8 of the '153 patent are unpatentable under 35 U.S.C. § 103 as being obvious in view of Gutman and Shoemaker and provides specific arguments for each challenged claim. Pet. 12, 37–44 (citing Ex. 1005, 1:21–26, 3:1–4, 4:66–5:2, 5:2–11, 6:50–61, 8:4–18, 10:27–34, 13:64–14:35, Fig. 2; Ex. 1010, 6:49–53, 9:44–64, 9:64–67, Fig. 1B; Ex. 1002 ¶¶ 89–98). Patent Owner does not address specifically the limitations of these challenged dependent claims, but nonetheless the burden remains on Petitioner to demonstrate unpatentability. Prelim. Resp. 31–32; *see Dynamic Drinkware*, 800 F.3d at 1378.

On this record and for purposes of this Decision, we determine Petitioner presents sufficient evidence to establish a reasonable likelihood it would prevail in showing that dependent claims 5–8 would have been *obvious* in view of the combined teachings of Gutman and Shoemaker under 35 U.S.C. § 103.

5. Rationale to Combine Gutman with Shoemaker

Petitioner contends a person of ordinary skill in the art would have many motivations to use the teachings of Shoemaker to modify Gutman "to improve the compatibility of Gutman's card with the then-existing magnetic stripe card infrastructure by, for example, allowing it to emulate multiple representations of the same data traditionally found on a conventional magnetic stripe card." Pet. 22–23 (citing Ex. 1002 ¶ 72). Petitioner argues Gutman sought to provide a magnetically communicative card that mimicked multiple conventional magnetic stripe cards (such as credit cards) and

Shoemaker provides further solutions to increase the Gutman card's functionality. *Id.* at 23–24 (citing Ex. 1005, 3:46–4:7, 2:61–63; Ex. 1002 ¶ 73). According to Petitioner, Shoemaker can accomplish this because it "provides a card that can emulate multiple representations of the same data found on conventional magnetic stripe cards." Pet. 24 (citing Ex. 1010, 14:54–15:6).

Petitioner further argues that a person of ordinary skill in the art would have "known that multiple profiles and bi-directional swiping were implementation details explained in Shoemaker and would have been motivated to use Shoemaker's teachings to improve the functionality of Gutman's card and make it more commercially convenient for card users." *Id.* (citing Ex. 1002 ¶ 74). Furthermore, according to Petitioner, "because these changes would have been routine implementation details, a [person of ordinary skill in the art] would have had more than a reasonable expectation of success in implementing them." *Id.* at 25 (citing Ex. 1002 ¶ 74).

We have considered carefully all arguments and supporting evidence regarding the rationale for combining the teachings of Gutman with Shoemaker. At this stage of the proceeding, we find Petitioner provides an adequate reason that a person of skill in the art would have combined the teachings from the cited prior art to arrive at the inventions recited in the challenged claims. A motivation to combine may be found "explicitly or implicitly in market forces; design incentives; the 'interrelated teachings of multiple patents'; 'any need or problem known in the field of endeavor at the time of invention and addressed by the patent'; and the background knowledge, creativity, and common sense of the person of ordinary skill."

ZUP, LLC v. Nash Mfg., Inc., 896 F.3d 1365, 1371 (Fed. Cir. 2018) (quoting *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354 (Fed. Cir. 2013)).

Based on the current record, Petitioner appears to bring in Shoemaker to provide a more explicit teaching regarding multiple representations of the same data on an individual card. *See* Ex. 1002 ¶ 73. Given Gutman's express teaching regarding a magnetically communicative card, we agree with Petitioner that a person of ordinary skill would have been motivated to turn to Shoemaker's teachings for use with Gutman's card. Accordingly, on this record and for purposes of this Decision, we are persuaded Petitioner presents sufficient evidence to establish a reasonable likelihood it would prevail in showing that claims 1, 5–8 would have been obvious under 35 U.S.C. § 103 in view of Gutman alone or in combination with Shoemaker.

6. Objective Indicia of Nonobviousness

Patent Owner further asserts that the nonobviousness of the claims is supported by objective indicia of nonobviousness including commercial success, long-felt need, failure of others, and industry praise of the patented invention, teaching away by others, and copying. PO Resp. 39–44 (citing Exs. 2013–2020). Petitioner disagrees. Pet. 58–59. For the reasons below, we determine that Patent Owner fails to show the requisite nexus between its alleged objective indicia of nonobviousness and the merits of the claimed invention.

For objective indicia of nonobviousness to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention. *ClassCo, Inc., v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). "[T]here is no nexus unless the evidence presented is 'reasonably commensurate with the scope of the claims.'" *Id.* (quoting

Rambus Inc. v. Rea, 731 F.3d 1248, 1257 (Fed. Cir. 2013)). A patentee is entitled to a presumption of nexus "when the patentee shows that the asserted objective evidence is tied to a specific product and that product 'embodies the claimed features, and is coextensive with them.'" *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018) (quoting *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000))). "[T]he purpose of the coextensiveness requirement is to ensure that nexus is only presumed when the product tied to the evidence of secondary considerations '*is* the invention disclosed and claimed.'" *Id.* at 1374 (quoting *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988)). "[T]he degree of correspondence between a product and the patent claim falls along a spectrum. At one end of the spectrum lies perfect or near perfect correspondence. At the other end lies no or very little correspondence." *Id.* "A patent claim is not coextensive with a product that includes a 'critical' unclaimed feature that is claimed by a different patent and that materially impacts the product's functionality." *Id.* at 1375.

At this stage of the proceeding and based on the current record, Patent Owner does not provide an analysis demonstrating that any of its products are coextensive (or nearly coextensive) with the challenged claims. *See* Prelim. Resp. 39. Nor has it received a finding of infringement of the challenged claims from either a district court of the ITC. *See id.* at 40. We, therefore, preliminarily find that a presumption of nexus is inappropriate at this time.

"A finding that a presumption of nexus is inappropriate does not end the inquiry into secondary considerations," however. *Fox Factory*, 944 F.3d

at 1375. "To the contrary, the patent owner is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the 'direct result of the unique characteristics of the claimed invention.'" *Id.* at 1373–74 (quoting *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996)). "Where the offered secondary consideration actually results from something other than what is both claimed and *novel* in the claim, there is no nexus to the merits of the claimed invention," meaning that "there must be a nexus to some aspect of the claim not already in the prior art." *In re Kao*, 639 F.3d 1057, 1068–69 (Fed. Cir. 2011) (emphasis in original). On the other hand, there is no requirement that "objective evidence must be tied exclusively to claim elements that are not disclosed in a particular prior art reference in order for that evidence to carry substantial weight." *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1331 (Fed. Cir. 2016). A patent owner may show, for example, "that it is the claimed combination as a whole that serves as a nexus for the objective evidence; proof of nexus is not limited to only when objective evidence is tied to the supposedly 'new' feature(s)." *Id.* Ultimately, the fact finder must weigh the secondary considerations evidence presented in the context of whether the claimed invention as a whole would have been obvious to a skilled artisan. *Id.* at 1331–32.

As objective evidence of nonobviousness, Patent Owner submits Licensing Agreement between Patent Owner and LG as well as product manuals for Petitioner's products, articles regarding Petitioner's products. Prelim. Resp. 40 (citing Exs. 2013–2015). Patent Owner also submits (1) evidence of failure of other commercial entities (*id.* at 41–42 (citing Exs. 2016–2019)), (2) awards for its technology (*id.* at 42), (3) teaching away

by others (*id.* at 43 (citing Ex. 2020)), and (4) copying of the invention by competitors (*id.* at 43).

We are not persuaded at this stage of the proceeding that Patent Owner has demonstrated sufficiently that a nexus exists between the evidence presented and the merits of the claimed invention because the evidence fails to demonstrate sufficiently that any of the products or awards are coextensive (or nearly coextensive) with the challenged claims. *See Kao*, 639 F.3d at 1068–69. In fact, Patent Owner fails to even argue that its evidence demonstrates a nexus or that any of the evidence shows a "device [that] is operable to retrieve said digital representations from a plurality of digital representations of said at least one track of magnetic strip data" as required by the challenged claims. *See* Ex. 1001, 15:21–23. We do not discount the importance of commercial success of infringing product, receiving awards, or copying by competitors; however, our analysis requires determining whether a nexus exists between the evidence and the claimed invention. *ClassCo*, 838 F.3d at 1220. The evidence presented at this stage of the proceeding provides insufficient information to suggest the awards, alleged infringement, or copying were based upon the claimed limitation. Accordingly, we are not persuaded at this time by Patent Owner's evidence of objective indicia of nonobviousness.

B. Alleged Obviousness of Claims 1, 5–8 of the '153 Patent in View of Lessin and Shoemaker

Petitioner contends claims 1, 5–8 of the '153 patent are unpatentable under 35 U.S.C. § 103 as obvious in view of Lessin alone or in combination with the teachings of Shoemaker. Pet. 12, 44–54.

Patent Owner disputes Petitioner's contentions. Prelim. Resp. 32–39. For reasons that follow, we determine Petitioner has demonstrated a

reasonable likelihood of demonstrating that the challenged claims would have been obvious under 35 U.S.C. § 103 in view of Lessin and Shoemaker.

1. Overview of Shoemaker (Ex. 1010)

See supra, Section IV.A.2.

2. Overview of Lessin (Ex. 1011)

Lessin is a US Patent titled "Intelligent Portable Interactive Personal Data System," and issued on September 19, 1989. Ex. 1011, codes (45), (54). Lessin is directed to an "intelligent transaction card" that addresses many of the known problems associated with "smart cards" in the late 1980's. *Id.* at 1:6–2:10. Lessin discloses that smart cards are "microprocessor based transaction cards" that can store more data than conventional magnetic stripe cards while also providing ways to change the data stored. *Id.* at 1:25–40. But as Lessin notes, smart cards at the time still had shortfalls; for instance, they were "limited in that they [were] constructed to perform a predetermined function" and some "prohibit[ed] any modification of the card once the card [was] fully assembled." *Id.* at 1:42–46. To address these problems, Lessin describes a reprogrammable intelligent card that can communicate with a magnetic card reader by magnetic emulation. *Id.* at 1:61–66, 19:35–47. One embodiment of Lessin's intelligent card is reproduced below.

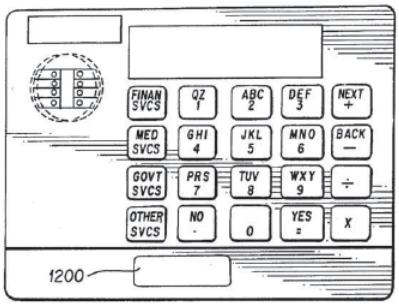

FIG. 22A

Figure 22A, above, is an illustration of a reprogrammable intelligent card with a magnetic card interface in the card. *Id.* at 2:64–66. Lessin discloses "magnetic head 1200 [also referred to as transducer 1200] embedded in the card [] can receive and transmit magnetically encoded information." *Id.* at 19:45–47.

In another embodiment of Lessin, magnetic head 1200 "is positioned within the card . . . such that [it] can be aligned with the head in a card reading device such as a point of sale (POS) terminal 1210" (*id.* at 19:48–51), as shown in Figure 22B, reproduced below.

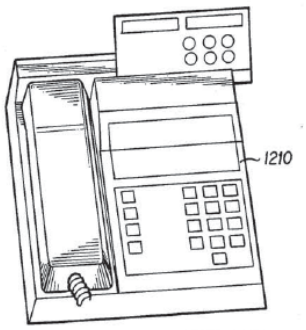

FIG.22B

Figure 22B, above, is an illustration of a reprogrammable intelligent card with a magnetic card interface in the card where the intelligent transaction card is aligned with magnetic head 1200 in the reading device/point of sale (POS) terminal 1210. *Id.* at 2:64–66.

In another embodiment of Lessin, the generation of a magnetic field pattern is disclosed using the circuity shown in Figure 23, reproduced below.

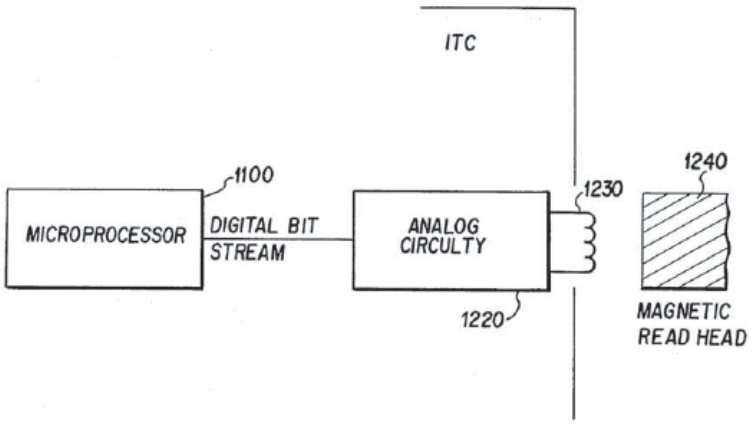

FIG. 23

Figure 23, above, illustrates the configuration of an intelligent transaction card to a terminal interface. *Id.* at 2:67–68. Lessing discloses that "[s]ignals representing the data to be communicated are output serially, emulating the data encoded on a magnetic strip." *Id.* at 19:52–54. According to Lessin, "[t]he circuitry acts to simulate a magnetic field pattern that would exist on the magnetic strip of a credit card." *Id.* at 19:54–56. Lessin discloses that "the data is output serially bit by bit from microprocessor 1100 to analog circuitry 1220 which drives an inductor 1230 that generates a magnetic field pattern which can be read and interpreted by a conventional magnetic read head 1240 in card reading device 1210." *Id.* at 19:56–61. Lessin describes that the analog circuitry is "[p]referably a simple digital-to-analog converter." *Id.* at 19:62–63.

3. Analysis of Lessin and Shoemaker as Applied to Challenged Independent Claim 1

a. Preamble

Claim 1 recites "[a] device comprising." Ex. 1001, 15:14.

Petitioner contends that Lessin discloses a device because Lessin discloses an intelligent card that can communicate with a magnetic card

reader. Pet. 47 (citing Ex. 1011, Figs. 22A & 22B, 1:6–9). Patent Owner does not dispute Petitioner's contentions at this time. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. Based on the current record, regardless of whether the preamble is limiting, we are persuaded Petitioner has shown adequately for purposes of institution that Lessin discloses a "device."

b. a magnetic stripe emulator operable to communicate an analog waveform encoded with at least one track of magnetic stripe data to a magnetic stripe reader

Claim 1 recites "a magnetic stripe emulator operable to communicate an analog waveform encoded with at least one track of magnetic stripe data to a magnetic stripe reader." Ex. 1001, 15:15–17.

Petitioner contends that Lessin discloses this limitation because it uses magnetic head 1200, which "can receive and transmit magnetically encoded information." Pet. 49 (citing Ex. 1011, 19:45–47). Petitioner argues that magnetic head 1200 outputs a signal, which emulates the magnetically encoded information on a magnetic strip, that can be read by a magnetic read head on point of sale terminal (or card reading device) 1210. *Id.* (citing Ex. 1011, 19:43–54).

Petitioner relies on the testimony of Mr. Halliday to support its position. Mr. Halliday testifies that "Lessin discloses that its magnetic head 1200 is operable to communicate an analog waveform encoded with magnetic stripe data to a magnetic stripe reader." Ex. 1002 ¶ 104. Mr. Halliday further testifies that "the circuitry of magnetic head 1200 includes a microprocessor 1100, which outputs the magnetic stripe data to analog circuitry 1220 which drives an inductor 1230 that generates a

magnetic field pattern which can be read and interpreted by a conventional magnetic read head 1240 in card reading device 1210." Ex. 1002 ¶ 104 (citing Ex. 1011, 19:54–61, Fig. 23). Petitioner then argues that analog circuitry 1220 is "[p]referably a simple digital-to-analog converter [DAC]." Pet. 50 (citing Ex. 1011, 19:62–63). According to Petitioner, "[t]he DAC converts digital inputs from the microprocessor into analog waveforms in which 'magnetic fields can be generated in the inductor [1230] of opposite polarity' such that the 'fields can then be read by a magnetic stripe card reader.'" *Id.* (citing Ex. 1001, 19:61–20:17). Thus, Petitioner concludes that regardless of if or how the term "at least one track of magnetic stripe data" is construed, Lessin would disclose the recited claim limitation. Pet. 50–51.

Patent Owner does not dispute Petitioner's contentions at this time. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

At this stage of the proceeding and based on the record before us, we are persuaded Petitioner has shown adequately for purposes of institution that Lessin's magnetic head 1200 is a magnetic stripe emulator as recited by the challenged claims.

c. a waveform generator operable to generate said analog waveform from a digital representation of said at least one track of magnetic stripe data

Claim 1 recites "a waveform generator operable to generate said analog waveform from a digital representation of said at least one track of magnetic stripe data." Ex. 1001, 15:18–20.

Petitioner contends that Lessin discloses this limitation because it uses analog circuitry 1220, which generates an analog waveform from a digital representation of magnetic stripe data received from microprocessor 1100.

Pet. 51–52 (citing Ex. 1011, Fig. 23; Ex. 1002 ¶ 106). According to Petitioner, "Lessin's card stores information that mimics data on the magnetic stripe of a credit card (i.e., the tracks of the magnetic stripe data)" and "Lessin demonstrates that the tracks of magnetic stripe data of the intelligent card are provided to the analog circuitry 1220 as digital representations under either party's proposed construction of "digital representation of said at least one track of magnetic stripe data." Pet. 52–53 (citing Ex. 1011, 19:52–56, 19:62–20:17, Fig. 23; Ex. 1002 ¶ 106).

Petitioner relies on the testimony of Mr. Halliday to support its position. Mr. Halliday testifies that a person of ordinary skill in the art "would have understood that data provided as 1's and 0's are 'digital information'" under Patent Owner's proposed construction. Ex. 1002 ¶ 106. Mr. Halliday further testifies that a person of ordinary skill in the art "would have understood that 1's and 0's output serially from the microprocessor 1100 are represented graphically as a square wave, which is a 'digital waveform' under Petitioner's proposed construction." *Id.* (citing Ex. 1011, 19:56–58 ("the data is output serially bit by bit from microprocessor 1100 to the analog circuitry 1220").

Patent Owner does not dispute Petitioner's contentions at this time. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

At this stage of the proceeding and based on the record before us, we are persuaded Petitioner has shown adequately for purposes of institution that the serial outputs from Lessin's from the microprocessor 1100 are represented graphically as a square wave, which is a 'digital waveform' as recited by the challenged claims. Additionally, we credit the testimony of

Mr. Halliday that a person of skill in the art at the time of the '153 patent "would have known that digital to analog conversion could be accomplished through the addition of a single, well-known circuit—the digital to analog converter." *See* Ex. 1002 ¶¶ 83–84, 107.

d. wherein said device is operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data

Claim 1 recites "wherein said device is operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data." Ex. 1001, 15:21–23.

Petitioner contends that Lessin in view of Shoemaker discloses this limitation. Pet. 54. Petitioner argues that it would have been obvious to a person of skill in the art at the time of the '153 patent to combine Shoemaker and Lessin to improve the functionality in Lessin's intelligent card by allowing it to emulate multiple representations of the same data traditionally found on a conventional magnetic stripe card. *Id.* (citing Ex. 1002 ¶ 108).

Patent Owner contends Lessin fails to teach or suggest this limitation of claim 1. Prelim. Resp. 33. According to Patent Owner, "Lessin describes an intelligent transaction card (ITC) that includes a microprocessor, operating system, applications, keypad, display, and input/output ports" where the ITC can be used "to process card transaction in conjunction with a terminal devices (e.g., POS or ATM) and can operate independently, meaning it can process card transaction without the need of a terminal device such as an ATM or point of sale (POS) terminal." *Id.* at 33 (citing Ex. 1011, 1:62–2:4, 21:15–19). Patent Owner argues that Lessin merely discloses that information stored in ITC can be communicated to a terminal, but it does not teach, suggest, or motivate a person of ordinary skill in the art to create a

device capable of retrieving from plurality of digital representations of track data. *Id.* Patent Owner then argues that Lessin fails to disclose a plurality of digital representations as well as failing to disclose more than one of these representations residing in memory at the same time. *Id.* Therefore, Patent Owner concludes "Lessin [alone] does not disclose or make obvious retrieving a digital representation from a plurality of digital representations in memory of said at least one track of magnetic stripe data." *Id.* at 33–34.

Patent Owner further contends that Lessin in view of Shoemaker still does not disclose the recited limitation because Shoemaker only "describes an active stripe card that can be dynamically reconfigured with different card data from transaction to transaction." Prelim. Resp. 34 (citing Ex. 2010, 3:7–11, 5:4–6). Patent Owner argues that "Shoemaker teaches that data pattern associated with swipe direction is 'dynamically' generated not stored and retrieved." *Id.* In other words, according to Patent Owner, "Shoemaker teaches rendering data patterns, readable by magnetic stripe readers, on the fly, not retrieving them from a plurality of stored digital representations track data." *Id.* at 36 (citing Ex. 1010, 3:19–22).

Patent Owner supports its position with citations to Shoemaker's prosecution history in which Shoemaker argues that its features and limitation were not anticipated by prior art references because "each of the first data pattern and the second data pattern changes responsive to the swipe direction" and "[prior art reference] Brown does not teach that data patterns change responsive to a swipe direction." Prelim. Resp. 34–35 (citing Ex. 2021, 146–47). Patent Owner argues that Shoemaker differentiated itself from prior art by generating forward and reverse track data on the fly, as opposed to storing the track data in both a forward digital representation and

a reverse digital representation, for security reasons. *Id.* at 35. Patent Owner then argues that Shoemaker teaches away from the challenged limitation because Shoemaker teaches that "the active credit card provides active anti-fraud protection by dynamically modifying the data pattern provided to merchants." *Id.* at 35 (citing Ex. 1010, 5:28–30).

We understand Patent Owner's position regarding the "dynamic" modification of Shoemaker's card, which is supported by Petitioner's own citation to Shoemaker's disclosure that "its card can encode track data depending on the direction the card is swiped 'so that the data stream is always provided in the expected order irrespective of the swipe direction.'" *See* Pet. 35 (citing Ex. 1010, 14:56–65). We do not agree, however, that Shoemaker teaches away from the use of stored track data. *See* Prelim. Resp. 35. "A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 27 F.3d at 553. Yet, the "mere disclosure of alternative designs does not teach away." *In re Fulton,* 391 F.3d at 1201. Just because better alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes. *In re Gurley*, 27 F.3d at 553; *see also Baxter Int'l, Inc. v. McGaw, Inc.*, 149 F.3d 1321, 1328 (Fed. Cir. 1998) (finding no teaching away where nothing in the prior art device suggested that the claimed invention was unlikely to work). Nothing in Shoemaker indicates that storing the track data in both a forward digital representation and a reverse digital representation is unlikely to work. Rather, Shoemaker merely indicates a preference for using a dynamic modification of the data pattern to increase security.

Based on the current record, however, we agree with Patent Owner's assessment of the combined teachings of Lessin and Shoemaker. Specifically, at this time, we are not persuaded that a person of ordinary skill in the art would have reason to create a plurality of digital representations of the same track of magnetic strip data based on Lesson and Shoemaker. It is not clear to the panel that the personal and business profiles in Shoemaker cited by Petitioner are, in fact, the same track of magnetic strip data. Thus, at this stage of the proceeding, we are not persuaded Petitioner has shown adequately for purposes of institution that the teachings of Lessin and Shoemaker would have rendered the challenged limitation obvious to a person of ordinary skill in the art.

Nonetheless, the Supreme Court has held that a decision under § 314 may not institute review on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1355–56 (2018); *see also 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"). Accordingly, this challenge will be adjudicated in this proceeding.

4. Analysis of Lessin and Shoemaker as Applied to Challenged Dependent Claims 5–8

Petitioner contends dependent claims 5–8 of the '153 patent are unpatentable under 35 U.S.C. § 103 as being obvious in view of Lessin and Shoemaker and provides specific arguments for each challenged claim. Pet. 12, 54–68. Patent Owner does not address specifically the limitations of these challenged dependent claims, but nonetheless the burden remains on Petitioner to demonstrate unpatentability. Prelim. Resp. 31–32; *see Dynamic Drinkware*, 800 F.3d at 1378.

On this record and for purposes of this Decision, for the same reason discussed above, we determine Petitioner fails to present sufficient evidence to establish a reasonable likelihood it would prevail in showing that dependent claims 5–8 would have been obvious in view of the combined teachings of Lessin and Shoemaker under 35 U.S.C. § 103.

5. Rationale to Combine Lessin with Shoemaker

Petitioner contends a person of ordinary skill in the art would have many motivations to use the teachings of Shoemaker to modify Lessin "to improve the functionality in Lessin's intelligent card by, for example, allowing it to emulate multiple representations of the same data traditionally found on a conventional magnetic stripe card." Pet. 44 (citing Ex. 1002 ¶¶ 99–101). Petitioner argues "Lessin explicitly recognizes that a motivation existed in the late 1980s to provide 'smart cards' with more functionality than conventional magnetic stripe cards." *Id.* at 44–45 (citing Ex. 1011, 1:25–30, 19:43–47, Fig. 22A). According to Petitioner, Shoemaker can accomplish this because it "provides a card that can emulate multiple representations of the same data found on conventional magnetic stripe cards." *Id.* at 46 (citing Ex. 1010, 14:54–15:6).

Petitioner further argues that a person of ordinary skill in the art would have "known that the[re] are implementation details [regarding emulating multiple representations of the same data found on a conventional magnetic strip card] explained in Shoemaker and would have been motivated to use Shoemaker's teachings to improve the functionality of Lessin's card and make it more commercially convenient for card users—a motivation explicitly recognized by Lessin. Pet. 46 (citing Ex. 1011, 1:54–59 ("Finally, [prior art] cards were not designed to be 'user friendly'."); Ex. 1002 ¶ 101).

Furthermore, according to Petitioner, "because these changes would have been routine implementation details, a [person of ordinary skill in the art] would have had more than a reasonable expectation of success in implementing them." *Id.* at 25 (citing Ex. 1002 ¶ 74).

We have considered carefully all arguments and supporting evidence regarding the rationale for combining the teachings of Lessin with Shoemaker. At this stage of the proceeding, although we are not persuaded that Shoemaker necessarily provides implementation detail regarding emulating multiple representations of the same data found on a conventional magnetic strip card, we find Petitioner provides an adequate reason that a person of skill in the art would have combined the teachings from the cited prior art. A motivation to combine may be found "explicitly or implicitly in market forces; design incentives; the 'interrelated teachings of multiple patents'; 'any need or problem known in the field of endeavor at the time of invention and addressed by the patent'; and the background knowledge, creativity, and common sense of the person of ordinary skill." *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1371 (Fed. Cir. 2018) (quoting *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354 (Fed. Cir. 2013)).

Based on the current record, Petitioner appears to bring in Shoemaker to provide a more explicit teaching regarding multiple representations of the same data on an individual card. *See* Ex. 1002 ¶ 73. Given Lessin's express teaching regarding an intelligent transaction card, we agree with Petitioner that a person of ordinary skill would have been motivated to turn to Shoemaker's teachings for use with Lessin's card.

6. Objective Indicia of Nonobviousness

Patent Owner asserts that the same evidence regarding nonobviousness of the claims, including commercial success, long-felt need, failure of others, and industry praise of the patented invention, teaching away by others, and copying. PO Resp. 39–44 (citing Exs. 2013–2020). Petitioner disagrees. Pet. 58–59. For the reasons discussed above, based on the current record, we preliminarily determine Patent Owner fails to show sufficiently the requisite nexus between its alleged objective indicia of nonobviousness and the merits of the claimed invention.

V. CONCLUSION

For the foregoing reasons, we determine Petitioner has demonstrated there is a reasonable likelihood it would prevail in establishing the unpatentability of claims 1, 5–8 would have been obvious over Gutman alone or in combination with Shoemaker. We also determine Petitioner has failed to demonstrate there is a reasonable likelihood it would prevail in establishing the unpatentability of claims 1, 5–8 would have been obvious over Lessin in combination with Shoemaker. Additionally, we decline to exercise our discretion under 35 U.S.C. § 314(a) to deny either of the proposed challenges to patentability. And we preliminarily determine Patent Owner fails to show sufficiently the requisite nexus between its alleged objective indicia of nonobviousness and the merits of the claimed invention.

Our factual findings, conclusions of law, and determinations at this stage of the proceeding are preliminary, and based on the evidentiary record developed thus far. At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claim. Our final decision will be based on the record as fully developed during trial.

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted as to claims 1, 5–8 of the '153 patent on all grounds presented in the Petition, namely:

(1) Claims 1, 5–8 under 35 U.S.C. § 103 as unpatentable over Gutman alone, in combination with Shoemaker; and

(2) Claims 1, 5–8 under 35 U.S.C. § 103 as unpatentable over Lessin in combination with Shoemaker;

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, the trial commencing on the entry date of this Decision.

PETITIONER:

F. Christopher Mizzo
Gregory Arovas
James Marina
Alan Rabinowitz
KIRKLAND @ ELLIS LLP
Chris.misso@Kirkland.com
Greg.arovas@kirkland.com
James.marina@kirkland.com
Alan.rabinwoitz@kirkland.com

PATENT OWNER:

Robert W. Morris
ECKERT SEAMANS CHERIN & MELLOTT, LLC
rwmorris@eckertseamans.com

Michael V. Messinger
SHAMI MESSINGER PLLC
mike@shamimessinger.com