

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Petitioner,

v.

FINTIV, INC.,

Patent Owner.

Case No. IPR2023-00399

U.S. Pat. No. 9,208,488

PATENT OWNER'S RESPONSE

TABLE OF CONTENTS

Page(s)

PATENT OWNER’S EXHIBIT LIST	iv
I. INTRODUCTION.....	1
II. THE ’488 PATENT SPECIFICATION AND CLAIMS.....	1
A. Overview of the ’488 Patent	1
B. Claims of the ’488 Patent.....	5
C. A Person of Ordinary Skill the Art	6
III. PLAIN MEANING OF CERTAIN CLAIM TERMS	10
A. Integration Tier <i>Including</i> Web Services Communication Mechanisms	10
B. Web Services Communication Mechanisms For Interfacing With A Mobile Wallet Application.....	11
C. “Different Communication Channels”.....	11
IV. CLAIM CONSTRUCTION	12
A. “Mobile Device”	12
B. “Mobile Wallet Application”	14
C. “Hardware SIM Card”	16
D. “Payment Handler”	20
V. DESCRIPTION OF DILL.....	29
VI. THE PETITION FAILS TO DEMONSTRATE THE UNPATENTABILITY OF CHALLENGED CLAIMS	30
A. Dill And Bykov Fail To Teach A Mobile Wallet Installed On A Hardware SIM Card, As Claimed	30

1.	Dill Does Not Teach Installation Of A Mobile Wallet Application On A Hardware SIM Card	32
2.	Bykov And Dill Fail To Teach A Mobile Device Where The Mobile Wallet Application Is Installed On The Device’s Hardware SIM Card And The Mobile Device Can Access The Cellular Infrastructure, As Claimed	33
B.	Dill Fails To Teach An Integration Tier That <i>Includes A Web Services Mechanism For Interfacing With A Mobile Wallet Application</i>	36
C.	Dill Fails To Teach An Integration Tier That Includes Web Services Mechanisms For Interfacing With A Plurality Of Different Device Types <i>Over A Plurality Of Different Channels</i>	42
D.	Dill Fails To Teach A Notification Services Engine Configured To Interface With The Integration Tier	45
E.	Petitioner Has Failed To Establish That Dill Teaches <i>Web Services For Interfacing With A Mobile Wallet Application</i>	46
F.	Dill Fails To Teach “Web Services,” And Hence Fails To Teach “Web Services Communication Mechanisms”	50
G.	The Petition Erroneously Maps Dill’s Mobile Wallet Application (121) In Mobile Network Operator (120) To The Claimed “Mobile Wallet Application” Installed On A Mobile Device	52
VII.	CONCLUSION	56

PATENT OWNER'S EXHIBIT LIST

Ex. 2001	Declaration of Dr. Michael I. Shamos, Ph.D., dated August 24, 2022
Ex. 2002	Resume of Michael Ian Shamos
Ex. 2003	Declaration of Dr. Michael I. Shamos, Ph.D., dated October 12, 2023
Ex. 2004	Deposition Transcript of Dr. Houh, September 29, 2023
Ex. 2005	Claim Construction Order in <i>Fintiv, Inc. v. PayPal Holdings, Inc.</i> , Case No. 6:22-cv-00288, dated January 9, 2023.
Ex. 2006	Memorandum in Support of Claim Construction Order in <i>Fintiv, Inc. v. PayPal Holdings, Inc.</i> , Case No. 6:23-cv-00490, dated July 21, 2023.
Ex. 2007	[not used]
Ex. 2008	Authoritative Dictionary of IEEE Standard Terms, 7 th Edition (2000)
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Ex. 2015	C. Petrie et al., <i>Semantic Web And Beyond: Computing For Human Experience, Semantic Web Services Challenge, Results From The First Year</i> (2009)
Ex. 2016	Declaration of Dr. Kai Johnson, dated October 13, 2023
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Ex. 2018	Wiktionary – definition of “handler” dated June 20, 2010; retrieved from Wayback Machine (web.archive.org/web/20100620012624/http://en.wiktionary.org:80/wiki/handler)
Ex. 2019	Wikipedia – definition of “Application programming interface,” dated November 5, 2011; retrieved from Wayback Machine (web.archive.org/web/20111105050416/http://en.wikipedia.org/wiki/API)
Ex. 2020	IETF RFC 2935, published September, 2000
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Ex. 2023	Techopedia, “Home Location Register” definition (last updated November 17, 2011) (https://www.techopedia.com/definition/7580/home-location-register-hlr)
Ex. 2024	Techopedia, “Visitor Location Register” definition (last updated September 12, 2011) (https://www.techopedia.com/definition/9951/visitor-location-register-vlr)
Ex. 2025	The GSM Standard, An Overview Of Its Security, SANS Institute 2000-2002 (https://www.giac.org/paper/gsec/1499/gsm-standard-an-overview-security/102787) (giac.org)
Ex. 2026	Deposition Transcript of Dr. Houh, September 22, 2023 in co-pending IPR2023-00398.

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Page(s)

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<i>Egenera, Inc. v. Cisco Sys.</i> , 972 F.3d 1367 (Fed. Cir. 2020)	21
<i>Fintiv, Inc. v. PayPal Holdings, Inc.</i> , Case No. 6:22-cv-00288 (W.D. Tex. 2022)	20
<i>Fintiv, Inc. v. PayPal Holdings, Inc.</i> , Case No. 6:23-cv-00490 (W.D. Tex. 2023)	20
<i>Fromson v. Anitec Printing Plates, Inc.</i> , 132 F.3d 1437 (Fed. Cir. 1997)	32
<i>Lighting World, Inc. v. Birchwood Lighting, Inc.</i> , 382 F.3d 1354 (Fed. Cir. 2004)	21
<i>Mass. Inst. of Tech. v. Abacus Software</i> , 462 F.3d 1344 (Fed. Cir. 2006)	21
<i>Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings</i> , 370 F.3d 1354	33
<i>MTD Prods. v. Iancu</i> , 933 F.3d 1336 (Fed. Cir. 2019)	21
<i>Noah Systems, Inc. v. Intuit Inc.</i> , 675 F.3d 1302 (Fed. Cir. 2012)	25
<i>Personalized Media Commc'ns v. Int'l Trade Comm'n</i> , 161 F.3d 696 (Fed. Cir. 1998)	24
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005)	12

<i>Shoes by Firebug LLC v. Stride Rite Children’s Grp., LLC</i> , 962 F.3d 1362 (Fed. Cir. 2020)	10
<i>Sisvel Int’l S.A. v. Sierra Wireless, Inc.</i> Nos. 2022-1493, 2022-1547, 2023 U.S. App. LEXIS 26590 (Fed. Cir. Oct. 6, 2023)	24, 25, 26
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Statutes	
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I. INTRODUCTION

The Petition challenges claims 1-22 (“Challenged Claims”) of U.S. Patent No. 9,208,488 (“’488 Patent,” Ex. 1001) under a single ground of unpatentability. The Board should find that Petitioner has failed to meet its burden of demonstrating the unpatentability of the Challenged Claims. As discussed below, the cited references fail to meet multiple aspects of each of the Challenged Claims. Patent Owner’s explanations herein are supported by the Declarations of Dr. Michael I. Shamos (Ex. 2003) and Kai Johnson (Ex. 2016), both experts in the field.

II. THE ’488 PATENT SPECIFICATION AND CLAIMS

A. Overview of the ’488 Patent

The ’488 Patent specification describes the use of a “mobile wallet infrastructure to support multiple mobile wallet providers.” Ex. 1001, Title. The infrastructure includes a cloud-based transaction system referred to as a “mobile financial services (mFS) platform.” Ex. 1001 at 6:34. In an embodiment, the mFS platform interacts with a mobile wallet application installed on a SIM card on a mobile device:

As used herein, a mobile wallet application is a mobile wallet application installed on a SIM card or elsewhere on a mobile device. Ex. 1001 at 7:1-3 (emphasis added).

* * *

... The mobile wallet application is installed on a mobile device in the device’s memory, on a SIM card (such as a GSM SIM card) or is otherwise accessible to the mobile device. The mobile wallet application provides the subscriber the ability to securely perform

subscriber functions such as making retail purchases, paying bills, or transferring money to other mFS subscribers and non-subscribers. Ex. 1001 at 9:33-39 (emphasis added).

* * *

... The subscriber has (or has access to) a mobile device **206** such as a phone or tablet. The mobile device runs the native or third party mobile wallet application 207.

The subscriber can indicate, using the mobile wallet application 207, which transaction or other action he or she would like to perform. The indicated transaction 208 is sent to the mobile wallet platform 210 to be carried out by the platform. Ex. 1001 at 11:14-20 (emphasis added).

The functional architecture of the cloud-based transaction platform is shown below (Patent Owner's annotations in red):

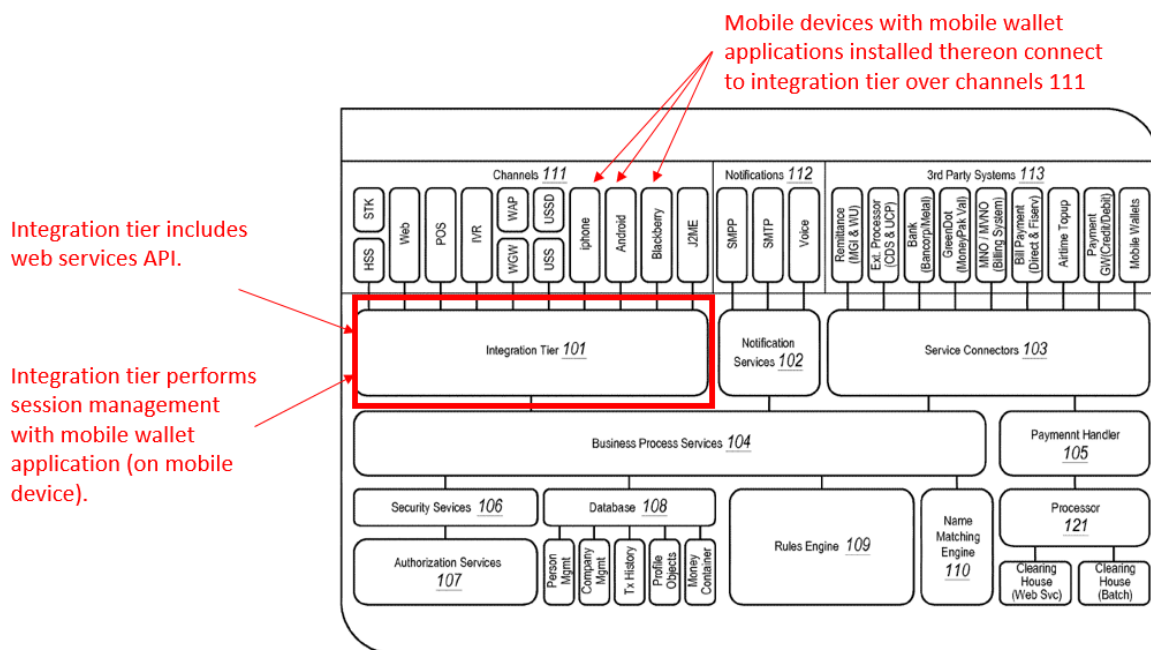


FIG. 1

In the disclosed embodiment, integration tier 101 (i) manages sessions with mobile wallet applications (on mobile devices), (ii) and includes a web services API

that interfaces with the mobile wallet applications over a plurality of communication channels. The specification make clear that all of these functions are included within the integration tier:

FIG. 1 illustrates an example system architecture for a cloud-based transaction platform. Integration tier **101** is configured to manage mobile wallet sessions and maintain integrity of financial transactions. Integration tier 101 can also include a communication (e.g., Web services) API and/or other communication mechanisms to accept messages from channels 111. Ex. 1001 at 9:45-51 (emphasis added).

With respect to communication channels 111, the specification explains that communication channels 111 extend from the integration tier to different types of mobile devices (e.g., the iPhone, Android phone, or Blackberry, as shown in Figure1). Communication channels 111 are not subsumed within integration tier 101.

In the example set forth in the specification, the mFS platform operates on a cellular (e.g., Global System for Mobile Communications (GSM)) network, which provides the infrastructure for the platform, and the mobile wallet application installed on the mobile device. In the examples described in the patent, the mobile device communicates with the mFS platform using text messages sent over the network:

The mobile wallet application communicates with the mFS platform using binary and text SMS messages, among other forms of wireless communication. A wireless service provider or MNO provides the GSM network infrastructure on which the mFS platform operates. Ex. 1001 at 9:40-44 (emphasis added).

The mFS platform also includes “notification services 102,” which the specification describes as follows:

Notification services **102** is configured to send various notifications through different notification channels **112**, such as, for example, Short Message Peer-to-Peer (“SSMP”) for Short Messaging Service (“SMS”) and Simple Mail Transfer Protocol (“SMTP”) for emails. Notification services **102** can be configured through a web services API. Ex. 1001 at 9:57-63 (emphasis added).

In the example shown in Figure 1, integration tier 101 (red) is separate from notification services 102 (blue), and business process services 104 (green) is positioned as an interface between integration tier 101 and notification services 102.

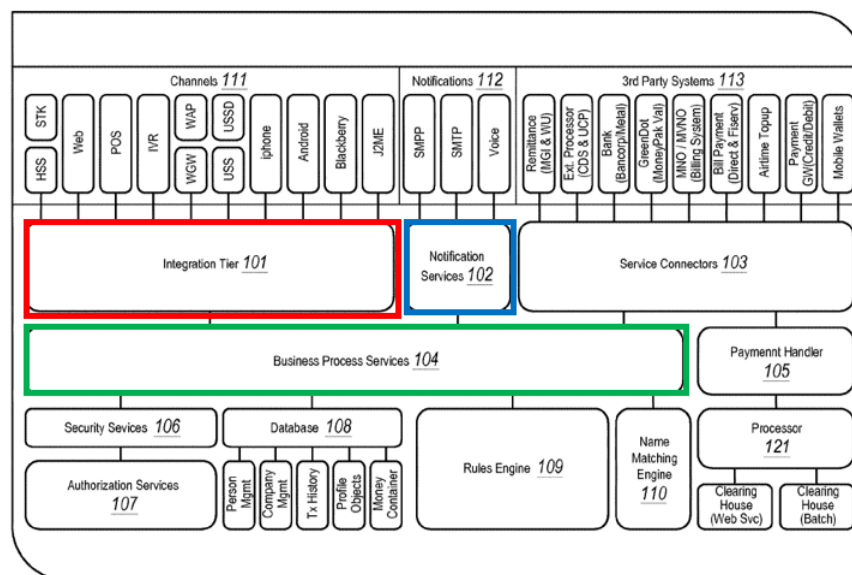


FIG. 1

The mFS platform shown in Figure 1 also includes a “payment handler 105.” As explained in the specification, “[p]ayment handler 105 is configured to wrap APIs of different payment processors, such as, for example, banking accounts, credit/debit cards, or processor 121. This confirms that “processor 121” is a payment

processor, not a computer “processor.” Payment handler 105 exposes a common API to facilitate interactions with different payment processors.” Ex. 1001 at 10:7-9.

B. Claims of the '488 Patent

The '488 Patent has three independent claims, namely, Claims 1, 11 and 22.

Claim 1 is representative:

A computing system for facilitating management of a mobile wallet, comprising: ...

an integration tier configured to manage mobile wallet sessions with a mobile device and including web services communication mechanisms for interfacing with a mobile wallet application installed on a hardware SIM card and a plurality of different device types over a plurality of different communication channels, the integration tier being configured to receive binary and text messages from a mobile device;

a notification services engine configured to interface with the integration tier and to send Short Message Peer-to-Peer (SSMP) messages, Short Messaging Service (SMS) messages and Simple Mail Transfer Protocol (SMTP) messages over the different communication channels to different devices, including the mobile device, to interface with the mobile wallet application installed on the hardware SIM card;

a payment handler that exposes a common API for interacting with different payment processors; ...

Several aspects of Claim 1 are worthy of mention.

First, the claim recites that the mobile wallet application is installed on a hardware SIM card.

Second, the claim recites an integration tier that (i) manages mobile wallet sessions, (ii) includes web services communication mechanisms for interfacing with

a mobile wallet application and a plurality of different device types over a plurality of different communication channels, and (iii) requires that the integration tier be configured to receive binary and text messages from the mobile device. The claimed integration tier contains all such functionality.

Third, the claim recites a notification services engine that sends SMS messages to the mobile device. The claim recites that the notification services engine interfaces with the integration tier.

The other independent claims of the '488 Patent contain similar limitations. As explained below, the Petition has failed to demonstrate that all of the limitations of the Challenged Claims are met by the cited references.

C. A Person of Ordinary Skill the Art

In the Institution Decision, the Board stated:

For purposes of this Decision, we determine that a person of ordinary skill in the art would have had “a bachelor’s degree in electrical engineering, computer science, or equivalent training, and approximately two years of work experience in software development with a basic knowledge of accounting” and “working knowledge of mobile payment systems and techniques,” as Petitioner proposes. Pet. 3–4. We are satisfied that this definition generally comports with the level of skill necessary to understand and implement the teachings of the '488 patent and the asserted prior art. Institution Decision, Paper No. 9, at 9 (emphasis added).

Patent Owner adopts the Board’s determination of the level of ordinary skill in the art, but provides further detail about what should be meant by “a working knowledge of mobile payment systems and techniques.” The POSITA’s working

knowledge of “mobile payment systems and techniques” should specifically include a working knowledge of “mobile wallets” because the claims of ’488 Patent are directed to “mobile wallets.” *See, e.g.,* Ex. 1001 at Claim 1 (“A computing system for facilitating management of a mobile wallet, comprising ...”). There are types of mobile payment systems that are unrelated to “mobile wallets”¹ such as using a web browser to make a credit card purchase (an “online payment”). Ex. 2003 at ¶¶16-17. A person who has a working knowledge of such online payment systems, but lacks a working knowledge of “mobile wallets,” would not be considered a POSITA for purposes of the ’488 Patent. Ex. 2003 at ¶17.

Dr. Houh, who has been offered by Petitioner expert, lacked a working knowledge of mobile wallets as of the Priority Date (November 21, 2011), as well as at the time of the Petition. With the single exception of one class in entrepreneurship, Dr. Houh took no courses in business, and certainly no courses involving financial payment systems as an undergraduate, during his master’s program or during his PhD program (Ex. 2004 at 8:20-25; 13:6-11; 16:2-19). He has never done research in the field of financial payment systems, never published a paper or authored a book in the field, never taught a class directed to the subject, and never worked for a company that makes or develops financial payment systems. His

¹ The ’488 Patent defines “mobile wallet” as a “stored value account or prepaid access account (PPA) that allows the owner (or “subscriber”) to pay for goods and services ... from his or her mobile wallet account.” Ex. 1001 at 9:10-13.

CV (Ex. 1004) is devoid of any mention of experience relating to financial payment systems. With respect to his experience in the field of financial payment systems, Dr. Houh stated only the following in his Declaration:

18. I also worked with setting up accounting systems and integrating on-line payment systems on numerous occasions. In 1994, I started a company, Agora Technology Group, that set up web sites for targeted advertising, and later provided consulting services to companies and organizations to set up their web sites. I managed all the finances and bookkeeping for the company, including keeping all the books and ledgers. Starting in the early 2000's, I integrated web payment systems with various web sites.

19. At my educational company, Einstein's Workshop, I created the initial web site and integrated it with online payment solutions. I also evaluated, sourced, and configured the point-of-sale system for the company, which also involved integration with and setup of mobile shopping terminals. Furthermore, I set up the accounting system, built the web site, integrated various web payment mechanisms with the web site, set up mobile payment systems, and also set up a mobile point of sale system. (Ex. 1003, emphasis added).

Despite the suggestion in Dr. Houh's Declaration that he "worked with" and "integrated online payment systems" at Agora Technology Group, which "set up websites," he testified that he did not set up any website that had an integrated payment system at Agora. Ex. 2004 at 22:21-25:23.

Before the Priority Date of the '488 Patent (November, 2011), the only experience Dr. Houh could recall with electronic payment systems involved connecting a website for his college alumni association to PayPal's platform using model code provided by PayPal:

Q. What other websites did you work on prior to November 2011?

A. I set up the website for the MIT Club of Boston. And at some point during that -- and I was really -- that was as a volunteer. So I wasn't getting paid for that. And I redid it a number of times, like two or three times, during my tenure with the MIT Club of Boston. And during that time, I did integrate online payments. Because MIT Club of Boston would host events, like a dinner or a talk or a trip to see a show or apple picking or something like that. And we -- you know, when I first joined the club and starting helping, you know, run the club, all the registration was done using mail-in registration, handwritten registration forms that people would fill out when they'd mail a check. And I actually converted or added an online payment and registration system at some point during my work with the MIT Club of Boston. And that was certainly before 2011.

Q. Any other websites that you worked on before 2011 that had a payment system that you integrated into the website?

A. I mean, I can't think of anything else right now. But there could've been. Ex. 2004 at 66:1-67:1 (emphasis added).

Taking PayPal's model code and integrating it into a website does not qualify Dr. Houh as an expert in mobile payment systems generally, and certainly does not support Dr. Houh having a working knowledge of mobile wallets at the time of the '488 Patent.

Dr. Houh's experience with mobile payment systems since the Priority Date (post-2011) adds little to his qualifications to be an expert in this matter. His only additional experience was again taking model code and integrating it into a different website for "Einstein's Workshop" in 2012 (Ex. 2004 at 63:17-64:12), and "setting up" a point of sale system for the same company. Following the steps in an instruction manual to "set up" a point of sale system does not qualify a person as an expert in the field.

Completely lacking from Dr. Houh’s education and experience is a working knowledge of mobile wallets. *Yorkey v. Diab*, 601 F.3d 1279, 1284 (Fed. Cir. 2010) (“[i]t is within the discretion of the trier of fact to give each item of evidence such weight as it feels appropriate”); *Shoes by Firebug LLC v. Stride Rite Children’s Grp., LLC*, 962 F.3d 1362, 1372 (Fed. Cir. 2020) (“[t]he Board [has] within its discretion to weigh the credibility of expert testimony”). The testimony of Petitioner’s expert, Dr. Houh should therefore be afforded little weight.

III. PLAIN MEANING OF CERTAIN CLAIM TERMS

Except as set forth in Section IV below, Patent Owner maintains that all of the terms in the claims should be given their plain and ordinary meaning as they would have been understood by a person of ordinary skill in the art at the time of the invention in light of the specification. However, before getting into Patent Owner’s proposed constructions, Patent Owner has the following comments about the plain and ordinary meaning of several terms in the context of the claims as a whole.

A. Integration Tier Including Web Services Communication Mechanisms

Each of the Challenged Claims recites an “integration tier ... *including* web services communication mechanisms for interfacing with” The plain and ordinary meaning of this claim language requires an integration tier in which web services communication mechanisms *are included in part of the integration tier*. Ex. 2003 at ¶19; *see also*, Ex. 1001 at 9:48-51 (“*Integration tier 101 can also include a*

communication (e.g., Web services) API and/or other communication mechanisms *to accept messages from channels 111.*”) (emphasis added).

B. Web Services Communication Mechanisms For Interfacing With A Mobile Wallet Application

The “web services communication mechanisms” included in the “integration tier” are claimed as “web services communication mechanisms *for interfacing with a mobile wallet application.*” This limitation requires that the web services communication mechanism interface with the mobile wallet application (which, as explained in Section IV(A) below) resides on the mobile device. This claim element would not be met by web services communication mechanisms that do not interface with *a mobile wallet application that resides on a mobile device.* Ex. 2003 at ¶ 20.

C. “Different Communication Channels”

The “web services communication mechanisms” included in the “integration tier” are also claimed as “web services communication mechanisms *for interfacing with ... a plurality of different device types over a plurality of different communication channels.*” This limitation requires that the “different communication channels” (i) interface with the “web services communication mechanisms,” *and* (ii) *connect* the integration tier *to* different device types outside of the integration tier. Ex. 2003 at ¶ 21; *see also*, Ex. 1001 at 9:48-51 (“*Integration tier 101 can also include a communication (e.g., Web services) API* and/or other communication mechanisms *to accept messages from channels 111*”) (emphasis

added). A POSITA would understand that the “different communication channels” recited in connection with “web services communication mechanisms” cannot be completely subsumed within the integration tier itself. Ex. 2003 at ¶ 21. A POSITA would also understand that communication channels that fail to interface with web service communication mechanisms are outside the scope of the “different communication channels.” Ex. 2003 at ¶ 22.

IV. CLAIM CONSTRUCTION

In IPR proceedings, claims must be construed under *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005). “The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Renishaw PLC v. Marposs Societe’ per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). Except as set forth in Section IV below, Patent Owner maintains that all of the terms in the claims should be given their plain and ordinary meaning as they would have been understood by a person of ordinary skill in the art at the time of the invention in light of the specification. The following analysis sets forth the proper construction of several terms pertinent to this Patent Owner Response.

A. “Mobile Device”

<u>Claim Term</u>	<u>Patent Owner’s Proposed Construction</u>
“mobile device” (Claims 1, 11 and 22)	“physical device that is mobile, such as a phone or tablet”

In the Institution Decision, the Board properly construed the term “mobile device” to mean a “physical device that is mobile, such as a phone or tablet.” (Institution Decision, Paper No. 9 at 10-11).

The ’488 Patent specification makes clear that a “mobile device” is a “physical device that is mobile, such as a phone or tablet.” Consistent with this construction, the specification uses “mobile device” as follows:

... The subscriber has (or has access to) a mobile device 206 such as a phone or tablet. The mobile device runs the native or third party mobile wallet application 207. Ex. 1001 at 11:14-16 (emphasis added).

* * *

It should also be noted that the mobile device 206 may be any type of plan-based phone or tablet, or prepaid phone or tablet. Many subscribers, such as unbanked subscribers, may primarily use prepaid phones. The mobile wallet application 207 may be installed on both plan-based phones and prepaid phones. The mobile wallet application may be installed on the device’s SIM card, or on the device’s main memory. Accordingly, the monetary transaction system 200 may be accessed and used via substantially any type of plan-based or prepaid mobile device. Ex. 1001 at 12:7-16 (emphasis added).

While the term “mobile device” may seem so basic that it need not be construed, the Petition (through its mappings) has implicitly raised the possibility that a “mobile device” need not be a device, and need not even be mobile. For example, in connection with limitation [1.4C], the Petition suggests that Dill’s M-Wallets 125 and 130 (shown below) are mobile devices, even though they reside inside Dill’s Mobile Network Operator 120, and are clearly not mobile. Pet. at 32 (“A POSITA would have also understood that Dill’s mobile wallet application may

be installed on mobile device 125, 130 ...”) (emphasis added). A POSITA reading the claims of the ’488 Patent in light of the Patent’s specification would not have interpreted Dill’s mobile wallet’s 125, 130 to be “mobile devices” in the context of the ’488 Patent. Rather, such a POSITA would have understood that a “mobile device” is a “physical device that is mobile, such as a phone or tablet.” Ex. 2003 at ¶¶ 24-26. The ’488 Patent specification makes clear that a “mobile device” is a “physical device that is mobile, such as a phone or tablet.”

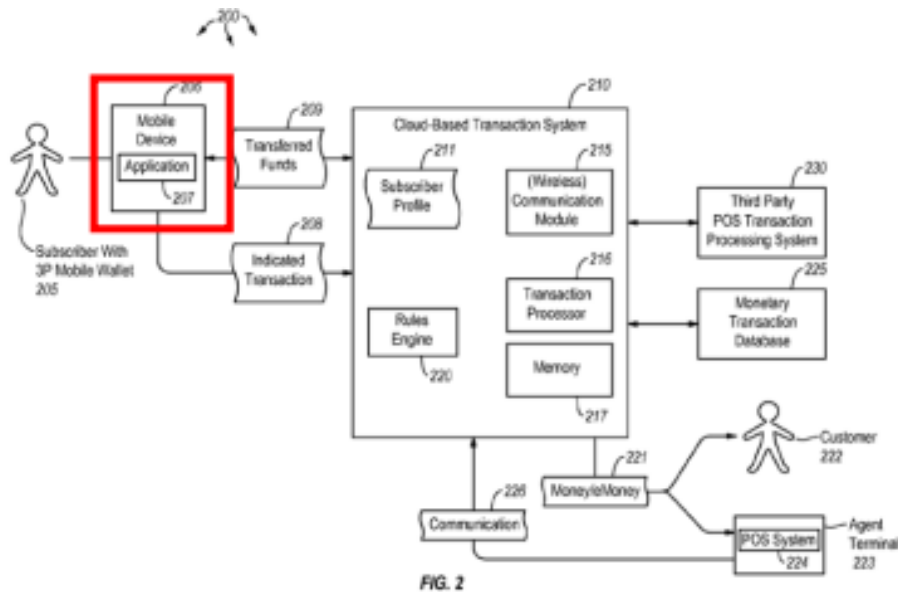
B. “Mobile Wallet Application”

Claim Term	Patent Owner’s Proposed Construction
“mobile wallet application” (Claims 1, 11 and 22)	“wallet application installed on a SIM card or elsewhere on a mobile device.”

The ’488 Patent expressly defines “mobile wallet application”:

As used herein, a mobile wallet application is a mobile wallet application installed on a SIM card or elsewhere on a mobile device. Ex. 1001 at 7:1-3 (emphasis added).

Figure 2 of the ’488 Patent (shown below with Patent Owner’s annotations) of the specification illustrates the mobile device 206 running mobile wallet application 207 (red box):



In connection with Figure 2, the specification also describes the mobile wallet application 207 as running on the mobile device:

... The subscriber has (or has access to) a mobile device 206 such as a phone or tablet. The mobile device runs the native or third party mobile wallet application 207.

The subscriber can indicate, using the mobile wallet application 207, which transaction or other action he or she would like to perform. The indicated transaction 208 is sent to the mobile wallet platform 210 to be carried out by the platform. Ex. 1001 at 11:14-20 (emphasis added).

* * *

It should also be noted that the mobile device 206 may be any type of plan-based phone or tablet, or prepaid phone or tablet. Many subscribers, such as unbanked subscribers, may primarily use prepaid phones. The mobile wallet application 207 may be installed on both plan-based phones and prepaid phones. The mobile wallet application may be installed on the device's SIM card, or on the device's main memory. Ex. 1001 at 12:7-16 (emphasis added).

A POSITA reading the claims of the '488 Patent in light of the specification would have understood that a “mobile wallet application” is a “wallet application installed

on a SIM card or elsewhere on a mobile device.” Ex. 2003 at ¶ 27. Given that the claim language itself distinguishes between a “mobile device” and a “mobile wallet application,” a POSITA would have also understood that these terms have different meanings. In the context of the ’488 Patent, “mobile wallet application” means a “wallet application installed on a SIM card or elsewhere on a mobile device.” Ex. 2003 at ¶ 28.

C. “Hardware SIM Card”

Claim Term	Patent Owner’s Proposed Construction
“hardware SIM card” (Claims 1, 11 and 22)	“secure, tamper-resistant chip on a mobile device that is separate from the mobile device’s main memory that enables the mobile device to access the cellular network”

A POSITA would have understood that “SIM” is the abbreviation for “Subscriber Identity Module,”² and that a SIM Card is “a smart chip that was designed as a secure, tamper-resistant environment.”³ The secure, tamper-resistant environment was originally designed in the 1990s for storing the cryptographic keys that GSM (Global System for Mobile Communications) carriers used to authenticate

² Guthery, Scott C.; Guthery, Scott C.; Guthery, Scott C.; Cronin, Mary J.; Cronin, Mary J.; Cronin, Mary J., *Mobile Application Development with SMS and the SIM Toolkit* (McGraw-Hill Telecom Professional) (p. 20). McGraw Hill LLC. Kindle Edition (2002) [Ex. 2021].

³ *Id.* at 20 [Ex. 2021].

individual subscribers to the network connection and track those subscribers' activities. However, by 2001, the SIM had evolved to have “about the same computing power as the first IBM PC.”⁴ As explained by one reference from the time, “[t]he SIM is the smaller of two computer chips inside a GSM mobile handset,” and a software developer would run their application on the SIM as compared to the main memory and processor of the mobile phone because “SIM-based applications are about taking action with the assurance that the data on which the action is based is from who it says it is from (authenticated and non-reputable), that it hasn't been tampered with (integrity), and that nobody else is privy to what is happening (confidentiality).”⁵ Ex. 2003 at ¶ 30.

Yet, “[t]hroughout its evolution, the SIM has never lost sight of its primary function—to authenticate the subscriber to the network.”⁶ Specifically, the SIM card contains the International Mobile Subscriber Identity (IMSI)⁷ and a subscriber authentication key (Ki)⁸ used for authenticating the user on the network, ensuring that services are provided securely and effectively. Accordingly, when a mobile

⁴ *Id.* at 21-22 [Ex. 2021].

⁵ *Id.* at 144 [Ex. 2021].

⁶ *Id.* at 150 [Ex. 2021].

⁷ GSM 11.11 - Version 5.3.0 - Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface; (GSM 11.11) (etsi.org) at Pg. 52 [Ex. 2022]

⁸ *Id.* at 27.

device attempts to connect to a GSM network, the IMSI is used during the authentication process. The network uses the IMSI to fetch the subscriber's details from the Home Location Register (HLR)⁹ or Visitor Location Register (VLR)¹⁰ and verify their credentials using an authentication algorithm and a Ki stored on the SIM. Once the authentication is successful, the subscriber is allowed access to the network services (e.g., voice calls, SMS messages, and data). Therefore, “[t]he SIM is like a key, without which the mobile phone can’t function.”¹¹ Ex. 2003 at ¶31.

A POSITA's understanding of a hardware SIM card as “a secure, tamper-resistant smart chip that is discrete from the mobile device's main memory that enables the mobile device to access the cellular network” is further supported by the '488 Patent specification, which states that the mobile wallet application may be installed on the device's SIM card, *or on the device's main memory*:

As used herein, *a mobile wallet application is a mobile wallet application installed on* a SIM card or elsewhere on *a mobile device*.
Ex. 1001 at 7:1-3 (emphasis added).

* * *

⁹ Techopedia, “Home Location Register” definition (last updated November 17, 2011) (<https://www.techopedia.com/definition/7580/home-location-register-hlr>) [Ex. 2023]

¹⁰ Techopedia, “Visitor Location Register” definition (last updated September 12, 2011) (<https://www.techopedia.com/definition/9951/visitor-location-register-vlr>) [Ex. 2024]

¹¹ The GSM Standard, An Overview Of Its Security, SANS Institute 2000-2002 (<https://www.giac.org/paper/gsec/1499/gsm-standard-an-overview-security/102787>) (giac.org) [Ex. 2025 at 3]

The term “subscriber” refers to a participant of the mFS mobile wallet platform. The subscriber maintains a mobile wallet balance and performs transactions using the mFS application. An “unbanked subscriber” is a subscriber that does not have (or does not have access to) a bank account or credit union account. The application or “mobile wallet application” provides mobile wallet functionality to the (unbanked) subscriber. The mobile wallet application is installed on a mobile device in the device’s memory, on a SIM card (such as a GSM SIM card) or is otherwise accessible to the mobile device. The mobile wallet application provides the subscriber the ability to securely perform subscriber functions such as making retail purchases, paying bills, or transferring money to other mFS subscribers and non-subscribers. The mobile wallet application communicates with the mFS platform using binary and text SMS messages, among other forms of wireless communication. A wireless service provider or MNO provides the GSM network infrastructure on which the mFS platform operates. Ex. 1001 at 9:26-44 (emphasis added).

* * *

It should also be noted that the mobile device **206** may be any type of plan-based phone or tablet, or prepaid phone or tablet. Many subscribers, such as unbanked subscribers, may primarily use prepaid phones. The mobile wallet application **207** may be installed on both plan-based phones and prepaid phones. The mobile wallet application may be installed on the device’s SIM card, or on the device’s main memory. Accordingly, the monetary transaction system **200** may be accessed and used via substantially any type of plan-based or prepaid mobile device. Ex. 1001 at 12:7-16 (emphasis added).

Accordingly, a POSITA would understand that a hardware SIM card is a secure, tamper-resistant smart card that is discrete from the mobile device’s main memory that enables the mobile device to access the cellular network. Ex. 2003 at ¶¶ 32-33.

D. “Payment Handler”

Term	Patent Owner’s Proposed Construction
“payment handler that exposes a common API for interacting with different payment processors” (Claims 1, 11 and 22)	Plain and ordinary meaning

Both parties in this proceeding agree that the term “payment handler” should be interpreted in accordance with its plain and ordinary meaning to a POSITA at the time of the ’488 Patent. *See*, Ex. 2016 at ¶ 16, Ex. 1003 at ¶ 41 and Ex. 2026 at 112:9-114:1.¹² Neither party has alleged in the current proceedings that “payment handler” is a means-plus-function limitation with a possibly insufficient corresponding structure in the specification. However, Patent Owner is nonetheless addressing the construction of this term because in *Fintiv, Inc. v. PayPal Holdings, Inc.*, Case No. 6:22-cv-00288 (W.D. Tex. 2022) and *Fintiv, Inc. v. PayPal Holdings, Inc.*, Case No. 6:23-cv-00490 (W.D. Tex. 2023) (collectively, the “PayPal District Court Decisions”), the District Court found that the term “payment handler” was a means-plus-function term and ruled that the term was indefinite on the ground that

¹² Co-pending IPR2022-00398 is directed to U.S. Patent 10,438,196 (the ’196 Patent), a continuation of the ’488 Patent with an identical specification. Both the ’488 and ’196 Patents include the term “payment handler” in the claims, and Petitioner is relying on the same expert (Dr. Houh) in both this IPR and in co-pending IPR2023-00398. On September 22, 2023, in connection with IPR2023-00398, Dr. Houh testified that the term “payment handler” should be interpreted in accordance with its plain and ordinary meaning to a POSITA at the time of the patent. Ex. 2026 at 112:9-114:1.

it lacked a corresponding structure in the specification.¹³ See, Ex. 2005 at 2, and Ex. 2006.

As the Federal Circuit explained in *Egenera, Inc. v. Cisco Sys.*, 972 F.3d 1367, 1373 (Fed. Cir. 2020), under 35 USC § 112, ¶6:

... [G]eneric terms such as ‘mechanism,’ ‘element,’ ‘device,’ and other . . . verbal constructs may be used in a claim in a manner that is tantamount to using the word ‘means’ because they ‘typically do not connote sufficiently definite structure’ and therefore may invoke [§ 112(f)].” *Williamson*, 792 F.3d at 1350 (quoting *Mass. Inst. of Tech. v. Abacus Software*, 462 F.3d 1344, 1354 (Fed. Cir. 2006)). Such terms may amount to “generic terms or black box recitations of structure or abstractions.” *MTD Prods. v. Iancu*, 933 F.3d 1336, 1341 (Fed. Cir. 2019) (quoting *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1008 (Fed. Cir. 2018)). Or a term may amount to a coined “nonce word”—that is, a word “invented . . . for one occasion only.” See Bryan A. Garner, *Garner’s Modern English Usage* 1016 (4th ed. 2016); *Webster’s Third New International Dictionary* (1961) (defining [**11] “nonce word” as “a word . . . coined and used apparently to suit one particular occasion . . . but not adopted into use generally”); *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1360 (Fed. Cir. 2004) (noting that either a “generic structural term” or a “coined term” can invoke § 112(f)).

The “payment handler” in the Challenged Claims does not recite a “means,” “step” or verbal construct that is tantamount to using the word “means.” Specifically, in the context of the “payment handler” element, a POSITA would understand that “exposing” an API means making it available to other components or services to

¹³ The district Court’s decision is the subject of a pending appeal at the Court of Appeals for the Federal Circuit. See, CAFC Case No. 23-2312.

use. Ex. 2016 at ¶ 37. Because this claim term does not use the word “means,” the Board must apply a presumption that the term does not invoke 35 U.S.C. § 112, ¶6, rebuttable only “if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *ZeroClick, LLC v. Apple Inc.*, 891 F.3d 1003, 1007 (Fed. Cir. 2018) (citation omitted)).

In addition, the term “payment handler”/“payment handler services” is not a nonce word, nor is it purely functional language. See *id.* at 1008 (“[T]he mere fact that the disputed limitations incorporate functional language does not automatically convert the words into means for performing such functions”). Rather, a POSITA would understand what a “payment handler” is and what it does because “payment handler” has an ordinary and customary meaning in the art. Ex. 2016 at ¶ 29-30. In co-pending IPR2023-00398, Petitioner’s expert (Dr. Houh) has acknowledged that “payment handler” has an ordinary and customary meaning in the art (which he understood), and that he was able to apply that ordinary and customary meaning in his analysis:

Q. Okay. So in Paragraphs 124 and 130 of your declaration, you provide an analysis mapping Claim Element 1.6 to a combination of Dill and Vatri, correct?

A. Yeah. I mean, I think that’s in 124 through 130. I think you said “and,” but I probably -- I think you probably meant to say “through.” But, sure.

Q. I did mean that, and thanks for correcting me. In your analysis of Element 1.6, did you apply the ordinary and customary meaning of the

claim terms in Element 1.6 as they would have been understood by a person of ordinary skill in the art at the time of the invention based on the specification and the prosecution history?

A. Yes.

Q. Element 1.6 refers to a payment handler that exposes a common API for interacting with different payment processors. Do you see that?

A. Yes. I'm trying to remember the words you used. I'm not sure if I see the exact words you used.

Q. Let me try it again. And just so you can follow along, you have a heading in bold for 1.6, and I was just reading that heading. So it's above Paragraph 124.

A. Oh, I thought you had said 126 for some reason. Okay. I see what it says above Paragraph 124.

Q. So the element starts out with a payment handler. Do you see that?

A. Yes.

Q. What is a payment handler?

A. I mean, I applied the plain and ordinary meaning, and I think the example I give of what's in Vatri would be an example of what a POSITA would have understood was within the scope of -- of a payment handler. Ex. 2026, 112:9-114:1 (emphasis added).

See also, Ex. 2016 at ¶ 31, citing IETF RFC 2395 (Ex. 2020) (“The term ‘payment handler’ was used in IETF RFC 2935 which was the subject of a public standards process and was published in September of 2000. At the time, the term was so well understood that the IETF RFC did not provide a specific definition beyond the plain and ordinary meaning.”). The term “handler” refers to “a computer program or software component developed to perform a certain specialized task.” Ex. 2016 at ¶ 30. See *Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1368 (Fed. Cir. 2022) (“[T]he ‘code’/‘application’ limitations here connote a class of structures to a person of ordinary skill ...”).

“In cases where it is clear that a claim term itself connotes some structure to a person of ordinary skill in the art, the presumption that § 112, ¶6 does not apply is determinative in the absence of more compelling evidence of the understanding of one of ordinary skill in the art.” *Id.* at 1366. In the context of the entire claims and patents’ written description (as further described below), the “payment handler” terms would connote sufficient structure to a POSITA. *See Personalized Media Commc’ns v. Int’l Trade Comm’n*, 161 F.3d 696, 705 (Fed. Cir. 1998) (holding that the term “digital detector” did not invoke § 112, ¶6, because “[e]ven though the term ‘detector’ does not specifically evoke a particular structure, it does convey to one knowledgeable in the art a variety of structures known as ‘detectors’”).

To the extent the Board finds that “payment handler” requires interpretation under 35 USC §112, ¶6, the Board should apply the framework set forth in the Federal Circuit’s recent decision in *Sisvel Int’l S.A. v. Sierra Wireless, Inc.* Nos. 2022-1493, 2022-1547, 2023 U.S. App. LEXIS 26590, at *18 (Fed. Cir. Oct. 6, 2023). In the PayPal District Court Decisions, the District Court did not have the benefit of the Federal Circuit’s decision in *Sisvel*. In *Sisvel*, the Federal Circuit found that the PTAB erred in requiring the specification to set forth a specific algorithm when the parties agreed that the software protocol recited in the claims (such as the “API” recited in the ’488 Patent) was well-understood and well-known to a person of ordinary skill. In *Sisvel*, the Federal Circuit framed the question as whether

“references to the names of software protocols are sufficient to bring the case out of Noah group one (absolutely no disclosure) and into Noah Group Two (some disclosure).”¹⁴ *Id.* at *18-19. The Federal Circuit explained that “[c]ases where structure is “totally absent” fall in[to] Noah group one, while cases with even “arguably” adequate disclosure fall into Noah group two.” *Id.* at *27 (citation to Noah omitted). Significantly, the Federal Circuit found that “as long as the protocol name is sufficient to connote specific structure to a skilled artisan ... an analysis appropriate to Noah group two” is required. *Id.*

In explaining the application of Noah Group Two, the Federal Circuit cited *AllVoice Computing PLC v. Nuance Commc’ns, Inc.*, 504 F.3d 1236, 1245 (Fed. Cir. 2007) and reiterated that “[i]n software cases . . . algorithms in the specification need only disclose adequate defining structure to render the bounds of the claim understandable to one of ordinary skill in the art.” *Sisvel*, 023 U.S. App. LEXIS 26590, at *26 (citations omitted). In explaining *AllVoice*, the Federal Circuit stated:

... [In *AllVoice*], we relied on a specification’s reference to “the dynamic data exchange (DDE) protocol in the Windows operating system” as an algorithm. Though the specification did not detail what steps corresponded to the Windows version of the DDE protocol, we determined that “the reference to DDE in the specification” was sufficient to require consideration of expert testimony. Relying on the patentee’s expert testimony that implementation of the DDE protocol “would be a trivial matter” for a skilled artisan, we found the claims sufficiently definite. *Id.*

¹⁴ See *Noah Systems, Inc. v. Intuit Inc.*, 675 F.3d 1302, 1313 (Fed. Cir. 2012).

Therefore, under Noah Group Two, reference to a known software protocol is sufficient to connote a specific structure to a skilled artisan.

All of the independent claims of the '488 Patent recite computing systems having “a payment handler that exposes a common API for interacting with different payment processors.” Like in *Sisvel*, the parties are in agreement that an API is a known software protocol.¹⁵ Accordingly, the proper analysis is under Noah Group Two. And just like in *AllVoice*, in the present case, Patent Owner’s expert testified that “[g]iven the specification of the payment processors that the “payment handler” would integrate with, and an architecture for the common API that the “payment handler” would provide, implementing the “payment handler” component would be trivial for a POSITA..” Ex. 2016 at ¶ 39. Accordingly, the '488 Patent recites sufficient structure to a POSITA.

Finally, to the extent the Board deems the “payment handler” claim term a means-plus-function limitation, the Board should find that the term is not indefinite because the specification sufficiently describes its structure in the context of the invention. For example, in Fig. 1, the '488 Patent “illustrates an example system architecture for a cloud-based transaction platform”:

¹⁵ Dr. Hough used the term API multiple times during his deposition in IPR2023-00398. Ex. 2026 at 19:24, 22:4, 24:5 and 24:16.

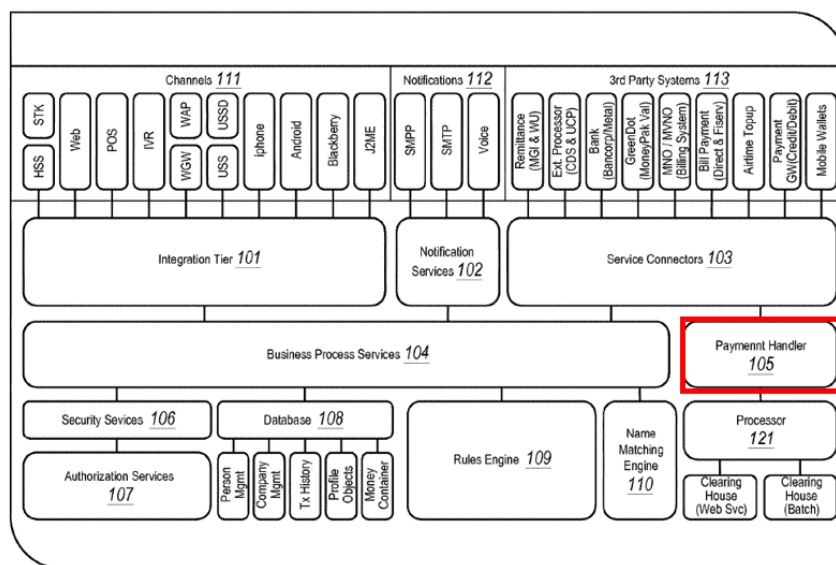


FIG. 1

Ex. 1001 at Figure 1 (red box added). A POSITA would recognize Fig. 1 to depict the system’s “service-oriented architecture, which uses software components called services to create business applications where each service provides a business capability and can communicate with each other across platforms and languages.” Ex. 2016 at ¶ 37.

According to the specification: “Payment handler 105 is configured to wrap APIs of different payment processors, such as, for example, banking accounts, credit/debit cards or processor 121.” Ex. 1001 at 10:4-7. Wrapping APIs refers to an established technique for providing a translation interface that provides the functionality or some subset of the functionality of the API in another form. Ex. 2016 at ¶ 38. The specification further states: “Payment handler 105 exposes a common API to facilitate interactions with many different kinds of payment processors.” Ex.

1001 at 10:7-9. Exposing a common API means making it available to other components or services to use. Ex. 2016 at ¶ 37. Thus, in the context of the patent, the payment handler is wrapping APIs of different payment processors and exposing a common API to facilitate interactions with those payment processors; that is, an API that wraps the APIs of different payment processors. Ex. 2016 at ¶ 39.

As depicted above in Fig. 1, the payment handler (105) is connected to service connectors (103), business process services (104), and the transaction processor (121). “Service connectors 103 are a set of connectors configure[d] to connect to 3rd party systems 113. Each connector can be a separate module intended to integrate an external service to the system architecture.” Ex. 1001 at 9:64-66. “Business process services 104 are configured to implement business workflows, including executing financial transactions, auditing financial transactions, invoking third-party services, handling errors, and logging platform objects.” *Id.* at 10:67-11:4. “Transaction processor 121 is configured to manage financial accounts and transactions[,] [and] ...can be used to hold, load, withdraw and deposit funds to mobile wallet accounts.” *Id.* at 10:30-33.

Accordingly, a POSITA would understand from Fig. 1 and the Challenged Patent’s associated descriptions that a “payment handler” is a component within the patented systems that provides a common API through which the patented system’s other components, such as the business process services, can interact with different

payment processors, notwithstanding their different APIs. Thus, the specification describes sufficient structure corresponding to the “payment handler” element.

Therefore, the Board should find that “payment handler” is not a nonce word and does not implicate 35 USC §112 6th. In the alternative, the Board should find, under *Sisvel*’s explanation of Noah Group Two, that the Challenged Claims recite sufficient structure to a POSITA and are, therefore, sufficiently definite.

V. DESCRIPTION OF DILL

U.S. Patent Publication 2009/0265272 to Dill (“Dill”) (Ex. 1005) teaches a method that allows “enrolled consumers to send a mobile money transaction to a consumer either enrolled under another entity or not enrolled—in which case they are able to enroll in a mobile wallet service, pick up cash at a retail location of the money transfer facilitator or other cash retail outlet or designate a destination for receipt of the money transfer.” Ex. 1005 at [0007]. Specifically, in Dill’s method, a “sender 105 can access the services of the money transfer facilitator 140 via a web site of the money transfer facilitator 140 and initiate a money transfer from a source account 165 owned by the sender 105 and “[t]he recipient 110 of the payment may then, for example, pick up the payment from the agent’s 135 retail location.” *Id.* at [0051].

VI. THE PETITION FAILS TO DEMONSTRATE THE UNPATENTABILITY OF CHALLENGED CLAIMS

A. Dill And Bykov Fail To Teach A Mobile Wallet Installed On A Hardware SIM Card, As Claimed

In the Challenged Claims, “the mobile wallet application is installed on a hardware SIM card.” In the GSM embodiment set forth in the specification, “a wireless service provider or MNO provides the GSM network infrastructure on which the mFS platform operates,” and the mobile wallet application is installed on a “GSM SIM card.” (Ex. 1001 at 9:33-34). A POSITA would have understood that a mobile subscriber must have a SIM installed on his or her device in order to access a GSM network. Ex. 2003 at ¶ 34. A POSITA would also have understood that Short Messaging Service (SMS) messages (which can also be referred to as text messages) are sent over the cellular network, and that for cellular networks like GSM that rely on SIMs, a mobile subscriber must have the SIM installed on his or her device in order to send and receive SMS messages.¹⁶ Ex. 2003 at ¶ 34.

The Challenged Claims make clear that the mobile device (with the mobile wallet installed thereon) must have a functioning SIM, because the claims recite that the mobile device both sends and receives SMS/text messages. Ex. 2003 at ¶ 35.

For example, claim 1 recites in part:

¹⁶ As explained in Section IV(C), supra, a hardware SIM card is “secure, tamper-resistant chip on a mobile device that is separate from the mobile device’s main memory that enables the mobile device to access the cellular network.”

an integration tier configured to manage mobile wallet sessions with a mobile device and including web services communication mechanisms for interfacing with a mobile wallet application installed on a hardware SIM card as well as with a plurality of different device types over a plurality of different communication channels, the integration tier being configured to receive binary and text messages from the mobile device;

a notification services engine configured to interface with the integration tier and to send Short Message Peer-to-Peer (SSMP) messages, Short Messaging Service (SMS) messages and Simple Mail Transfer Protocol (SMTP) messages over the different communication channels to different devices, including the mobile device, to interface with the mobile wallet application installed on the hardware SIM card...

Thus, in the Challenged Claims, (i) the mobile wallet application must be installed on a hardware SIM card of the mobile device, and (ii) the mobile device must be operable to receive SMS messages over a cellular infrastructure. See, construction of “hardware SIM card” at (IV)(C)(a hardware SIM card, *inter alia*, “... enables the mobile device to access the cellular network.” A POSITA would have understood that these two requirements are interrelated, in that the SIM is required for the mobile device to gain access to the cellular network, and then, via access to mobile network, the mobile device is able to receive SMS messages over the cellular network. Ex. 2003 at ¶ 36.

The Petition makes two related arguments with respect to the hardware SIM card required by the Challenged Claims. In this regard, the Petition asserts:

Dill’s mobile wallet application is installed on a hardware SIM card. Ex.1003, ¶95. Dill teaches “a mobile device communicatively

coupled with the mobile communications network and executing a mobile wallet application.” Ex.1005, claim 1. Dill’s software instructions (including mobile wallet application) may be implemented on any type of “machine-readable mediums suitable for storing electronic instructions” which a POSITA would have understood to include a hardware SIM card. Ex.1005, [0106]; Ex.1003, ¶95. As evidenced by Bykov, SIM cards are commonly used to execute code for mobile transactions in mobile devices. Ex.1013, [0027]-[0028]; Ex.1003, ¶¶96-97. Thus, Dill teaches [1.3B]. Ex.1003, ¶¶97-98. (Pet. at 23-24).

These arguments are addressed below.

1. Dill Does Not Teach Installation Of A Mobile Wallet Application On A Hardware SIM Card

Dill never mentions a hardware SIM card. The terms “SIM” and “subscriber identification module” do not appear in Dill. The Petition asserts that Dill teaches installation of a mobile wallet application on a hardware SIM card, based on a boilerplate sentence at the end of Dill which includes a laundry list of potential storage mediums (none of which are SIM cards) and then ends with the catch-all phrase “or other types of machine-readable mediums suitable for storing electronic instructions.” Ex. 1005 at [0106]. The Petition latches on to this catch-all phrase, asserting that it teaches installing Dill’s mobile wallet application on a hardware SIM card. A boilerplate, catch-all phrase such as “other types of machine readable mediums” is insufficiently specific to teach installation of the mobile wallet application on a hardware SIM card, as claimed. Ex. 2003 at ¶ 38. *See, Fromson v. Anitec Printing Plates, Inc.*, 132 F.3d 1437, 1447 (Fed. Cir. 1997) (“a boilerplate

statement that other ‘suitable liquids’ can be used is insufficiently specific to include dissolving electrolytes such as are used by Fromson”); *Wasica Fin. GmbH v. Cont’l Auto. Sys.*, 853 F.3d 1272, 1285 (Fed. Cir. 2017) (“It is well established that disclosure of a genus in the prior art is not necessarily a disclosure of every species that is a member of that genus”); *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004 (“A prior art reference that discloses a genus still does not inherently disclose all species within that broad category.”))

2. Bykov And Dill Fail To Teach A Mobile Device Where The Mobile Wallet Application Is Installed On The Device’s Hardware SIM Card And The Mobile Device Can Access The Cellular Infrastructure, As Claimed

Bykov explains that “[o]ne of the challenges with mobile wallets ... is protection of the software code that handles sensitive information.” Ex. 1013 at [0002]. To meet this challenge, Bykov emphasizes the need to separate the software for the mobile wallet from all of the other software on the phone:

If the code runs on the same processor and in the same environment as other software components of the phone, it may be difficult or impossible to ensure isolation of the sensitive code and data as it can be compromised by other software running on the phone. Ex. 103 at [0002].

As Bykov also explains, a related challenge for storage of wallet mobile solutions involves the reluctance of mobile network operators to provide financial institutions with access to the phone:

... some mobile wallet solutions may be blocked by the conflict of interests, ownership, and business models between mobile service providers and financial institutions. Both parties have their own relations with the customer: for the service providers, the customer is a mobile phone subscriber, for the financial institution, the same customer is an accountholder. The service providers may refuse to give access to the phone software by any external application considering it their asset. The financial institutions may be reluctant to have the service providers involved in their transactions and fees. Ex. 1013 at [0021] (emphasis added).

Based on this background, Bykov teaches an embodiment in which a hardware card “in SIM form” is provided by a financial institution and can be plugged into a SIM card slot in a cellular phone. Ex. 1013 at [0026]-[0027]. This could be done either by (1) removing the SIM card provided by the cell provider and inserting the SIM form card of the financial institution; or (2) inserting the SIM form card in a second SIM card slot in the cellphone. Ex. 2003 at ¶ 42.

Bykov discloses that this “SIM form” card can be used to make a payment at a POS terminal using near-field communication (NFC). Ex. 1013 at [0019], [0033], [0041], [0048]. Bykov does not disclose use of the “SIM form” financial institution card over a cellular network. It is important to understand that the “SIM form” financial institution card is NOT a “SIM card,” although it may be inserted into a SIM card slot for electrical purposes. It is not a “SIM card” because it does not identify the cellphone or a cellular network (or otherwise enable the cellphone to access the cellular network) – it’s only purpose is to make payments by NFC. Ex. 2003 at ¶ 42.

Given that the “SIM form” card is being supplied by a financial institution, a POSITA would have understood that this card would not have included the credentials and functionality of a true SIM card, which are required to gain access the cellular network. Without access to the cellular network, a mobile device is unable to send and receive SMS messages, as required by the Challenged Claims. Ex. 2003 at ¶ 43.

As emphasized above, in the Challenged Claims the (i) mobile wallet application must be installed on a hardware SIM card of the mobile device, and (ii) the mobile device must be operable to receive SMS messages over a cellular infrastructure. Bykov does not teach that the financial institution card is a SIM card. In Bykov, if original SIM card is replaced by the financial institution card, the mobile device cannot send or receive SMS messages over the cellular network. If the financial institution card is inserted in a second SIM slot so that the original SIM card is still presented, then there is no “mobile wallet application installed on a hardware SIM card,” as claimed. In either case, Bykov does not teach the limitations requiring “a mobile wallet application installed on a hardware SIM card” or “interfac[ing] with the mobile wallet application installed on the hardware SIM card. Ex. 2003 at ¶ 44. For these reasons, the relied on references fail to meet all of the limitations of the Challenged Claims.

B. Dill Fails To Teach An Integration Tier That Includes A Web Services Mechanism For Interfacing With A Mobile Wallet Application

The Petitioner maps the claimed “integration tier” to Dill’s Transfer Options Module 145, and the claimed “web services communication mechanism” to Dill’s web interface 137. *See*, Pet. at 23 (“a POSITA would have understood module 145 to be a system element configured to manage transactions with a mobile wallet, i.e., the claimed “*integration tier configured to manage mobile wallet sessions with a mobile device*. ... “ As discussed in [1.3A], Dill’s transfer options module 145, the “*integration tier*,” facilitates communications between ... Communications include a web interface 137 and money transfer transactions are initiated “from a web site of the money transfer facilitator” ...”); Pet. at 24 (“[a]s discussed in [1.3A], Dill’s transfer options module 145, the “*integration tier*,” ... “).¹⁷

The Petition fails to identify an integration tier that includes web services communication mechanisms, as required by all of the Challenged Claims. Ex. 2003 at ¶¶48-49. Consistent with the teachings of the specification, the web services communication mechanisms for interfacing with the mobile wallet application must be included within the integration tier. *Id.* In contrast to the claim language, Petitioner maps the claimed “web services communication mechanisms” to Dill’s

¹⁷ As explained in Section VI(F), *infra*, there is no disclosure in Dill at all of any “web service.” As discussed below, merely operating a web server does not disclose providing a “web service.”

web interface 137, which is outside of Dill’s transfer options module 145 (mapped to the integration tier). Ex. 2003 at ¶¶ 48-49. The Petition’s mappings to Dill are illustrated below:

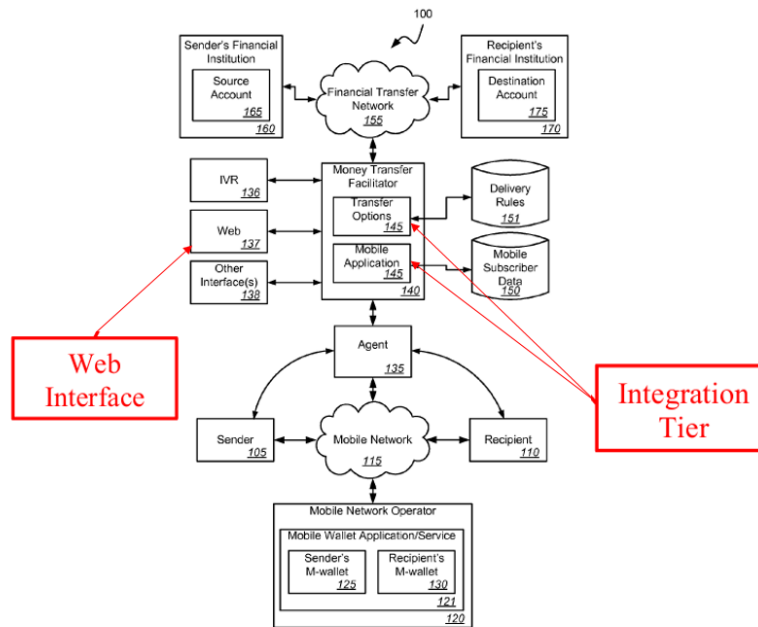


FIG. 9

As shown above, web interface 137 is clearly outside of the transfer options module 145 (mapped to the integration tier). Ex. 2003 at ¶ 51.

The Petition does little to address the requirement that the web services communication mechanisms be included within the integration tier itself. The Petition identifies this aspect of Claim 1 as Element [1.3B], and provides only the following analysis:

As discussed in [1.3A], Dill’s transfer options module 145, the “integration tier,” facilitates communications between mobile wallets 125, 130 within a mobile wallet application 121. Ex.1005, [0101], Fig. 9. Communications include a web interface 137 and money transfer transactions are initiated “from a web site of the money transfer

facilitator” as well as other channels. Ex.1005, [0015], [0047], [0033], [0051], [0054], [0101]. “[N]otification of the transfer transaction and possibly instructions and/or options” may be provided to a client “[v]ia one of the interfaces 136-138, e.g., by logging onto a website.” Ex.1005, [0104]; Ex.1003, ¶¶92-94.

[image omitted]

Dill’s mobile wallet application is installed on a hardware SIM card. Ex.1003, ¶95. Dill teaches “a mobile device communicatively coupled with the mobile communications network and executing a mobile wallet application.” Ex.1005, claim 1. Dill’s software instructions (including mobile wallet application) may be implemented on any type of “machine-readable mediums suitable for storing electronic instructions” which a POSITA would have understood to include a hardware SIM card. Ex.1005, [0106]; Ex.1003, ¶95. As evidenced by Bykov, SIM cards are commonly used to execute code for mobile transactions in mobile devices. Ex.1013, [0027]-[0028]; Ex.1003, ¶¶96-97. Thus, Dill teaches [1.3B]. Ex.1003, ¶¶97-98. (Pet. at 23-24).

Completely lacking from this analysis is an explanation of how Dill’s interface 137 is included within the integration tier.

The failure of the Petition to map Dill’s web interface 137 within transfer options module 145 (mapped to the integration tier) is exacerbated by the Petition’s mapping of one of the “different communication channels” over which different device types must interface with the “web services communication mechanisms” to the channel between Dill’s web interface 137 and Dill’s Money Transfer Facilitator

140.¹⁸ This aspect of Petitioner’s mappings is illustrated by the diagram (created by Patent Owner) below:

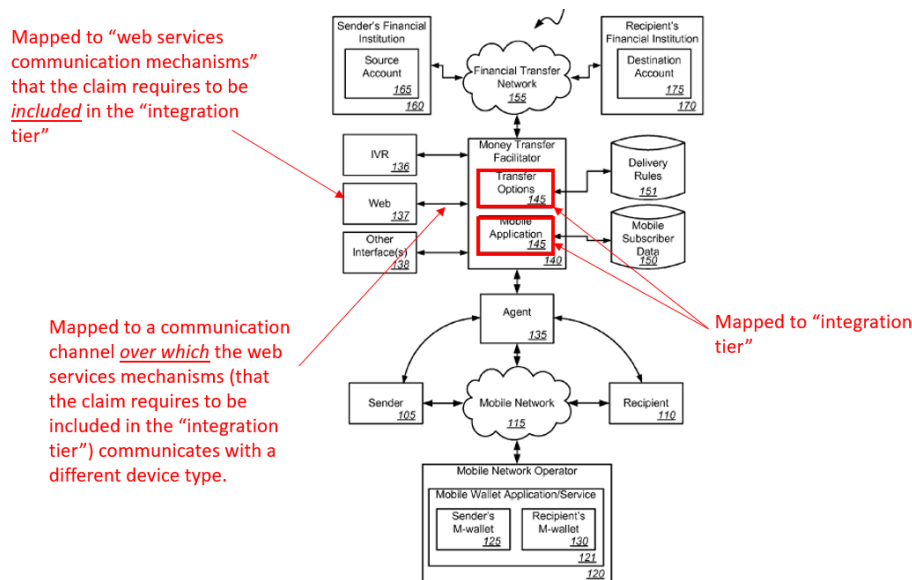


FIG. 9

A POSITA would have understood that the “different communication channels” recited in connection with the “web services communication mechanisms” extend from the integration tier to different device types (e.g., the iPhone, Android phone, or Blackberry as shown in Figure 1). Ex. 2003 at ¶ 52. But if Dill’s web interface 137 (mapped to the “web services communication mechanisms”) were somehow included in Dill’s Transfer Option Module 145 145 (mapped to the integration tier), then the connection from Dill’s web interface 137 that the Petition mapped to the “different communication channel” would be

¹⁸ See, III(E), *supra* and VI(C), *infra* (discussing claim language that requires the “web services communication mechanisms” to interface with a plurality of different device types over a plurality of different communication channels).

completely subsumed within Dill’s so-called integration tier, rather than extending from the integration tier to different device types (e.g., the iPhone, Android phone or Blackberry), as claimed. Put another way, by mapping the claimed integration tier to Dill’s transfer options module 145, mapping Dill’s web interface 137 to the “web services communications mechanism” (that must be included in “integration tier”), and then mapping the connection from Dill’s web interface 137 to Money Transfer Facilitator 140 to one of the “different communication channels,” the Petition completely subsumes one of the “different communication channels” within the “integration tier.” This mapping is contrary to the plain meaning of the claims, in which the “different communication channels” extend from the integration tier to different device types rather than being completely subsumed within the claimed integration tier. Ex. 2003 at ¶ 52.

Petitioner’s assertion that Dill’s web interface 137 is included within Dill’s Transfer Option module 145 is also unsupported by the teachings of Dill. Dill states that web interface 137 is included in transfer facilitator 140 – rather than transfer options module 145. Rather than residing within transfer options module 145, Dill explains that web interface 137 is simply coupled to transfer options module 145.

Dill

“As illustrated here, *the money transfer facilitator system 140 can additionally or alternatively comprise one or more interfaces 136-138* for conducting money transfer transactions and a *transfer options module 145 communicatively coupled with* the one or more *interfaces 136-138*.” (Ex. 1005, ¶105) (emphasis added).

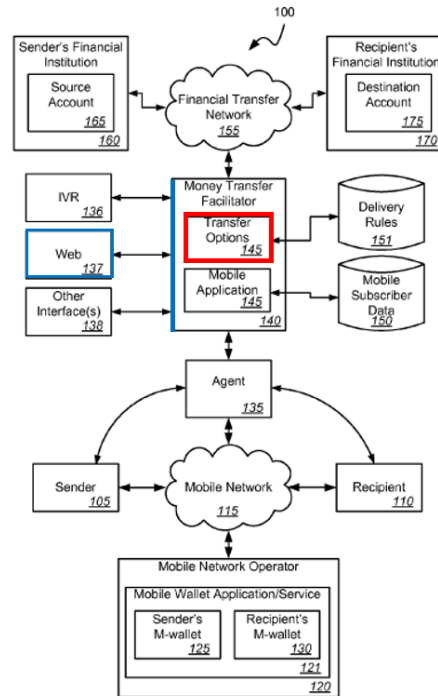


FIG. 9

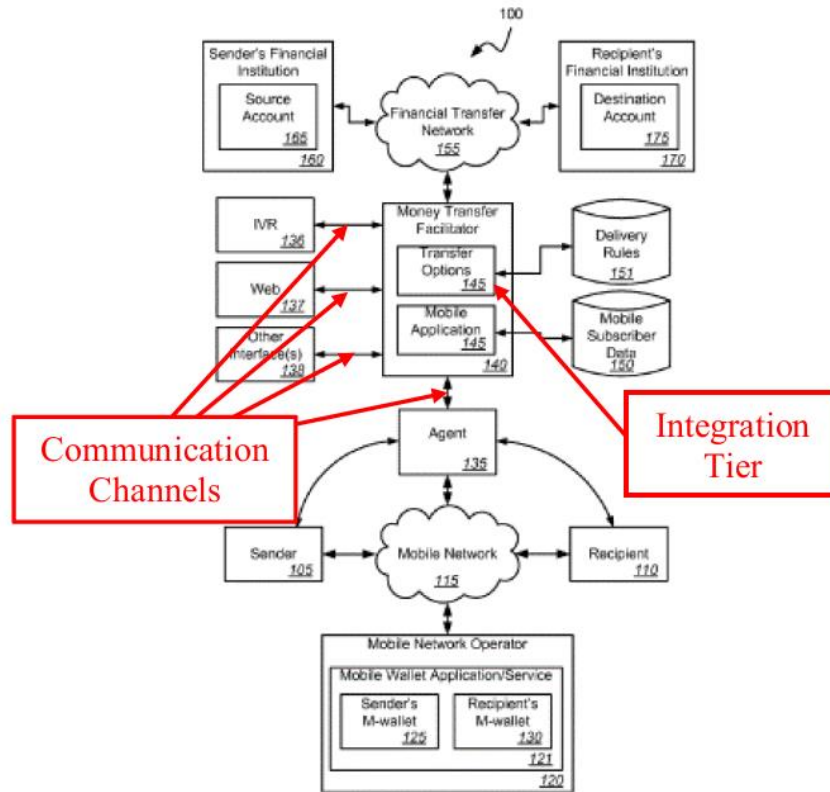
A POSITA would have understood an “interface to be a shared boundary across which information is passed.”¹⁹ Accordingly, a POSITA would at most have understood Dill’s web interface 137 to have been situated at the shared boundary between the web and money transfer facilitator 140. Dill does not show a shared boundary between web interface 137 and transfer options module 145. Dill also does not explain how transfer options module 145 is communicatively coupled to web interface 137; however, it is clear that there is no teaching in Dill that the shared boundary corresponding to the interface is within transfer options module 145.

¹⁹ Authoritative Dictionary of IEEE Standard Terms, 7th Edition (2000) (Ex. 2008).

In summary, since Dill’s web interface 137 (mapped to the web services communications mechanism for interfacing with a mobile wallet application) is outside of Dill’s transfer options module 145 (mapped to the integration tier), Petitioner has failed to show that Dill has an integration tier that includes such web services mechanism, as required by each of the Challenged Claims. For this further reason, the Petition has failed to carry its burden of demonstrating that the relied on references meet all of the limitations of the Challenged Claims.

C. Dill Fails To Teach An Integration Tier That Includes Web Services Mechanisms For Interfacing With A Plurality Of Different Device Types Over A Plurality Of Different Channels

In the Challenged Claims, the “web services communication mechanisms” in the “integration tier” are also required to interface with “a plurality of different device types over a plurality of different communication channels.” Ex. 2003 at ¶ 53. The figure below, from page 25 of the Petition, illustrates how Petitioner maps Dill to the “plurality of different communication channels”:



The above mapping to “communication channels” in Dill fails to meet the claim language. In the Challenged Claims, the “web services communications mechanisms” (which must be in the integration tier) are required to interface with “a plurality of different device types over a plurality of different communication channels.” The Petition fails to explain how Dill’s “IVR” (interactive voice response) 136 and “Other Interfaces” 138 (to which two of the mapped “different communication channels” connect) are “web services communication mechanisms for interfacing” with devices, as claimed. Ex. 2003 at ¶ 54. As a result, Petitioner has failed to substantiate that the “communication channel” between IVR 136 and Money Transfer Facilitator 140, as well as the “communication channel” between

Other Interface 138 and Money Transfer Facilitator 140, constitute “communication channels” over which “web services communication mechanisms” interface with devices, as claimed. Similarly, Dill fails to teach that the “communication channel” between Money Transfer Facilitator 140 and Agent 135 is a channel over which “web services communication mechanisms” interface with devices, as claimed. Ex. 2003 at ¶ 54.

The only communication channel even arguably identified in the Petition over which “web services communication mechanisms”²⁰ interface with devices is the communication channel between Dill’s web interface 137 and Dill’s Money Transfer Facilitator 140. However, the Challenged Claims require that more than a single communication channel to interface with the “web services communication mechanisms.” Ex. 2003 at ¶ 38. Instead, the Challenged Claims require the “web services communication mechanisms” to interface with different device types over a plurality of different communication channels. Ex. 2003 at ¶ 55. For this further reason, the Petition has failed to carry its burden of demonstrating that the relied on references meet all of the limitations of the Challenged Claims.

²⁰ As explained in Section VI(F), *infra*, Dill does not disclose “web services communication mechanisms” at all because there is no disclosure in Dill at all of any “web service.” As discussed below, merely providing a website does not disclose providing a “web service.”

D. Dill Fails To Teach A Notification Services Engine Configured To Interface With The Integration Tier

All of the Challenged Claims also recite “a notification services engine configured to interface with the integration tier.” The Petition maps the claimed “notification services engine” to the same element from Dill that the Petition mapped to the integration tier, namely, Dill’s Transfer Options Module 145. See, Pet. at 27 (“Since transfer options module 145 and/or mobile application 145 sends notifications, a POSITA would have understood this to be the claimed “*notification services engine*.”)

The language of the Challenged Claims precludes a mapping where Dill’s Transfer Options Module 145 is simultaneously the “integration tier” and the “notifications services engine,” because the claim language recites that the “notification services engine is configured to interface with the integration tier.” Ex. 2003 at ¶ 56. As the Board acknowledged in the Institution Decision, the Petition fails to explain how the same element can interface with itself:

On this record, we question whether the Petition has shown that Dill’s transfer options module 145 teaches the claimed “notification services engine” required by element 1.4A. See Pet. 27–28; Ex. 1003 ¶¶ 111–115. Petitioner relies on transfer options module 145 to teach the claimed “integration tier.” E.g. Pet. 22. The claim requires “a notification services engine configured to interface with the integration tier” (Ex. 1001, 23:37– 38), and Petitioner does not appear to substantiate a contention that Dill’s transfer options module 145 interfaces with itself. Institution Decision, Paper No. 9 at note 17 (emphasis added).

In short, the Petition has failed to demonstrate that Dill's transfer options module 145 (mapped to both the integration tier and the notification services engine) interfaces with itself. Ex. 2003 at ¶ 56. For this further reason, the Petition has failed to carry its burden of demonstrating that the relied on references meet all of the limitations of the Challenged Claims.

E. Petitioner Has Failed To Establish That Dill Teaches Web Services For Interfacing With A Mobile Wallet Application

As claimed, the “web services communication mechanisms” are required to interface with a mobile wallet application. In the '488 Patent, the mobile wallet application is installed on the mobile device. See, III(A),(B), *supra*. The Petition maps the “web services communication mechanism” to web interface 137. However, Dill *fails* to teach that its web interface 137 interfaces with a mobile wallet application on a wireless device. Rather, Dill describes web interface 137 as an alternative to a wireless communication channel for conducting transactions. Ex. 2003 at ¶¶ 58-59. In this regard, Dill explains:

As noted above, embodiments of the present invention provide methods and systems for supporting money transfer transactions initiated by and/or conducted through a variety of channels but are not limited to a wireless communication channel or systems including or using a wireless communication device. Therefore, according to still another embodiment, a money transfer facilitator system can comprise one or more interfaces for conducting money transfer transactions and a transfer options module communicatively coupled with the one or more interfaces. For example, the one or more interfaces can comprise at least one of an Interactive Voice Response (IVR) interface, a web interface, an interface to an agent system, or other interface. *The*

transfer options module can be adapted to receive transaction information for a money transfer transaction from a sender through at least one or the interfaces, provide a notification of the transaction to a recipient of the transaction, and select one or more delivery options for completing the money transfer transaction. Ex. 1005 at [0047] (emphasis added).

The above passage from Dill clearly juxtaposes the use of wireless communication channels/wireless devices for some embodiments, with the use in other embodiments of the IVR, web interface, and other interface. Here, Dill is teaching that when a sender initiates a transaction using the mobile wallet application executing on the sender's mobile device, the flow of that transaction is as shown in Figure 9 of Dill (through the MNO and agent to 140, rather than through web interface 137), and that Dill's web interface 137 represents an alternative way for a sender to initiate a transaction which does not use the mobile wallet application on the sender's mobile wireless device. Ex. 2003 at ¶¶ 58-59.

Paragraphs [0100]-[0101] of Dill read the same way:

FIG. 9 is a block diagram illustrating another exemplary system for making financial transfers according to one embodiment of the present invention. Generally speaking, the system 100 illustrated here can comprise a system as described above with reference to FIG. 1 and can include some or all of the same components and may perform some or all of the same functions. For example, the system 100 can include a money transfer facilitator system 140 as described above that may be adapted to receive transaction information from a mobile wallet application 121 via a mobile network 115 as described in detail above.

As illustrated here, the money transfer facilitator system 140 can additionally or alternatively comprise one or more interfaces 136-138 for conducting money transfer transactions and a transfer options

module 145 communicatively coupled with the one or more interfaces 136-138. For example, the one or more interfaces 136-138 can comprise at least one of an Interactive Voice Response (IVR) interface 136, a web interface 137, as well as or instead of an interface to an agent system 135, a telephone interface to a customer service representative, or other interfaces 138. The transfer options module 145 can be adapted to receive transaction information for a money transfer transaction from a sender 105 through at least one or the interfaces 136-138, provide a notification of the transaction to a recipient of the transaction, and select one or more delivery options for completing the money transfer transaction. Ex. 1005 at [0100]-[0101] (emphasis added).

Like [0047] of Dill, the above passage from Dill again juxtaposes the use of wireless communication channels/wireless devices for some embodiments, with the use in other embodiments of the IVR, web interface, and other interface. In [0101], Dill's reference to sender 105 does not state or even imply that sender 105 is using a mobile wallet application on a mobile phone when accessing interfaces 136-138. For example, a POSITA would not expect Dill's "IVR" 136 or "Other Interface" 138 to interface with a mobile wallet application on a mobile phone. Similarly, there is no basis for assuming that Dill's "Web" 137 is connecting to a mobile wallet application on a wireless device. Ex. 2003 at ¶¶ 59-60.

In [0104], Dill again juxtaposes the use of wireless communication channels/wireless devices for some embodiments, with the use in other embodiments of the IVR, web interface, and other interface. This time, Dill references "logging into a website" in connection with interfaces 136-138:

Such services can be provided to the recipient **110** in a variety of ways. For example, a notification can be provided to the recipient **110** via a mobile device and mobile network **115** as described above. Additionally or alternatively, a telephone call, telegram, email, SMS, U.S. postal letter, or other type of message can be sent to the recipient **110** providing the recipient **110** with notification of the transfer transaction and possibly instructions and/or options. Via one of the interfaces **136-138**, e.g., by logging onto a website, calling an IVR, visiting an agent location, etc. depending upon the notification and/or instructions provided, the recipient can select a delivery option and/or provide instructions for the delivery. Ex. 1005 at [0104] (emphasis added).

Again, to the extent Dill is teaching that a user “logs into a website” via interface 137, there is no basis for assuming that such a website log-in via “Web” 137 makes use of a mobile wallet application on a mobile phone. Ex. 2003 at ¶ 62. Petitioner has not shown or even alleged that it is inherent in Dill that Dill’s “Web” 137 connects with a mobile wallet application on a mobile phone, as claimed. For example, to the extent sender 105 used a browser on her mobile phone to log-in via Web 137, that would fail to meet the claim language because a browser is not a mobile wallet application on a mobile phone. Ex. 2003 at ¶ 62.²¹ For this further reason, the Petition has failed to carry its burden of demonstrating that the relied on references meet all of the limitations of the Challenged Claims.

²¹ The ’488 Patent defines a “mobile wallet application” as an application (i.e., a software application) “installed on a SIM card or elsewhere on the mobile device” (Ex. 1001 at 7:14-16), and requires that such application be provided by either the provider of the cloud-based platform or a third-party provider. *Id.* at 7:1-6. A web page that a user simply downloads from a web site with his or her browser is not an application, as claimed. Ex. 2003 at ¶ 62.

F. Dill Fails To Teach “Web Services,” And Hence Fails To Teach “Web Services Communication Mechanisms”

As explained above, each of the Challenged Claims recites an integration tier “web services communication mechanisms.” A “web service” communication means something different than simply a “web” communication. A “web service” communication involves a machine-to-machine interaction over a network. Ex. 2003 at ¶ 46; see also, e.g., *Web Services Architecture, W3C Working Group Note* (11 February 2004) (Ex. 2009 at 7)(“[a] Web service is a software system designed to support interoperable machine-to-machine interaction over a network”); Q. Mohmoud, *Service Oriented Architecture (SOA) And Web Services: The Road to Enterprise Application Integration (EAI)*(2005) (Ex. 2010) (“[w]eb services are software systems designed to support interoperable machine-to-machine interaction over a network”); R. Studer et al., *Semantic Web Services, Concepts, Technologies and Applications* (2007) (Ex. 2011) (“[a] web service is a software system designed to support machine-to-machine interaction over the internet”); *Electronic Services: Concepts, Methodologies, Tools and Applications* (2010) (Ex. 2012) (“[o]ne aim of introducing Web Services is to achieve machine-to-machine communication”); E. van de Kar et al., *Designing Mobile Service Systems* (2008) (Ex. 2013) (“[w]eb services provide machine-to-machine communication to enable interoperability between (distributed) applications”); I. Taylor et al., *From P2P And Grids To Services On The Web, Second Edition* (2009) (Ex. 2014) (“[w]eb services are a

software system designed to support interoperable machine-to-machine interaction over a network”); and C. Petrie et al., *Semantic Web And Beyond: Computing For Human Experience, Semantic Web Services Challenge, Results From The First Year* (2009) (Ex. 2015) (“[w]eb services are software systems designed to support interoperable machine-to-machine interactions over a network.”)

The fact that the “web services communication mechanisms” are claimed as “interfacing with a mobile wallet application” on a mobile device makes clear that the recited “web services” are in fact machine-to-machine communications (i.e., between the mobile wallet application on a mobile device and the integration tier). Ex. 2003 at ¶ 47. The ’488 Patent defines a “mobile wallet application” as an application (i.e., a software application) “installed on a SIM card or elsewhere on the mobile device” (Ex. 1001 at 7:14-16), and requires that such application be provided by either the provider of the cloud-based platform or a third party provider. *Id.* at 7:1-6. A web page that a user simply accesses from a web site with his or her browser is not an application, as claimed. Ex. 2003 at ¶ 62.

The Petition maps the claimed “web services communication mechanisms” to Dill’s web interface 137, which Dill simply describes as a web site. See Ex. 1005 at ¶ 33 (referring to “a web site of the money transfer facilitator” and disclosing that the sender may provide the money transfer facilitator with transaction information via a “web page”); ¶ 34 (“web page notification”); ¶¶ 35, 51, 54 (“a web site”); ¶¶

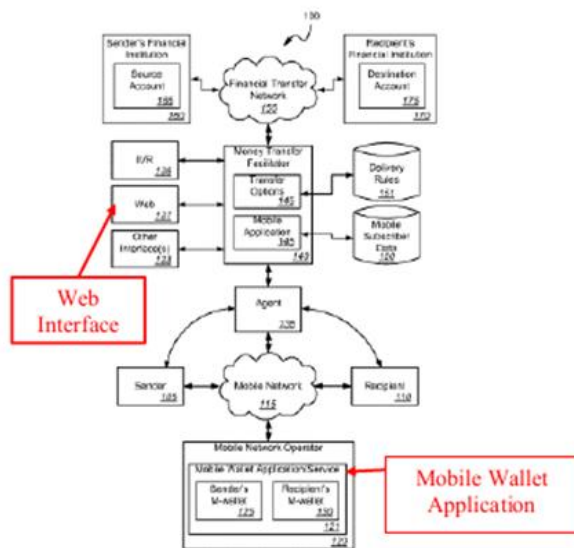
71, 72, 104 (“a website”). The Petition fails to explain how simply serving web pages to a user from a web site (as disclosed in Dill) constitutes a “web service,” as claimed. Ex. 2003 at ¶ 48. In its analysis, the Petition reads the word “services” out of the claim, by erroneously equating “web services communications mechanism” with “web communication mechanisms.” However, a POSITA would have understood that a “web service” requires, *inter alia*, machine-to-machine interaction over a network, rather than simply serving web pages to a user from a web site. Ex. 2003 at ¶¶ 47-48. For this further reason, the Petition has failed to carry its burden of demonstrating that the relied on references meet all of the limitations of the Challenged Claims.

G. The Petition Erroneously Maps Dill’s Mobile Wallet Application (121) In Mobile Network Operator (120) To The Claimed “Mobile Wallet Application” Installed On A Mobile Device

Again, to the extent Dill is teaching that a user “logs into a website” via interface 137, there is no basis for assuming that such a website log-in via “Web” 137 makes use of a mobile wallet application on a mobile device. Ex. 2003 at ¶ 63. Petitioner has not shown or even alleged that it is inherent in Dill that Dill’s “Web” 137 connects with a mobile wallet application on a mobile phone, as claimed.

The Petition, however, fails to map the claimed “mobile wallet application” to an application installed on a mobile device. Rather, as shown at page 23 of the Petition (shown below), the Petition maps the claimed “mobile wallet application”

to Mobile Wallet Application/Service 121 located within Mobile Network Operator 120:



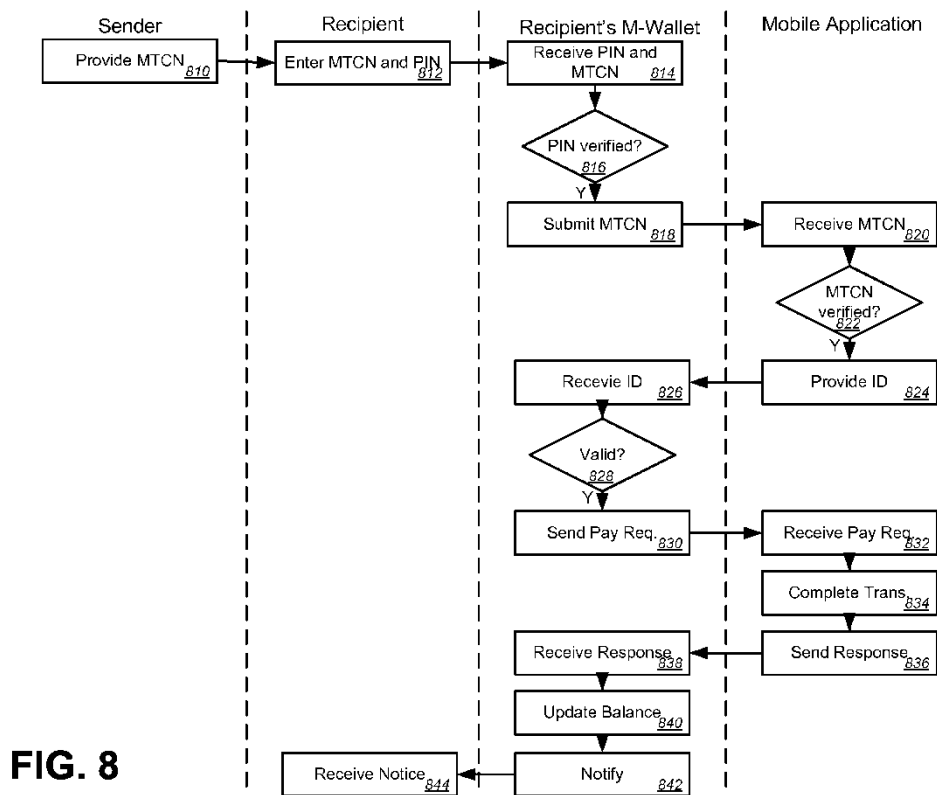
APPL-1005, Fig. 9 (annotated).

Pet. at 24. A POSITA would understand that Mobile Wallet Application/Service 121 in Dill's Mobile Network Operator 120 is not installed on a mobile device, as required by all Challenged Claims of the '488 Patent. Ex. 2003 at ¶ 65.

In the Institution Decision, the Board observes that:

Dill states that the mobile wallet application can be executed by the mobile device. See Ex. 1005 ¶¶ 10 (“The mobile device can execute a mobile wallet application.”), 94 (referencing “a cell phone or other mobile device executing the mobile wallet application 121”), claim 13 (reciting “a mobile device communicatively coupled with the mobile communications network and executing a mobile wallet application”) (cited in Pet. 6, 23, 32). Neither Patent Owner nor Dr. Shamos addresses these disclosures in Dill. Institution Decision at 27.

However, Paragraph [0094] of Dill describes the “Pull Transaction,” which is illustrated in Figure 8 (reproduced below).



Specifically, [0094] states:

The recipient 110 can then enter 812 the received transaction identifier and perhaps a Personal Identification Number (PIN) for the recipients mobile wallet 130 into a mobile wallet application 121. For example, the recipient can enter 812 the PIN and transaction identifier via a keypad or other input device of a cell phone or other mobile device executing the mobile wallet application 121. The PIN and the transaction identifier for a previously initiated money transfer transaction can be received 814 by the mobile wallet application 121. The PIN can be verified 816 with the mobile wallet application 121 and, in response to verifying 816 the PIN, the transaction identifier can be sent 818 to an application 145 of a money transfer facilitator supporting the money transfer transaction. (emphasis added).

Accordingly, a POSITA would understand Fig. 8 and the associated description in Dill (*see* Ex. 1005 at [0092]-[0099]) to explain how to execute a “pull transaction” where “a money transfer transaction has been previously initiated by the sender 105” and the recipient 110 needs to enter a PIN to receive the funds in their M-wallet. Ex. 1005 at [0092]. Ex. 2003 at ¶ 66. This understanding is further buttressed by claim 13 of Dill, which recites:

a mobile device communicatively coupled with the mobile communications network and executing a mobile wallet application, the mobile wallet application adapted to receive a Personal Identification Number (PIN) and a transaction identifier for a previously initiated money transfer transaction, verify the PIN, and in response to verifying the PIN, send the transaction identifier via the mobile communications network ... (emphasis added).

There is no disclosure in Dill of the mobile wallet application running on the mobile device to perform anything other than the pull transaction described in [0094] and claimed in claim 13. Ex. 2003 at ¶¶ 66-68. For example, Dill explains that “the mobile wallet application 121 maintains mobile wallets 125 and 130 for one or more subscribers, such as the sender 105 and/or recipient 110 to the mobile wallet service 121.” Ex. 1005 at [0053].

However, Dill is entirely silent as to how these M-wallets would be stored on the recipient’s device 110. In fact, storing the sender’s M-wallet 125 on the recipient’s device 110 would represent a major security vulnerability and would be nonsensical to a POSITA. Ex. 2003 at ¶ 67. Instead, Dill refers “the mobile wallet

application 121 of a mobile network operator 120” (see. Ex. 1005 at ¶ 0054) or “the mobile wallet application 121 of the recipient’s 120 wireless network operator 120” (see, Ex. 1005 at ¶ 0084) when describing the functionality of the mobile wallet 121.

Accordingly, a POSITA would understand [0094] to include a typographical error because it would not make sense for the mobile wallet 121 that is described throughout Dill to run on the Mobile Network Operator 120 to run on the recipient’s device 110. Therefore, as illustrated in Dill’s Claim 13, [0094] describes a different Mobile Wallet Application that is “adapted to receive a Personal Identification Number (PIN) and a transaction identifier for a previously initiated money transfer transaction.”

Therefore, Dill does not teach a “mobile wallet application” or an “application installed on a mobile device,” as recited in the Challenged Claims.

VII. CONCLUSION

The Petition has failed to carry its burden to demonstrate the unpatentability of the Challenged Claims.

Respectfully submitted,

Dated: October 13, 2023

By: /s/ Jonathan K. Waldrop
Jonathan K. Waldrop
USPTO Registration No. 50,334
For Patent Owner

CERTIFICATE OF COMPLIANCE WITH WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), I certify that this Response complies with the type-volume limits of 37 C.F.R. § 42.24(b)(1) because it contains 13,188 words, excluding the parts of this Patent Owner's Response that are exempted by 37 C.F.R. § 42.24(a), according to the word processing system used to prepare this Patent Owner's Response.

Dated: October 13, 2023

By: /s/ Jonathan K. Waldrop
Jonathan K. Waldrop
USPTO Registration No. 50,334

CERTIFICATE OF SERVICE

The undersigned certifies that pursuant to 37 C.F.R. § 42.6(e), a copy of the foregoing **PATENT OWNER'S RESPONSE** was served via email (as consented to by counsel) on October 13, 2023 to lead and backup counsel of record for Petitioner as follows:

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