

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

RFCYBER CORP.,
Patent Owner.

IPR2022-01256
Patent 11,018,724 B2

Before JOSIAH C. COCKS, PATRICK R. SCANLON, and
KEVIN W. CHERRY, *Administrative Patent Judges*.

CHERRY, *Administrative Patent Judge*.

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

I. INTRODUCTION

Apple Inc. (“Petitioner”) filed a petition to institute *inter partes* review of claims 1–11 of U.S. Patent No. 11,018,724 B2 (Ex. 1001, “the ’724 patent”). Paper 1 (“Pet.”). RFCyber Corp. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

We have authority under 35 U.S.C. § 314 to determine whether to institute an *inter partes* review. The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted unless “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” The Supreme Court has held that the Board, in a decision to institute under 35 U.S.C. § 314(b), may not institute review on less than all claims challenged in the petition. *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1355–56 (2018). Moreover, in accordance with our rules, “[w]hen instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.” 37 C.F.R. § 42.108(a) (2020); *see also PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (interpreting the statute to require “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”).

Applying those standards, and upon considering the Petition, the Preliminary Response, and the evidence of record, we determine the information presented shows a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one of the challenged claims of the ’724 patent. Accordingly, we institute an *inter partes* review

of all challenged claims (i.e., claims 1–11) of the '724 patent, based on the ground asserted in the Petition.

II. BACKGROUND

A. Related Matters

The parties identify the following district-court proceeding involving the '724 patent: *RF Cyber Corp. v. Apple, Inc.*, Case No. 6:21-cv-00916-ADA (W.D. Tex.). Pet. 60; Paper 5, 1 (Patent Owner's Mandatory Notices). Patent Owner additionally identifies the following district-court proceeding involving the '724 patent: *RF Cyber Corp. v. Visa U.S.A. Inc.*, Case No. 6:22-cv-00697 (W.D. Tex.). Paper 5, 1.

B. Real Parties in Interest

Petitioner identifies Apple Inc. as the real party-in-interest. Pet. 60. Patent Owner identifies RF Cyber Corp. as real party in interest. Paper 5, 1.

C. Overview of the '724 patent

The '724 patent is entitled “Method and Apparatus for Emulating Multiple Cards in Mobile Devices,” and “is related to a mobile device configured to support multiple cards (e.g., Mifare) or applications of similar type.” Ex. 1001 ('724 patent), code (54), 1:8–11. The patent states “there is a need for solutions to make an NFC device with an emulator to support or function as many Mifare cards as possible.” *Id.* at 1:36–41.

The '724 patent describes “a mobile device embedded with an emulator is loaded with a plurality of software modules or applications, each emulating or simulating one card or one type of contactless cards.” *Id.* at 1:54–57.

When the mobile device is to be used as a contactless card to perform a set of monetary functions, a corresponding application is loaded into and executed in the emulator. When the mobile

device is to be used to perform another set of monetary functions, a corresponding application is loaded into the emulator to replace the previous application entirely or partially in the emulator. As a result, the mobile device can be used as a monetary device in lieu of multiple contactless cards.

Id. at 1:61–2:3.

Figure 1A, reproduced below, is a schematic of an embodiment.

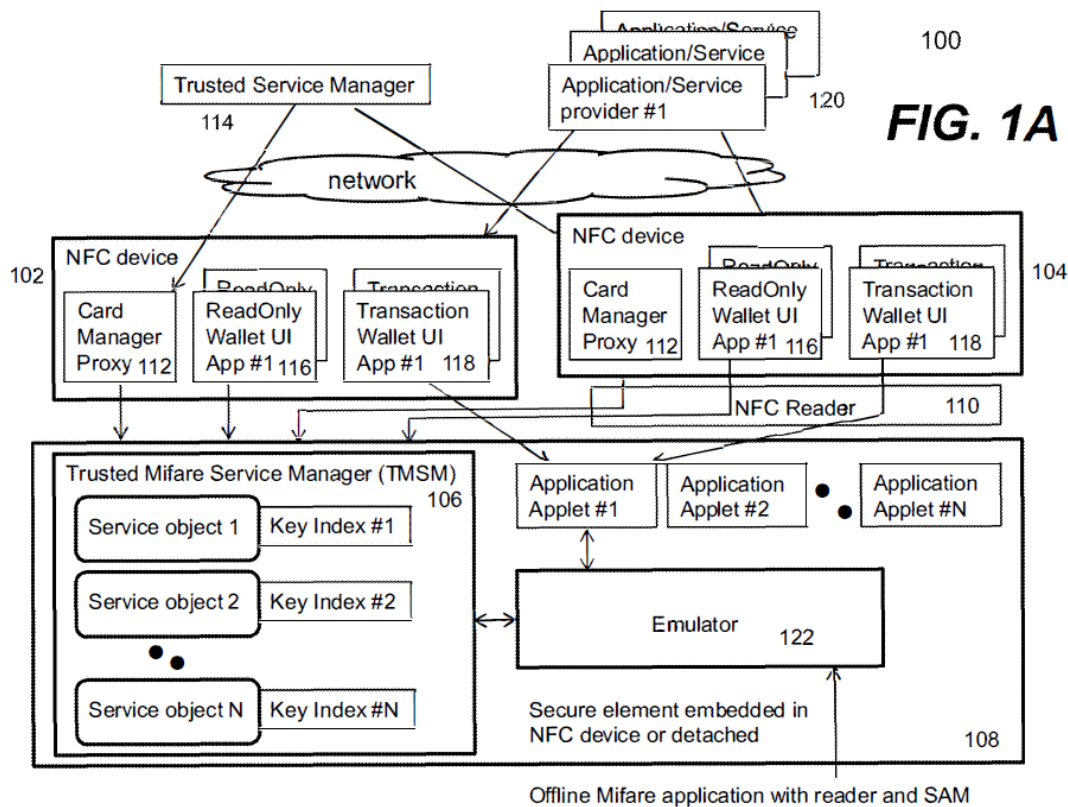


Figure 1A shows “secure element (SE) 108,” which can be embedded in a near-field communication (NFC) device 102 or 104, or on a detachable card in either device. *Id.* at 6:20–23. SE 108 includes Trusted Mifare Service Manager (TSTM) 106, and emulator 122. *Id.* at 6:17–20. The patent discloses that “the TMSM 106 is a component or applet configured to be responsible for installing and personalizing the applications, and swapping one or another application into or out an emulator 122 as long as one the applications remains activated.” *Id.* at 7:8–12. The emulator is “a hardware

device or a program that pretends to be another particular device or program that other components expect to interact with. In one embodiment, the emulator 122 emulates the Mifare classic operating system by providing the exact same hardware and/or software functionality.” *Id.* at 7:12–17. The TSTM 106 permits a wallet application to swap an application in and out of the emulator 122 so that the NFC device 102 or 104 is able to support more than one Mifare card or application. *Id.* at 7:23–28. The applications may be swapped in entirety, or only a portion may be swapped, and “some data sets may be retained for use with the activated application loaded into the emulator.” *Id.* at 7:29–40.

D. The Challenged Claims

Petitioner challenges claims 1–11 of the ’724 patent. Pet. 1. Of the challenged claims, claims 1 and 8 are independent. Claim 1, reproduced below, is illustrative of the subject matter recited in the challenged claims (bracketing added).

[1P]. A mobile device for emulating a plurality of cards, the mobile device comprising:

[1(a)] a display screen showing a list of a plurality of applications for a user of the mobile device to select one therefrom, each application corresponding to one card in the plurality of cards;

[1(b)(i)] a secure element (SE) including:

[1(b)(ii)] an emulator device;

[1(b)(iii)] a memory storing a module, when the module is executed by the secure element, the secure element configured to:

[1(c)] receive and install key sets of a Supplementary Secured Domain (SSD);

[1(d)] establish, by the secure element based on the key sets, a secure communication channel with a dedicated server;

- [1(e)] receive and install an application from the dedicated server, each application including corresponding application data sets and a locked or unlocked status;
- [1(f)] receive, from the plurality of applications, a user selection of a first application corresponding to a first card;
- [1(g)] determine that the first application has a locked or unlocked status and is activated, [1(h)] in response to said determining that the first application has an unlocked status and is activated, load the first application to the emulator device, along with corresponding first application data sets;
- [1(i)] receive, from the plurality of applications, a user selection of a second application corresponding to a second card;
- [1(j)] determine that the second application has a locked or unlocked status and is activated;
- in response to said determining that the second application has an unlocked status and is activated, replace out of the emulator device, a portion of or in entirety, the first application, wherein said replacing out of the emulator device a portion of the first application further comprises retaining the portion of the corresponding first application data sets to be utilized by the second application;
- [1(k)] load the second application to the emulator device along with corresponding second application data sets; and
- [1(l)(i)] increment a counter for each successful application replacement, [1(l)(ii)] wherein the mobile device performs functions of the second card when the first application is replaced out of the emulator device and the second application is loaded in the emulator device.

Ex. 1001, 32:26–33:9; Pet. 26–47.

E. Evidence

Petitioner submits the following evidence:

Evidence	Exhibit No.
Buhot et al., US 2010/0207742 A1 (published Aug. 19, 2010, filed Jan. 26, 2010) (“Buhot”)	1004
“GlobalPlatform Card Specification,” Version 2.2.1, GlobalPlatform, Inc., Jan. 2011 (“GPC”)	1005
Zhu, US 8,249,654 B1 (issued Aug. 21, 2012, filed Sept. 27, 2007) (“Zhu”)	1006
Declaration of Gerald W. Smith (“Smith Decl.”)	1007

F. Asserted Ground of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)
1–11	103(a) ¹	Buhot, GPC, Zhu

Pet. 7. Patent Owner disputes Petitioner’s asserted grounds of unpatentability. *See generally* Prelim. Resp.

III. PATENTABILITY ANALYSIS

Petitioner contends that claims 1–11 of the ’724 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Buhot in view of GPC and Zhu. Pet. 7.

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

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103. The ’724 patent claims benefit of a September 24, 2006, filing date, which is before the effective date of the applicable AIA amendments. Ex. 1001, (63). Petitioner states that “Petitioner applies March 4, 2012 as the priority date for the Challenged Claims.” Pet. 4–5. Thus, we refer to the pre-AIA version of 35 U.S.C. § 103. Our decision would be the same were we to apply the AIA version of the statute.

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) when in evidence, objective evidence of nonobviousness.² *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

We organize our patentability analysis into five sections. First, we address the level of ordinary skill in the art. Second, we address claim construction. Third, we provide an overview of the asserted references. Fourth, we consider the proper priority date for the challenged claims. And fifth, taking account of the information presented, we consider whether the

² Patent Owner does not present arguments or evidence of secondary considerations in its Preliminary Response. Therefore, secondary considerations do not constitute part of our analysis herein.

Petition satisfies the threshold requirement for instituting an *inter partes* review under 35 U.S.C. § 314(a).

A. Level of Ordinary Skill in the Art

We consider the asserted grounds of unpatentability in view of the understanding of a person of ordinary skill in the art. In assessing the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quoting *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)). “[O]ne or more factors may predominate.” *Id.*

Relying on the declaration testimony of Mr. Smith, Petitioner contends that an ordinarily skilled artisan for the ’724 patent “would have had at least a bachelor’s degree in computer engineering, computer science, electrical engineering, or a related field, with at least one year of experience in the field of mobile payment technology. Additional pertinent education might substitute for the requisite experience and vice versa.” Pet. 6–7 (citing Ex. 1007 (Smith Decl.) ¶¶ 34–35). Patent Owner states that it “utilizes Petitioner’s proposed level of skill in the art,” but only for its Preliminary Response. Prelim. Resp. 9.

Based on this record, we adopt Petitioner’s articulation of the level of ordinary skill in the art, which is consistent with the ’724 patent and the asserted prior art, and we apply it in our obviousness evaluations below. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art, itself, can reflect appropriate level of ordinary skill in art).

B. Claim Construction

Next, we turn to claim construction. In interpreting the claims of the '724 patent, we “us[e] the same claim construction standard that would be used to construe the claim[s] in a civil action under 35 U.S.C. [§] 282(b).” *See* 37 C.F.R. § 42.100(b) (2020). The claim construction standard includes construing claims in accordance with the ordinary and customary meaning of such claims as would have been understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (*en banc*).

Petitioner contends that it applies “the plain and ordinary meaning of all claim terms as understood by a POSITA for all terms not expressly construed below,” and indicates that in parallel District Court litigation, the parties agreed to claim construction for the term “emulator device” to mean “hardware device, alone or containing software, that pretends to be another particular device or program that other components expect to interact with.” Pet. 8. Petitioner proposes that the term “application” should be construed to mean ““software program suitable for being executed on a portable device,” but that the “distinction between the parties’ respective proposals need not be resolved for this proceeding.” *Id.* at 8–9. Petitioner finally contends that the phrase “a portion of or in entirety” in each independent claim means “in its entirety or partially,” but not both. *Id.* at 9.

Patent Owner “believes that claim construction is not required to resolve any issues.” Prelim. Resp. 9.

Having considered the record, we determine that no express claim construction is necessary for any claim terms. *See Nidec Motor Corp. v.*

Zhongshan Broad Ocean Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017) (holding that only claim terms in controversy need to be construed, and only to the extent necessary to resolve the controversy (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. The Prior Art

Before turning to Petitioner's asserted grounds of unpatentability, we provide brief summaries of the asserted references.

1. Buhot (Ex. 1004)

Buhot is a published U.S. patent application entitled "Wireless Communication Device for Providing at Least One Near Field Communication Service." Ex. 1004 (Buhot), code (54). Bohut "relates to a wireless communication device for providing at least one Near Field Communication service to a user and a method for updating at least one Near Field Communication service to be provided by a wireless communication device." *Id.* ¶ 1. "Near Field Communication (NFC) is a short-range wireless communication technology which enables the exchange of data between devices allowing users of NFC enabled devices to use NFC services such as performing contactless transactions, accessing digital content and connecting devices with a single touch." *Id.* ¶ 2.

Bohut describes that current main use cases for NFC in a mobile phone include card emulation (the NFC-enabled device can behave like an existing contactless NFC card), and payment services where the mobile phone acts like a debit or credit payment card, or electronic money. *Id.* ¶¶ 4–10. Bohut also describes that, currently,

When for example the mobile phone is in the card emulation mode and acts like a contactless card, a contactless reader can select the contactless NFC application elements stored in the

secure element of the mobile phone and exchange Application Protocol Data Unit (APDU) commands with the NFC application elements so as to proceed with contactless transactions (as defined by the ISO14443-4 standard).

Id. ¶ 17.

Bohut discloses a mobile device which “comprises a[n] NFC unit 218 which can act as a secure element to store at least one NFC application element for use in providing at least one NFC service.” *Id.* ¶ 37.

“[T]ypically, the NFC unit 218 will store a plurality of NFC application elements associated with a plurality of NFC services,” such as “contactless payment application elements from different service providers such as Master Card®, Visa®, and American Express®.” *Id.* Bohut’s device “enables the user to select one of the NFC services . . . and once selected, the user interface element 224 manages the selected NFC application element via the respective mobile application element to provide the selected service.” *Id.* ¶ 47.

2. GPC (Ex. 1005)

GPC, titled “GlobalPlatform Card Specification,” is a technical specification for a smart chip card architecture. Ex. 1005 (GPC), 2. GPC describes “a missing and critically important chip card standard — a hardware-neutral, vendor-neutral, Application-independent card management specification.” *Id.* at 22. The “specification is intended primarily for card manufacturers and application developers developing GlobalPlatform card implementations.” *Id.* at 23.

The GPC standard provides that each application is associated with at least one security domain, which are “[s]pecial key and security management applications called Security Domains are created to ensure

complete separation of keys between the Card Issuer and multiple other Security Domain providers.” *Id.* at 39–40, 79. Security domains “act as the oncard representatives of off-card authorities” and “support security services such as key handling, encryption, decryption, digital signature generation and verification for their providers’ (Card Issuer, Application Provider or Controlling Authority) applications.” *Id.* at 40. For example, security domains “hold cryptographic keys which can be used to support Secure Channel Protocol operations and/or to authorize card content management functions.” *Id.* at 79.

First, a Secure Channel is initiated, which involves an exchange of information that allows the performance of cryptographic functions, including the authentication of the off-card entity. *Id.* at 132, 81. Once initiation is completed, Secure Channel Operation occurs, which involves exchanging data between the on-card Application and off-card entity within the cryptographic protection of the Secure Channel Session. *Id.* at 132. During a Secure Channel Session, the Security Domain [u]nwraps received commands by verifying its integrity and/or decrypting the original data in the case of controlling the sequence of APDU commands. *Id.* at 81. Supplementary security domains (“SSD”) are one type of security domain and serve as on-card representatives of Application Providers. *Id.* at 40. Each SSD corresponds to an application provider and allows the application provider to manage its own Applications and provide cryptographic services using keys that are completely isolated from security domains of other entities (e.g., Card Issuer, Controlling Authority). *Id.* at 40, 79.

Security domains proceed through a series of life cycle states when they are established: INSTALLED, SELECTABLE, PERSONALIZED, and

LOCKED. *Id.* at 57–58. Security domains must first be installed, made selectable, and personalized before they can be associated with an application and become an entry in the GlobalPlatform registry. *Id.* at 58. In the first stage, a security domain is installed on the card. *Id.* Following installation, the security domain becomes SELECTABLE. *Id.* In this stage, the security domain is able to receive commands, such as personalization commands, from off-card entities. *Id.*

Personalization is the process by which an application, including a security domain, obtains personalization data, including specific keys. *Id.* Following personalization, the security domain is in the PERSONALIZED state, indicating that it has all the necessary personalization data and keys for full runtime functionality. *Id.* In this stage, the security domain may also be associated with an application. *Id.*

GPC describes APDU commands used to manage the operation of applications, including a SELECT (or SELECT FILE) command with which applications are selected on a basic logical channel (which is a permanently available interface of a GlobalPlatform card). *Id.* at 65–66, 181. To process a SELECT command, the system determines if the requested Application Identifier (AID) matches or partially matches an entry within the GlobalPlatform Registry, and whether this entry is selectable. *Id.* at 66. An Application is selectable if it is in the correct life cycles state and has no restrictions due to multi-selection. *Id.* GPC makes clear that the card may not be selected if it is in the LOCKED Life Cycle State or an inactive (e.g., INSTALLED) Life Cycle State. *Id.* at 66–67.

GPC teaches a Confirmation Counter that is incremented each time a receipt is generated. *Id.* at 206–07. The standard contemplates a number of

different receipt types, including Load Receipts, Install/Make Selectable Receipts, and receipts indicating that the GlobalPlatform Registry data for a given Application has been updated. *Id.* at 207–09. GPC teaches that the GlobalPlatform Registry data associated with an Application may be updated in response to certain actions. *Id.* at 71. Following a registry update, a registry update receipt is generated. *Id.* at 117. “The Registry Update Receipt provides confirmation that GlobalPlatform Registry data (Privileges and/or Registry Update Parameters) for the identified Application was modified to the specified values on a specific card.” *Id.* at 209. Receipts are optional, and are generated by the Security Domain with Receipt Generation privilege. *Id.* at 97, 206.

GPC teaches that a Security Domain with Receipt Generation privilege also keeps track of a Confirmation Counter. *Id.* at 207. The Confirmation Counter is incremented by (1) following generation of a receipt. *Id.* at 97, 207. Further, the confirmation counter value is included in each receipt generated. *Id.* at 143–44.

3. *Zhu (Ex. 1006)*

Zhu is titled “Dynamic Smart Card Application Loading,” and concerns mobile devices, such as mobile phones, which “may include an integrated contact-less smart card.” Ex. 1006 (Zhu), code (54), 1:53–54.

Zhu describes that a “mobile device may make payments, provide access to restricted areas, and perform other functions or transactions typically performed by smart cards if appropriate smart card applications are resident on the integrated contact-less smart card, such as a payment application.” *Id.* at 1:54–61.

Zhu describes that,

Due to the limited memory of a smart card and/or a smart card integrated into a mobile device, the number of smart card applications and the amount of smart card data that may be stored on the smart card, or in the memory space allocated for a smart card integrated into a mobile device, is limited.

Id. at 2:67–3:5.

“If a user of the mobile device selects a smart card application for a transaction, and the selected smart card application is not in the smart card’s memory, the selected smart card application has to be loaded to the smart card’s memory.” *Id.* at 3:6–12. However, if there is not sufficient memory to load the application, “the mobile device user needs a quick and easy way to access more smart card applications than can be stored in the smart card at one time.” *Id.* at 3:15–24. Figure 1, reproduced below, shows a schematic diagram of a smart card application loading embodiment.

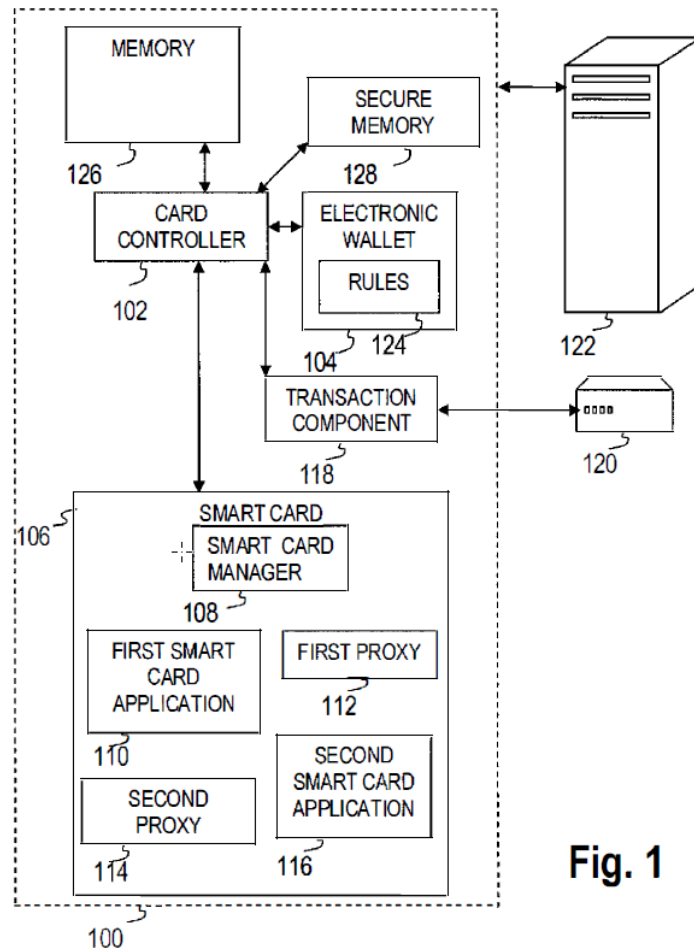


Fig. 1

Figure 1 illustrates mobile device 100, which contains card controller 102, electronic wallet 104, smart card 106, and smart card manager 108, within the smart card. *Id.* at 4:13–24. The electronic wallet 104 provides a user with information about financial accounts, and “may enable the user to access and select smart card applications on the smart card 106.” *Id.* at 4:28–31.

D. Priority Date of the Challenged Claims

Petitioner argues that the earliest priority date the ’724 patent is entitled to is March 4, 2012, the filing date of Provisional Application No. 61/606,451 (“the ’451 Provisional”). Pet. 3. Petitioner asserts that “[a]lthough the ’724 Patent also claims priority to two other applications,

neither provides written description support for replacing applications using an emulator—a concept in all the Challenged Claims.” *Id.* Petitioner notes that the Examiner made a similar conclusion during the prosecution of the ’724 patent. *Id.* at 3–4 (citing Ex. 1002 (’724 patent File History), 497). Petitioner submits that this is consistent with the disclosure in the ’451 Provisional, which describes the replacing as “extend[ing]” the solution described in prior applications. *See id.* at 4 (citing Ex. 1003 (’451 Provisional), 7).

Patent Owner asserts that the Challenged Claims are entitled to a priority date of at least September 24, 2006. Prelim. Resp. 20. Patent Owner argues that “Petitioner does not assert that *any* limitation of any Challenged Claim lacks written description support in either application.” *Id.* at 21. Patent Owner contends that “Petitioner tacitly acknowledges this deficiency, instead alleging that ‘*a concept*’ of the Challenged Claim is somehow unsupported and relying on this bald assertion to justify its March 4, 2012 priority date for the Challenged Claims.” *Id.* Patent Owner argues that the evaluation be “based on written description support for ‘claimed subject matter,’ not for some undefined ‘concept.’” *Id.*

Patent Owner contends that, even if we overlook this flaw in the Petition, “it is impossible for Petitioner to satisfy its burden of persuasion going forward because the Petition limits its arguments regarding the priority of the ’724 Patent to its misapprehension of the law.” *Id.* at 22. In particular, Patent Owner asserts that “as in *Dynamic Drinkware*, Petitioner cannot succeed in the face of countervailing evidence because it ‘never compared the claims’ of the [’724 Patent] to the disclosure in the [parent] application.” *Id.* Patent Owner also notes the limitation identified by the

Examiner during prosecution was not in the issued claims. *Id.* at 24. As for the '451 Provisional, Patent Owner argues that the discussion in that application focuses on the Mifare emulator, which is not claimed. *Id.* at 25. Finally, Patent Owner identifies support in the earliest application, which it contends supports the “replacing” limitations. *Id.* at 26 (citing Ex. 2001, at 4:47–56).

On this record, we agree with Petitioner that the challenged claims of the '724 patent are not entitled to a filing date before March 4, 2012. We begin by noting that although Patent Owner correctly identifies *Dynamic Drinkware* as explaining the evidentiary framework for determining priority in a *inter partes* review, we do not agree with Patent Owner’s entire interpretation of that case. In particular, we do not agree with Patent Owner that Petitioner has the initial burden of showing that the '724 patent is not entitled to an earlier priority date for unpatentability purposes. *See* Prelim. Resp. 21 (“Petitioner has not met that burden, because it has not alleged any legally cognizable theory that the references of its proposed combination are prior art to the '724 Patent.”). As explained in a number of cases, although the patent challenger always has the ultimate burden of persuasion, which never shifts, a patentee must demonstrate entitlement to a priority date when the patentee relies on that priority date to overcome an anticipation or obviousness argument. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1379–80 (Fed. Cir. 2015) (discussing burdens in *inter partes* review to show entitlement to provisional filing dates and relying on infringement cases involving continuation-in-part applications); *In re NTP, Inc.*, 654 F.3d 1268, 1276 (Fed. Cir. 2011) (noting “a patent’s claims are not entitled to an earlier priority date because the patentee claims priority . . .

[r]ather, for a patent's claims to be entitled to an earlier priority date, the patentee must demonstrate that the claims meet the requirements of 35 U.S.C. § 120"); *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 870–71 (Fed. Cir. 2010); *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327–29 (Fed. Cir. 2008); *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1305–06 (Fed. Cir. 2008). As the Federal Circuit explained most recently in *Dynamic Drinkware*, a patent challenger has the burden of going forward to show that there is invalidating prior art. *Dynamic Drinkware*, 800 F.3d at 1379. Contrary to Patent Owner's position, the only showing Petitioner needed to make is that "the art must have existed as of the date of invention, presumed to be the filing date of the application until an earlier date is proved." *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 796 F.2d 443, 449 (Fed. Cir. 1986); *In re Fong*, 378 F.2d 977, 980 (CCPA 1967) ("Appellants' filing date, no earlier date having been proved, is their date of invention.").

However, even if Petitioner had the initial burden of showing that the '724 patent was not entitled to the 2006 priority date, we also disagree with Patent Owner's contention that Petitioner failed to identify any claim limitation lacking written description support. Although Petitioner does not write out a single limitation, we understand from reviewing the Petition that Petitioner contends that limitation [1(j)], and the related limitations [1(h)]–[1(l)(ii)] that deal with swapping of applications in the emulator, lack written description support in the earlier applications. Indeed, Patent Owner's own discussion of why limitation [1(j)] and the related limitations have written description support illustrate that this contention is readily discernible from the Petition. See Prelim. Resp. 23–27. Thus, we do not agree with Patent

Owner's contentions that Petitioner improperly relies on a "concept" and not a claim limitation in its analysis. *See* Prelim. Resp. 21–23. Thus, we disagree with Patent Owner's assertion that Petitioner's priority analysis is procedurally flawed.

We now turn to the question whether there is sufficient support in the earlier applications, in particular Application No. 11/534,653 ("the '653 application"), which issued as U.S. Patent No. 8,118,218 B2 ("the '218 patent"). "It is elementary patent law that a patent application is entitled to the benefit of the filing date of an earlier filed application only if the disclosure of the earlier application provides support for the claims of the later application, as required by 35 U.S.C. § 112." *PowerOasis*, 522 F.3d at 1306; *New Railhead Mfg., L.L.C. v. Vermeer Mfg. Co.*, 298 F.3d 1290, 1294 (Fed. Cir. 2002); *Lucent Techs., Inc. v. Gateway, Inc.*, 543 F.3d 710, 718 (Fed. Cir. 2008) ("Patent claims are awarded priority on a claim-by-claim basis based on the disclosure in the priority applications."). The test for determining compliance with the written description requirement under § 112(a) is whether the original disclosure of the earlier-filed application reasonably would have conveyed to one with ordinary skill in the art that the inventor had possession the claimed subject matter at the time of the earlier-filed application. *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). It is well settled that "[e]ntitlement to a filing date does not extend to subject matter which is not disclosed but would be obvious over what is expressly disclosed." *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1571–72 (Fed. Cir. 1997). "It is not sufficient for purposes of the written description requirement of § 112 that the disclosure, when combined with the knowledge in the art, would lead one to speculate

as to modifications that the inventor might have envisioned, but failed to disclose.” *Id.* Nor could the claimed subject matter have been “envisioned” from the earlier disclosure to establish written description support. *Goeddel v. Sugano*, 617 F.3d 1350, 1356 (Fed. Cir. 2010).

We agree with Petitioner that, on this record, there does not appear to be support for limitation [1(j)] in the ’653 application. Patent Owner identifies the following disclosure from the ’218 patent (the patent that issued from the ’653 application) as supporting limitation [1(j)]:

According to one embodiment, a smart card has a preloaded smart card operation system that provides security framework to control the access to the Smart card (e.g., an installation of external applications into the smart card). In order to manage the life cycle of an external application, a card manager module is configured by using the smart card security framework. For instance, a Java based smart card, SmartMX, is preloaded with an operating system JCOP 4.1. The Global Platform 2.1 installed on the SmartMX performs the card manager functionality.

Ex. 2001 (’218 patent), 4:47–56.

Patent Owner argues that “this description is substantively identical to that on which Apple relies for disclosure of the “emulator device” and “replace out of the emulator device . . . replacing out of the emulator device . . .” limitations. Prelim. Resp. 26. Patent Owner contends that “Apple relies on Buhot’s discussion of an ‘operating system 314 (running on processor 400) for the ‘emulator device’ limitation (Pet. at 31), and relies on Zhu’s alleged teachings regarding a ‘smart card manager . . . which governs the process of loading and unloading applications out of an emulator’ for the ‘replace out of the emulator device . . . replacing out of the emulator device’ limitations.” *Id.* (citing Pet. 43). Patent Owner asserts that Petitioner “cannot argue with a straight face that its proposed combination discloses

this ‘concept’ while substantively identical discussion in the specification of the ’653 Application somehow does not.” *Id.*

We disagree with Patent Owner’s characterization of the Petition. Patent Owner is correct that Petitioner does point to Buhot’s teachings regarding its operating system to teach an “emulator device,” and Zhu’s teachings regarding its smart card manager. However, for limitation [1(j)], Petitioner relies on the combination of Buhot, GPC, and Zhu to account for the limitation. *See* Pet. 43–44. Thus, Petitioner does not contend that Buhot’s teachings of an operating system or Zhu’s teachings of a smart card manager alone disclose this limitation. Instead, the Petition relies on Zhu’s specific teachings of a smart card manager that performs specific functions—namely, removing an existing application to make room, and using the smart card manager to replace the existing application with its proxy and load the new application in its entirety, combined with Buhot’s and GPC’s teachings. *See id.* at 43–44 (citing Ex. 1007 (Smith Decl.) ¶ 100; Ex. 1006 (Zhu), 3:61–65, 7:3–10:1). Thus, we do not agree that there is some inconsistency between Petitioner’s unpatentability allegations and its priority contentions. Indeed, the detailed discussion of the combination of Zhu and Buhot shows how much more than just an emulator and smart card manager is needed to account for all the aspects of limitation [1(j)].

Here, on this record, we find that the disclosure of the ’653 application—limited to general teachings of a smart card, an operating system, and a smart card manager—is insufficient to show possession of limitation [1(j)]. As we explained above, “[e]ntitlement to a filing date does not extend to subject matter which is not disclosed but would be obvious over what is expressly disclosed.” *Lockwood*, 107 F.3d at 1571–72. The

'653 Application contains no disclosure of replacing applications, even if the disclosure identified above might render such replacing obvious, it is not sufficient to show the possession required to establish entitlement to a priority date. Accordingly, we agree with Petitioner that, on the current record, the challenged claims of the '724 patent are entitled to a priority date no earlier than March 4, 2012. Patent Owner will be free to develop more evidence on the proper priority date of the '724 patent during trial.

E. Alleged Ground of Unpatentability Over Buhot, GPC, and Zhu

Petitioner contends that claims 1–11 of the '724 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Buhot in view of GPC and Zhu. Pet. 10–57. Patent Owner opposes. Prelim. Resp. 9–20. Having considered the arguments and evidence before us, we determine that the record establishes a reasonable likelihood that Petitioner would prevail on this asserted ground of unpatentability.

1. Claim 1

With respect to claim 1 of the '724 patent, Petitioner maps the limitations of claim 1 to the teachings of the combined references. Pet. 26–47. For example, Petitioner contends that Buhot teaches “[a] mobile device for emulating a plurality of cards” (limitation [1(P)]), Pet. 26–27 (citing Ex. 1004 (Buhot) ¶¶ 4, 5, 16, 17, 29, 30, 37, 45, Fig. 2), “a display screen showing a list of a plurality of applications for a user of the mobile device to select one therefrom, each application corresponding to one card in the plurality of cards” (limitation [1(a)]), Pet. 27–28 (citing Ex. 1004 (Buhot) ¶¶ 35, 47, 49; Ex. 1007 (Smith Decl.) ¶ 85), a “secure element (SE)” (limitation [1(b)(i)]), *id.* at 28–29 (citing Ex. 1004 (Buhot) ¶¶ 37, 38), and

“an emulator device” (limitation [1(b)(ii)]), *id.* at 29–31 (citing Ex. 1004 (Buhot), Figs. 2, 3, 4, ¶¶ 37, 38, 45; Ex. 1007 (Smith Decl.) ¶ 86).

Claim 1 also recites “a memory storing a module, when the module is executed by the secure element, the secure element configured to” (limitation [1(b)(iii)]) and a number of functions performed by this configured memory (limitations [1(c)], [1(d)], [1(e)], [1(f)], [1(g)], [1(h)], [1(j)], [1(k)], [1(l)(i)], and [1(l)(ii)]). Petitioner relies on Buhot, GPC, and Zhu in various combinations for these limitations, as set forth below. *See id.* at 31–47.

In particular, for limitations [1(c)]—“receive and install key sets of a Supplementary Secured Domain (SSD),” [1(d)]—establish by the secure element based on the key sets, a secure communication channel with a dedicated server,” [1(e)]—“receive and install an application from the dedicated server, each application including corresponding application data sets and a locked or unlocked status,” and [1(g)]—“determine that the first application has a locked or unlocked status and is activated,” Petitioner relies on the combined teachings of Buhot and GPC. *See* Pet. 37–38 (citing Ex. 1004 (Buhot) ¶¶ 48–51, 54–56, 62, 63, 82; Ex. 1005 (GPC), 57–58, 65–67). With respect to limitation [1(f)]—“receive, from the plurality of applications, a user selection of a first application corresponding to a first card” and limitation [1(i)]—“receive, from the plurality of applications, a user selection of a second application corresponding to a second card,” Petitioner relies on the teachings of Buhot. *See* Pet. 39 (citing Ex. 1004 (Buhot) ¶¶ 49, 81), 42 (citing Ex. 1004 ¶ 67; Ex. 1007 (Smith Decl.) ¶ 99).

As for the remaining limitations, Petitioner notes that “[a]mong the functions attributed to the secure element in the subsequent limitations,

limitations [1(h)], [1(j)], [1(k)], [1(l)(i)], and [1(l)(ii)] each include language directed to loading and unloading applications into and out of the emulator.”³ *Id.* at 31. Petitioner submits that “[a]lthough Buhot describes an emulator that runs payment card applications and permits a user to select which application is run for any given transaction, it does not expressly describe the process of loading and unloading applications.” *Id.* at 31–32. Petitioner relies on Zhu for its teachings of loading and unloading applications. *Id.* at 32. For example, Petitioner contends that the combination of Buhot, GPC, and Zhu discloses limitations [1(h)]—“in response to said determining that the first application has an unlocked status and is activated, load the first application to the emulator device, along with corresponding first application data sets,” limitation [1(j)]—“determine that the second application has a locked or unlocked status and is activated; in response to said determining that the second application has an unlocked status and is activated, replace out of the emulator device, a portion of or in entirety, the first application, wherein said replacing out of the emulator device a portion of the first application further comprises retaining the portion of the corresponding first application data sets to be utilized by the second application,” limitation [1(k)]—“load the second application to the emulator device along with corresponding second application data sets,” limitation [1(l)(i)]—“increment a counter for each successful application replacement,” and limitation [1(l)(ii)]—“wherein the mobile device performs functions of the second card when the first application is replaced out of the emulator device and the second application is loaded in the

³ The Petition here lists “limitations [1(h)], [1(k)], [1(l)], and [1(m)(ii)],” but the order appears to skip limitation [1(j)] and we have corrected it here.

emulator device.” Pet. 41–42 (limitation [1(h)]) (citing Ex. 1007 (Smith Decl.) ¶ 98; Ex. 1006 (Zhu), 8:62–67), 43–44 (limitation [1(j)]) (citing Ex. 1007 (Smith Decl.) ¶ 100; Ex. 1006 (Zhu), 3:61–65, 7:3–10:1), 44 (limitation [1(k)], 45–46 (limitation [1(l)(ii)]) (citing Ex. 1007 (Smith Decl.) ¶ 102; Ex. 1005 (GPC), 206–209), 46–47 (citing Ex. 1004 (Buhot) ¶¶ 16, 17, 30, Ex. 1007 (Smith Decl.) ¶ 104).

Petitioner submits that there is a motivation to combine the references. Pet. 17–26, 35–36. With respect to Buhot and GPC, Petitioner notes that Buhot “does repeatedly recommend implementing its device in accordance with the Global Platform Card (GPC) standards.” *Id.* at 17 (citing Ex. 1004 (Buhot) ¶¶ 45, 55). Petitioner also provides a detailed explanation why a person of ordinary skill in the art would have been motivated to include GPC’s secure communications, life cycles, and counter in Buhot. *Id.* at 23–26 (citing Ex. 1007 (Smith Decl.) ¶¶ 80–83; Ex. 1004 (Buhot) ¶¶ 16, 45, 49–51, 55, 62–65). With respect to the combination of Buhot and GPC with Zhu, Petitioner argues that

a [person of ordinary skill in the art] would have recognized that Zhu’s smart card manager 108 would benefit Buhot’s similar multi-application smart card device in the same way it benefits Zhu, increasing capacity by allowing Buhot to store smartcard applications in separate memory on the mobile device. [Ex. 1007 (Smith Decl.)] ¶ 90. A [person of ordinary skill in the art] would have recognized that such functionality would be desirable to a user because it would allow for the use of a greater number of smartcard applications. *Id.* As Zhu expressly recognizes, it was well understood in the art that smart cards integrated into mobile devices had limited memory, which restricted the number of applications they could support. Zhu, 2:64-3:5. A POSITA would have recognized that the same memory restrictions would have impacted Buhot’s smart card and, accordingly, would have been motivated to implement a solution to support many

applications despite the limited memory. [Ex. 1007 (Smith Decl.)] ¶ 90.

Pet. 35. Petitioner further contends that a person of ordinary skill in the art would have had a reasonable expectation of success in making the combination. *Id.* at 25–26, 36.

At this stage, Patent Owner disputes whether the combination accounts for limitations [1(h)]—“in response to said determining that the first application has an unlocked status and is activated, load the first application to the emulator device, along with corresponding first application data sets”—and [1(j)]—“replace out of the emulator device, a portion of or in entirety, the first application, wherein said replacing out of the emulator device a portion of the first application further comprises retaining the portion of the corresponding first application data sets to be utilized by the second application.” Prelim. Resp. 10–20.

As to the undisputed limitations of claim 1, we have reviewed Petitioner’s cited evidence and explanation, and find it sufficient at this stage. We will focus our analysis on the elements of Petitioner’s case that Patent Owner currently disputes.

2. Patent Owner’s Arguments

- a) *“in response to said determining that the first application has an unlocked status and is activated, load the first application to the emulator device, along with corresponding first application data sets”*

Patent Owner contends “Petitioner does not identify any disclosure in any of Zhu or Buhot of loading an application *in response to said determining*.” Prelim. Resp. 11. Patent Owner argues that “Petitioner merely asserts that ‘a POSITA would have been motivated to implement Buhot with the smart card manager described in Zhu, which governs the

process of loading and unloading applications into and out of an emulator’ and that ‘pursuant to the teachings of Buhot and GPC, the proposed combination determines that an application has an unlocked status and is activated when processing a SELECT command.’” *Id.* at 10 (citing Pet. 41). Patent Owner asserts that “Petitioner’s argument *at most* boils down to an assertion that loading an application could involve use of the SELECT command to activate an application and could involve a determination that an application is unlocked.” *Id.* Patent Owner contends that the Petition should be denied for this defect alone. *Id.* at 11.

We disagree with Patent Owner that Petitioner merely asserts that the SELECT command could be used. Instead, we read the Petition as contending that when Buhot and Zhu are implemented using the “life cycle” states taught by GPC, the SELECT command would be used. *See* Pet. 20–22, 39–41. Moreover, Petitioner provides contentions why a person of ordinary skill would have implemented the combination in this way. *See id.* at 23–26. Thus, we do not agree that the Petition is defective for failing to argue that a person of ordinary skill would have used commands in the manner proposed.

Patent Owner also argues that Petitioner’s contentions for this limitation fail to address the contrary discussion in both Buhot and Zhu. Prelim. Resp. 11–13. For example, Patent Owner contends that Buhot describes “an ‘NFC application element’ (which Petitioner identifies as an ‘application’) *may be locked* while ‘stored in the NFC unit 218’ (which Petitioner identifies as part of an emulator device).” *Id.* at 11 (citing Pet. 29); *see also id.* at 11–12 (citing Ex. 1004 ¶ 49 (“The lock code . . . may be provided to the NFC unit 218 *when the NFC application element is*

stored in the NFC unit 218.”). We fail to see, and Patent Owner fails to provide any explanation why, this is inconsistent with Petitioner’s allegations, which explain that part of the life cycle described in GPC is that an application may be locked. *See, e.g.*, Pet. 20–22 (citing Ex. 1005 (GPC), 65–67. As Petitioner argues,

Buhot’s CALC associated with each application indicates whether the application is locked. A POSITA would have recognized that the locked or unlocked status according to the CALC would be determined before the application can be selected according to the GPC. *Id.*, ¶ 96 (noting that GPC at 182 teaches the use of a SELECT command on a locked card application will return either an error status word indicating the function is not supported or a message indicating the card application is locked).

Pet. 41. At this stage, we find this explanation of how Buhot’s teachings would implemented in the combination sufficient. Patent Owner is free further develop this argument during the trial.

As for Zhu, Patent Owner asserts that “Zhu’s ‘loading’ (where it even happens) has nothing to do with ‘determining that the first application has an unlocked status and is activated.’” Prelim. Resp. 12. Instead, Patent Owner argues that “Zhu’s implementation contemplates that the only time a ‘selected smart card application’ is loaded is if memory space was not previously available on the smart card for that smart card application.” *Id.* There are two problems with Patent Owner’s arguments. First, nothing in the claim prevents there from being additional steps, such as determining whether memory space is available. Second, Patent Owner’s arguments ignore that Zhu’s replacement of applications is combined with Buhot’s system *and* GPC’s life cycle teachings. *See* Pet. 39–41 (discussing, in the context of limitation [1(g)] how Buhot’s and GPC’s teachings are

combined). In the combination, as Petitioner explains in detail in its discussion of limitation [1(g)] (which is cross referenced in limitation [1(h)], a person of ordinary skill would have implemented Buhot's system using the GPC APDU commands, including a SELECT command. Pet. 40. Petitioner further explains that "[a]n Application is selectable if it is in the correct life cycles state and has no restrictions due to multi-selection," and "GPC makes clear that the card may not be selected if it is in the LOCKED Life Cycle State or an inactive (e.g., INSTALLED) Life Cycle State." *Id.* (citing Ex. 1005 (GPC), 66–67). Thus, in the combination, it is Buhot in combination with GPC that teaches the claimed loading "in response" recited in limitation [1(h)]. Petitioner does not rely on Zhu alone, as Patent Owner argues. Thus, Patent Owner's arguments are not persuasive.

Accordingly, at this stage, we find Petitioner has shown sufficiently that the combination of Buhot, GPC, and Zhu accounts for this limitation.

- b) "replace out of the emulator device, a portion of or in entirety, the first application, wherein said replacing out of the emulator device a portion of the first application further comprises retaining the portion of the corresponding first application data sets to be utilized by the second application"*

Patent Owner contends Petitioner also fail to show that Zhu teaches or suggests "replac[ing] out of the emulator device, a portion of or in entirety, the first application." Prelim. Resp. 13–17. In particular, Patent Owner argues "[a]pparently recognizing that Zhu's 'saved information' does not constitute 'retaining the portion of the corresponding first application sets to be utilized by the second application,' Petitioner takes the incredible position that Zhu's explicit description of 'sav[ing] some information for the resident smart card application' somehow means that 'applications are replaced in

their entirety.” *Id.* at 15 (citing Pet. 43). Patent Owner asserts that “[t]his is plainly not the case.” *Id.*

Patent Owner relies on Zhu’s teachings that when it removes an application “some information for the resident smart card application” may be saved, and if the data cannot be saved to the mobile device, “the mobile device may leave the encrypted confidential account information in the smart card 106.” Prelim. Resp. 15 (citing Ex. 1006 (Zhu), 8:56–9:8). Patent Owner asserts that because “Zhu’s ‘card manager’ plainly saves portions of the first application on Petitioner’s ‘emulator device,’” Petitioner “cannot credibly maintain its position that Zhu teaches that ‘applications are replaced in their entirety.’” *Id.* at 15–16. However, this argument ignores that Zhu describes this saving as “optional[.]” and repeatedly states merely that the mobile device “may” save this information. *See* Ex. 1006 (Zhu), 8:49–50 (“In box 216, the mobile device 100 *optionally* encrypts some information for the resident smart card application.”) (emphasis added), 8:56–67 (explaining the mobile device “may save” information). In addition, Zhu describes even when the information is optionally saved, it can be saved in memory 126, which is part of the mobile device—not the smart card. *Id.* at 9:1–8; *see also id.* at 5:48–65 (describing how save the application information outside the Smart Card). Thus, Zhu does contemplate many situations where either no data is saved, or no data is saved to the smart card. Either of these situations is sufficient to show obviousness at this stage. *See Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1002 (Fed. Cir. 2016) (“[C]ombinations of prior art that sometimes meet the claim elements are sufficient to show obviousness.”); *see also Hewlett–Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1326 (Fed. Cir. 2003) (“Just as ‘an accused

product that sometimes, but not always, embodies a claimed method nonetheless infringes,’ a prior art product that sometimes, but not always, embodies a claimed method nonetheless teaches that aspect of the invention.” (quoting *Bell Commc’ns Research, Inc. v. Vitalink Commc’ns Corp.*, 55 F.3d 615, 622–623 (Fed. Cir. 1995))).

Patent Owner also argues that “Buhot expressly teaches against use of any ‘card manager,’ instead contemplating a separate “plurality of mobile application elements” that process corresponding ‘NFC application elements.’” Prelim. Resp. 18. Patent Owner asserts that “Buhot makes a core assumption that ‘[h]aving a plurality of stand alone NFC application elements, particularly when there are several NFC application elements of the same type, for use in a mobile phone can raise a number of issues due to the fact that each NFC application element operates in isolation of the other elements.’” *Id.* (citing Ex. 1004 (Buhot) ¶ 19). Patent Owner submits that “Buhot, therefore, teaches that ‘to modify the reference contactless application elements for NFC applications to allow, for example, interoperability or interfacing with other elements or OTA provisioning,’ but would be impractical because ‘this would require for the application element providers to modify their reference application elements to support these services on NFC devices which will involve extra cost, new code baseline, new deployment and new certification processes.’” *Id.* (citing Ex. 1004 (Buhot) ¶ 21). Patent Owner argues that Buhot, therefore, uses ““a plurality of mobile application elements 318-328, with each one of the mobile application elements 318-328 managing at least one of the NFC application elements 302-312 to provide the associated service,’ rather than attempting

to make NFC application elements ‘interoperable’ with a single mobile application element. *Id.* at 19 (citing Ex. 1004 (Buhot) ¶ 46).

Patent Owner contends that, in contrast, “Zhu describes a centralized ‘smart card manager’ intended to manage all ‘smart card applications’ on a device and provide ‘a quick and easy way to access more smart card applications than can be stored in the smart card at one time.’” *Id.* (citing Ex. 1006 (Zhu), 3:15–24). Patent Owner argues this is the “antithesis of the approach described in Buhot” and is “exactly what Buhot states ‘can raise a number of issues’ and ‘would require for the application element providers to modify their reference application elements to support these services on NFC devices which will involve extra cost, new code baseline, new deployment and new certification processes.’” *Id.* (citing Ex. 1004 (Buhot) ¶¶ 19, 21).

“A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009) (quoting *Ricoh Co. v. Quanta Comput. Inc.*, 550 F.3d 1325, 1332 (Fed. Cir. 2008)). “A reference does not teach away if it merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into the invention claimed.” *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed. Cir. 2018). On the current record, we do not agree with Patent Owner that Buhot’s statements regarding “stand alone” NFC applications amounts to a teaching away. As best as we can discern, these statements appear to expresses a preference,

but do not criticize, discredit, or otherwise discourage the path taken by the inventor. Patent Owner's statements about how a person of ordinary skill in the art would interpret Buhot's teachings and Patent Owner's contention that Zhu's approach is the "antithesis" of Buhot's approach are only attorney argument, and, therefore, lack sufficient evidentiary support in the current record. Patent Owner will be free to develop the evidentiary record on its contention that Buhot teaches away from the combination with Zhu during the trial.

Accordingly, we conclude that Petitioner has shown sufficiently that the combination of Buhot, GPC, and Zhu accounts limitation [1(j)].

3. Conclusion

Accordingly, based on our review of the current record, we determine that Petitioner has shown a reasonable likelihood of prevailing on its contention that claim 1 is unpatentable as obvious over Buhot, GPC, and Zhu.

F. Remaining Claims

We have reviewed Petitioner's cited evidence and explanation regarding why Buhot, GPC, and Zhu render claims 2–11 obvious, and find them sufficient at this stage. At this stage, Patent Owner raises no other arguments regarding these claims other than those considered above with respect to claim 1. On this record, we determine that Petitioner has shown a reasonable likelihood of success that Buhot, GPC, and Zhu render claims 2–11 obvious.

IV. CONCLUSION

After considering the arguments presented in the Petition, the Preliminary Response, and the evidence of record, we determine that Petitioner has demonstrated at least a reasonable likelihood of success in proving that at least one claim of the '724 patent is unpatentable. Thus, we institute an *inter partes* review of all challenged claims (i.e., claims 1–11) on all grounds set forth in the Petition. Our determinations at this stage of the proceeding are based on the evidentiary record currently before us. This decision to institute trial is not a final decision as to patentability of any claim for which we have instituted an *inter partes* review. *See TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (noting that “there is a significant difference between a petitioner’s burden to establish a ‘reasonable likelihood of success’ at institution, and actually proving invalidity by a preponderance of the evidence at trial”). We will base any final decision on the full record developed during trial.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted for claims 1–11 of the '724 patent on the unpatentability grounds asserted in the Petition; and

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

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Patent 11,018,724 B2

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