

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.

Case IPR2020-00502
Patent 10,032,100 B2

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

JEFFERSON, *Administrative Patent Judge*.

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

I. INTRODUCTION

Petitioner, Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Research America, Inc., filed a Petition requesting *inter partes* review of claims 1–20 of U.S. Patent No. 10,032,100 B2 (Ex. 1001, the “’100 Patent”). Paper 1 (“Petition” or “Pet.”). Patent Owner, Dynamics Inc., filed a Preliminary Response to the Petition. Paper 8 (“Prelim. Resp.”). On August 12, 2020, we instituted *inter partes* review of claims 1–20 of the ’100 Patent. Paper 34 (“Dec.”).

Following institution, Patent Owner filed its Response to the Petition. Paper 41 (“PO Resp.”). On January 29, 2021, Petitioner filed a Reply to Patent Owner’s Response, and on March 9, 2021, Patent Owner filed a Sur-Reply. Paper 44 (“Reply”); Paper 45 (“Sur-Reply”).

An Oral Hearing took place on May 12, 2021. The Hearing Transcript is included in the record. Paper 53 (“Tr.”).

After considering the parties’ arguments and supporting evidence, we determine that Petitioner has proved by a preponderance of the evidence that claims 1–16 are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d) (2019).

II. BACKGROUND

A. Related Proceedings

Petitioner informs us of one pending district court proceedings based on the ’100 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. 71–72. 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.*

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

B. The ’100 Patent

The ’100 Patent was filed on April 25, 2016, issued on July 24, 2018, from a continuation filed July 25, 2012, and is titled “Cards and Devices with Multifunction Magnetic Emulators and Methods for Using Same.”

Ex. 1001, codes (22), (45), (54). The ’100 Patent relates to

A payment card (e.g., credit and/or debit card) is provided with a magnetic emulator operable of communicating information to a magnetic stripe reader. Information used in validating a financial transaction is encrypted. . . . Such dynamic information may be communicated using such an emulator such that a card may be swiped through a magnetic stripe reader—yet communicate different information based on time. An emulator may receive information as well as communicate information to a variety of receivers (e.g., an RFID receiver).

Ex. 1001, Abstract. The ’100 Patent discloses “[a] card is provided, such as a credit card or security card, that may transmit information to a magnetic stripe reader via a magnetic emulator.” *Id.* at 1:28–36.

The ’100 Patent states that “[t]he magnetic emulator may be, for example, a circuit that emits electromagnetic fields operable to electrically couple with a read-head of a magnetic stripe reader such that data may be transmitted from the circuit to the magnetic stripe reader.” *Id.* at 1:30–34. The ’100 Patent further states that the magnetic emulator may also “be operated to electrically couple, and transmit data to, a device using a Radio Frequency Identification (RFID) protocol.” *Id.* at 2:9–16. The ’100 Patent

specification further states that the magnetic emulator may be swiped through a magnetic stripe reader to communicate data, “placed outside and within the proximity of (e.g., 0.25 inches) the read-head.” *See id.* at 2:2–6, 4:29–33.

Figure 7 shows the electrical coupling between a card and a reader of the invention.

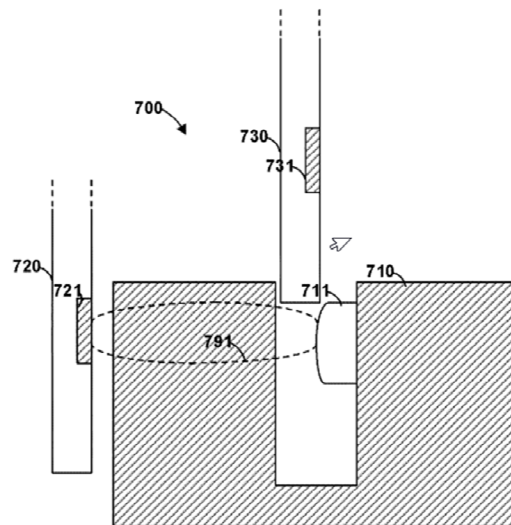


FIG. 7

Figure 7 depicts “cards 720 and 730 as well as magnetic stripe reader 710. Read-head housing 711 may be included on a wall of a trough of magnetic stripe reader 710.” *Id.* at 8:24–27. Card 720 shows emulator 721 that provides electromagnetic field 791 capable of transmitting through the housing of the magnetic stripe reader 710, thus card 720 may be outside of the reader and operable to communicate through the outer wall of a thickness of a quarter inch or more. *Id.* at 8:29–39.

The '100 Patent describes that the invention could be implemented in devices other than cards, such as “a portable telephonic device, portable media player, or any type of electronic device.” *Id.* at 2:48–51, 12:32–34. Figure 12 shows a personal electric device in accordance with the invention. *Id.* at 3:35–37.

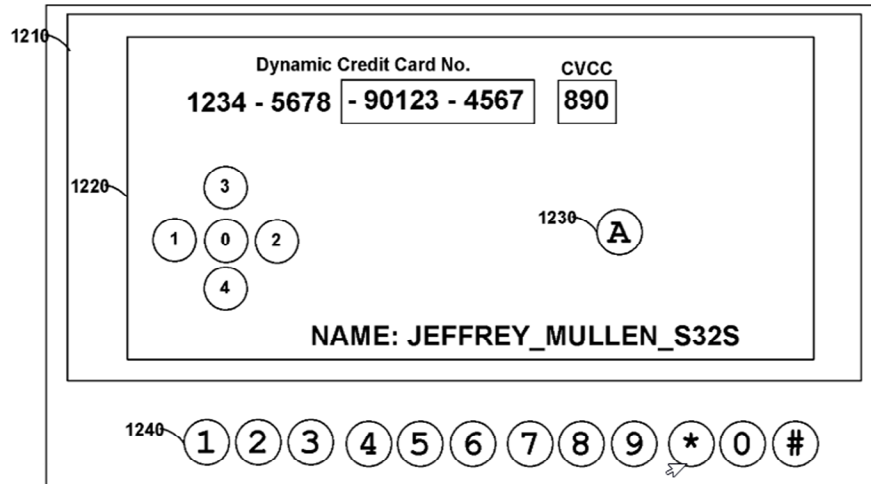


FIG. 12

Figure 12 shows personal electronic device 1200, with user inputs 1240, display 1210, and virtual card 1220. *Id.* at 12:37–40. “Personal electronic device 1200 may communicate to a card reader such as . . . an RFID reader.” *Id.* at 12:45–46.

C. Illustrative Claims

Claims 1 and 12 are independent and illustrative.

1. A device comprising:
a circuit operable to emit an electromagnetic field and to electrically couple to, and transmit data to, a read-head located on a magnetic stripe reader; and
a processor for controlling the circuit,

wherein the circuit is operable to communicate the data to the read-head while located outside of the magnetic stripe reader at a distance of at least a quarter of an inch from the read-head.

12. A portable telephonic device comprising:
a circuit operable to emit an electromagnetic field and to electrically couple to, and transmit data to, a read-head located on a magnetic stripe reader; and
a processor for controlling the circuit, wherein the circuit is operable to communicate the data to the read-head while located outside of the magnetic stripe reader.

Ex. 1001, 14:45–53, 15:8–14.

D. Instituted Grounds of Unpatentability and Evidence of Record

We instituted *inter partes* review based on information presented in the Petition that challenged the claims of the '100 Patent on the grounds listed below. Pet. 9; Dec. 7, 44.

Reference(s)/Basis	35 U.S.C. § ¹	Claim(s) Challenged
Moullette ²	103	1–3, 8, 10
Moullette, Poidomani ³	103	9, 11
Zellner, ⁴ Moullette	103	1, 4–7, 12–18, 20

¹ 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 '100 Patent issued from an application filed before March 16, 2013, we apply the pre-AIA version of the statute.

² U.S. Patent No. 7,114,652 B2, issued Oct. 3, 2006 (Ex. 1007, “Moullette”).

³ U.S. Patent Application Publication No. 2007/0034700 A1, Published Feb. 15, 2007 (Ex. 1009, “Poidomani”).

⁴ U.S. Patent No. 7,097,108 B2, issued Aug. 29, 2006 (Ex. 1008, “Zellner”).

Reference(s)/Basis	35 U.S.C. § ¹	Claim(s) Challenged
Zellner, Moullette, Poidomani	103	19
Doughty ⁵	103	1–3, 8, 10
Doughty, Poidomani	103	9, 11
Doughty, Zellner	103	4–7, 12–18, 20
Doughty, Zellner, Poidomani	103	19

Petitioner supports its challenges with the Declaration of Stephen G. Halliday, Ph.D. (Ex. 1002). In support of its contentions, Patent Owner relies on a Declaration of Ivan Zatkovich (Ex. 2042). *See, e.g.*, PO Resp. 2. The parties also submit the depositions of Halliday and Zatkovich. Ex. 1032 (Zatkovich Deposition); Ex. 2039, Ex. 2040 (Halliday Depositions). Patent Owner relies on a deposition of Stuart Lipoff, its expert witness from the related ITC litigation (Ex. 2041). Petitioner supports its evidence with the trial transcript from the ITC action providing Mr. Zatkovich’s testimony before the ITC regarding the patent at issue (Ex. 1030).

III. ANALYSIS

A. 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 v. John Deere Co.*, 383 U.S. 1, 17 (1966). “The importance of resolving the level of ordinary skill in the art

⁵ U.S. Patent Application Publication No. 2006/0161789 A1, Published Jul. 20, 2006 (Ex. 1012, “Doughty”).

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. 15 (citing Ex. 1002 ¶¶ 33). Petitioner further argues that “[a]dditional education might supplement practice experience and vice-versa.” *Id.*

In the ITC litigation, Patent Owner proposed that a person of ordinary skill in the art (“POSITA”) would have

“at least two years of experience with point of sale systems and financial transactions,” and “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,” while superior education would compensate for a deficiency in experience, and vice-versa.

PO Resp. 17 (citing Ex. 2012, 10–11). Patent Owner indicates “the ALJ in the ITC litigation decided that a POSITA 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.’” PO Resp. 17; *See* Ex. 2012, 6–7 (ITC Claim Construction).

To establish the level of ordinary skill in the art, we look to various factors including “the types of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and education level of active workers in the field.” *In re GPAC*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)). Problems encountered in the art are identified in the background sections of Doughty, Moullette, and Zellner. *See* Ex. 1012 ¶ 7; Ex. 1008, 1:13–42; Ex. 1007, 2:38–47; *see* Pet. 10–14; Ex. 1002 ¶¶ 59–62.

Considering these factors, for purposes of this decision, we determine that a person of ordinary skill in the art at the time of the invention would have had a bachelor’s degree in computer science, electrical engineering, computer engineering, or equivalent, and three years of experience working with payment device technologies including magnetic stripe cards and emulators, card readers, RFID, and cellular network communications for payment transactions. While this definition is in some respects more specific than the other proposed definitions, we think it is better tailored to cover all types of technologies recited in the claims. Specifically, the other proposed definitions do not cover cellular network while our definition does. Apart from this, we do not consider our definition to be materially different

from what the ITC adopted or parties propose here. And neither party contends that the outcome of this case turns on the definition of the level of ordinary skill in the art. *See generally* Pet. and PO Resp. Accordingly, we apply this level of ordinary skill in the art in our obviousness analysis.

B. Claim Interpretation

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, 1014 (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. 15. Petitioner notes there were claim constructions proposed by the parties in the ITC proceeding. *Id.* at 15–16 (citing Ex. 1016, 6). Petitioner further states these terms need not be construed because they are disclosed by the prior art under either party’s proposed construction. *Id.* at 16.

Patent Owner indicates certain terms were construed in the ITC litigation in a claim construction order dated January 31, 2020, and states “[a]ll of the claims of the ’100 patent are patentable under these constructions.” PO Resp. 17–18; Ex. 2012, 34–36.

Neither Petitioner nor Patent Owner offer any claim construction in this proceeding. Consequently, there is no dispute regarding the claim language that we need to resolve, and we proceed by applying the ordinary and customary meaning of the claim terms consistent with their use in the specification and prosecution history. Our use of the ordinary and customary meaning of the claim terms is consistent with the ITC’s claim construction of “virtual card” (claims 6, 7, 16, and 17)) as “a visual representation of a payment card.” Ex. 2012, 40–41; PO Resp. 17–18.

C. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying

factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

The Supreme Court has made clear that we apply “an expansive and flexible approach” to the question of obviousness. *KSR*, 550 U.S. at 415. Whether a patent claiming the combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *KSR*, 550 U.S. at 417. Reaching this conclusion, however, requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention. *Id.*

“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). To prevail in an *inter partes* review, Petitioner must explain by a preponderance of the evidence how the proposed prior art or combinations of prior art would have rendered the challenged claims unpatentable.

D. Alleged Obviousness of Claims 1–3, 8, and 10: Moullette

Petitioner provides argument that Moullette renders claims 1–3, 8, and 10 obvious. Pet. 17–25; Ex. 1002 ¶¶ 64–74.⁶

1. Overview of Moullette (Ex. 1007)

Moullette is a patent titled “External Adaptor for Magnetic Stripe Card Reader.” Ex. 1007, code (54). Moullette discloses an adaptor for use with a conventional magnetic stripe card point of sale reader that receives information from a contact or wireless source. *Id.* at Abstract.

⁶ Patent Owner argues that we should dismiss this ground as improper because Petitioner asserts that the challenged claims are obvious over the single reference Moullette (Pet. 17–67), when Petitioner’s declarant asserts that Moullette discloses each element of the challenged claims and thus the asserted ground should have been anticipation. PO Resp. 64–65 (citing *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1364 (Fed. Cir. 2008)). We decline Patent Owner’s request to dismiss this grounds, as the Petitioner is the master of the petition, and we will not rely on a position not articulated to dismiss a petition. *See SAS Inst., Inc. v. Iancu*, 138 S.Ct. 1348, 1355 (2018); *see Sirona Dental Sys. GmbH v. Institut Strautmann AG*, 892 F.3d 1349, 1356 (Fed. Cir. 2018); *cf. In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016). (“[T]he Board must base its decision on arguments that were advanced by a party, and to which the opposing party was given a chance to respond.”).

Figure 1, below, illustrates “a simplified schematic view of an adaptor system in accordance with one embodiment” that allows for magnetic emulation outside of the reader. *Id.* at 3:66–4:1.

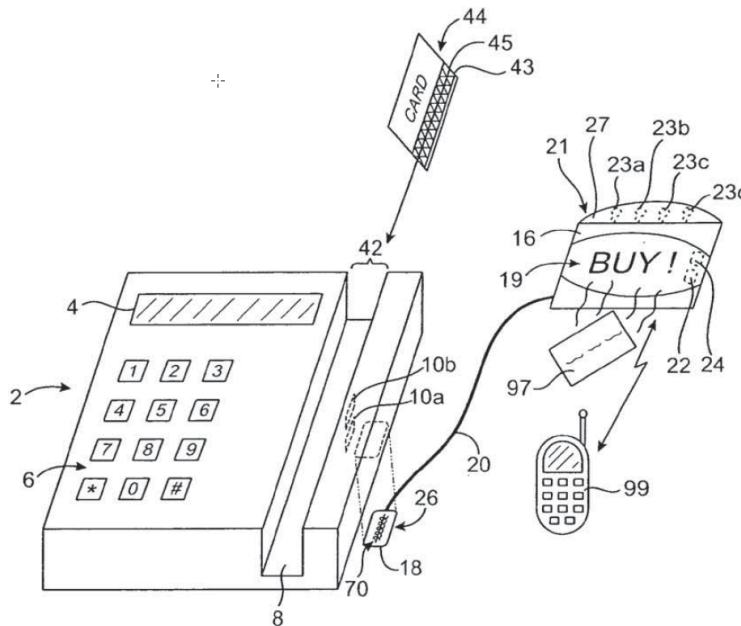


FIG. 1

Moulette describes an adaptor that “allows a conventional magnetic stripe card POS reader to receive information from contact-based or wireless sources.” *Id.* at 2:51–55. Figure 1 shows conventional point-of-sale (POS) magnetic stripe card reader 2, with display 4, keypad 6, and magnetic card swipe slot 8. *Id.* at 4:1–3. Magneto-inductive readers 10a and 10b receive signals from Track One 43 or Track Two 45 of magnetic stripe card 44. *Id.* at 4:3–7. Figure 1 shows consumer pod portion 16 in electrical communication with merchant pod portion 18 through cable 20, where the consumer interacts bringing an RF proximity chip card 97, mobile personal device, or other RF or IR transceiver device in proximity to a wireless transceiver 22 to communicate information. *Id.* at 4:8–15. Consumer pod

portion 16 is positioned at a location convenient for a customer, who may interact with adaptor 14 using personal trusted device (PTD) 99 (shown as a wireless telephone in Figure 1) by bringing PTD 99 in proximity to wireless transceiver 22 of adaptor 14. *Id.* at 4:10–15, 4:46–49. Merchant pod portion 18 is affixed beneath the external housing of reader device 2 and communicates with its reader heads 10a, 10b. *Id.* at 5:21–31.

2. Claim 1

- a. *“a device,” “a circuit operable to emit an electromagnetic field and to electrically couple to, and transmit data to, a read-head located on a magnetic stripe reader,” and “circuit is operable to communicate while located outside the magnetic stripe reader”*

Petitioner argues that Moullette teaches the claim 1 preamble for “a device comprising” via the adaptor that allows the consumer pod to communicate with the magnetic stripe card POS reader. Pet. 17–18; Ex. 1007, Abstract, 4:8–10; Ex. 1002 ¶ 64.

Petitioner further asserts that Moullette discloses the “circuit operable to emit an electromagnetic field and to electrically couple” limitation describing that current flows to generate a magnetic field, which activates the card, and communicates to the magnetic track readers. Pet. 18–19; Ex. 1007, 6:49–56, 6:60–66; Ex. 1002 ¶¶ 65, 66. Petitioner argues that Figure 1 of Moullette discloses transceivers 22 shown in communication with interface processor 24. Pet. 19–20; Ex. 1002 ¶ 67. Module 26 in Figure 1 of Moullette communicates with the card reader, teaching that “a circuit that can emit an electromagnetic field, can couple with a magnetic stripe card reader read-head, and can communicate with (i.e., transmit data to) the read head [of the card reader]” Pet. 19 (citing Ex. 1002 ¶ 65).

Patent Owner argues that the preamble reciting “a device” is limiting (Sur-Reply 3–4) and that Moullette does not teach a device but instead teaches a “system,” which includes multiple portions with different functions (PO Resp. 19; Ex. 2043 2 ¶ 74). Specifically, Patent Owner asserts that the adaptor in Moullette is affixed to the housing of the reader, becoming an integral part of the magnetic stripe system. PO Resp. 20 (citing Ex. 2042 ¶ 75; Ex. 1007, 2:43–46, 3:60–62). Asserting that the Moullette adaptor must be affixed to a particular location to function properly, Patent Owner argues that

Moullette does not disclose a standalone device but, rather, a system in which the Moullette component is an integral part of the reader upon being affixed to the reader. *Id.* EX. 1007 5:22–32. Moullette discloses “an adaptor system” including “consumer pod (C-Pod) portion 16 in electrical communication with merchant pod (M-Pod) portion 18 through cable 20 . . . EX. 1007, Fig. 1.

PO Resp. 21. Patent Owner argues that Moullette fails to teach the “circuit is operable to communicate while located outside the magnetic stripe reader” limitation of claim 1 (which also appears in claim 12). Pet. 20. In sum, the affixed adaptor fails to teach the preamble “device” and the location limitation because it is *affixed* to the external housing as shown in Figures 3A and 4A of Moullette. PO Resp. 21–22.

We are not persuaded by Patent Owner’s arguments. PO Resp. 19–20; Sur-Reply 4–7. As Petitioner argues, and we agree, “Moullette consistently describes it as a device separate from the merchant’s reader, and discloses embodiments where the adaptor is positioned ‘near’ or ‘proximate’ to the reader’s housing, as [Patent Owner’s] expert admits.” Reply 2 (citing Ex. 1007, 2:42–47, 2:66–3:6, 8:67–9:6, 7:44–49; Ex. 1030, 832:20–25).

Patent Owner's argument is not commensurate in scope with the claim language that the circuit be located "outside located outside of the magnetic stripe reader," and provides a specific distance in claim 1. *See* Ex. 1001, 14:45–53, 15:8–14 (claim 12 requiring "outside" the reader but without specifying the distance outside). Furthermore, Patent Owner's declarant agrees that Moullette teaches positioning the adaptor outside of the reader. *See* Ex. 1030, 806:7–10, 832:20–25 (Mr. Zatkovich agreeing that the adaptor is outside of the reader).

Neither claim 1 nor the '100 Patent specification address the method or manner of locating the circuit "outside" the reader. We find that Moullette's adaptor that is disclosed as being "proximate to the housing of a magnetic stripe reader device," "positioned near a magnetic stripe reader," and "positioned external to the reader device" teaches the recited claim limitation for a "circuit . . . located outside the magnetic stripe reader." Ex. 1007, 2:62–3:6, 8:67–9:6; *see also* Ex. 1007, Figs 1, 3B (showing the adaptor external to the terminal reader device). We also find that Moullette's teaching is not limited to specific affixed positions. *See* Ex. 1007, 2:66–3:6 (positioned near the reader).

Moullette's teaching that the adaptor "*may* be affixed to the reader device" (Ex. 1007, 5:29–31 (emphasis added)) is permissive and undermines Patent Owner's argument that the Moullette adaptor is an "integral" part of the magnetic stripe system and is not a device as recited in claim 1. PO Resp. 20. We find that Moullette teaches external positioning to allow aligned communication "through the housing" to the head of the magnetic stripe reader but does not otherwise limit the external position. Ex. 1007, 3:62–65. Indeed, Moullette teaches a separate fully integrated unit lending

further supporting Petitioner’s argument that the externally placed adaptor embodiment differs from a fully integrated unit. *See* Ex. 1007, 7:44–49 (noting that the adaptor could be integrated into a single-piece unit). We credit Petitioner’s argument and evidence that Moullette teaches the device of claim 1.

Patent Owner contentions that the device of the claim 1 preamble is a limiting feature that excludes Moullette’s “system” is unpersuasive. Sur-Reply 2–4. Patent Owner asserts in the Sur-Reply that a device in the claim 1 preamble should be construed to mean “a device,” as distinguished from a system or apparatus. Sur-Reply 3. Patent Owner argues in the Sur-Reply that the preamble of claim 1 recites essential structure, constitutes a limitation based on antecedent basis, and differentiates the scope of devices in claim 1 from claim 12. *Id.* at 2–4. Patent Owner improperly raised these preamble arguments for the first time in its Sur-Reply brief.⁷ Although these arguments are new and need not be considered, we find them unavailing. Patent Owner erroneously asserts that the “device” in the claim 1 preamble is used in the body of the claim and provides an antecedent basis for the

⁷ Our Scheduling Order and Practice Guide each make clear that Patent Owner must set forth all substantive arguments for patentability in the Response, and may not raise new arguments in the Sur-Reply. *See* Paper 35, 9 (“Patent Owner is cautioned that any arguments for patentability not raised in the response may be deemed waived.”); Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019) (“Consolidated TPG”),⁷ 74 (“[A] reply or sur-reply may only respond to arguments raised in the preceding brief. . . . ‘Respond’ . . . does not mean proceed in a new direction with a new approach as compared to positions taken in a prior filing. . . . [A] reply or sur-reply that raises a new issue or belatedly presents evidence may not be considered.”).

subsequent use. Sur-Reply 4. The preamble term “device,” however, does not appear in the body of claim 1 or in related claim 12. We also do not find persuasive support in the claims or Specification for Patent Owner’s arguments that “device” should be construed negatively to exclude systems or apparatuses. Notwithstanding our disagreement with Patent Owner’s contentions, we need not resolve whether the preamble is limiting because we find Petitioner’s evidence shows that Moullette teaches a device as recited in claim 1’s preamble.

b. “a processor for controlling the circuit”

Petitioner argues that Figure 1 of Moullette discloses transceivers 22 shown in communication with interface processor 24. Pet. 19–20; Ex. 1002 ¶ 67. Module 26 in Figure 1 of Moullette communicates with the card reader, teaching that “a circuit that can emit an electromagnetic field, can couple with a magnetic stripe card reader read-head, and can communicate with (i.e., transmit data to) the readhead [of the card reader].” Pet. 19 (citing Ex. 1002 ¶ 65). Patent Owner asserts that the processor Petitioner cites for teaching the “processor for controlling the circuit” limitation is misleading. PO Resp. 23–24. Patent Owner argues that

Moullette makes clear that interface processors 24 process interface communications, such as infrared bidirectional communications (*Id.*, 4:44-46), Bluetooth (*Id.*, 4:52-56), cellular communications (*Id.*, 4:56-60), etc. There is nothing in the specification to suggest that Moullette includes a processor that controls the dynamic magnetic stripe communication device, nor is there even the slightest suggestion that any of those specialized processors would, somehow, also be a “processor for controlling the dynamic magnetic stripe communication device” required by claim 1.

PO resp. 23–24. Patent Owner then argues that “a separate processor that is not shown, taught, or suggested anywhere in Moullette would be required to control the dynamic magnetic stripe communication device.” *Id.* at 24.

We find that Petitioner’s argument and evidence support that “Moullette’s C-Pod, which translates the payment signal received from cellphone 99 and drives the M-Pod under control of the interface processors (all in real time) is part of the magnetic stripe emulating circuit.” Reply 6 (citing Ex. 1007, Fig. 1). Indeed, Petitioner cites the full “adaptor 14, [which] comprises consumer pod (C-Pod) portion 16 in electrical communication with merchant pod (M-Pod) portion 18 through cable 20” as teaching the device. Pet. 17 (quoting Ex. 1007, 4:8–10). The C-Pod portion is in electrical communication with interface processors 24. Pet. 19–20; Ex. 1007, 4:41–43; Ex. 1002 ¶ 67. Petitioner provides persuasive evidence that Moullette teaches that Moullette’s C-Pod translates payment signals from the cell phone and drives the M-Pod inductors. Pet. 19–20; Ex. 1002 ¶ 67; Ex. 1007, Fig. 1, 3:63–65 (stating that C-Pod transceivers communicate with interface processors); Ex. 1032, 51:5–9, 52:9–24 (agreeing that Moullette signals are translated from the C-Pod to the M-Pod); *see also* Ex. 1001, 5:54–57, 7:5–8 (recognizing that a processor can drive inductors).

We also note that Patent Owner tacitly concedes that a separate processor that is not shown in Moullette would be required to control the magnetic stripe communication disclosed in Moullette. PO Resp. 24. With respect to claim 1 of the ’100 Patent, Petitioner provides persuasive evidence that the interface processors allow communication from the cell phone payment data to the magnetic card reader. Pet. 19–20; Ex. 1002 ¶ 67;

Ex. 1007, Fig. 1, 3:63–65; Ex. 1032, 51:5–9, 52:9–24. Indeed, Patent Owner’s declarant, Mr. Zatkovich, agrees that data conversion beyond the inductors is necessary for the Moullette adaptor to function. Ex. 1032, 41:17–42:4 (agreeing there would have to be data conversion). Having reviewed the full record, we conclude that Moullette teaches “a processor for controlling the circuit” used to emit and communicate with the magnetic stripe reader. *Id.*

c. “*wherein the circuit is operable to communicate the data to the read-head while located outside of the magnetic stripe reader at a distance of at least a quarter of an inch from the read-head.*”

Petitioner argues that Moullette teaches this limitation in describing “an adaptor with ‘an inductor capable of **generating a magnetic field of sufficient power to couple** with a head of a magnetic stripe card reader **through the housing** of the reader device’” such that “the adaptor can be positioned **external** to the reader device.” Pet. 20–21 (quoting Ex. 1007, Abstract); *see* Ex. 1002 ¶¶ 67, 69. Petitioner avers that Moullette discloses generating a magnetic field sufficient to communicate the continuous data to the read heads from the outside of the housing. Pet. 21; Ex. 1007, 5:54–57, 6:1–5, 6:25–29, Fig. 3B (items 27, 10a, 10b); Ex. 1002 ¶ 68. Petitioner further asserts that a person of ordinary skill in the art would have understood from “the dimensions of Moullette’s device and magnetic card readers at the time of the alleged invention, that the distance between Moullette’s inductor element 72 and the read-head of the magnetic stripe reader would have been at least a quarter of an inch.” Ex. 1002 ¶ 69. For example, Petitioner argues that

Moullette describes that “core 72” has “a thickness of about 1/8,” and is contained within the M-Pod module 26, which is

larger in size than core 72. Ex. 1007, 5:41–44, Fig. 3B. A POSITA would also have understood that the card reader housing (such as element 2 in Figure 3B above) would have had a thickness of at least a quarter of an inch. Ex. 1002 ¶ 69. Thus, the circuit of Moullette’s adaptor communicates with the read-head of the magnetic card reader while outside the card reader and at least a quarter of an inch from the read-head. *Id.*

Pet. 22.

Patent Owner does not challenge Petitioner’s argument and evidence regarding the proximity of the Moullette device beyond the integral unit and device arguments discussed above. Having reviewed the full record, we find that Moullette teaches the wherein location limitations of claim 1.

3. Claims 2, 3, 8, and 10

Claim 2 recites that the device of claim 1 “is thicker than a payment card.” Claim 3 further limits the device of claim 1 is wireless communication device. Claims 8 and 10 limit the circuit of claim 1 to be operable to emit a second electromagnetic field (claim 8) and to be operable to serially transmit the data. Petitioner provides persuasive argument and evidence that Moullette teaches the limitations of dependent claims 2, 3, 8, and 10. Pet. 23–28; Ex. 1002 ¶¶ 69–74. Petitioner provides persuasive citations to Moullette and testimony that shows Moullette teaches the limitations of these dependent claims. *Id.*

Patent Owner relies on the arguments addressed above for claim 1 with respect to claims 2, 3, 8, and 10. PO Resp. 25–26

Having reviewed the full record, we find that Moullette teaches the wherein limitations of dependent claims 2, 3, 8, and 10.

4. *Objective Indicia of Nonobviousness*

Patent Owner argues that its evidence of objective indicia of nonobviousness shows that the '100 Patent's claims would not have be obvious to a person of ordinary skill in the art at the time of the alleged invention. PO Resp.57–64; Sur-Reply 22–25. Petitioner contends that “[Patent Owner] bears the burden to come forward with any evidence of secondary considerations, yet fails to show a nexus between its claimed invention and any of its purported secondary considerations evidence.” Reply 22.

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. *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33 at 32 (PTAB January 24, 2020) (precedential, designated April 14, 2020) (citing *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.’” *ClassCo*, 838 F.3d at 1220 (quoting *Rambus Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013)). The nexus also must be attributable to some aspect of the claim that is not already in the prior art. *In re Kao*, 639 F.3d 1057, 1068–69 (Fed. Cir. 2011). 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))).

“Although we do not require the patent [owner] to prove perfect correspondence to meet the coextensiveness requirement, what we do require is that the patent[owner] demonstrate that the product is essentially the claimed invention.” *Fox Factory*, 944 F.3d at 1374.

Patent Owner contends that four products produced by the Patent Owner, Dynamics, and one product produced by Petitioner, Samsung Pay, are all coextensive with the claims of the ’100 Patent. PO Resp. 57. Patent Owner’s evidence of this co-extensiveness is insufficient.

With respect to Dynamics’s products, Patent Owner asserts that “Dynamics has sold a significant number of payment cards that employed magnetic stripe emulation of payment cards since it began offering its payment cards for sale in 2011.” PO Resp. 59 (citing Ex. 2042 ¶ 140). However, Patent Owner’s declarant testimony does not support the sale of a significant number of payment cards. *Id.* Indeed, Patent Owner fails to show any commercial sales to support its conclusory allegation.

Furthermore, Patent Owner has not persuasively shown that cards it sells are coextensive with the ’100 Patent a Petitioner’s testimony (Ex. 2042 ¶¶ 135–142). The claim charts (Ex. 2035–2038; Ex. 2042 ¶ 137) mapping the ’100 Patent to the Dynamics products are improper incorporation by reference of a declaration into a brief. *See* PO Resp. 58; 37 C.F.R. § 42.6(a)(3); *see also Eli Lilly and Co. v. Teva Pharms. Int’l GmbH*, No. IPR2018-01424, Paper 80 at 104 (PTAB Feb. 18, 2020) (finding reference to claim charts in declaration to support secondary consideration was improper incorporation).

With respect to the Samsung Pay products, Patent Owner relies on claim charts from related litigation and conclusory testimony to support its contention that the Samsung Pay application is coextensive with the

independent claims of the '100 Patent. PO Resp. 58–60; Ex. 2044; Ex. 2042 ¶¶ 138–142. Patent Owner admits, however, that the Samsung features are sold in various commercially successful products—smart phones and watches—but has not shown that those products have a nexus to the '100 Patent. *Id.* at 59. In addition to improperly incorporating by reference the Samsung Pay product claim charts (PO Resp. 58–59; 37 C.F.R. § 42.6(a)(3)), Patent Owner makes no attempt to indicate what portion of commercial success that Petitioner's devices may have is attributable to features claimed in the '100 Patent relative to those not covered by the patent. Consequently, we have no basis to assess how much commercial success of Petitioner's devices is attributable to the '100 Patent. The nexus between the '100 Patent and the commercial success must be due to features that are not in the prior art. *See Kao*, 639 F.3d at 1068–69. Patent Owner's evidence of commercial success and a nexus to the '100 Patent is insufficient to carry its burden. *See Fox Factory*, 944 F.3d at 1374.

Patent Owner's evidence of successfully licensing the '100 Patent to LG Electronics, Inc. (PO Resp. 59) also is unpersuasive. The only unredacted patent listed in the license agreement is U.S. Patent 8,827,153, which is not the patent at issue here. Ex. 2013, 10. Consequently, the license agreement is ineffective to show commercial success relating to the '100 Patent.

Patent Owner's remaining evidence of non-obviousness is equally unavailing. Patent Owner fails to establish a nexus between the chart of awards and the claimed invention of the '100 Patent. PO Resp. 61–63. Patent Owner's award chart lacks evidence for what the awards were for, and fails to show a nexus to the '100 Patent's claims sufficient to support

industry praise. PO Resp. 61–63; Ex. 2042 ¶ 145. Similarly, Patent Owner’s evidence of copying and the failure of others relies on unsupported and conclusory testimony from the Zatkovich declaration that fails to show a nexus between the evidence and the ’100 Patent. PO Resp. 59–61, 63; Ex. 2042 ¶ 141, 142, 147.

Having reviewed the full record, we agree with Petitioners’ arguments regarding Patent Owner’s allegations of objective indicia of nonobviousness. Reply 22–25. We find that Patent Owner, on the full record, has not persuasively established a nexus showing that industry praise for or commercial success of Dynamics’ or Samsung’s products are attributable to the claimed features of the ’100 Patent. Patent Owner also has not provided sufficient and persuasive evidence of copying, long-felt need, failure of others, or licensing. Accordingly, Patent Owner’s evidence of objective indicia of nonobviousness is insufficient to establish non-obviousness of the claimed invention.

5. Conclusion

Based on the full record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–3, 8, and 10 would have been obvious over Moullette to a person of ordinary skill in the art at the time of the invention.

E. Alleged Obviousness of Claims 9 and 11: Moullette and Poidomani

Petitioner argues that Moullette and Poidomani would have rendered claims 9 and 11 obvious to a person of ordinary skill in the art under 35 U.S.C. § 103. Pet. 25–29; *see* Ex. 1002 ¶¶ 75–81.

1. Overview of Poidomani (Ex. 1009)

Poidomani is published U.S. patent titled “Electronic Cards and Methods for Making Same” published Feb. 15, 2007. Ex. 1009, code (54). The device disclosed in Poidomani “includes a digital processor, an electrochemical battery and a communications port.” *Id.* at Abstract, ¶¶ 78, 86. Poidomani describes a device with “a swipe emulating broadcaster system” that includes a coil, where “the coil provides a dynamic magnetic field which emulates the swiping of a magnetic stripe transaction card.” Ex. 1009 ¶ 35. Poidomani discloses that “[t]he non-contact communications port [is] included as an alternative to or in addition to” the magnetic stripe emulator. *Id.* ¶ 86. Poidomani discloses that the magnetic stripe emulator of Poidomani includes a broadcaster which is “one or more inductive coils” that operates upon “activation” of “one or more sensors . . . used to signal to general process that the physical act of swiping the card body through a legacy reader has commenced.” *Id.* ¶¶ 81, 98.

2. Reason to Combine

Petitioner asserts that Moullette’s two inductors that generate independent electromagnetic fields would have provided a person of skill in the art with reason to combine such fields with Poidomani’s teachings regarding multiple inductive coils emitting electromagnetic fields in parallel and using cancellation to avoid interference. Pet. 25–27; Ex. 1002 ¶ 76; *see* Ex. 1009 ¶¶ 35, 100; Ex. 1007, 2:51–55, 3:15–25. Thus, “[a] POSITA would have been motivated to incorporate Poidomani’s teaching of emitting at least two electromagnetic fields in parallel into Moullette’s device such that Moullette’s two electromagnetic fields are emitted in parallel.” Pet. 26; Ex. 1002 ¶ 77. Petitioner asserts that a skilled artisan “would have

understood that the benefits of parallel electromagnetic field emissions included the possibility of completing transactions faster by transmitting two tracks at the same time, rather than one after the other.” Pet. 27; Ex. 1002

¶ 77. Petitioner’s declarant attests that Moullette and Poidomani share “similarities in function, design, and purpose” such that “a POSITA would have expected that modifying Moullette to perform parallel electromagnetic field transmission, as taught in Poidomani, would have been within a POSITA’s skill, and . . . would have expected to be successful modifying Moullette in this way.” *Id.*

Patent Owner argues that Petitioner’s rational to combine ignored the purpose of serial transmission taught in Moullette. PO Resp. 26–28. Patent Owner argues that because Moullette specifically describes serial transmission and makes no mention of a need for faster transmission, there is no reason to add parallel transmission to the Moullette scheme. PO Resp. 27–28; Ex. 2042 ¶ 81; Ex. 2039, 99:3–11 (Mr. Halliday acknowledging that faster transactions is not expressly mentioned in Moullette). Patent Owner’s arguments fail to address persuasively Petitioner’s proposed motivation to combine based on adding Poidomani’s parallel transmission to Moullette, but not replacing serial transmission. Pet. 26–27. Contrary to Patent Owner’s contentions (PO Resp. 27; Sur-Reply 13), Moullette need not expressly provide motivation for faster transactions. *See Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1290 (Fed. Cir. 2006) (“A suggestion, teaching, or motivation to combine the relevant prior art teachings does not have to be found explicitly in the prior art.”) (citations omitted, emphasis omitted); *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1002–03 (Fed. Cir. 2016) (patent challenger “does not need to show that there was a known

problem with the prior art system in order to articulate the required rational underpinning for the proposed combination”). Here, we credit Petitioner’s testimony that the addition of parallel to Moullette’s serial transaction would allow for both functions to coexist and allow for faster transactions. Pet. 25–27; Ex. 1002 ¶¶ 75–77.

Having considered the parties’ arguments and evidence regarding the rationale for combining the teachings of Moullette and Poidomani, we find Petitioner provides adequate reasoning that a person of skill in the art would have had reason to combine Moullette and Poidomani with reasonable expectation of success.

3. *Claim 9: “device of claim 1, wherein the circuit is operable to emit a second electromagnetic field in parallel with the electromagnetic field.”*

Petitioner argues that Moullette as discussed above teaches the limitations of claim 1 and the first and second magnetic fields. Pet. 27; Ex. 1002 ¶¶ 78, 79. In the proposed combination of Moullette and Poidomani, Petitioner cites Poidomani’s teachings of a

“broadcaster 68” that includes “[f]our exemplary coils . . . a ‘track one’ coil 128, a ‘track two’ coil 130, a ‘track one cancellation’ coil 132 and a ‘track two cancellation coil 134.” Ex. 1009, [0099], Fig. 5. Each “coil provides a dynamic magnetic field which emulates the swiping of a magnetic stripe transaction card past a read head of a card reader.” *Id.*, [0035].

Pet. 27. Petitioner asserts that Poidomani teaches that the cancellation coil is used to cancel cross talk as the electromagnetic fields are emitted together. *Id.* at 28. Thus, Petitioner argues the combination of Poidomani and Moullette teach the limitations of claim 9. *Id.* at 27–28. Patent Owner does not specifically address Petitioner’s contentions. *See generally* PO Resp.

4. *Claim 11: “wherein the circuit is operable to transmit the data in a parallel operation.”*

Petitioner argues that a person of skill in the art would know that Moullette teaches a device with two magnetic fields and that in combination with Poidomani teaches a device capable of transmitting data in parallel. Pet. 28–29; Ex. 1002 ¶¶ 80–82. Based on the emulation of swiping a card past a card reader, a person of skill in the art would understand that the first and second coils in Poidomani are simultaneously transmitting the data to the stripe reader. *Id.* Patent Owner does not specifically address Petitioner’s contentions. *See generally* PO Resp.

5. *Conclusion*

We find that Petitioner has shown that Moullette and Poidomani teach the limitations of claims 9 and 11. Pet. 26–29; Ex. 1002 ¶ 77. Based on the full record including weighing Patent Owner’s evidence of objective indicia of nonobviousness in § II.D.4, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 9 and 11 would have been obvious over Moullette and Poidomani to a person of ordinary skill in the art at the time of the invention.

F. Alleged Obviousness of Claims 1, 4–7, 12–18, and 20: Zellner and Moullette

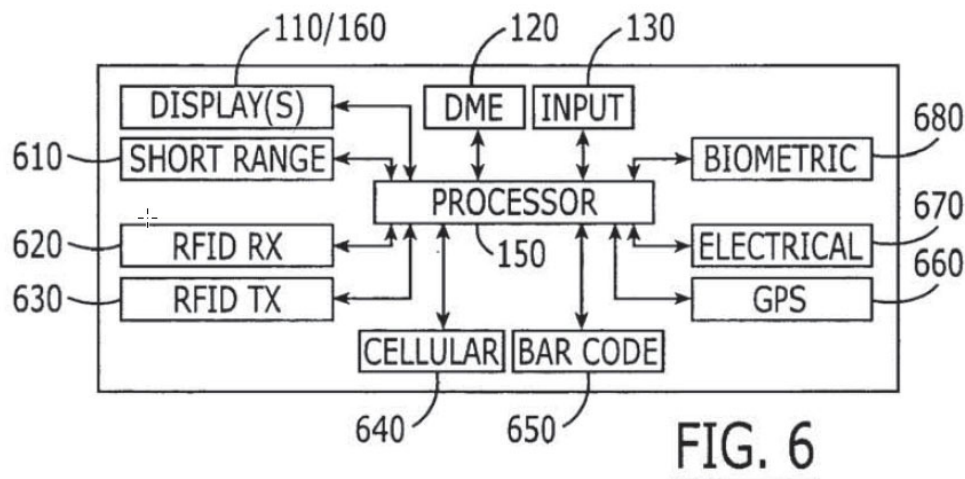
Petitioner asserts that claims 1, 4–7, 12–18, and 20 would have been rendered obvious by Moullette and Zellner. Pet. 29–43; Ex. 1002 ¶¶ 83–109.

1. *Overview of Zellner (Ex. 1008)*

Zellner is a U.S. patent titled “Multiple Function Electronic Cards.” Ex. 1008, code (54). Zellner’s electronic card includes first and second

opposing faces, and is similar in dimensions to a standard credit card. *Id.*, code (57). A flat panel display extends over the first face of the card, and a dynamic magnetic encoder is provided on the second face of the card. *Id.* The dynamic magnetic encoder provides magnetic stripe information for a selected credit card. *Id.*

Zellner's Figure 6 is shown below.



Zellner's Figure 6 shows an electronic card including display(s) 110/160, dynamic magnetic encoder (DME) 120, input device 130, and processor 150. *Id.* at 7:42–46. The electronic card further includes short range wireless transceiver 610 for Bluetooth, WiFi or other communications. *Id.* at 7:46–50. The electronic card also includes Radio Frequency ID (RFID) receiver 620, RFID transmitter 630, and cellular transceiver 640. *Id.* at 7:50–53. Zellner further discloses a PDA, cell phone or other portable electronic device, which “may be combined with any or all of the embodiments” described earlier in the reference. *Id.* at 11:6–8.

2. Reason to Combine

Petitioner provides articulated rationale and reasoning to incorporate Moullette into Zellner's device so personal communication devices, such as cell phones, can communicate with payment terminals via a device that emulates magnetic fields generated by traditional magnetic stripe payment cards. Pet. 29–31; Ex. 1002 ¶¶ 83–87; Ex. 1007, 2:42–47, 2:51–65; Ex. 1008, 1:6–9, 5:34–39. Petitioner cites Zellner's portable electronic device with processor, display, RF, RFID, and cellular systems, and dynamic magnetic encoder capable of displaying credit card images and emulating a credit card's magnetic stripe information to existing card readers via magnetic or radio interface. Pet. 30–31; Ex. 1008, Abstract, 5:34–39, 9:51, 11:50–55. Moullette similarly teaches inductors that generate a first and second magnetic field capable of coupling with a magnetic stripe reader from the outside of a reader device. Pet. 31; Ex. 1007, Abstract, 3:15–25. Petitioner argues that it would have been obvious to an ordinarily skilled artisan “to modify Zellner's dynamic magnetic encoder (to the extent necessary) to include Moullette's inductors to ensure that Zellner's device could communicate with payment terminals using both radio frequency interaction, such as RFID, and magnetic stripe emulation using magnetic fields.” Pet. 31 (citing Ex. 1002 ¶ 86).

Patent Owner contends that there is no reason to combine Zellner and Moullette because Zellner's dynamic magnetic encoder (DME) is not designed to communicate with a card reader. PO Resp. 29–32; Ex. 2042 ¶¶ 55, 86. Instead, Patent Owner contends Zellner does not disclose including an encoder in the cell phone of Zellner and fails to disclose how to

implement the emulator of Moullette on a cell phone. PO Resp. 30; Ex. 2042 ¶¶ 86–87.

Petitioner argues that Zellner teaches sharing credit card information through a magnetic interface such that it is compatible with existing card readers. Reply 10; Ex. 1008, 1:60–2:2, 3:22–26, 11:50–55; Pet. 17–19. Furthermore, Petitioner argues that the distinction between encoders and emulators that Patent Owner asserts is not warranted, as Petitioner’s declarant admits that an “encoder communicates with the read head” as does a magnetic emulator. Reply 10; Ex. 1032, 70:21–71:7. Patent Owner’s evidence that a person of ordinary skill in the art would not have incorporated Moullette into Zellner relies on the testimony of Mr. Zatkovich (Ex. 2042 ¶¶ 55, 87, 88) and a European Patent Application (Ex. 2047 ¶¶ 7, 8), to support the distinction between magnetic encoders and emulators. Reply 29–30. We are not persuaded by this evidence and credit Petitioner’s argument and evidence (Pet. 17–19; Reply 10) that Zellner teaches electronic cards that interface with known card readers through a magnetic interface. Ex. 1008, 3:22–26; 11:10–13.

Patent Owner contends that Zellner “does not disclose including an encoder in a cell phone” or explain how it would work, or its structural features and capabilities. PO Resp. 30–31; Ex. 1008, 1:64–2:2, 5:35–39. We are not persuaded by Patent Owner’s arguments. As Petitioner responds, prior art publications and patents are presumed to be enabled. Reply 10–11 (citing *Sandoz Inc. v. Pharmacyclics LLC*, IPR2019–00865, Paper 29 at 13 (PTAB Sept. 24, 2020)); see *Microsoft Corp. v. Parallel Networks Licensing, LLC*, 715 F. App’x 1013, 1021 (Fed. Cir. 2017). Furthermore, Zellner expressly states that a PDA or mobile device “may be combined

with any or all of the embodiments” described earlier in Zellner, which include the encoder embodiment. Ex. 1008, 11:6–8, Fig. 12; Pet., 12–14, 29–32. In addition, Petitioner argues that “Zellner provide at least as much implementation detail as the ’100 Patent, which only says its Figure 12 “may be, for example, a portable telephonic device, portable media player, or any type of electronic device.” Reply 10–11. Indeed, the ’100 Patent expressly states it “does not provide implementation details because a POSITA ‘will appreciate that the functionality of a card may be provided on a personal device,’ such as a ‘portable telephonic device.’” *Id.* (citing Ex 1001, 12:32–37).

Patent Owner’s arguments regarding the whether the combination of Zellner with Moullette is enabled is not persuasive. “Even if a reference discloses an inoperative device, it is prior art for all that it teaches.” *Beckman Instruments, Inc. v. LKB Produkter AB*, 892 F.2d 1547, 1551 (Fed. Cir. 1989). Thus even “a non-enabling reference may qualify as prior art for the purpose of determining obviousness under 35 U.S.C. 103.” *Symbol Techs. Inc. v. Opticon Inc.*, 935 F.2d 1569, 1578 (Fed. Cir. 1991). In addition, Patent Owner does not identify specifically the missing teachings that a person of ordinary skills in the art would undermine Petitioner’s rationales to combine Moullette and Zellner. Pet. 29–31; Ex. 1002 ¶¶ 83–87; Ex. 1007, 2:42–47, 2:51–65; Ex. 1008, 1:6–9, 5:34–39. With respect to Zellner’s disclosure, we do not agree with Patent Owner that Zellner is silent on magnetic encoders or their features. PO Resp. 31. Zellner expressly discusses devices that can “emulate the magnetic stripe information that would be provided by the credit card,” and explains that emulation was

“well known to those having skill in the art.” Ex. 1008, 1:60–64, 5:34–39; *see* Reply 11–12.

We also do not agree with Patent Owner’s contention that the combination of Moullette’s features into Zellner would eviscerate or dismantle Moullette’s invention. PO Resp. 32. Petitioner’s proposed modification incorporates Moullette’s well known use of inductors to perform emulation as a design choice into Zellner. *See* Ex. 1002 ¶¶ 82–87; PO Resp. 30 (describing inductor use in emulation as a design choice); Ex. 1032 ¶¶ 83–87 (describing using coils as encoders). A person of ordinary skill as discussed in Part II.A. is a person of ordinary creativity, not an automaton. *KSR*, 550 U.S. at 420–21. Here, Patent Owner’s argument that such a person of ordinary skill would not know what to do with Zellner’s teachings is not persuasive in light of the well-known design choices within the field. *See* Ex. 1002 ¶¶ 82–87; Ex. 1032, 73:8–13 (noting that could can be used as encoders); PO Resp. 30 (describing inductor use in emulation as a design choice); Ex. 1032 ¶¶ 83–87 (describing using coils as encoders).

Based on the full record, we determine that Petitioner presents persuasive and sufficient evidence and rationales to combine Zellner and Moullette and Zellner with a reasonable expectation of success.

3. *Claims 1 and 12*

- a. *Claim 1: Preamble and “a circuit operable to emit an electromagnetic field and to electrically couple to, and transmit data to, a read-head located on a magnetic stripe reader,” and “a processor for controlling the circuit”*

Petitioner argues Zellner discloses a portable package device. Pet. 32–33; Ex. 1008, 10:63–11:13, Fig. 12. Furthermore, Zellner’s

dynamic magnetic encoder emulates credit card strip information in combination with Moullette's inductors allowing communication with legacy card reader terminals. Pet. 33–34; Ex. 1002 ¶¶ 88, 89. Finally, Zellner discloses a processor 150 configured to control the dynamic magnetic encoder that provides magnetic stripe information. Pet. 34–35; Ex. 1008, Fig. 1C, 5:54–61; Ex. 1002 ¶ 90.

b. Claim 1: “wherein the circuit is operable to communicate the data to the read-head while located outside of the magnetic stripe reader at a distance of at least a quarter of an inch from the read-head.”

Petitioner argues that Zellner and Moullette teach this limitation, as Zellner teaches sharing credit card information with a requesting purchase system through a radio or magnetic interface while at a distance (Ex. 1008, 3:22–26; Ex. 1002 ¶ 91) and together Moullette and Zellner teach “the dimensions of personal communication devices, such as a cell phone, and magnetic card readers at the time of the alleged invention [such] that the distance between Zellner's dynamic magnetic encoder circuit and the read-head of the magnetic stripe reader” would have been within the scope of the claim. Pet. 36; Ex. 1002 ¶ 92.

c. Claim 12

Petitioner argues that Zellner and Moullette teach the limitations of claim 12 for the reasons discussed above with respect to claim 1. Pet. 40–41; *see* Pet. 6 (comparing claims 1 and 12). Petitioner relies on Zellner to teach the “portable telephonic device” of claim 12. *Id.* at 38–40.

d. Patent Owner Contentions

Patent Owner argues claim 1 and 12 separately. PO Resp. 29–33, 37–38. Patent Owner argues that Zellner and Moullette fail to teach the claimed

circuit and that Zellner only discusses physical swiping of cards. PO Resp.

31. We find that Zellner discloses that its encoder can “emulate a conventional magnetic stripe.” Ex. 1008, 5:35–39. Zellner’s device emulates magnetic stripe data by through magnetic interface” and is “compatible with existing card readers” using “[t]he dynamic magnetic encoder,” and can be used at card readers for automatic transactions. Ex. 1008, 1:60–2:2, 3:22–26, 11:50–55; Pet., 17–19. Patent Owner’s declarant admitted that “an encoder communicates with the read head.” Ex. 1032, 71:4–7. On the full record, we are not persuaded that Zellner’s teaching of encoders differs from emulators based on the full record.

For claim 12, Patent Owner also relies on the same arguments presented for claim 1, and further asserts that Moullette does not teach the portable telephonic device of claim 12. PO Resp. 37–38; Ex. 2042 ¶ 93. Patent Owner then asserts that Moullette describes an adaptor, but does not disclose a portable device or teach assigning its adaptor to the mobile device as part of its system. PO Resp. 34–35; Ex. 2042 ¶¶ 89–91. Patent Owner argues that portions of Moullette, such as the M-pod, serve no purpose in the portable telephone of Zellner. *Id.*

We are not persuaded by Patent Owner’s arguments, as they argue the references separately, and fail to address the combination of Zellner incorporating Moullette features that Petitioner proposes. Pet. 33–36; PO Resp. 33–36. Furthermore, Zellner is not limited to physical magnetic stripe reading or contact by actual swiping, but indicates that proximity to the reader allows for a reader to receive credit card information through a radio, magnetic, or other interface. Ex. 1008, 3:22–26; Ex. 1002 ¶ 91. Patent Owner argues the references separately rather than in combination and does

not persuasively address Petitioner's combination. In addition, Petitioner asserts that Zellner teaches the portable telephonic device and incorporates Moullette's inductor teachings. Pet. 38–40.

e. Conclusion Claims 1 and 12

We agree with Petitioner's argument and evidence, and we find that Zellner and Moullette teach the limitations of independent claims 1 and 12. Based on the full record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1 and 12 would have been obvious over Zellner and Moullette.

4. Claims 4–7, 13–18, and 20

Petitioner provides argument and evidence citing to Zellner, Moullette, and Mr. Halliday that the asserted references teach the limitations of dependent claims 4–7, 13–18, and 20. Pet. 36–40, 41–43; Ex. 1002 ¶¶ 93–99, 104–109. Petitioner provides detailed citation and argument that Zellner and Moullette teach the portable device limitations (claims 4, 5, 14, and 15); the touch display and graphical interface limitations (claims 6, 7, 13, 16, 17); and the second magnetic field and serial transmission in a portable device limitations (claims 18 and 20). Pet. 36–40, 41–43.

With respect to claims 4 and 5, Patent Owner argues that the Zellner does not disclose communicating to read head of a magnetic stripe reader. PO Resp. 33; Ex. 2042 ¶ 89. We disagree, finding that Zellner expressly describes communicating via a magnetic interface and combining Zellner's cell phone with other disclosed embodiments. Ex. 1008, 10:63–11:21, 3:22–26. Similarly, Patent Owner's argument that turning the system of Moullette into a portable device has no role in the system of Moullette fails to address

Petitioner's proposed combination that incorporates Moullette into Zellner. Pet. 36–43. We find that Zellner teaches the portable device limitations of claims 4 and 5.

With respect to the touch display and graphical interface limitations of claims 6 and 7, Patent Owner's argument focuses on the use of a display or touch sensitive display in the merchant system of the Moullette device. PO Resp. 36–37; Ex. 2042 ¶ 92. Patent Owner's argument again fails to address Petitioner's combination incorporating Moullette into Zellner's mobile device and not attempting to recast Moullette as a mobile device. *See* Pet. 37–38; Reply 14. We find that Zellner and Moullette teach the claimed display and touch sensitive display recited in claims 6 and 7.

For the remaining claims 13–18 and 20, Patent Owner argues that Zellner and Moullette fail to teach these limitations for the same reasons addressed above for claim 12. For the reasons above, we find that Zellner and Moullette teach the limitations of claims 13–18 and 20.

5. Conclusion

We find that Zellner and Moullette teach the limitations of claims 1, 4–7, 12–18, and 20. Based on the full record including weighing Patent Owner's evidence of objective indicia of nonobviousness in § II.D.4., we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 4–7, 12–18, and 20 would have been obvious over Zellner and Moullette to a person of ordinary skill in the art at the time of the invention.

G. Alleged Obviousness of Claim 19: Zellner, Moullette, and Poidomani

Petitioner argues that Zellner, Moullette, and Poidomani would have rendered claim 19 obvious to a person of ordinary skill in the art under 35 U.S.C. § 103. Pet. 44–45; *see* Ex. 1002 ¶¶ 111–112. Claim 19 depends from claim 12 and recites that a “second circuit [is] operable to emit a second electromagnetic field in parallel with the electromagnetic field.”

Petitioner provides sufficient and persuasive rationale to combine Zellner and Moullette, as discussed above, and argues that a person of ordinary skill in the art would have had reason to incorporate the teachings of Moullette as modified by Poidomani into Zellner’s device. Pet. 44; Ex. 1002 ¶¶ 111–112. Petitioner notes that Zellner describes the dynamic magnetic encoder is a known technique with the skills of an ordinarily skilled artisan and that Moullette and Poidomani provide such teachings. *Id.*

Petitioner also asserts that the combination of Zellner, Moullette, and Poidomani teach the simultaneous electromagnetic fields that provide magnetic stripe data in dependent claim 19 for the same reasons described above for claims 9 and 11. Pet. 45; Ex. 1002 ¶ 113.

Patent Owner’s arguments raise the same motivation to combine arguments regarding faster transactions and device communication flexibility addressed above in Part II.E.2 with respect to Moullette and Poidomani. *See* PO Resp. 26–29, 38–39. For the same reasons discussed above, we find that Petitioner provides sufficient evidence and argument that showing that a person of ordinary skill in the art would have had reason to combine Zellner, Moullette, and Poidomani with a reasonable expectation of success.

Based on the full record including weighing Patent Owner's evidence of objective indicia of nonobviousness in § II.D.4, we determine that Petitioner has demonstrated by a preponderance of the evidence that dependent claim 19 would have been obvious in view of Zellner, Moullette, and Poidomani.

H. Alleged Obviousness Claims based on Doughty

Petitioner provides argument the Doughty renders claims 1–3, 8, and 10 obvious. Pet. 45–51; Ex. 1002 ¶¶ 114–123. Petitioner argues that Doughty and Poidomani would have rendered claims 9 and 11 obvious (Pet. 51–54; Ex. 1002 ¶¶ 124–128); Doughty and Zellner would have rendered claims 4–7, 12–17, and 20 obvious (Pet. 54–65; Ex. 1002 ¶¶ 129–160); and Doughty, Zellner, and Poidomani would have rendered claim 19 obvious (Pet. 65–67; Ex. 1002 ¶¶ 161–164).

We do not reach Petitioner's grounds for unpatentability based Doughty as we have determined above that claims 1–20 of the '100 are unpatentable over (1) Moullette (claims 1–3, 8, 10); (2) Moullette and Poidomani (claims 9 and 11); (3) Zellner and Moullette (claims 1, 4–7, 12–18, 20); and (4) Zellner, Moullette, and Poidomani (claim 9). See Part II.D, II.E, II.F, and II.G; *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App'x 984, 990 (Fed. Cir. Apr. 30, 2020) (non-precedential) (recognizing that the “Board need not address issues that are not necessary to the resolution of the proceeding” and, thus, agreeing that the Board has “discretion to decline to decide additional instituted grounds once the

petitioner has prevailed on all its challenged claims”). Accordingly, further review of Petitioner’s grounds based on Doughty would not change our final decision in this case.

I. Constitutional Arguments

Patent Owner contends that Administrative Patent Judges are unconstitutionally appointed principal officers, and that this proceeding should be dismissed or stayed for this reason. PO Resp. 66–68; Sur-Reply 26–27. We do not reach Patent Owner’s Constitutional challenge because the Supreme Court resolved this issue in *United States v. Arthrex, Inc.*, 141 S. Ct. 1970, 1986–87, 1997 (2021).

IV. CONCLUSION⁸

For the reasons given, based on the arguments and evidence of record, Petitioner has met its burden to prove by a preponderance of the evidence that (1) claims 1–3, 8, 10 are unpatentable under 35 U.S.C. § 103(a) as obvious over Moullette; (2) claims 9 and 11 are unpatentable under 35 U.S.C. § 103(a) as obvious over Moullette and Poidomani; (3) claims 1, 4–7, 12–18, 20 10 are unpatentable under 35 U.S.C. § 103(a) as obvious over Zellner and Moullette; and (4) claim 9 is unpatentable under 35 U.S.C.

⁸ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

§ 103(a) as obvious over Zellner, Moullette, and Poidomani. We reached no conclusion on the four grounds based on Doughty. *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App'x 984, 990 (Fed. Cir. Apr. 30, 2020) (non-precedential).

The table below summarizes our conclusions:

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–3, 8, 10	103(a)	Moullette	1–3, 8, 10	
9, 11	103(a)	Moullette, Poidomani	9, 11	
1, 4–7, 12– 18, 20	103(a)	Zellner, Moullette	1, 4–7, 12–18, 20	
19	103(a)	Zellner, Moullette, Poidomani	19	
1–3, 8, 10	103(a)	Doughty ⁹		
9, 11	103(a)	Doughty, Poidomani		
4–7, 12– 18, 20	103(a)	Doughty, Zellner		
19	103(a)	Doughty, Zellner, Poidomani		
Overall Outcome			1–20	

⁹ We do not reach the Doughty challenges for the reasons previously explained.

V. ORDER

Accordingly, it is:

ORDERED that claims 1–20 of the '100 Patent are determined to be unpatentable; and

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

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