

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.

IPR2020-00505
Patent 10,255,545 B2

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

JURGOVAN, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background and Summary*

On January 31, 2020, Petitioner, Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Research America, Inc., filed a Petition requesting *inter partes* review of claims 1–16 of U.S. Patent No. 10,255,545 B2 (Ex. 1001, the “’545 Patent”). Paper 1 (“Petition” or “Pet.”). On May 15, 2020, Patent Owner, Dynamics Inc., filed a Preliminary Response to the Petition. Paper 8 (“Prelim. Resp.”). On June 2, 2020, Petitioner filed a Reply to address the *Apple v. Fintiv*¹ factors under 35 U.S.C. § 314(a). Paper 9. On June 9, 2020, Patent Owner filed a Sur-Reply to respond to Petitioner’s Reply. Paper 10.

On August 12, 2020, applying the standard set forth in 35 U.S.C. § 314(a), which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we instituted an *inter partes* review of claims 1–16 of the ’545 Patent. Paper 11.

On November 4, 2020, Patent Owner filed its Response to the Petition. Paper 18 (“PO Resp.”). On January 27, 2021, Petitioner filed a Reply to Patent Owner’s Response, and on March 26, 2021, Patent Owner filed a Sur-Reply. Paper 21 (“Reply”); Paper 24 (“Sur-Reply”).

An Oral Hearing took place on May 12, 2021. The Hearing Transcript is included in the record. Paper 31 (“Tr.”).

After considering the parties’ arguments and supporting evidence, we determine that Petitioner has proved by a preponderance of the evidence that

¹ IPR2020-00019, Paper 11 (PTAB March 20, 2020) (precedential) (Order).

claims 1–16 are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d) (2019).

B. Real Parties in Interest

Petitioner identifies Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Research America, Inc. as the real parties in interest. Pet. 76 (Petitioner’s Mandatory Notices).

Patent Owner identifies itself as the real party in interest. Paper 6, 2 (Patent Owner’s Mandatory Notices).

C. Related Matters

Patent Owner has asserted the ’545 Patent in the following cases:

Case Name	Case Number	Court	Case Filed
In re Certain Mobile Devices with Multifunction Emulators (“the ITC litigation”)	337-TA-1170	U.S. International Trade Commission (ITC)	7/12/2019
Dynamics Inc. v. Samsung Elecs. Co., Ltd., et al.	1:19-cv-6479	Southern District of New York	7/12/2019
Samsung Elecs. Co., Ltd., et al. v. Dynamics Inc.	IPR2020-00499	PTAB	1/31/2020
Samsung Elecs. Co., Ltd., et al. v. Dynamics Inc.	IPR2020-00502	PTAB	1/31/2020
Samsung Elecs. Co., Ltd., et al. v. Dynamics Inc.	IPR2020-00504	PTAB	1/31/2020

Paper 6, 2–3 (Patent Owner’s Mandatory Notices).

D. The ’545 Patent

The ’545 Patent is titled “Cards and Devices with Multifunction Magnetic Emulators and Methods for Using the Same.” Ex. 1001,

code (54). A payment device of the '545 patent generally includes (a) circuitry for communicating with a cellular network; (b) radio frequency identification (RFID) circuitry for electrically coupling and communicating with a payment terminal; (c) a coil for electrically coupling and communicating with the payment terminal; and (d) a processor for controlling operation of the coil. *Id.* at 14:46–59 (claim 1).

The coil may be controlled by the processor to emit fields emulating the swiping of a magnetic stripe card through a reader. *Id.* at 5:45–61. The coil may also receive a signal to encode a static magnetic track. *Id.* at 7:23–31. Thus, the magnetic emulator may both transmit data to a magnetic stripe reader, and receive data from the magnetic stripe reader. *Id.* at 7:28–35.

Figure 4 of the '545 Patent is shown below.

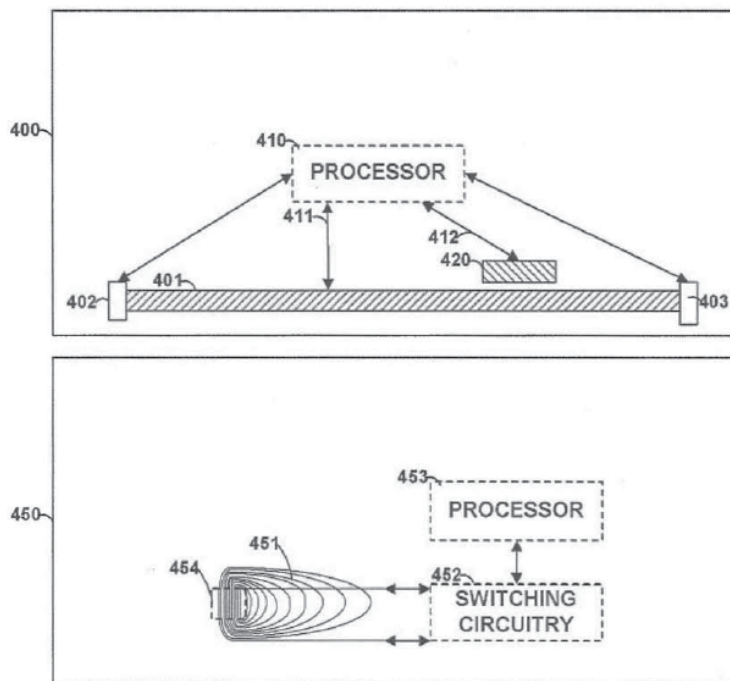


FIG. 4

Figure 4 illustrates cards 400 and 450 of the '545 patent. *Id.* at 3:17–18. Card 450 includes processor 453, switch circuitry 452 and emulator 451. *Id.*

at 7:36–39. Emulator 451 includes active region 454 to communicate with a magnetic stripe reader or encoder. *Id.* Processor 453 may drive emulator 451 via switching circuitry 452 including one or more transistors, causing the emulator to transmit an electromagnetic signal to the magnetic stripe reader. *Id.* at 7:47–52.

Figure 7 of the '454 Patent is shown below.

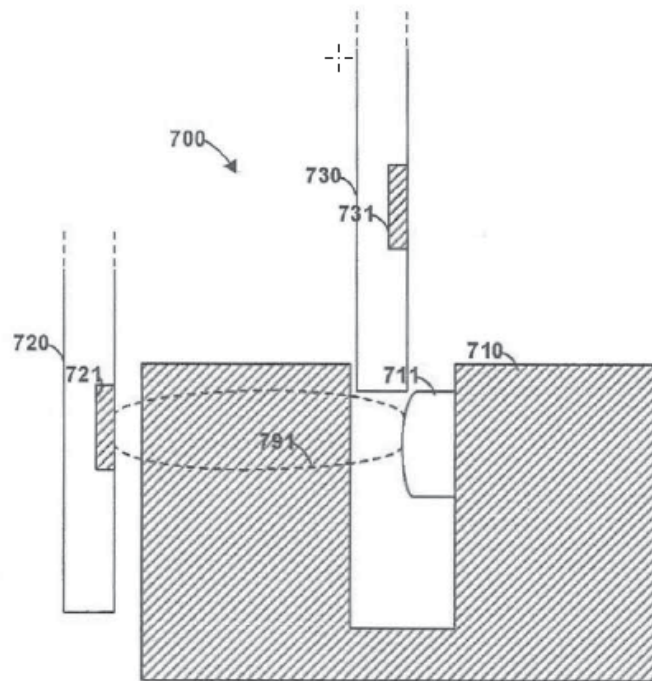


FIG. 7

Figure 7 illustrates electrical coupling between a card and reader. *Id.* at 3:24–26. Card 720 includes emulator 721 that provides electromagnetic field 791 that may transmit through a portion of the housing of magnetic stripe reader 710. *Id.* at 8:29–32. Accordingly, card 720 may be located outside of reader 710 and yet communicate information to reader 710. *Id.*

at 8:33–39. The emulator may be located at a surface of a card or beneath a surface of a device. *Id.* at 9:21–24.

Figure 2 of the '545 Patent is shown below.

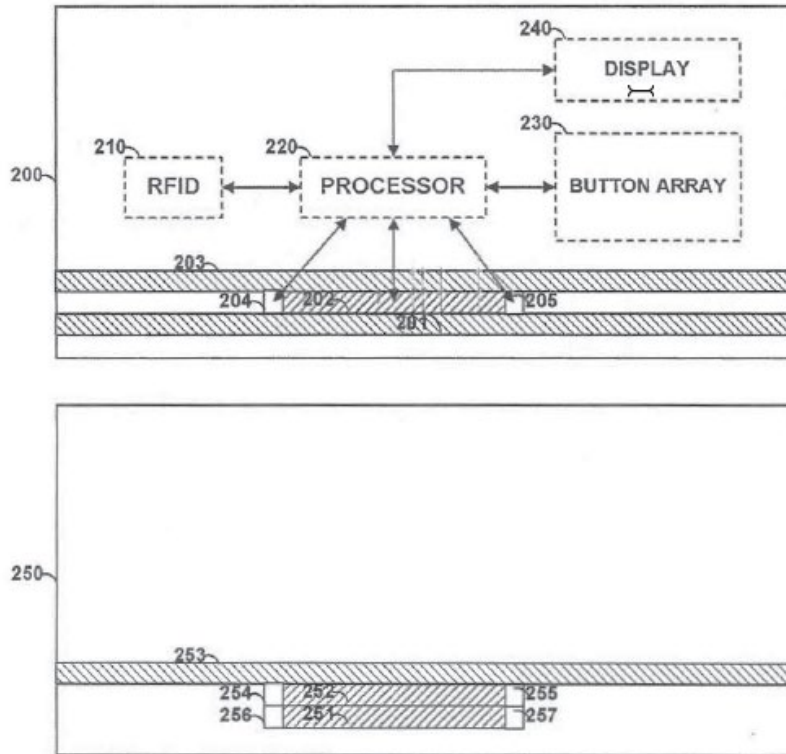


FIG. 2

Figure 2 illustrates cards 200 and 250. *Id.* at 3:13–14. Card 200 includes static magnetic track 201, magnetic emulator 202, and static magnetic track 203 sandwiched between read-head detectors 204 and 205. *Id.* at 5:45–48. Processor 220 receives information from read-head detectors 204 and 205, and controls current flow through a coil of emulator 202 to generate electromagnetic fields sensed by a magnetic stripe reader. *Id.* at 5:51–61.

Figure 2 also shows a RFID antenna 210 on card 200. *Id.* at 5:62. Processor 220 may use RFID antenna 210 to transmit information to an

RFID device, or may use magnetic emulator 204 to communicate information to a magnetic stripe reader. *Id.* at 5:62–67. Both RFID antenna 210 and magnetic emulator 204 may be used to communicate payment card information (e.g., credit card information) to a reader. *Id.* at 5:67–6:3.

Processor 220 may also be coupled to display 240 to display dynamic information. *Id.* at 6:3–5. The dynamic information may include a credit card number, debit card number, payment card number and/or payment verification code. *Id.* at 2:62–65. Button array 230 may be coupled to processor 220 so that operation of card 200 may be controlled, at least in part, by manual input received by button array 230. *Id.* at 6:5–8.

Other embodiments of the device include a personal electronic device, which may be a portable telephonic device, portable media player, or other type of electronic device. *Id.* at 12:32–34, Fig. 12. The device may include a touch-sensitive display. *Id.* at 12:40–42. The device may communicate with a cellular network. *Id.* at 14:46–48; 15:10. The device may be thicker than a card. *Id.* at 2:44–48.

E. Challenged Claims

Claims 1 and 9 of the '545 Patent are independent. Claims 2–8 depend directly from claim 1, and claims 10–16 depend directly from claim 9. Claim 1 is set forth below with annotated numbering of steps (the annotation does not affect our analysis):

1. [preamble] A device comprising:
 - [1a] circuitry operable to communicate with a cellular network;
 - [1b] RFID circuitry operable to electrically couple the device to a payment terminal and to communicate RFID data to the payment terminal;
 - [1c] a coil; and

[1d] a processor for controlling the operation of the coil such that the coil is operable to electrically couple the device to the payment terminal and to communicate data in magnetic stripe data format to the payment terminal,

[1e] wherein the coil is operable to electrically couple the device to the payment terminal from a position beneath a surface of the device.

Ex. 1001, 14:46–59.

F. Evidence of Record

Petitioner relies upon the following prior art references²:

Doughty	US 2006/0161789 A1	Published July 20, 2006	Ex. 1012
Zellner	US 7,097,108 B1	Issued August 29, 2006	Ex. 1008
Moulette	US 7,114,652 B1	Issued October 3, 2006	Ex. 1007
Pitroda	US 6,769,607 B1	Issued August 3, 2004	Ex. 1015

Petitioner also supports its challenges with a declaration from Stephen G. Halliday (Ex. 1002). Pet. 9. Patent Owner relies on a declaration of Ivan Zatkovich (Ex. 2042) to support its contentions. PO Resp. (viii). Both declarants were deposed. Ex. 1032 (Zatkovich Deposition); Ex. 2039, Ex. 2040 (Halliday Depositions). In addition, Patent Owner relies on a deposition of Stuart Lipoff from the ITC litigation. Ex. 2041. The parties submitted numerous other documents into the record.

G. The Asserted Challenges to Patentability

Petitioner asserts the following challenges to patentability:

² Petitioner alleges that all of the prior art references were filed, issued or published before the '545 Patent's earliest alleged priority date of December 24, 2007. Pet. 4, 8. Petitioner contends that all of these prior art references are prior art under 35 U.S.C. §§ 102(a), (b), and (e) (pre-Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA")). *Id.* at 8. Patent Owner does not refute these assertions. Accordingly, we will treat these references as prior art in this decision.

Challenged Claims	35 U.S.C. §	Reference(s)/Basis
1–16	103(a) ³	Doughty, Zellner
1–16	103(a)	Zellner, Moullette
1–16	103(a)	Pitroda

H. Prior Art Summaries

1. Doughty (Ex. 1012)

Doughty is titled “System, Method and Apparatus for Enabling Transactions Using a User Enabled Programmable Magnetic Stripe.”

Ex. 1012, code (54). Doughty’s Figure 3 is shown below.

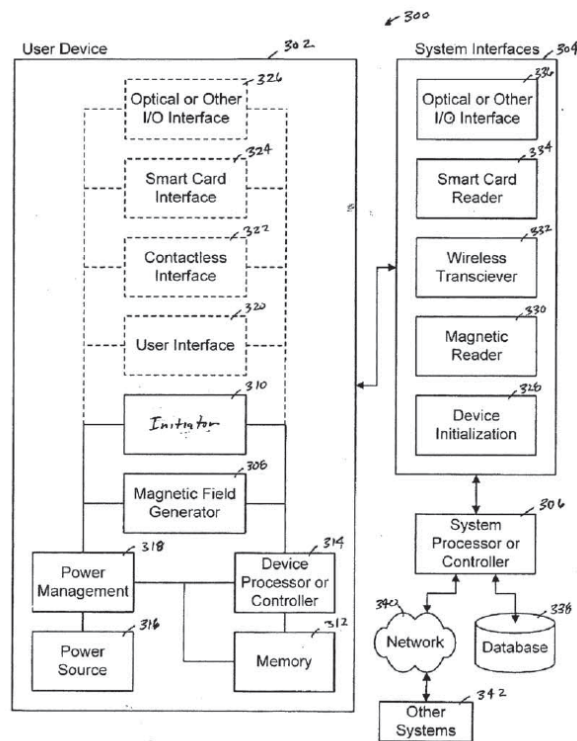


FIG. 3

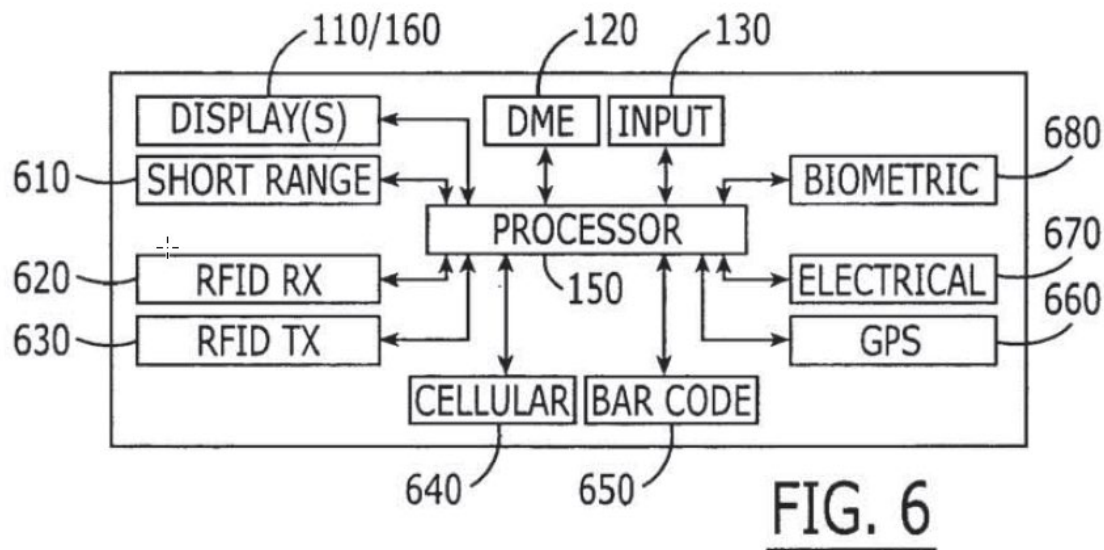
³ Because the claims at issue have an effective filing date prior to the effective date of the AIA’s amendments to 35 U.S.C. §§ 102 and 103 (March 16, 2013), we apply the pre-AIA versions of §§ 102 and 103 in this Decision.

In Figure 3, Doughty depicts a system 300 with user device 302 and system interface 304 used for security and/or commercial transactions. *Id.* ¶¶ 8, 41. User device 302 includes memory 312, processor 314, magnetic field generator 306, user interface 320, contactless interface 322, smart card interface 324, and optical or other I/O interface 326. *Id.* Magnetic field generator 306 is coupled to device processor 314 and emulates a programmable magnetic stripe using inductive coils. *Id.* ¶¶ 10, 43. The contactless interface 322 is coupled to the device processor 314 and includes an antenna for wireless communication. *Id.* ¶ 47. Smartcard interface 324 is coupled to device processor 314. *Id.* The components of user device 302 are disposed within or mounted on a substrate, and may be integrated into a personal communication device such as a telecommunications device. *Id.* ¶¶ 47–48. The interfaces of user device 302 communicate with respective magnetic reader 330, wireless transceiver 332, smart card reader 334, and I/O interface 336 of system interface 304. *Id.* ¶ 49.

2. *Zellner (Ex. 1008)*

Zellner is 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.* at 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.

3. *Moulette (Ex. 1007)*

Moulette is titled “External Adaptor for Magnetic Stripe Card Reader.” Ex. 1007, code (54). Moulette purports to address a need in the art for a portable personal device to interact with older legacy POS card acceptance systems. *Id.* at 2:38–47, 2:51–55. Consumer pod portion 16 of Moulette's adaptor 14 includes a radio frequency proximity transceiver conforming to ISO 14443 and ISO 15963 standards, and a wireless

transceiver configured for wireless or cellular protocols such as CDMA, CDPD, GPRS, GSM, SMS and others. *Id.* at 4:8–10, 4:41–60, Fig. 1.

Moullette's Figure 1 is shown below.

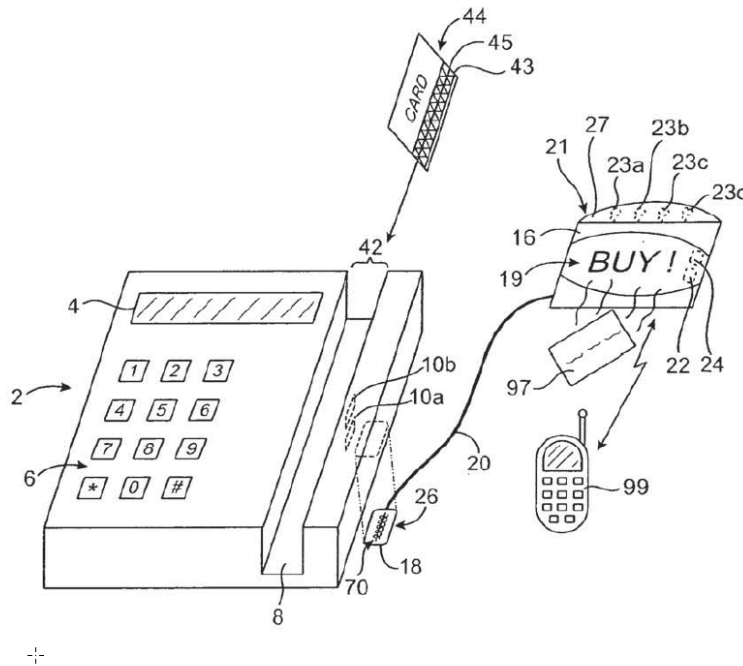


Figure 1 shows conventional POS magnetic stripe card reader 2 with magneto-inductive reader heads 10, and adaptor 14 with consumer pod portion 16 communicating with merchant pod portion 18 through cable 20. *Id.* at 4:1–10. Consumer pod portion 16 is positioned at a location convenient for a customer, 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.

4. *Pitroda (Ex. 1015)*

Pitroda is titled “Point of Sale and Display Adapter for Electronic Transaction Device.” Ex. 1015, code (54). Pitroda discloses “[a]n adapter for use with a conventional POS card reader to interface with PDA’s, Wireless Phones, and other Handheld devices, through Infrared or RF media, such that signals received from the devices can be converted to conventional magnetic stripe and/or smart card format, as required by the conventional POS card readers.” *Id.* at code (57). In one embodiment, Pitroda describes that the adapter is an “extension” of the electronic transaction device, which may be a PDA or wireless telephone. *Id.* at 2:3–6, 11:11–14. Pitroda describes the wireless telephones as including dialing, transmitting and receiving circuitry. *Id.* at 1:27–28. Pitroda further describes that its device has proximity radio frequency devices. *Id.* at 11:14–28. Pitroda’s adaptor may include a point-of-sale (POS) interface including a magnetic stripe emulator, smart card emulator or both. *Id.* at 3:57–66. Pitroda’s magnetic stripe emulator may include an electromagnet with one or more coils. *Id.* at 3:66–67, 8:16–17, Figs. 12, 14.

Pitroda’s Figure 20 is reproduced below.

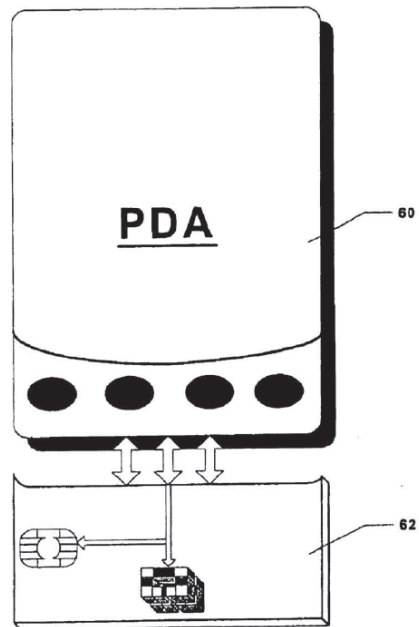


FIG. 20

Figure 20 is an illustration of an example of Pitroda's electronic transaction device 60 with extension 62. *Id.* at 5:35–36, 11:11–14.

Pitroda's Figure 21 is reproduced below.

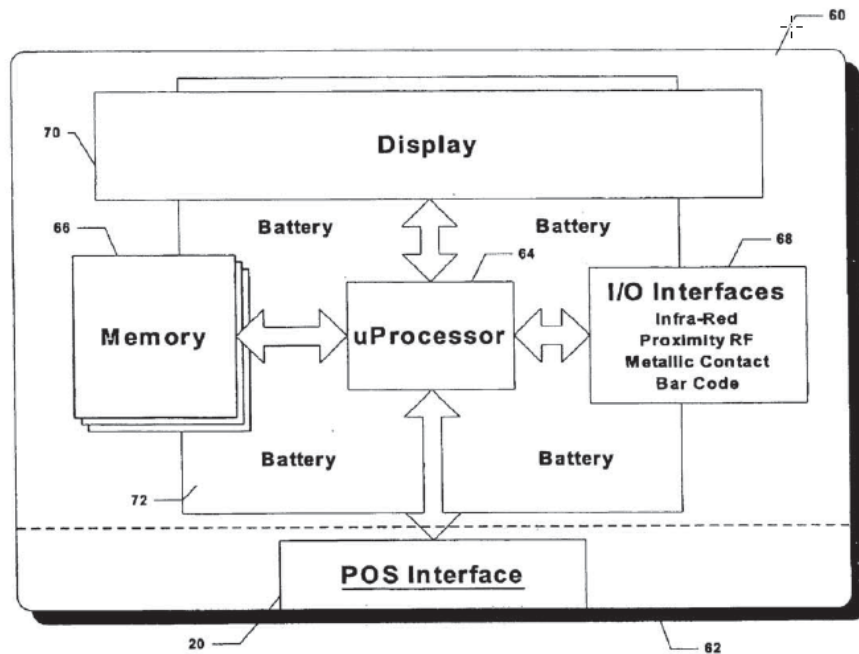


FIG. 21

Figure 21 is a block diagram of electronic transaction device 60, which includes extension 62. *Id.* at 5:37–38. Electronic transaction device 60 comprises microprocessor 64 coupled to memory 66, I/O interfaces 68, display 70, which may be a touch sensitive liquid crystal display, and battery 72. *Id.* at 11:11–21. The extension 62 includes POS interface 20. *Id.* at 11:11–14. Microprocessor 64 controls data flow to POS interface 20. *Id.* at 11:29–31.

II. ANALYSIS

A. *Legal Standards for Obviousness*

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) where present, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Obviousness based on a combination of references requires a showing that all claim limitations are taught or suggested by the combined references. *Praxair Distrib., Inc. v. Mallinckrodt Hosp. Prods. IP Ltd.*, 890 F.3d 1024, 1041 (Fed. Cir. 2018) (Newman, J., concurring in the judgment) (citing *In re Royka*, 490 F.2d 981 (CCPA 1974)). A person of ordinary skill in the art must have had an apparent reason to combine the references. *KSR*, 550 U.S.

at 418. A conclusion of obviousness further requires a reasonable expectation of success in combining references to meet the limitation of the claimed invention. *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367 (Fed. Cir. 2016).

B. Burden of Proof

Petitioner has the burden of proving unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e) (2018). Petitioner carries the burden from the onset of the proceeding, and the burden never shifts to Patent Owner. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016); *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). Petitioner must “show with particularity why the patent it challenges is unpatentable.” *See Harmonic, supra*.

Petitioner cannot satisfy its burden of proving obviousness with “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Instead, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

C. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art (“POSITA”) on December 24, 2007, which is the earliest alleged priority date of the ’545 Patent, “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. 14; Ex. 1002 ¶ 33. Petitioner also contends “[a]dditional education might supplement practical experience and vice-versa.” Pet. 14.

In the ITC litigation, Patent Owner contends Petitioner proposed the same definition as here, and that Petitioner proposed that a person of ordinary skill in the art (“PHOSITA”) would have “at least two years of experience with point of sale systems and financial transactions.” PO Resp. 30; Ex. 2012, 6–7. Patent Owner indicates that “the ALJ in the ITC litigation decided that a PHOSITA 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. 30–31; Ex. 2012, 6–7 (ITC Claim Construction). Patent Owner contends that claims 1–16 of the ’545 Patent are valid and non-obvious regardless of which definition applies. PO Resp. 31.

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, Zellner, Moullette, and Pitroda. *See* Ex. 1012 ¶ 7; Ex. 1008, 1:13–42; Ex. 1007, 2:38–47; Ex. 1015, 3:22–48. Solutions proposed for these problems are also disclosed in these references. *See* Ex. 1012 ¶ 8; Ex. 1008, 1:44–3:45; Ex. 1007, 2:49–3:30; Ex. 1015, 3:22–48.

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 the types of technologies recited in the claims. Specifically, the other proposed definitions do not cover cellular networks, 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.

D. Claim Construction

We construe the challenged claims under the same standard used by a federal court in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2019). This standard is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) and its progeny. This standard includes “construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b) (2019). Only claim terms in controversy need to be construed,

and only to the extent necessary to resolve the controversy. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

“Petitioner does not believe any terms need to be construed to resolve the issues presented in this Petition.” Pet. 15–16. Patent Owner indicates certain terms were construed by the ALJ in the ITC litigation in a claim construction order dated January 31, 2020, and states “[a]ll of the claims of the ’545 patent are patentable under these constructions.” PO Resp. 31–32; 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. The actual claim language of the ’545 Patent and the corresponding ITC constructions from Exhibit 2012 are shown in the table below.

’545 Patent’s Claim Language	ITC Construction
“operable to electrically couple [the device] to a payment terminal and to communicate [data in magnetic stripe data format/magnetic stripe data] to the payment terminal” (claims 1 and 9)	“operable to electrically couple [the device] to a payment terminal and to communicate [data in magnetic stripe data format/magnetic stripe data] to the payment terminal.”
“within proximity of” (claims 8 and 16)	“within proximity of”
“virtual payment card” (claims 5 and 13)	“a visual representation of a payment card”

Ex. 2012, 34–36.

The ITC’s constructions for the first two limitations mirror the actual claim language. In other words, the ITC uses the plain and ordinary meaning of these claim limitations. *Id.* For the third limitation, the ITC agreed with Patent Owner that the construction for a “virtual payment card” is “a visual representation of a payment card.” *Id.* at 36. In determining this construction, the ITC found that Figure 12 of the ’631 Patent and its corresponding description, which is identical to Figure 12 of the ’545 Patent and its description, included features common to actual credit cards such as card number, name, and security (CVCC) code, but did not include other features actual credit cards would have, such as a logo, expiration date, issuer, magnetic stripe, and computer chip. *Id.* at 33–34. The ITC held that the payment card of Figure 12 only resembles an actual credit card, and thus chose Patent Owner’s construction that a “virtual payment card” is “a visual representation of a payment card” over Petitioner’s construction of “an image of a payment card.” *Id.*

We agree with the ITC that the ordinary and customary meaning of “virtual payment card,” when considered in light of the ’545 Patent, specifically, Figure 12 and the corresponding description, is “a visual representation of a payment card.” This definition is consistent with Figure 12 of the ’545 Patent and its corresponding description, which is the only place in the specification where a similar term, “virtual card,” is mentioned. Ex. 1001, 12:32–46, Fig. 12.

We proceed to analyze the challenges, applying the ordinary and customary meaning of the claim terms.

E. Asserted Obviousness of Claims 1–16 over the Combination of Doughty and Zellner

Petitioner contends claims 1–16 would have been obvious over the combination of Doughty and Zellner. Pet. 16–39. Patent Owner argues claims 1–16 would not have been obvious. PO Resp. 32–50.

1. Claim 1

a) Rationale to Combine Doughty and Zellner with Reasonable Expectation of Success and Related Matters

Petitioner contends that a “POSITA would have been motivated to modify Doughty in view of Zellner in order to improve Doughty’s functionality and flexibility.” Pet. 16 (citing Ex. 1002 ¶¶ 65–70). Petitioner further contends “[b]oth Doughty and Zellner recognize the need for electronic devices that can process financial and other transactions, and are directed to devices that emulate the varying magnetic fields generated by traditional magnetic stripe payment cards.” *Id.* (citing Ex. 1012, code (57), ¶¶ 2, 9; Ex. 1008 1:6–9, 5:34–39).

Specifically, Petitioner states that Doughty has a “magnetic field generator” that “emulates a programmable magnetic stripe” (Ex. 1012 ¶ 10); that Doughty’s device may be “a personal communication device, such as a personal data assistant (PDA), a telecommunications device, a pager, . . . etc.” (Ex. 1012 ¶ 48); and that Doughty’s device includes multiple other components, such as “radio frequency (‘RF’) antenna,” “a controller,” and “a dynamic information display” (Ex. 1012 ¶ 62). Pet. 16–17.

Petitioner states that “Zellner describes an electronic device that can ‘emulate the magnetic stripe information that would be provided by the credit card.’” Pet. 17 (citing Ex. 1008, 1:60–64). Petitioner contends that Zellner describes a “portable package,” such as “a PDA, cell phone or other

portable electronic device,” that “may be configured to display . . . a full size image of a credit card” and can “interface with credit card readers.” *Id.* (citing Ex. 1008, 10:63–11:13) (alteration in original). Petitioner also contends that Zellner discloses that the device has a display, processor, a dynamic magnetic encoder (DME) 120, and RF subsystem 920 including short range RF system 610, an RFID receiver 620, and RFID transmitter 630, a cellular system 640 and/or a position (GPS) system 660, which can be controlled by processor 150. *Id.* (citing Ex. 1008, 7:42–58, 9:38–51, 11:50–55). Petitioner further contends that Zellner’s device is “compatible with existing card readers” and those having “a radio frequency interface.” Pet. 17 (citing Ex. 1008, 11:50–55).

Petitioner contends that the similarities in design and purpose of Doughty and Zellner would have led a person of ordinary skill in the art to modify Doughty with Zellner’s teachings to improve Doughty’s functionality and flexibility. Pet. 16–19. Specifically, Petitioner contends that a POSITA would have been motivated to modify Doughty’s telecommunication device with Zellner’s cellular transceiver and would have had a reasonable expectation of success in doing so. *Id.* at 17–18; Ex. 1008, 7:42–58; Ex. 1012 ¶ 48; Ex. 1002 ¶ 68. Petitioner further contends that a person of ordinary skill in the art would have had reason to modify Doughty’s RF capabilities to include Zellner’s RFID functionality with a reasonable expectation of success. Pet. 18–19; Ex. 1012 ¶¶ 62, 63, 65; Ex. 1008, 7:42–58, 9:47–50; Ex. 1002 ¶¶ 69, 70.

Patent Owner contends that “Doughty never teaches *how* this substrate may be integrated into such devices, and Petitioner fails to explain how a PHOSITA would modify Doughty or Zellner in any meaningful way

as to have been obvious to a PHOSITA.” PO Resp. 33–34 (alterations in original); Sur-Reply 1–2, 4. In other words, Patent Owner argues (1) that the Doughty patent is not enabled because it does not teach how to integrate the substrate into a PDA or other telecommunications device; and (2) that there was a lack of motivation to modify Doughty with Zellner to include all components into a PDA or other telecommunications device. PO Resp. 33–34.

Petitioner replies that prior art publications and patents are presumed to be enabled. Reply 3–4 (citing *Sandoz Inc. v. Pharmacyclics LLC*, IPR2019–00865, Paper 29 at 13 (PTAB Sept. 24, 2020); *Microsoft Corp. v. Parallel Networks Licensing, LLC*, 715 F. App’x 1013, 1021 (Fed. Cir. 2017)). Petitioner argues that “Doughty and Zellner provide at least as much implementation detail as the ’545 Patent, which only says its Figure 12 “may be, for example, a portable telephonic device, portable media player, or any type of electronic device.” *Id.* at 4. Petitioner contends that the ’545 Patent “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).

Petitioner argues that Patent Owner “fails to show why the Board should treat enablement differently between the cited prior art and the ’545 patent given their similar level of detail.” *Id.* (citing *In re ThermoLife Int’l LLC*, 796 F. App’x 726, 733 (Fed. Cir. 2020), *cert. den’d sub nom, ThermoLife Int’l LLC v. Iancu*, 141 S. Ct. 1049 (Jan. 11, 2021)).

Beyond its general allegations of lack of enablement and motivation to combine, Patent Owner does not identify specifically what is missing from Doughty such that it fails to provide an enabling disclosure, nor does

Patent Owner explain what deficiency exists in Petitioner's stated reasons to combine Doughty and Zellner. *See* PO Resp. 33–34.

“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). Therefore, “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 any case, we agree with Petitioner that “a POSITA would have understood how to implement the features of Doughty and Zellner on a telecommunications device.” Reply 4 (citing Ex. 1002 ¶¶ 65–84). Doughty describes in some detail how the components of Doughty's user device, including integrated circuit with processor and memory, as well as a magnetic field generator and contactless interface for emulating a magnetic stripe, are mounted on a substrate and integrated into a personal communications device. Ex. 1012 ¶¶ 41–48; Ex. 1002 ¶¶ 48, 59, 76, 84. Petitioner merely relies on Zellner to modify Doughty by providing additional details of the cellular circuitry and RFID circuitry of the personal communication device. Pet. 17–19; Ex. 1008, 7:42–58, 9:47–50.

Patent Owner does not identify any specific obstacles that would have been difficult for one of ordinary skill in the art to overcome in combining the teachings of Doughty and Zellner that would have negated the evidence of record demonstrating a reason to combine at the time of the invention and a likelihood of success. Ex. 1002 ¶¶ 65–70. There is evidence in the record that integrated circuits, circuit boards and substrates, and packaging techniques were sufficiently advanced by the priority date of the '545 Patent

that one of ordinary skill in the art would have employed them to include the components in a single device. *See, e.g.*, Ex. 1012 ¶¶ 4, 41; Ex. 1008, 7:42–63. For example, Doughty indicates that the memory and device processor “may be integrated into a single integrated circuit.” Ex. 1012 ¶ 41. Zellner states that its dynamic magnetic encoder (DME), short range, RFID, and cellular transceivers, along with many other components, may be provided in or on a card roughly the size of a credit card. Ex. 1008, 7:42–63, Figs. 1–6. Such a card would be sufficiently small to fit inside a PDA or telecommunications device, like Doughty’s substrate. *See* Ex. 1012 ¶ 48. Zellner further states that dynamic magnetic encoders were well-known. Ex. 1008, 5:35–39. In addition, Zellner states that the design and operation of various devices, including its short range wireless transmitter/receiver, RFID transmitter/receiver, and cellular transceiver, were well known. Ex. 1008, 7:61–63. Furthermore, the fact that Doughty and Zellner—and, for that matter, the ’545 Patent—forego great detail on how to combine a magnetic field generator, RFID circuitry, and cellular circuitry in a personal communications device suggests that one of ordinary skill in the art would have known how to combine these components in a single device. Ex. 1001, 12:32–37 (“the functionality of a card may be provided on a personal device” such as “a portable telephonic device”).

Accordingly, we determine that Patent Owner’s argument does not outweigh Petitioner’s showing that Doughty and Zellner teach how to integrate a substrate with magnetic field generator and contactless interface with cellular circuitry in a personal communications device, and that a person of ordinary skill in the art would have had reason to combine Doughty and Zellner with reasonable expectation of success.

b) Petitioner's Reading of Claim 1 on Prior Art

Petitioner reads claim 1 on the combination of Doughty and Zellner as follows.

(1) [preamble] A device comprising:

Petitioner contends that, to the extent the preamble is limiting, Doughty's user device teaches the preamble of claim 1. Pet. 19; Ex. 1012 ¶¶ 10, 48; Ex. 1002 ¶ 71. Specifically, Petitioner contends that Doughty describes "an apparatus or user device" that includes "a magnetic field generator" and "a processor . . . that is communicably coupled to the magnetic field generator." Pet. 19 (citing Ex. 1012 ¶ 10) (alteration in original). Petitioner contends that Doughty describes the device as "a personal communication device, such as a personal data assistant (PDA), a telecommunications device, a pager, . . . etc." *Id.* (citing Ex. 1012 ¶ 48).

Patent Owner argues that Doughty's reference to "integration of such devices does not mean that these integrated devices are combined into a single device." PO Resp. 34 (citing Ex. 2042 ¶ 89); *see also* Sur-Reply 2–3, 8–9. Patent Owner further contends it was known in the art "that these devices must be separate devices capable of communicating with one another" and that combining the devices would "contradict the prevailing knowledge in the art." *Id.* at 34–36 (citing Ex. 2041, 170:10–171:19; Ex. 2042 ¶¶ 89, 92, 94; Ex. 1008, 1:46–2:3; Ex. 2030; Ex. 2031 (magnetic stripe primers)). Patent Owner further argues that the "prevailing wisdom in the art was to include a magnetic stripe emulator or RFID circuitry for communicating with a POS terminal, not both." PO Resp. 40–41 (citing Ex. 1007, 4:61–5:20; Ex. 1015, 3:52–64; Ex. 2042 ¶¶ 104–107). Patent Owner's arguments appear to be predicated on the recitation of "*A device*" in

the preamble of claim 1, although Patent Owner does not so state in its Response.

Petitioner replies that Doughty and Zellner contradict Patent Owner's argument that Doughty's magnetic field generator was required to be in a separate device from its cellular circuitry. Reply 3 (citing Pet. 16–26; Ex. 1012 ¶ 48; Ex. 1008, 3:22–26, 10:63–11:13, Figs. 6, 12). We agree with Petitioner that Doughty teaches mounting the components of its user device, including its magnetic field generator and contactless interface, on a substrate and integrating the substrate into a personal communication device, which would have cellular circuitry. Ex. 1012 ¶ 48. Accordingly, a person of ordinary skill in the art would have understood Doughty's teaching as meaning that the components are “integrated into” a single personal communication device, not multiple devices.

In this regard, we also note that Doughty indicates a preference for single devices over multiple devices. For example, Doughty teaches that use of an adapter or bridge for a smart card to communicate with card-reader infrastructure “is cumbersome, adds cost and reduces reliability.” Ex. 1012 ¶ 5. Doughty's teaching is evidence that one of ordinary skill in the art would have sought to include all components in a single device.

Zellner notes that a problem in the prior art is that many individuals carry a large number of credit cards. Ex. 1008, 1:22–25. Zellner overcomes this problem by replacing the large number of cards with a single electronic card. *Id.* at 6:38–50; Pet. 10. Furthermore, Zellner teaches that when additional features are added, they are not added as separate devices, but as components of the electronic card. Ex. 1008, 2:23–24. For example, RFID, short range and long range wireless transceivers are integrated into the

electronic card, not left as separate devices. *Id.* at 2:23–31; *see also* Fig. 6. Similarly, Zellner teaches that a SIM card (used for cellular communications) may be coupled to or housed in the electronic card. *Id.* at 2:31–34. From these teachings, when Zellner indicates that its PDA or cell phone in Figure 12 may be combined with any of its embodiments, which includes the electronic card of Figure 6, one of ordinary skill in the art would have assumed that Zellner means to combine the PDA or cell phone and electronic card as a single device. Ex. 1008, 7:42–63; 10:67–11:8. Moreover, since the PDA or cell phone in Zellner’s Figure 12 shows an image of a credit card, one of ordinary skill in the art would have assumed that the features for using that credit card, such as the RFID and short range wireless transceivers, would be present in the PDA or cell phone.

Accordingly, a person of ordinary skill would have understood Zellner to mean that the electronic card in Figure 6 would be combined with the PDA or cell phone of Figure 12 as one device. Patent Owner’s argument does not overcome Petitioner’s showing that the combination of Doughty and Zellner teaches a single device. Based on the record, we need not resolve whether the preamble is limiting, because we find Petitioner’s evidence is sufficient to show that Doughty teaches a device as recited in claim 1’s preamble.

(2) *[1a] circuitry operable to communicate with a cellular network;*

Petitioner contends Doughty teaches this limitation because it discloses that its personal communication device may be a PDA or telecommunications device with the necessary circuitry to communicate with a cellular network. Pet. 19–20; Ex. 1012 ¶ 48; Ex. 1002 ¶¶ 72–75. To

the extent Doughty does not disclose this limitation, Petitioner also contends that Zellner's device may include RF system 920 including cellular system 640 as shown in Figure 6, as well as the cell phone shown in Figure 12. Pet. 19–20; Ex. 1008, 9:38–39, 9:47–50, 7:42–58, 10:67–11:8, Figs. 6, 12.

Patent Owner argues that Doughty does not teach “*circuitry operable to communicate with a cellular network*” (limitation 1a above). PO Resp. 32–33 (citing Ex. 2042 ¶¶ 83–84). We disagree. Doughty teaches “a telecommunications device,” which one of ordinary skill in the art would have understood to include cellular communications circuitry, as Petitioner contends. Pet. 17–21; Ex. 1012 ¶ 48; Reply 2 (citing Ex. 1002 ¶ 72; Ex. 1030, 846:2–7 (ITC trial proceeding)). Patent Owner does not identify the underlying facts or data to support its declarant's opinion that Doughty does not teach cellular communications circuitry. 37 C.F.R. § 42.65 (2019). Consequently, Patent Owner's argument does not outweigh Petitioner's showing that Doughty has cellular circuitry as recited in claim limitation 1a.

Patent Owner similarly argues that Zellner fails to teach a device having “*circuitry for communicating with a cellular network*.” PO Resp. 35 (citing Ex. 2042 ¶ 94). Again, we do not agree. Zellner teaches that its electronic card includes “a cellular transceiver 640 (including conventional cellular, PCS, wideband cellular, and/or conventional cellular device).” Ex. 1008, 7:51–53. Zellner also teaches “a PDA, cell phone or other portable electronic device,” which would have been understood to include cellular circuitry. *Id.* at 11:4–5; Ex. 1002 ¶¶ 60–61, 68. Accordingly, we agree with Petitioner that Zellner teaches limitation 1a. Pet. 10–11, 17–21.

Based on the record before us, we find that the combination of Doughty's PDA or telecommunications device with the necessary circuitry to communicate with a cellular network and Zellner's device with cellular system 640 teaches the circuitry of limitation [1a] of claim 1.

(3) *[1b] RFID circuitry operable to electrically couple the device to a payment terminal and to communicate RFID data to the payment terminal;*

Petitioner contends that Doughty teaches an RF antenna and controller that may capture RF energy, and that its controller may support two-way communications with a reader/ writer device (i.e., a POS device) via the RF antenna to conduct commercial- and security-related transactions. Pet. 21–22; Ex. 1012 ¶¶ 2, 62, 63, 65, 69, 105; Ex. 1002 ¶¶ 76–80.

Petitioner also contends that Zellner teaches its device has RFID circuitry including RFID receiver 620 and RFID transmitter 630. Pet. 22–23; Ex. 1008, 7:42–58, 9:47–50, Fig. 6; Ex. 1002 ¶¶ 79–80.

Petitioner contends that RFID was a standardized technology implemented in point of sale terminals, and that RFID components would have been readily available for incorporation in Doughty's device with little or no experimentation. Pet. 23 (citing Ex. 1002 ¶ 80).

Patent Owner argues that “neither Doughty nor Zellner teach RFID circuitry operable to electronically couple a device to a payment terminal and to communicate RFID data to the payment terminal.” PO Resp. 39 (citing Ex. 2042 ¶¶ 104–107). As Petitioner notes, however, Doughty teaches RFID circuitry for harvesting power and supporting two-way communication with a reader/writer device. Reply 5 (citing Ex. 1012 ¶ 63). The communication may be for “various purposes and financial transactions” (Ex. 1012 ¶ 63), suggesting that the reader/writer device may

be a payment terminal. Further, Doughty expressly states that its device may transact with a payment terminal through RF communication. Reply 5 (citing Ex. 1012 ¶ 105; Pet. 22; Ex. 1002 ¶ 78). Moreover, Petitioner’s declarant testifies that one of ordinary skill in the art would have understood these Doughty teachings to be referring to RFID circuitry. Ex. 1002 ¶ 69.

Accordingly, we do not agree with Patent Owner’s argument because Petitioner has shown sufficiently that Doughty teaches RFID circuitry operable to electronically couple a device to a payment terminal and to communicate RFID data to the payment terminal.

As for Zellner, Petitioner notes that “Zellner discloses combining a magnetic stripe emulator with RFID circuitry” because its device shares credit card information with a purchasing system “through a *radio*, *magnetic*, and/or other interface.” Reply 6 (citing Ex. 1008, 3:22–26, 11:50–55; Pet. 44–45) (emphasis altered). We agree with Petitioner that sharing of information through a radio interface would have suggested the presence of RFID circuitry while doing the same through a magnetic interface would have suggested use of magnetic stripe data or its emulation.

Accordingly, Patent Owner’s argument that neither Doughty nor Zellner teach or suggest the claimed RFID circuitry of limitation 1b is unavailing. Based on the record, we find that the combination of Doughty and Zellner teaches or suggests limitation [1b] of claim 1.

(4) [1c] a coil; and

Petitioner contends that Doughty teaches the use of an induction coil to send emulated time-varying magnetic stripe data to a magnetic card reader. Pet. 24; Ex. 1012, code (57), ¶¶ 21, 53, Fig. 5B; Ex. 1002 ¶ 81.

Patent Owner does not dispute that Doughty teaches a coil (but does dispute that the coil communicates with a card reader). PO Resp. 21, 38.

Based on the record, we find for Petitioner that Doughty's induction coil sending emulated time-varying magnetic stripe data to a magnetic card reader teaches limitation [1c] of claim 1.

(5) *[1d] a processor for controlling the operation of the coil such that the coil is operable to electrically couple the device to the payment terminal and to communicate data in magnetic stripe data format to the payment terminal,*

Petitioner contends that Doughty teaches that inductive coil 552 may be connected to control circuit 554 integrated into device processor 314, and that the coil may be pulsed with varying current to generate a magnetic signal provided to reader heads of a magnetic stripe reader, which thus emulates the swipe of a magnetic stripe card. Pet. 24–25; Ex. 1012 ¶ 53, Fig. 3; Ex. 1002 ¶¶ 82–83.

Patent Owner argues that Doughty and Zellner, alone and in combination, fail to teach the part of claim limitation 1d reciting that “*the coil is operable to electrically couple the device to the payment terminal and to communicate data in magnetic stripe data format to the payment terminal.*” PO Response 37 (citing Ex. 2042 ¶ 98). Specifically, Patent Owner argues that Doughty's coil encodes magnetic data cells of a magnetic stripe, and that these data cells are what communicates with the read-head of a POS terminal. PO Resp. 37 (citing Ex. 2042 ¶ 99; Ex. 1012 ¶¶ 52–54, Figures 5A, 5B); *see* Sur-Reply 5. Therefore, Patent Owner asserts,

Doughty's coil does not teach or suggest the indicated part of claim limitation 1d. PO Resp. 37; *see* Sur-Reply 3–4.

Petitioner contends that Patent Owner is conflating the functionality of Doughty's Figure 5A (multiple coils with multiple data cells) with Figure 5B (a single coil for direct magnetic emulation). Reply 6. We agree with Petitioner because Doughty's Figure 5B shows “a single induction coil for sending emulated time-varying stripe data to a magnetic card reader directly.” *Id.* at 6–7 (citing Ex. 1012 ¶¶ 20, 21) (emphasis omitted). In this regard, Doughty states,

FIG. 5B [is] a block diagram of a programmable magnetic stripe 550 . . . using a single induction coil 552 for sending emulated time-varying magnetic stripe data to a magnetic card reader directly from the on-card controller . . . single inductive coil 552 is long enough for it to be in the physical proximity of the card reader heads for the entire time period required to transmit the time-varying signal from the card to the card reader. The inductive coil 552 . . . provid[es] the same magnetic data stream. . . as would be seen if a card with binary data in multiple spatially distributed data cells 504–516 in the magnetic stripe 502 were swiped through the reader. This magnetic signal will, therefore, emulate the data that would be generated by the swipe of a magnetic stripe card

Ex. 1012 ¶ 53. Thus, the specification describing Doughty's Figure 5B indicates that it is the single inductive coil, not the magnetic data cells, which transmits the magnetic data stream to the card reader.

In addition, Patent Owner contends that the presence of the magnetic data cells in Doughty's Figure 5B means they must be programmed by the coil and used to transmit magnetic stripe data to a card reader. Sur-Reply 5. Simply from examination of Doughty's Figure 5B, one of ordinary skill in the art would have ascertained that the single magnetic coil shown cannot be

used to program each of the magnetic data cells like Doughty's Figure 5A because its flux cannot be localized sufficiently (at least not through simple means) to change individual cells but not others. This is why Doughty's Figure 5A uses smaller coils positioned for each magnetic data cell so that they can be individually programmed. One of ordinary skill in the art would assume that Figure 5B's magnetic data cells must be programmed by other means, such as an external programming interface or Doughty's Figure 5A with smaller coils on the opposite side of the card. And one of ordinary skill in the art would assume that Figure 5B's magnetic data cells must be used in the usual way by swiping the magnetic stripe including the data cells in the trough of a card reader.

However, the point of Doughty's Figure 5B is not to explain how to use a programmable magnetic stripe, but to explain how its coil transmits a time-varying magnetic signal to the card reader to emulate the data in the magnetic stripe as though it were being swiped. Ex. 1012 ¶¶ 21, 53. This is why the single magnetic coil 552 of Doughty's Figure 5B must be held in physical proximity to the card reader heads for as long as is necessary to transmit the entire signal emulating a swipe of the magnetic data cells. Ex. 1012 ¶ 53. In addition, Petitioner notes that Doughty repeatedly distinguishes Figure 5A's "spatially varying" embodiment from Figure 5B's "time varying" embodiment, noting that the spatial-varying embodiment uses a programmable magnetic stripe whereas the time-varying embodiment uses the single coil to transmit to the read-head. Reply 7 (citing Ex. 1012 ¶¶ 9, 10, 40, 52–54). Petitioner further notes that Patent Owner's declarant's deposition testimony contradicts his declaration, and that Patent Owner's declarant admitted that "paragraph 53 of Doughty . . . says that the single

induction coil 552 can send emulated time-varying magnetic stripe data to a magnetic card reader.” Reply 7–8 (citing Ex. 1030, 843:9–14; Ex. 1032, 95:24–96:9) (alteration in original).

Reviewing the evidence, we agree with Petitioner that Doughty teaches that its single induction coil electrically couples its user device to a payment terminal and communicates data in magnetic stripe data format to the magnetic card reader. Ex. 1012 ¶¶ 21, 53. Patent Owner’s argument that Doughty fails to teach or suggest the indicated part of claim limitation 1d is unavailing in light of Doughty’s teaching.

Patent Owner next argues that “[n]either Doughty nor Zellner teach how a telecommunications device could include such circuitry as a coil powerful enough to communicate strong electromagnetic fields with nearby devices without interfering with the cellular communications circuitry or other circuitry within the telecommunications device (or vice versa). Ex. 2042 ¶ 97.” PO Resp. 36–37. Petitioner replies that Patent Owner’s argument “again contradicts the express disclosures of Doughty and Zellner that magnetic stripe emulators can be integrated into cellular- and RFID-capable, portable telephonic devices.” Reply 4–5 (citing Pet. 19–23; Ex. 1012 ¶¶ 48, 63; Ex. 1008, 3:22–26, 7:42–58, 9:38–50, Figs. 6, 12). We agree with Petitioner. Once again, Patent Owner does not identify the underlying facts or data supporting Patent Owner’s declarant’s testimony. 37 C.F.R. § 42.65. And Patent Owner does not explain why a magnetic field generator, cellular circuitry, and RFID circuitry would interfere at all when they operate at different frequencies or times. Nor is there any mention in the claim or, more generally, the ’545 Patent, indicating how interference

between the claimed elements is to be avoided. Patent Owner's argument is unavailing.

Patent Owner argues that "Zellner merely teaches an encoder" that "does not communicate with a POS terminal at all." PO Resp. 38–39 (citing Ex. 2042 ¶ 100; Ex. 2030; Ex. 2031); Sur-Reply 6–8. Petitioner contends that Zellner teaches that its device "can also emulate the magnetic stripe information that would be provided by the credit card" by "shar[ing] . . . credit card information with a purchasing system . . . through a . . . magnetic . . . interface." Reply 8 (citing Ex. 1008, 1:60–2:2, 3:22–26, 11:50–55; Pet. 17–19) (emphasis omitted, alterations in original). Petitioner further notes that Zellner's encoders have magnetic stripe information. *Id.* (citing Ex. 1008, Figs. 2, 3; 7:32–39). Petitioner contends that Patent Owner's declarant admitted that "an encoder communicates with the read head" and that coils can be used as encoders. Reply 8–9 (citing Ex. 1032, 71:4–7, 73:8–13).

Again, Patent Owner does not identify underlying facts or data upon which its declarant bases his opinion that Zellner teaches an encoder which can only encode a magnetic stripe and cannot communicate directly with a POS terminal. 37 C.F.R. § 42.65. In contrast, Petitioner cites to Zellner to support its contention that Zellner's device emulates magnetic stripe information and communicates it to a purchasing system through a magnetic interface. Ex. 1008, 1:60–2:2, 2:35–43, 3:22–26, 11:50–55. We further note that Petitioner did not rely on Zellner as teaching or suggesting claim limitation 1d in this challenge. *See* Pet. 24–25. Consequently, for the above reasons, Patent Owner's argument is unavailing.

Based on the record, as cited above, we find that limitation 1d is taught by the combination of Doughty and Zellner.

(6) *[1e] wherein the coil is operable to electrically couple the device to the payment terminal from a position beneath a surface of the device.*

Petitioner contends that Doughty teaches that the coil of magnetic field generator 308 is operable to electrically couple to a payment terminal, and that Doughty teaches that magnetic field generator 308 can be mounted on or disposed within the substrate, which may be integrated into a personal communication device such as a PDA, telecommunications device, or pager. Pet. 25–26; Ex. 1012 ¶ 48; Ex. 1002 ¶ 84. Petitioner contends that Doughty thus teaches that the substrate’s coil electrically couples the device with the payment terminal from a position beneath the surface of the device. Pet. 25–26.

Based on the record, we find that limitation 1e is taught by the combination of Doughty and Zellner.

2. *Claim 2*

Claim 2 depends from claim 1 and recites “*wherein the device is thicker than a payment card.*” Ex. 1001, 14:60–61. Petitioner contends that Doughty’s magnetic field generator 308 is disposed within or mounted on a substrate which is integrated into a personal communication device, such as a PDA or telecommunications device. Pet. 26–27; Ex. 1012 ¶¶ 41, 48. Petitioner contends that these devices are thicker than a payment card. Pet. 27; Ex. 1002 ¶ 85.

Patent Owner argues that “Doughty fails to describe any structural features of the user device or substrate that includes the ‘magnetic field generator’ or magnetic stripe.” PO Resp. 41. Patent Owner’s argument does

not relate to claim 2's limitation, but nonetheless, we find Doughty's magnetic field generator is "a single induction coil 552 for sending emulated time-varying magnetic stripe data to a magnetic card reader directly from the on-card controller." Ex. 1012 ¶ 53.

Patent Owner further argues that Doughty fails to teach how the user device or substrate may be integrated into devices. PO Resp. 41 (citing Ex. 2042 ¶ 108). We addressed this argument with respect to claim 1 above. Based on the record, we find that claim 2 is taught by the combination of Doughty and Zellner.

3. Claim 3

Claim 3 depends from claim 1 and recites "*wherein the device is a portable telephonic device.*" Ex. 1001, 14:62–63. Petitioner contends that Doughty teaches that its device may be a "telecommunications device." Pet. 27; Ex. 1012 ¶ 48; Ex. 1002 ¶¶ 86–89. Petitioner contends that a person of ordinary skill in the art would have understood that Doughty's telecommunications device would need to be portable so that it could be used at the location . . . where the financial transaction was taking place." Pet. 27 (citing Ex. 1002 ¶ 86). Petitioner also contends that Zellner teaches RF subsystem 920 includes cellular system 640, and describes its device as a "cell phone, or other portable electronic device." *Id.*; Ex. 1008, 7:42–58, 9:38–39, 9:47–50, 10:67–11:8, Fig. 12.

Patent Owner largely repeats arguments made with respect to claim 1, which we find unavailing. PO Resp. 41–43. For example, Patent Owner argues that "[n]either Doughty nor Zellner teach a PHOSITA how to turn the device of claim 1 into a portable telephonic device." PO Resp. 41 (citing Ex. 2042 ¶ 99). According to Patent Owner, "Petitioner failed to provide

any evidence that indicates *how* or *why* a PHOSITA would modify Doughty to integrate its substrate into a portable telephonic device.” *Id.* (citing Ex. 2042 ¶ 110). As discussed, Doughty teaches integrating its substrate into a personal communication device and provides considerable detail on how this is done. Ex. 1012 ¶¶ 41–48.

Patent Owner again argues that the knowledge of persons of ordinary skill in the art teaches that contactless payment devices are coupled with but are not part of portable telephonic devices themselves. PO Resp. 42 (citing Ex. 1015; Ex. 2042 ¶ 111). Patent Owner’s argument does not sufficiently address that Doughty teaches integrating a substrate with contactless payment features into a personal communications device which may be a PDA or telecommunications device. Ex. 1012 ¶ 48.

Patent Owner argues that there is no motivation to convert Zellner’s device into a portable telephonic device, and then modify Zellner further by replacing the encoder with a magnetic emulator, and to combine them in one device. PO Resp. 42 (citing Ex. 1008, 3:52–57, 9:16–27; Ex. 2042 ¶ 112). Patent Owner’s arguments does not comport with how Petitioner reads the claims onto the combination of Doughty and Zellner. *See* Part II.E.1. Patent Owner’s arguments, therefore, are unavailing.

Patent Owner further argues that portable telephonic devices are thicker than a payment terminal and would not be able to be inserted into a magnetic stripe card reader, and that neither Doughty nor Zellner teach how a coil could penetrate the surface of a device, travel through the air, and penetrate the housing of a POS terminal to carry out a purchase transaction without damaging its internal components. PO Resp. 42–43 (citing Ex. 2042 ¶ 113). Petitioner states that “Doughty and Zellner each disclose using a

portable device to communicate magnetic-stripe data, and a portable device is necessarily outside the POS terminal because it is too large to be swiped.” Reply 10–11; Ex. 1012 ¶ 48; Ex. 1008, 1:46–64, 7:43–58, 10:67–11:8, Fig. 12; Pet. 24–26; Ex. 1002 ¶ 85. Petitioner contends that passing sufficient current through Doughty’s coil ensures sufficient coupling from outside the POS terminal. Reply 11 (citing Ex. 1032, 73:8–13; Ex. 1002 ¶ 84).

Doughty teaches that “the inductive coil 552 can be pulsed with varying currents and current directions so that the time-varying data stream of a card being swiped through the reader is emulated.” Ex. 1012 ¶ 53, Fig. 5B. In other words, Doughty teaches to vary the magnitude and direction of currents through an inductive coil. As Petitioner notes, Patent Owner’s and Petitioner’s declarants agree that “it’s a well-known law of physics that, if you increase the current through a coil, you’ll get a stronger magnetic field.” Reply 11 (citing Ex. 1030, 796:7–10, Ex. 1032, 73:8–13; Ex. 1002 ¶ 84). Accordingly, the record shows that one of ordinary skill in the art would have known to increase the strength of current passing through Doughty’s coil to ensure sufficient coupling from outside the POS terminal. One of ordinary skill also would have known to manage the current to avoid damaging internal components for a “person of ordinary skill in the art is a person of ordinary creativity, not an automaton.” *KSR*, 550 U.S. at 420–421. Thus, based on the record, we find that claim 3 is taught by the combination of Doughty and Zellner.

4. Claim 4

Claim 4 depends from claim 1 and recites “*wherein the device is a portable media player.*” Ex. 1001, 14:64–65. Petitioner contends that

Doughty describes that its device may be a personal communication device, such as a PDA, telecommunications device, or computer, and that a person of ordinary skill in the art would have understood that a personal communication device may include a portable media player. Pet. 28–29; Ex. 1012 ¶ 48; Ex. 1002 ¶¶ 90–92. Petitioner also contends that Zellner teaches that its invention may be used with a PDA, cell phone or other portable electronic device, which may include applications for games, videos and music. Pet. 29; Ex. 1008, 11:3–8, 11:15–21, 11:31–33; Ex. 1002 ¶¶ 91–92.

Patent Owner argues that neither Doughty nor Zellner teach that the device of claim 1 is a portable media player. PO Resp. 43 (citing Ex. 2042 ¶¶ 114–118). Although we agree that Doughty does not expressly teach a portable media player, Zellner suggests that its PDA, cell phone or other portable electronic device may include applications for games, videos, and music, which is essentially a portable media player. Pet. 29; Ex. 1008, 11:3–8, 11:15–21, 11:31–33; Ex. 1002 ¶ 91. Petitioner further indicates that one of ordinary skill in the art would have been motivated to combine this functionality to Doughty to provide additional functionality that would not modify the other functionality of Doughty’s device, and because it would make the device more attractive to a consumer. Pet. 29; Ex. 1002 ¶ 92.

We agree with Petitioner that Zellner teaches a portable electronic device with applications for games, videos, and music, meaning it is a portable media play as claimed. Pet. 29; Ex. 1008, 11:3–8, 11:15–21, 11:31–33; Ex. 1002 ¶ 91. We also agree that one would have combined Zellner’s functionality with Doughty for the reasons Petitioner indicates. Pet. 29; Ex. 1002 ¶ 92. Patent Owner’s argument does not outweigh

Petitioner's showing. Thus, based on the record, we find that claim 4 is taught by the combination of Doughty and Zellner.

5. *Claim 5*

Claim 5 depends from claim 1 and recites that the device “*further compris[es] a display operable to display a virtual payment card.*”

Ex. 1001, 14:66–67. Petitioner contends that Doughty teaches that its device has user interface 320 with display information that may include a credit card number. Pet. 30–31; Ex. 1012 ¶¶ 42, 47, 66, 84, Fig. 3; Ex. 1002 ¶¶ 93–96. Petitioner also contends that Zellner teaches that its device is configured to display a credit card image. Pet. 31–32; Ex. 1008, 1:53–64, 7:17–21, Figs. 2A–3B; Ex. 1002 ¶¶ 95–97. Petitioner contends that one of ordinary skill in the art would have been motivated to modify Doughty with Zellner because it would have been trivial to modify Doughty to display a virtual payment card, and because the card's display would be useful to a consumer to avoid confusion about what card was being used. Pet. 32–33 (citing Ex. 1002 ¶ 97).

Patent Owner contends that Doughty does not display a virtual payment card with graphics, but instead only displays text such as a credit card number. PO Resp. 43–44; Ex. 2042 ¶ 120. In this regard, Zellner's Figure 12 is reproduced below.



Zellner’s Figure 12 shows a credit card (a “Discover” card) graphically presented on the display of Zellner’s PDA, as Petitioner notes. Reply 11–12; Ex. 1008, Fig. 12, 10:67–11:3. We agree with Petitioner that Zellner’s Figure 12 shows a graphical display with an image of a credit card, and thus teaches “*a display operable to display a virtual payment card*” as recited in claim 5.

Patent Owner argues that that “Zellner cannot cure this defect in Doughty” because “Zellner does not teach a device that can communicate with a magnetic stripe card reader.” PO Resp. 44; Ex. 2042 ¶ 121; *see also* Sur-Reply 9. For reasons explained in Part II.E.1.(b)(5) concerning claim 1, we disagree. Zellner teaches that its encoder communicates with a card reader. Ex. 1008, 1:60–2:2, 2:35–43, 3:22–26, 11:50–55.

Patent Owner’s arguments fail to expose any defect in Petitioner’s showing with respect to claim 5. Thus, based on the record, we find that claim 5 is taught by the combination of Doughty and Zellner.

6. *Claim 6*

Claim 6 depends from claim 1 and recites that the device “*further compris[es] a touch-sensitive display operable to display a virtual payment card.*” Ex. 1001, 15:1–2. Petitioner contends that Doughty describes that its user interface 320 may include a touch pad and display, which a POSITA would have found obvious to replace with a single touch-sensitive display. Pet. 33; Ex. 1012 ¶ 47; Ex. 1002 ¶¶ 98–101. To the extent Doughty does not disclose a touch-sensitive display, Petitioner relies on Zellner, which teaches that “various touch-screen areas may be provided on the flat panel displays 110 and/or 160, to allow user access to the credit card images (FIGS. 2A–3B).” Pet. 34; Ex. 1008, 7:17–21; Ex. 1002 ¶¶ 100–101. Petitioner contends that one of ordinary skill in the art would have been motivated to make Doughty’s display touch-sensitive, as taught by Zellner, “to enhance functionality and save device space.” Pet. 34 (citing Ex. 1002 ¶ 101).

Patent Owner argues that neither Doughty nor Zellner suggest a touch-sensitive display. PO Resp. 44–45. Specifically, Patent Owner argues that Petitioner uses hindsight reconstruction to replace Doughty’s touch pad and display with a single touch-sensitive display. *Id.* (citing Ex. 1002 ¶ 99; Ex. 2042 ¶¶ 122–123; Ex. 1012 ¶¶ 42, 47, Figs. 8, 11).

Petitioner shows sufficiently that one of ordinary skill in the art would have modified Doughty with Zellner due to its teaching that “various touch-screen areas may be provided on the flat panel displays 110 and/or 160, to allow user access to the credit card images (FIGS. 2A–3B).” Ex. 1008,

7:17–19. Thus, based on the record, we find that claim 6 is taught by the combination of Doughty and Zellner.

7. *Claim 7*

Claim 7 depends from claim 1 and recites “*wherein the RFID circuitry comprises an RFID antenna.*” Ex. 1001, 15:3–4. Petitioner contends that Doughty teaches that device 800 includes RF antenna 804, and controller 806 may support two-way communications with an associated reader/writer device via RF antenna 804. Pet. 34–35; Ex. 1012 ¶¶ 62, 65, 67; Ex. 1002 ¶¶ 102–103. To the extent that Doughty does not disclose an RFID antenna, Petitioner contends that Zellner discloses RFID receiver 620 and RFID transmitter 630, which a person of ordinary skill in the art would have understood to require an RFID antenna. Pet. 35; Ex. 1008, 7:42–58, 9:47–50; Ex. 1002 ¶ 103.

Patent Owner argues that “[b]ecause Doughty and Zellner do not teach RFID circuitry operable to couple a device to a payment terminal and to communicate RFID data to the payment terminal, they also fail alone and in combination, to teach that said RFID circuitry comprises an RFID antenna.” PO Resp. 45–46 (citing Ex. 2042 ¶¶ 124–127).

We already considered and rejected Patent Owner’s argument concerning RFID circuitry in the discussion concerning claim 1. *See supra* § II.E.1.(b)(3). We find that Doughty’s RF antenna 804 is an RFID antenna, and that, regarding Zellner, one of ordinary skill in the art would have understood that RFID receiver 620 and RFID transmitter 630 require an RFID antenna. Pet. 34–35; Ex. 1008, 7:42–58, 9:47–50; Ex. 1012 ¶¶ 62, 65, 67; Ex. 1002 ¶¶ 102–103. Thus, based on the record, we find that claim 7 is taught by the combination of Doughty and Zellner.

8. *Claim 8*

Claim 8 depends from claim 1 and recites “*wherein the RFID circuitry is further operable to electrically couple the device to the payment terminal when the device is outside and within proximity of the payment terminal.*” Ex. 1001, 15:5–8. Petitioner contends that Doughty teaches that its device has an RF antenna to support two-way communication with an associated reader/writer device at a distance of approximately six inches. Pet. 35–37; Ex. 1012 ¶¶ 62, 65, 67, 105; Ex. 1002 ¶¶ 104–106. Petitioner further contends that to the extent Doughty’s RF antenna does not include RFID circuitry, Zellner would have motivated one of ordinary skill in the art to modify Doughty to include this feature for reasons explained. Pet. 36.

Patent Owner argues that “[b]ecause Doughty and Zellner do not teach RFID circuitry operable to electrically couple a device to a payment terminal and to communicate RFID data to the payment terminal, they also fail, alone and in combination, to teach that said RFID circuitry does so outside and within proximity of the payment terminal.” PO Resp. 46 (citing Ex. 2042 ¶¶ 128–131). Once again, we have considered and rejected this argument. *See* § II.E.1.(b)(3). Patent Owner’s argument does not outweigh Petitioner’s showing that the limitation of claim 8 is taught by the combination of Doughty and Zellner. Thus, based on the record, we find that claim 8 is taught by the combination of Doughty and Zellner.

9. *Claim 9*

Independent claim 9 is nearly identical to claim 1 except for the omission of the “*coil*” as a claim element. Ex. 1001, 15:9–19. Petitioner relies on the same evidence presented for the limitations of claim 1 for the corresponding limitations of claim 9. Pet. 37. Patent Owner likewise relies

on the same argument for claim 9 as for claim 1. PO Resp. 46–48. For reasons explained above with respect to claim 1, we find that Petitioner has shown that the combination of Doughty and Zellner teaches or suggests all of the limitations of claim 9, and Patent Owner does not sufficiently refute that evidence.

10. Claims 10–16

Likewise, dependent claims 10–16 are nearly identical to claims 2–8 and Petitioner relies on the same evidence to show that the combination of Doughty and Zellner teaches or suggests the limitations of each of these claims, and Patent Owner relies on the same arguments to dispute Petitioner’s evidence. Pet. 38–39; PO Resp. 48–50. For the reasons explained with respect to claims 2–8, we find that the combination of Doughty and Zellner teaches or suggests all of the limitations of claims 10–16. Patent Owner’s arguments do not show material deficiency in Petitioner’s evidence that the combination of Doughty and Zellner teaches or suggests all of the limitations of claims 10–16.

11. Objective Indicia of Nonobviousness

Patent Owner argues that its evidence of objective indicia of nonobviousness shows that the ’545 Patent’s claims would not have been obvious to a person of ordinary skill in the art at the time of the alleged invention. PO Resp. 65–77; Sur-Reply 19–23. 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 22–25.

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 its Connected Wallet Card is coextensive with at least claim 1 of the ’545 Patent. PO Resp. 65–68. Although this may be so, Patent Owner identifies this card as a “prototype.” *Id.* at 66–68 (card in figures identified as “prototype” marked in print with “FOR LIT ONLY” and “DEMO”). Patent Owner presents no evidence that this card or

any like it were ever sold commercially. *See id.* at 65–68 (card “expected to ship in the year 2021”). Consequently, Patent Owner does not show evidence of commercial success in the marketplace.

Patent Owner contends that the Samsung Pay application is coextensive with at least claim 1 and 9 of the ’545 Patent, and that the application has been commercially successful. *Id.* at 68–73. Patent Owner admits, however, that the thing that is commercially successful—Samsung’s smartphones and smartwatches—have “various features not claimed in the ’545 patent.” *Id.* at 71. Patent Owner makes no attempt to indicate what proportion of commercial success that Petitioner’s devices may have is attributable to features claimed in the ’545 Patent relative to those not covered by the patent. Consequently, Patent Owner provides us with no basis on which to assess how much commercial success of Petitioner’s devices is attributable to the ’545 Patent, and we decline to speculate. Furthermore, the nexus between the ’545 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. As discussed, the combination of Doughty and Zellner teach or suggest every limitation of claims 1 and 9, so Patent Owner’s evidence carries little if any weight as evidence of commercial success.

Patent Owner asserts that it has sold a significant number of payment cards that employed magnetic stripe emulation starting in 2011.

PO Resp. 71. As Petitioner notes, however, Patent Owner does not provide evidence that these cards had the features of the ’545 Patent’s claims.

Reply 22.

Patent Owner contends that it successfully licensed the ’545 Patent to LG Electronics, Inc. PO Resp. 71. The only unredacted patent listed in the

license agreement, however, is U.S. Patent 8,827,153, which is not the patent challenged here. Ex. 2013, 10. Consequently, the license agreement is ineffective to show commercial success relating to the '545 Patent.

Patent Owner alleges that numerous companies attempted, but failed, to provide payment cards including magnetic stripe emulators, and that only Patent Owner, LG, and Petitioner were successful in producing payment devices using magnetic stripe emulation. PO Resp. 74. Patent Owner does not show that these devices were covered by the '545 Patent, so we do not consider them to be evidence of failed attempts by others to achieve a device covered by the '545 Patent's claims.

As for praise by others, Patent Owner lists numerous awards it has received. *Id.* at 75–76. Patent Owner does not indicate what nexus these awards may have to the '545 Patent's claims, and thus they have not been shown sufficiently to constitute praise for devices covered by the '545 Patents claims.

Patent Owner presents a Business Wire article, which mentions the “Wallet Card” having the features claimed in the '545 Patent as shown in the figures. Ex. 2043. The article indicates that the “Wallet Card” was shown at the 2018 International Consumer Electronics Show. *Id.* The article also indicates that the Consumer Technology Association recognized the Wallet Card and Wallet Card Consortium members with four CES Innovation awards including the Best of Innovation Award for Security Technologies. *Id.* Clark Howard, a consumer advocate, lauds the card for storing multiple accounts which can be instantly changed using the online connection. *Id.* VentureBeat indicates that “Dynamics wants to bring the credit card and debit card into the 21st century,” which does not directly address any features

of the '545 Patent claims. *Id.* There is no mention of who prepared and paid for the publication of the article, and whether the award evaluators were neutral. In addition, Petitioner has shown that the '545 Patent claims are taught by the combination of Doughty and Zellner.

Patent Owner contends that LG, LoopPay, and Petitioner have copied the device claimed in the '545 Patent. PO Resp. 76 (citing Ex. 2013; Ex. 2036 (claim chart); Ex. 2042 ¶ 208). As Petitioner notes, Patent Owner's license with LG and infringement suit against Petitioner, without more, do not establish copying. Reply 23–24. This is because copying requires “actual evidence of copying efforts as opposed to mere allegations regarding similarities between the accused product and patent.” *Liqwd, Inc. v. L'Oreal USA, Inc.*, 941 F.3d 1133, 1137–38 (Fed. Cir. 2019).

Consequently, Petitioner persuades us that Patent Owner's evidence of secondary considerations does not outweigh Petitioner's prior art evidence, which we determine establishes obviousness of the claimed invention.

12. Conclusion

In light of the foregoing discussion on the full record before us, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–16 are unpatentable as obvious over the combination of Doughty and Zellner. Petitioner shows sufficiently that each limitation of claims 1–16 is taught or suggested by the combination of Doughty and Zellner, and that a person of ordinary skill in the art have had reason to combine the teachings of the references, with a reasonable expectation of success in arriving at the claimed invention.

F. Asserted Obviousness of Claims 1–16 over the Combination of Zellner and Moullette

Petitioner contends that claims 1–16 would have been obvious over the combination of Zellner and Moullette. Pet. 40–59. Patent Owner argues that claims 1–16 would not have been obvious. PO Resp. 50–56.

1. Motivation to Combine Zellner and Moullette and Related Matters

Petitioner contends that a person of ordinary skill in the art at the time of the '545 patent would have had reason to incorporate Moullette's teachings into Zellner's device to communicate with legacy payment terminals directly from a personal communication device, such as a cell phone. Pet. 40 (citing Ex. 1002 ¶¶ 119–124). Petitioner contends that the similarities of Zellner and Moullette would have led a person of ordinary skill in the art to combine the references. Pet. 40–41; Ex. 1007, 2:42–47, 2:51–65, 3:55–59, 4:10–18; Ex. 1008, 1:6–9, 1:60–64, 5:34–39, 7:42–58, 9:38–51, 10:63–11:13, 11:50–55; Ex. 1002 ¶¶ 119–124. Petitioner contends that a person of ordinary skill in the art would have recognized that Moullette's inductors would be sufficiently powerful for Zellner's device to communicate with the magnetic card reader through the device. Pet. 42 (citing Ex. 1002 ¶ 123). Petitioner also contends that the commercial advantages of a cell phone that could communicate with legacy payment terminals would have motivated a person of ordinary skill in the art to modify Zellner's device to include Moullette's inductors to avoid the need for an intermediary device, with a reasonable expectation of success in doing so. *Id.* at 42–43; Ex. 1007, 1:56–2:21, 2:38–47, 2:51–55; Ex. 1008, 1:60–2:2, 11:3–8; Ex. 1002 ¶ 124.

Patent Owner argues that there is no motivation to combine Zellner and Moullette because they focus on largely different objectives involving largely different technology. PO Resp. 50 (citing Ex. 2042 ¶ 146). Patent Owner contends that Zellner focuses on an encoder and user interface whereas Moullette teaches an adapter system with two devices—a consumer pod and a merchant pod—that allows legacy POS terminals to use contactless “tap to pay” RFID technologies. *Id.* at 51 (citing Ex. 1007, 3:55-4:27; Ex. 2042 ¶ 147). Patent Owner contends that “Neither of these teachings would motivate a PHOSITA to combine these references to provide the benefits provided by the claimed invention of the ’545 patent.” *Id.*

Petitioner replies that Zellner and Moullette are directed to devices for use at POS terminals that emulate the magnetic fields generated by traditional magnetic stripe payment cards. Reply 14 (citing Pet. 40; Ex. 1007, 2:51–65; Ex. 1008, 1:60–2:2, 3:22–26). Petitioner adds that Moullette recognizes benefits to merchants and the transaction industry because purchases can be made using a cell phone. *Id.* (citing Ex. 1007, 2:19–47). Petitioner contends one would recognize that incorporating Moullette’s inductors into a cell phone would eliminate the need for an adaptor. *Id.* at 14–15 (citing Ex. 1002 ¶¶ 119–124).

We agree with Petitioner that one of ordinary skill in the art looking for details on components sufficiently strong to communicate with a read-head from outside a card reader would look to Moullette’s teaching of strong inductors using coils and core materials. Pet. 50 (citing Ex. 1007, code (57), Ex. 1007, 5:32–36, 8:28–32); Ex. 1002 ¶¶ 136–137). As Petitioner notes, both Zellner and Moullette are directed to similar technology of emulating

magnetic fields at POS terminals, which would have led one of ordinary skill in the art to consider these references together. Ex. 1007, 2:51–65; Ex. 1008, 1:60–2:2, 3:22–26.

And while Patent Owner argues that the '545 Patent seeks compatibility with a diverse set of payment technologies (PO Resp. 51), Zellner shares this objective, as evidenced by the fact it combines multiple communication technologies in a single device (Ex. 1008, 7:42–63).

Patent Owner further argues that removing Zellner's encoder and replacing it with Moullette's inductor "would completely eliminate the purpose of Zellner." PO Resp. 51–52; *see also* Sur-Reply 9–13. Petitioner contends that it never proposed removing Zellner's encoder, but merely modifying it to include Moullette's inductors, which have the same purpose of emulating a magnetic stripe. Reply 15–16 (citing Pet. 40–42; Ex. 1032, 73:8–13; Ex. 1008, 5:34–39). We agree with Petitioner that the Petition did not propose removing Zellner's encoder and replacing it with Moullette's inductor, but instead modified Zellner's device to include Moullette's inductor. Pet. 40–42. Patent Owner's argument is ineffective to show frustration of Zellner's purpose.

Patent Owner contends that one would not have looked at Moullette's POS terminal and decided that it should operate at the other end of a purchase transaction as a standalone payment device. PO Resp. 52 (citing Ex. 2042 ¶ 150). Petitioner contends Moullette describes its device as separate from the merchant's reader, and discloses embodiments where the adaptor is near or proximate the reader device's housing, and that even when taped or glued to the reader, it is not part of the reader. Reply 16 (citing

Ex. 1007, 2:42–47, 2:66–3:6, 5:29–31, 8:67–9:6, 7:44–49; Ex. 1030, 832:20–25, 806:7–10).

Petitioner proposes to modify Zellner’s encoder to include Moullette’s inductors. Pet. 42. Petitioner does not propose to move an element from a card reader to a cell phone, as Patent Owner contends. Consequently, we find that Patent Owner’s argument does not address Petitioner’s proposed combination as presented in the Petition.

Patent Owner further argues that Petitioner has not shown a reasonable expectation of success because Petitioner has not shown “how a strong inductor would be incorporated into a cellular phone in a way that does not interfere with the other components of the cellular phone—components which may be highly sensitive to magnetic fields from credit cards and coils.” PO Resp. 52–53 (citing Ex. 2042 ¶¶ 150–151); *see* Sur-Reply 12–13. Petitioner asserts that Zellner discloses an encoder within a cellphone that emulates a conventional magnetic stripe, and that a POSITA would have understood how to use an inductor in a cellphone for magnetic emulation. Reply 17 (Ex. 1008, 5:34–39; Ex. 1002 ¶ 123).

Zellner teaches that a processor, memory, display, input device, short range RF transceiver, long range RF (cellular) transceiver, RFID transceiver, and a dynamic magnetic encoder (DME) and other components may all be integrated into one device the size of a credit card. Ex. 1008, 7:42–63, 10:63–11:8, Figs. 6, 12. We agree with Petitioner’s declarant that a person of ordinary skill in the art would have known how to incorporate yet one more component, Moullette’s inductors, into a device the size of a cell phone, which is considerably larger than a credit card. Ex. 1002 ¶ 123. And, as Petitioner notes, Moullette teaches that its inductors may be used in

close proximity to a cell phone, contrary to Patent Owner's allegation that interference would result. Reply 17 (citing Ex. 1007, 4:8–15, Fig. 1; Ex. 1002 ¶¶ 119–124); PO Resp. 52–53. Moullette further teaches that the inductor should generate a field sufficient to couple with a reader head across the thickness of a card reader's housing. Ex. 1007, 8:12–16. In addition, Moullette teaches that the magnetic field should not be so strong as to saturate a read head, cause inter-track noise, or cause unwanted coupling with other components of the POS equipment. *Id.* at 8:16–19. Moullette's solution is to generate the magnetic field with an intensity at the reader equivalent to that generated by a magnetic stripe card. *Id.* at 8:20–24.

Armed with this information, a person of ordinary skill in the art would have known that the inductor's magnetic field should not interfere with other components when placed inside a PDA or cell phone. One of ordinary skill in the art would have realized that if an inductor has the capacity to cause interference with components in POS equipment, as Moullette teaches, then one should also take care that the inductor also does not cause interference in a PDA or cell phone in which it is integrated. This is a simple inference a person of ordinary skill in the art would draw from Moullette's teaching. *See KSR*, 550 U.S. at 418 (“a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ”). Other than interference, Patent Owner does not mention any other problem that would result when integrating Zellner's device with Moullette's inductors. Consequently, we find this argument unavailing.

Patent Owner further argues that “commercial advantages” are an insufficient basis for a motivation to combine. PO Resp. 53. Patent Owner provides no authority for this proposition. To the contrary, the desire to

enhance commercial opportunities by improving a product may provide a motivation to combine. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006).

In addition, Petitioner's proposed motivations to combine were not limited to commercial advantages, but also included similarities in design and operation, as well as the field strength of Moullette's inductors providing the capability to transmit magnetic fields emulating magnetic stripe data from outside a card reader's housing. Pet. 40–43. Patent Owner does not sufficiently refute any of these motivations to combine Zellner and Moullette.

Patent Owner further argues that the main similarity between the references that discuss cell phones is that there is always an interface between the magnetic stripe reader and the cellular phone. PO Resp. 53–56. Patent Owner points to Moullette, Zellner, and Chameleon as examples using an interface. *Id.*; Sur-Reply 11. Patent Owner contends that the prevailing wisdom at the time of the '545 Patent was that the encoder and magnetic stripe would be separate devices and the encoder would program the magnetic stripe which in turn communicates with a reader. PO Resp. 54. Patent Owner contends that, when faced with systems like Zellner and inductors such as Moullette's, persons of ordinary skill in the art did not combine such features. *Id.* at 56.

Petitioner counters that using inductors for magnetic stripe emulation was well known in the art, and that Moullette teaches use of inductors for that purpose. Reply 18 (citing Ex. 1007, code (57), 6:49–7:2; Ex. 1008, 5:35–39). Petitioner contends that Patent Owner's declarant admits that a coil (inductor) can be used for an encoder. *Id.* at 18–19 (citing Ex. 1032,

73:8–13). Petitioner contends both Zellner’s and Moullette’s inductors are designed to interface with a card reader using magnetic stripe emulation from a position outside the payment terminal. *Id.* at 19 (citing Pet. 49–50; Ex. 1002 ¶¶ 136–137; Ex. 1007, code (57); Ex. 1008, 10:67–11:8).

Zellner teaches that “[d]ynamic magnetic encoders are well known to those having skill in the art, and may be used to provide variable magnetic stripe information that can *emulate* a conventional magnetic stripe of a conventional credit card.” Ex. 1008, 5:35–39. In this context, the word “emulate” means that the signal that would be generated by swiping the magnetic credit card through a card reader is being imitated by a coil or inductor generating a magnetic field that varies according to the data on a magnetic stripe so that the card reader experiences the same magnetic field variation as would result from a card swipe. Ex. 1002 ¶¶ 41, 119–120. Thus, while some dynamic magnetic encoders may be used to program a magnetic stripe track for swiping through a reader, as Patent Owner argues, we do not agree with Patent Owner’s argument that the prior art consistently taught there is always an interface such as the magnetic stripe or an adaptor between the encoder and reader, because, as noted, Zellner teaches emulation involving direct transmission of magnetic stripe data from Zellner’s encoder to a card reader. Ex. 1008, code (57), 5:35–39, 10:67–11:8. Consequently, we find Patent Owner’s argument unavailing.

Petitioner makes a sufficient showing that one of ordinary skill in the art would have been motivated to combine Zellner and Moullette with a reasonable expectation of success.

2. *Claim 1*

Petitioner reads claim 1 on the combination of Zellner and Moullette as follows. Patent Owner does not argue that the combination of Zellner and Moullette fails to teach or suggest any element of claim 1. *See generally* PO Resp. Nonetheless, the burden of proof remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

a) *[preamble] A device comprising:*

Petitioner contends that, to the extent the preamble is limiting, Zellner discloses a “portable package” such as “a PDA, cell phone or other portable electronic device” that can “interface with credit card readers.” Pet. 43; Ex. 1008, 10:63–11:13, Fig. 12; Ex. 1002 ¶ 125.

We need not resolve whether the preamble is limiting because Petitioner shows sufficiently that the combination of Zellner and Moullette teaches the preamble of claim 1.

b) *[1a] circuitry operable to communicate with a cellular network;*

Petitioner contends that Zellner discloses a “portable package” that can be a “cell phone” and states that the device may include “cellular transceiver 640 (including conventional cellular, PCS, wideband cellular, and/or other conventional cellular device).” Pet. 44; Ex. 1008, 7:42–58, 10:63–11:6, Fig. 6; Ex. 1002 ¶ 126.

Petitioner makes a sufficient showing that the combination of Zellner and Moullette teaches limitation 1a of claim 1.

c) [1b] RFID circuitry operable to electrically couple the device to a payment terminal and to communicate RFID data to the payment terminal;

Petitioner contends that Zellner discloses that its device shares credit card information with a purchasing system through a radio interface, and includes an RF subsystem 920 having an RFID receiver 620 and RFID transmitter 630. Pet. 44–45; Ex. 1008, 3:22–26, 9:47–50, Figs. 6, 9; Ex. 1002 ¶ 127.

Petitioner makes a sufficient showing that the combination of Zellner and Moullette teaches limitation 1b of claim 1.

d) [1c] a coil; and

Petitioner contends that Zellner teaches that its device can emulate the magnetic card information that would be provided by a credit card, and that its device can interface with a credit card reader. Pet. 45–46; Ex. 1008, 1:60–64; 10:63–11:13; Ex. 1002 ¶¶ 128–130. Petitioner further contends that Zellner teaches a well-known dynamic magnetic encoder that may be used to provide variable magnetic stripe information that emulates a magnetic stripe of a conventional credit card. Pet. 46; Ex. 1008, 5:34–39.

Petitioner contends that Moullette teaches an adaptor that includes an inductor for generating a magnetic field and that its magnetic field-generating element 70 comprises ferrite core 72 encircled within separate inner coil 74 and outer coil 76. Pet. 46; Ex. 1007, code (57), 5:32–36; Fig. 2; Ex. 1002 ¶¶ 129–130.

Petitioner contends that a person of ordinary skill in the art would have been motivated to combine Moullette's inductor into Zellner's portable device, specifically, its dynamic magnetic encoder, to ensure Zellner's

device could communicate with both legacy POS terminals and RFID-communication capable terminals. Pet. 46–47 (citing Ex. 1002 ¶ 130).

Petitioner makes a sufficient showing that the combination of Zellner and Moullette teaches limitation 1c of claim 1.

e) [1d] a processor for controlling the operation of the coil such that the coil is operable to electrically couple the device to the payment terminal and to communicate data in magnetic stripe data format to the payment terminal,

Petitioner contends that Moullette teaches that its inductor is 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.

Pet. 47; Ex. 1007, code (57); Ex. 1002 ¶¶ 131–135. Petitioner argues that Moullette also teaches that when communication is desired with the magnetic head of a reader device, current flows through outer coil 76, causing inductor element 72 to generate a magnetic field that is sufficiently powerful to activate the card present circuit and communicate with the Track 1 data recovery circuit. Pet. 47; Ex. 1007, 6:49–6:56. Petitioner further argues that Moullette teaches that once module 26 successfully communicates with Track 1 head 10b, the flow of current through outer coil 76 is halted and current flows through inner coil 74 resulting in a magnetic field recognizable by the Track 2 data recovery circuit. Pet. 47; Ex. 1007, 6:60–66. Petitioner thus contends that a person of ordinary skill in the art would understand Moullette to teach a coil both electrically coupling and communicating in magnetic stripe data format to a payment terminal. Pet. 47–48; Ex. 1002 ¶ 132.

Petitioner further contends that Zellner teaches that a processor controls its dynamic magnetic encoder to provide magnetic stripe

information for the credit card. Pet. 48; Ex. 1008, code (57), 1:60–64, 5:54–59, 10:63–11:13; Ex. 1002 ¶ 133–135.

Petitioner makes a sufficient showing that that the combination of Zellner and Moullette teaches the limitation 1d of claim 1.

f) [1e] wherein the coil is operable to electrically couple the device to the payment terminal from a position beneath a surface of the device.

Petitioner contends that a POSITA would have been motivated to incorporate Moullette’s inductor into the dynamic magnetic encoder of Zellner’s portable device. Pet. 49; Ex. 1002 ¶¶ 136–137. Petitioner contends that Zellner teaches that “any or all of the embodiments” may be implemented in a cell phone, such that the magnetic encoder would be within and below the surface of Zellner’s device. Pet. 49–50; Ex. 1008, 10:67–11:8; Ex. 1002 ¶ 136. Petitioner contends that Moullette’s inductor is sufficiently powerful to couple with a head of a magnetic stripe card reader through the housing of the reader device. Pet. 50 (citing Ex. 1007, code (57)). Petitioner contends that a person of ordinary skill in the art would have understood that Moullette’s inductor could electrically couple Zellner’s device to the payment terminal from beneath the Zellner device’s surface because Moullette’s inductor has sufficient power to couple with a magnetic card reader through Zellner’s device. *Id.*; Ex. 1002 ¶ 136. Petitioner further contends current through Moullette’s inductor could be modified to create a stronger magnetic field to couple Zellner’s device with the payment terminal. Pet. 50; Ex. 1002 ¶ 137.

Petitioner makes a sufficient showing that the combination of Zellner and Moullette teaches the limitation 1e of claim 1.

3. *Claims 2–16*

Claim 2 depends from claim 1 and recites “*wherein the device is thicker than a payment card.*” Ex. 1001, 14:60–61. Petitioner contends that Zellner’s cellphone meets this limitation, and further that Zellner explicitly states that its device “may be thicker than a standard plastic credit card.” Pet. 51; Ex. 1008, 5:21–23, 10:63–11:13; Ex. 1002 ¶ 138.

Claim 3 depends from claim 1 and recites “*wherein the device is a portable telephonic device.*” Ex. 1001, 14:62–63. Petitioner contends that Zellner teaches its device may be a cell phone, which is a portable electronic device as claimed. Pet. 51–52; Ex. 1008 11:3–6, Fig. 12; Ex. 1002 ¶¶ 139–140.

Claim 4 depends from claim 1 and recites “*wherein the device is a portable media player.*” Ex. 1001, 14:64–65. Petitioner contends that Zellner teaches that its invention may be used with a PDA, cell phone or other portable electronic device, which may include applications such as games, videos and music. Pet. 52; Ex. 1008, 11:3–8, 11:15–21. Petitioner further notes the device’s graphical user interfaces may include a display, touch screen, speaker and video player. Pet. 52–53; Ex. 1008, 11:31–33. Petitioner contends a person of ordinary skill in the art would have understood Zellner’s device to be a portable media player. Pet. 53; Ex. 1002 ¶ 141.

Claim 5 depends from claim 1 and recites that the device “*further compris[es] a display operable to display a virtual payment card.*” Ex. 1001, 14:66–67. Petitioner contends that Zellner teaches its device is configured to display a full size image of a credit card. Pet. 53–54; Ex. 1008, 1:53–64, 7:17–21, Figs. 2A–3B; Ex. 1002 ¶¶ 142–143.

Claim 6 depends from claim 1 and recites that the device “*further compris[es] a touch-sensitive display operable to display a virtual payment card.*” Ex. 1001, 15:1–2. Petitioner relies on the same evidence provided for claim 5 to teach the claimed limitation, further noting that Zellner teaches that its device’s graphical user interface can include a display and touch screen, and that various touch-screen areas may be provided on a flat panel display to allow user access to credit card images. Pet. 54; Ex. 1008, 7:15–19, 11:31–33; Ex. 1002 ¶ 144.

Claim 7 depends from claim 1 and recites “*wherein the RFID circuitry comprises an RFID antenna.*” Ex. 1001, 15:3–4. Petitioner contends that Zellner teaches that its device includes a short range RF system 610, an RFID receiver 620, and an RFID transmitter 630. Pet. 54–55; Ex. 1008, 7:42–58, 9:47–50; Ex. 1002 ¶ 145. Petitioner contends that a person of ordinary skill in the art would have understood that RFID receivers and RFID transmitters require an antenna, and thus that Zellner discloses an RFID antenna. Pet. 55; Ex. 1002 ¶ 145.

Claim 8 depends from claim 1 and recites “*wherein the RFID circuitry is further operable to electrically couple the device to the payment terminal when the device is outside and within proximity of the payment terminal.*” Ex. 1001, 15:5–8. Petitioner contends that Zellner teaches a portable cell phone that can communicate credit card information to a payment terminal through a radio, magnetic and/or other interface, which, according to Petitioner, means that Zellner’s device can be electrically coupled to the payment terminal from outside and within proximity of the payment terminal. Pet. 55–56; Ex. 1008, 3:22–25, 10:63–11:13; Ex. 1002 ¶¶ 146–149. Petitioner further contends that Moullette teaches that its

consumer pod portion 16 interacts at short range with an RF proximity chip card, and that it can interact with adaptor 14 by bringing an RF proximity chip card in proximity to a wireless transceiver. Pet. 56; Ex. 1007, 4:10–18; Ex. 1002 ¶ 148.

Independent claim 9 is nearly identical to claim 1 except for the omission of the “*coil*” as a claim element. Ex. 1001, 15:9–19. Petitioner relies on the same evidence presented for the limitations of claim 1 for the corresponding limitations of claim 9. Pet. 57.

Dependent claims 10–16 are nearly identical to claims 2–8 and Petitioner relies on the same evidence to show that the combination of Zellner and Moullette teaches or suggests the limitations of these claims. Pet. 58–59.

Patent Owner presents no arguments specific to claims 2–16 but instead relies on the arguments discussed in Part II.F.1. Nonetheless the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. For the reasons stated above in Part II.F.1., we do not find Patent Owner’s arguments availing to show any deficiency in Petitioner’s showing that the combination of Zellner and Moullette teaches or at least suggests all limitations of claims 2–16.

4. *Objective Indicia of Nonobviousness*

Patent Owner argues that its objective indicia of nonobvious render the claims of the ’545 Patent non-obvious. PO Resp. 65–77. For the reasons previously stated, Patent Owner’s evidence of objective indicia of nonobviousness is insufficient to outweigh Petitioner’s showing. *See* Part II.E.11.

5. *Conclusion*

In light of the foregoing discussion on the full record before us, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–16 are unpatentable as obvious over the combination of Zellner and Moullette. Petitioner shows sufficiently that each limitation of claims 1–16 is taught or suggested by the combination of Zellner and Moullette, and that a person of ordinary skill in the art would have had reason to combine the teachings of the references, with a reasonable expectation of success in arriving at the claimed invention.

G. *Asserted Obviousness of Claims 1–16 over Pitroda*

Petitioner contends claims 1–16 would have been obvious under 35 U.S.C. § 103(a) based on Pitroda. Pet. 60–72.

We do not reach Petitioner’s challenge based on Pitroda as we have already determined claims 1–16 unpatentable over the combinations of (1) Doughty and Zellner and (2) Zellner and Moullette. *See* §§ II.E and II.F; *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”). Analyzing Petitioner’s Pitroda challenge would be

an inefficient use of our resources because it would not change our decision in this case.

Furthermore, the ITC found claims 1, 3, and 5 of the '545 Patent invalid for anticipation in its Notice of Determination Finding No Violation of Section 337. Exhibit 1035, 3. Petitioner contends that the ITC actually found all claims of the '545 Patent invalid over Pitroda. Tr. 103.

The record thus shows that the ITC has addressed the validity of claims of the '545 Patent relative to Pitroda. Addressing Pitroda in this decision would duplicate the work of the ITC and present the possibility of our decision conflicting with the ITC's decision. For these reasons as well, we decline to address the Pitroda ground.

H. Patent Owner's Allegation of Improper Challenge

Patent Owner contends that Patent Owner's declarant testified that there were no elements of any of claims 1–16 that were not shown by Pitroda, and therefore, the proper challenge to invalidity brought by Petitioner should have been anticipation, not obviousness. PO Resp. 77–78; Sur-Reply 24–25.

As we declined to address Petitioner's challenge based on Pitroda, this argument is moot.

I. Patent Owner's 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. 79–81; Sur-Reply 25. 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).

Patent Owner further argues that “Any unpatentability determination on the challenged claims in this proceeding by unconstitutionally appointed APJs would violate the APA and the Due Process Clause, and would constitute an unconstitutional deprivation and taking of Patent Owner’s property under the Due Process Clause and Takings Clause.” PO Resp. 81–82. These additional challenges all hinge upon the contention that Administrative Patent Judges are unconstitutionally appointed principal officers, which was resolved in *Arthrex*. Consequently, for the same reason, we do not reach Patent Owner’s additional challenges.

III. CONCLUSION⁴

For the reasons discussed above, we conclude:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–16	103	Doughty, Zellner	1–16	
1–16	103	Zellner, Moullette	1–16	
1–16	103	Pitroda ⁵		
Overall Outcome			1–16	

⁴ 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).

⁵ We do not reach the Pitroda challenge for reasons discussed previously.

IV. ORDER

For the foregoing reasons, it is
ORDERED that claims 1–16 of the '545 Patent are unpatentable; and
FURTHER ORDERED that, because this is a Final Written Decision,
parties to the proceeding seeking judicial review of the decision must
comply with the notice and service requirements of 37 C.F.R. § 90.2.

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