

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.
Petitioner

v.

TELCOM VENTURES LLC
Patent Owner

Case No. IPR2025-01239
U.S Patent No. 12,028,793

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 12,028,793**

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I. INTRODUCTION

Petitioner Apple Inc. (“Petitioner”) requests *Inter Partes* Review (“IPR”) and cancellation of Claims 1-11 (the “Challenged Claims”) of U.S. Patent No. 12,028,793 (“the ’793 Patent”).

II. SUMMARY OF THE ’793 PATENT

A. The ’793 Patent’s Alleged Invention

The ’793 Patent is generally directed to “adaptive enablement of one or more communications modes based upon having satisfied a proximity criterion.” ’793 Patent (Ex. 1001), 1:29-31.

The ’793 Patent alleges that prior devices suffered by too rigidly offering a wide range of functions at all times, rather than enabling/prioritizing certain functionality only when appropriate. *Id.*, 1:42-50 (noting a device may be configured to prioritize “wallet” functionality “only when it is time to pay for an item and not act as a wallet when there is no need”). The ’793 Patent purports to solve this issue with “systems, devices and/or methods that may be used to enable adaptively one or more modes/functions of a device based upon having satisfied by the device (or another device) a proximity condition/criterion.” *Id.*, 1:52-57.

The ’793 Patent provides three examples/applications. In the first, a vehicle radiates a signal containing its identity and a mobile device detects this signal when proximate the vehicle. *Id.*, 4:38-6:16. If the detected vehicle identity matches one

stored in the device, a function such as “pay toll” is enabled in the mobile device, allowing the device to pay tolls during travel. *Id.*, 4:45-57. Once enabled, the mobile device may detect a signal radiated from a toll booth access point, confirming proximity to the toll booth, which then causes the mobile device to transmit information causing money to be debited from the user’s account. *Id.*, 4:57-66. This pay toll function remains enabled while the mobile device is in the vehicle, and in some embodiments, further considers sensed parameters like vehicle velocity and acceleration. *Id.*, 5:16-32.

In a second example, a mobile device estimates (1) its location and (2) another parameter associated with the environment (e.g., humidity, temperature, or brightness), the mobile device (e.g., velocity or acceleration), or the user (e.g., blood pressure, heart rate, blood content, physiological state or psychological state). *Id.*, 6:17-8:12. Based on the estimated location and/or parameter value, a particular communication mode is enabled or preferred from among several modes. *Id.*, 6:24-7:20. The patent fails to describe use cases captured by this second example with any level of specificity.

In a third example, the mobile device is used in conjunction with a shopping cart to track groceries placed in the cart and to purchase said groceries at a checkout counter. *Id.*, 8:13-8:65. The cart detects when items are placed in and taken out of the cart, and price information is transmitted to the mobile device. *Id.*, 8:34-51.

When the device is proximate to a checkout counter, a pay function of the device may be enabled that allows the customer to pay for the products. *Id.*, 8:52-65.

The Challenged Claims do not align with any of these examples. Instead, they recite methods and systems for conducting a financial transaction with a vendor at a point of purchase counter. *See id.*, Claim 1. The financial transaction functionality is enabled when (1) the user's device is proximate an access point maintained by the vendor and (2) a sensed physiological parameter satisfies a criterion. *Id.*

B. The '793 Patent's Prosecution

The '793 Patent issued from U.S. Appl. No. 18/539,020 (the "'020 Application") filed on December 13, 2023. The '020 Application is a continuation that tracks priority through a string of continuations and a divisional to U.S. Appl. No. 12/264,711 filed November 4, 2008, now U.S. Patent No. 9,462,411. For purposes of this proceeding only, Petitioner applies November 4, 2008, as the priority date.

A single Office action was issued rejecting Claims 1-11 for non-statutory double patenting. Ex. 1002, 179-180. Patent Owner filed a terminal disclaimer, and the claims were allowed without further comment from the Examiner. *Id.*, 196, 200.

C. Claim Construction Under 37 C.F.R. § 42.104(b)(3)

In this proceeding, claims are interpreted under the same standard applied by Article III courts (i.e., the *Phillips* standard). *See* 37 C.F.R. §42.100(b); *see also* 83

Fed. Reg. 197 (Oct. 11, 2018); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*). Under this standard, words in a claim are given their plain meaning, which is the meaning understood by a person of ordinary skill in the art in view of the patent and file history. *Phillips*, 415 F.3d 1303, 1312–13. With the sole exception discussed below, Petitioner submits that no constructions are necessary to resolve the proposed grounds, and that all terms be given their plain and ordinary meaning consistent with the *Phillips* standard.¹

i. “Physiological Parameter”

The Challenged Claims each require sensing a “physiological parameter” and determining if the sensed parameter “satisfies a criterion.” The intrinsic support for this limitation is slim. Indeed, there are no specific examples described beyond the following list of parameters associated with the device, its environment, or its user:

velocity, acceleration, ToD, ToM, ToY, humidity, temperature, height,
level of brightness, level of darkness, ***a blood pressure, a heart rate, a
blood content, a physiological state***, a psychological state, etc.

’793 Patent, 6:17-28.²

¹ Petitioner does not waive any argument in litigation that claim terms in the ’793 Patent are indefinite or additional terms require construction.

² All emphasis in this Petition is added unless otherwise noted.

A POSITA would understand that blood pressure, heart rate, blood content, a physiological state, and a psychological state are examples of “parameters” that may be associated with the user. *Dec.*, ¶¶47-48. A POSITA would further understand that the common thread across this entire list, including the physiological parameters, is that each exemplary parameter is dynamic in nature and fluctuates over time. *Id.* Focusing on the user-related parameters, a user’s blood pressure, heart rate, blood content, physiological state, and psychological state are examples of parameters that, by their nature, fluctuate over time. *Id.* Consistent with this disclosure, a POSITA would understand that the value for the parameter is a datapoint representing a snapshot of the variable parameter in time. *Id.* For example, a POSITA would understand that the value for the heart rate parameter may be 100 beats per minute at one point in time. *Id.* But at another point in time, the value for the heart rate parameter may be 60 beats per minute. *Id.*

Reinforcing that “physiological parameters” are snapshots of *variable* datapoints, certain Challenged Claims recite “repeatedly sensing the physiological parameter” and repeatedly determining whether or not the physiological parameter sensed satisfies a criterion, whether or not to enable or disable a function. ’793 Patent, Claim 2. A POSITA would understand that only variable data is capable of satisfying criterion some of the time and not others. *Dec.*, ¶49 (noting, for example,

that a heart rate may be elevated when a user is experiencing a cardiac event, but may resume to normal when the user recovers).

In stark contrast to the specification, Patent Owner’s litigation theories allege that biometric authentication—in the form of a fingerprint or facial geometry—satisfies sensing a “physiological parameter.” *See* Ex. 1010 (Complaint, Exhibit P). Biometrics such as fingerprints and facial structure are static, fundamentally different from the variable parameters described by the specification. *Dec.*, ¶50. They do not fluctuate over time and do not satisfy criterion *only some of the time*, as certain claims require. *Id.* Indeed, using a unique biometric such as a fingerprint to authenticate a user is effective precisely because that datapoint is unique and doesn’t change. *Id.*

Proposed Grounds 1-4 interpret the claims broadly as PO does in the parallel litigation. In these grounds, as in the litigation, sensing physiological parameters is satisfied by fingerprint-based biometric authentication. Proposed Grounds 5-8 interpret the claims more narrowly and consistent with the specification. In these grounds, sensing a physiological parameter is satisfied by sensing a datapoint representing a snapshot of the parameter in time (e.g., blood flow, heart rate, and blood pressure).

D. A Person of Ordinary Skill in the Art

A person of ordinary skill in the art at the time of the alleged invention of the '793 Patent ("POSITA") would have had a bachelor's degree in computer science, electrical engineering, computer engineering or equivalent from an accredited academic program with a year of work experience with mobile payment systems or wireless communication systems. A POSITA would also have possessed a working knowledge of short-range communication technologies in portable wireless devices. Additional education or experience might substitute for the above requirements. *Dec.*, ¶52.³

III. OVERVIEW OF THE PRIOR ART

A. Overview of *Carlson*

U.S. Patent No. 8,229,852 to Carlson ("*Carlson*") (Ex. 1005) was filed June 24, 2008, and is prior art to the '793 Patent under at least 35 U.S.C. § 102(e) (pre-AIA). *Carlson* was neither cited nor considered during the prosecution of the '793 Patent.

Carlson describes a method and system for conducting transactions between a portable wireless device, such as a cellular phone or PDA, and a contactless reader

³ Citations to "Dec." correspond to the supporting declaration of Stuart Lipoff, Exhibit 1003.

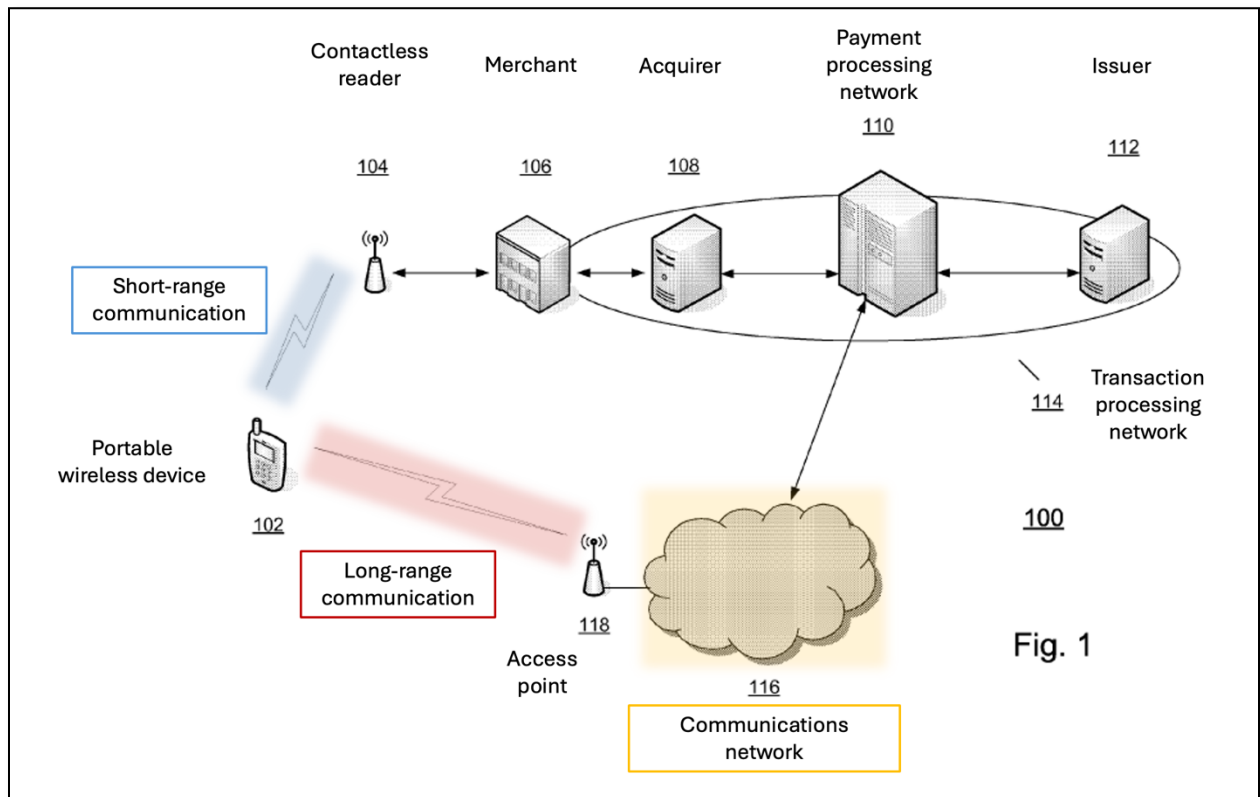
using a pseudo primary account identifier (PPAI) to prevent an unauthorized user from obtaining and using the primary account identifier (PAI). *Carlson*, Abstract, 3:12-15, 2:39-55, 9:63-64. The PPAI represents a “bogus, fake, decoy [or] substitute” PAI to increase user security. *Id.*, 5:30-56.

Carlson explains that the transaction may begin when the user unlocks the wireless device 102 using biometric information (e.g., fingerprint data). *Id.*, 12:13-24. Once unlocked, the user of the device may then “select which virtual card they wish to use to conduct the transaction[,]” where the “virtual card corresponds to an account that the user has with an issuer and may be identified by the issuer through the use of a primary account identifier.” *Id.*, 12:25-29.

The device then sends a request for a PPAI that corresponds with a primary account identifier from a payment processing network 110. *Id.*, 12:34-42, Fig. 1. Upon receiving the PPAI request from the wireless device, the payment processing network generates a PPAI associated with the primary account identifier. *Id.*, 12:51-56. The payment processing network then stores the PPAI and sends the PPAI back to the device through the communications network for use in subsequent financial transactions. *Id.*, 12:56-60.

Communication of the PPAI request and generated PPAI between the device and the payment processing network takes place over long-range communication through a wireless access point 118, the access point providing access to a

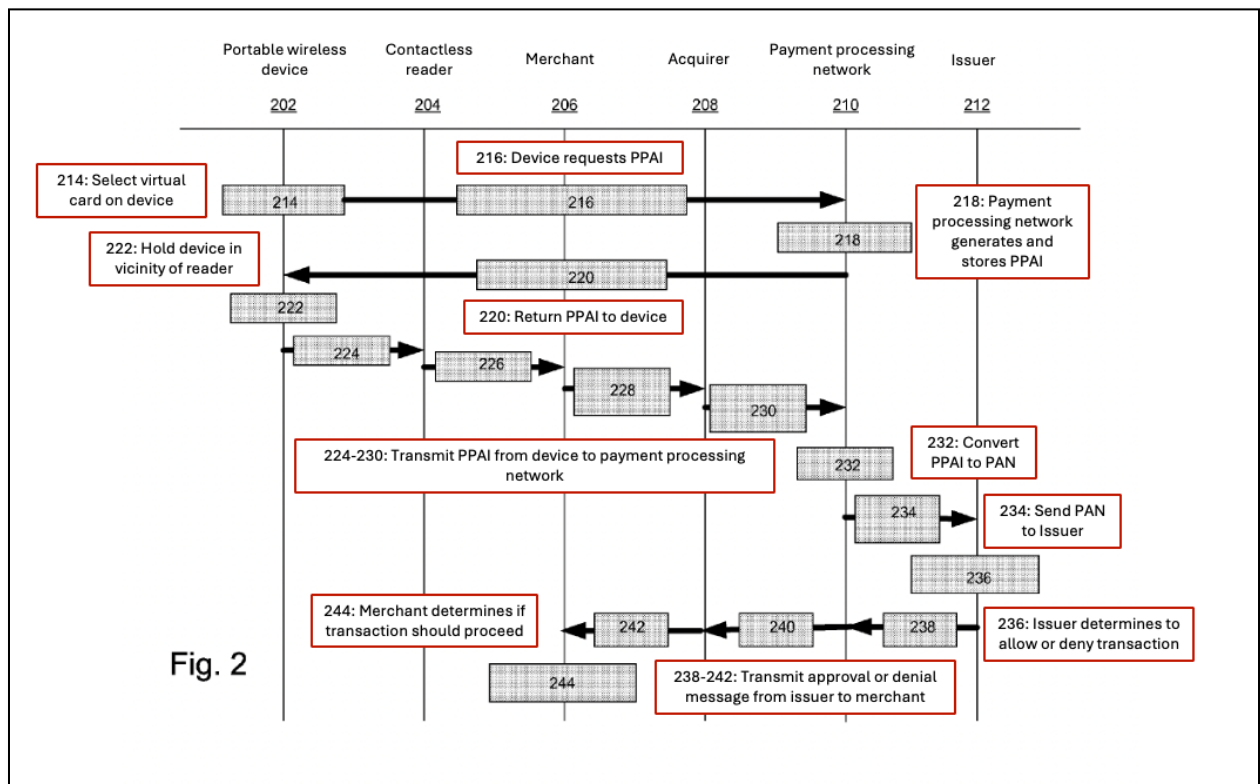
communications network 116, through which the device may communicate with the payment processing network 110. *Id.*, 14:60-65, Fig. 1. *Carlson* further describes that the communications network 116 may be a cellular telephone network. *Id.*, 5:60-62, 10:2-6.



Id., Fig. 1 (annotated).

Once the PPAI has been received at the device, the user may conduct a financial transaction by holding the device “in the vicinity 222 of the contactless reader 204.” *Id.*, 12:56-60, 13:10-13, Figs. 1-2. Using short-range communications, the PPAI may be transmitted to the contactless reader 104 (204 in Fig. 2) and to the merchant 106 for conducting the financial transaction. *Id.*, 13:13-17, 17:7-15, Fig.

1. More specifically, the contactless element of the wireless device allows for “transferring and receiving data using a near field communications (“NFC”) capability (or near field communications medium) typically in accordance with a standardized protocol or data transfer mechanism (e.g., ISO 14443/NFC).” *Id.*, 17:3-7. The PPAI is subsequently communicated to the payment processing network where it is converted to the primary account number (PAN) and sent to the issuer (e.g., bank). *Id.*, 13:28-33. The issuer then processes the transaction to determine if it should be allowed or denied. *Id.*, 13:33-36, Fig. 2. If the transaction is approved, funds are transferred from the account held at the issuer to the merchant. *Id.*, 14:43-46.



Id., Fig. 2 (annotated).

B. Overview of *Jazayeri*

U.S. Patent Publ. No. 2008/0155268 to Jazayeri et al. (“*Jazayeri*”) (Ex. 1007) was filed December 20, 2006, published June 26, 2008, and is prior art to the ’793 Patent under at least 35 U.S.C. § 102(a) and (e) (pre-AIA). *Jazayeri* was neither cited nor considered during the prosecution of the ’793 Patent.

Jazayeri describes a system for controlling access to secure data or applications on a mobile device via biometric verification. *Jazayeri*, [0005], [0007], [0031] (the mobile device may be a “Personal Digital Assistant (PDA), a cellular phone, a hand held computing device, or any other similar wireless computing device”). The biometric data may be utilized to control access to user account information stored on the mobile device when conducting a wireless transaction. *Id.*, [0007], [0050]. The biometric data used may be fingerprint data collected from a user via a fingerprint reader integrated with the mobile device. *Id.*, [0029].

To initiate the transaction, the user selects a payment application on a mobile device and selects an account (e.g., credit or debit account) to use for the purchase. *Id.*, [0049]. To verify the user’s identity and access account information, the fingerprint reader is used to obtain fingerprint data from the user, which is “converted into match points and then translated into a numeric value which is compared against existing biometric templates stored in the non-volatile memory.”

Id., [0050]. If the biometric data does not match, the user is “denied access to the secure assets stored in the non-volatile memory.” *Id.*, [0048]. If the fingerprint data matches the template, the user is authenticated and has “some amount of time (perhaps 5-10 seconds) to place the mobile device within the range of a transaction terminal before reauthorization is required.” *Id.*, [0051]. If the user places the mobile device “within the range of a transaction terminal within the allotted time period, the terminal verifies the device and the transaction is complete.” *Id.*, [0052]. At step 714, the user may then receive a digital receipt on the mobile device via Near-Field Communication (NFC) or may “utilize short message system (SMS) to view transaction details.” *Id.*, [0052].

C. Overview of *ISO-14443*

ISO/IEC 14443 (“*ISO-14443*”) (Ex. 1016) was voted on and approved by ISO and IEC national bodies in April 2000, and is prior art to the ’793 Patent under at least 35 U.S.C. § 102(a) and (b) (pre-AIA). Petitioner’s declarant, June Munford, has over ten years’ experience in the library/information science field. *Munford Declaration* (Ex. 1033), ¶2. Ms. Munford attests *ISO-14443* was publicly available no later than July 18, 2002, based on *ISO-14443*’s MARC record. *Id.*, ¶¶7-11. *ISO-14443* was neither cited nor considered during the prosecution of the ’793 Patent.

ISO-14443 “is one of a series of International Standards describing the parameters for identification cards” for use in “international interchange.” *ISO-*

14443, 4. *ISO-14443* is a four-part standard. Part 1 specifies “the physical characteristics of proximity cards” (“PICC”). *Id.*, 5. Part 2 specifies “the characteristics of the fields to be provided for power and bi-directional communication between proximity coupled devices (PCDs) and [] (PICCs).” *Id.*, 16. Part 3 specifies polling, byte format, initialization requests, and anticollision methods. *Id.*, 36. Finally, Part 4 specifies “a half-duplex block transmission protocol” and “defines the activation and deactivation sequence of the protocol.” *Id.*, 94.

D. Overview of *Doyle*

U.S. Patent Publ. No. US 2002/0095586 to Doyle et al. (“*Doyle*”) (Ex. 1008) was filed January 17, 2001, and published July 18, 2002, and is prior art to the ’793 Patent under at least 35 U.S.C. § 102(a), (b), and (e) (pre-AIA). *Doyle* was neither cited nor considered during the prosecution of the ’793 Patent.

Doyle describes a method and system for continuously authenticating a user of a portable device to improve the security of transactions or operations. *Doyle*, Abstract. The portable device may include a cellular phone, personal digital assistant (PDA), or handheld computer. *Id.*, [0005]. The portable device may be equipped with a biometric sensor, such as a thumbprint scanner, that is capable of “repeatedly checking the user’s identity during the entire period the device is in use.” *Id.*, [0084]. Biometric sensors in the portable device capture user identification data, which is

then compared to previously-stored biometric information to verify the device owner. *Id.*, Abstract. If the information matches, the device may proceed with a transaction “so long as the biometric input is uninterrupted.” *Id.* If the obtained information does not match, the transaction may be prevented or aborted, or the portable device may be deactivated. *Id.*

E. Overview of *Birch*

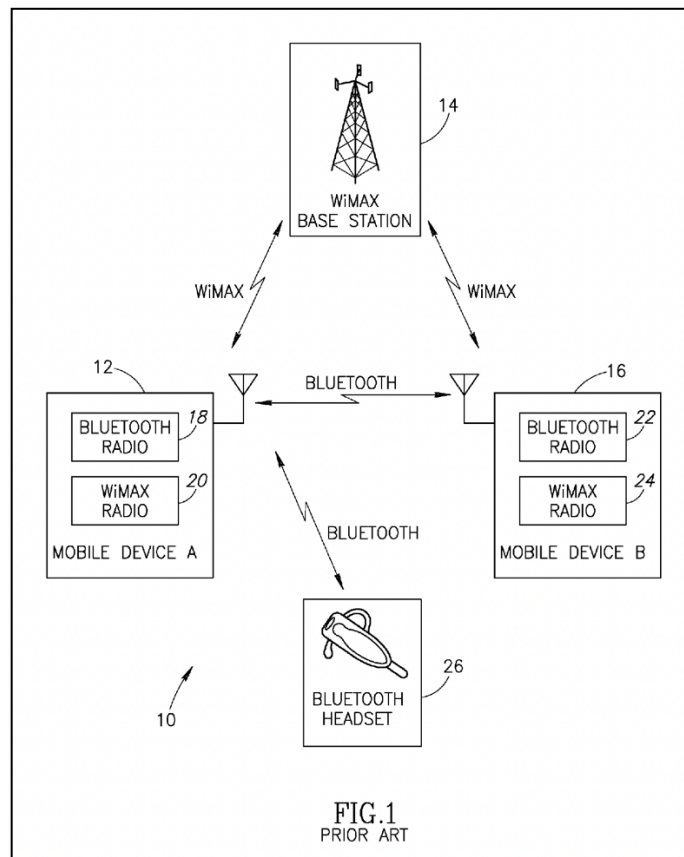
U.S. Patent No. 7,213,742 to Birch et al. (“*Birch*”) (Ex. 1031) was filed December 14, 2004, issued on May 8, 2007, and is prior art to the ’793 Patent under at least 35 U.S.C. § 102(a), (b), and (e) (pre-AIA). *Birch* was neither cited nor considered during the prosecution of the ’793 Patent.

Birch describes a system and method for facilitating third party engagement in mobile transactions. *Birch*, 1:13-16. *Birch* teaches a mobile device for use in mobile financial transactions that is capable of exchanging information with a third-party back-end system during a financial transaction to obtain coupons and discounts for the transaction and to synchronize e-receipts post-transaction. *Id.*, 7:55-60, 13:19-35. *Birch* explains that its mobile device is “configured to establish a secure wireless connection to the network provider’s back-end system (200), thus enabling the [mobile device] to communicate with the back-end system (200).” *Id.* *Birch* further explains that the secure wireless connection “may be established using an industry standard short distance technology, such as Bluetooth[.]” *Id.*, 7:67-8:1.

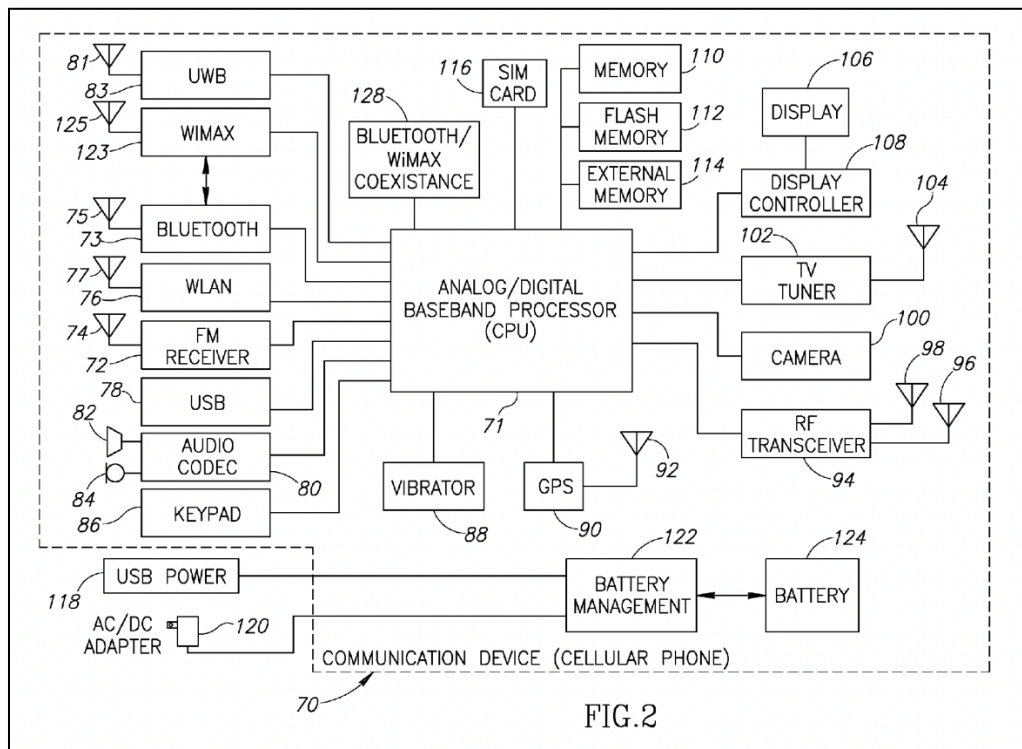
F. Overview of *Sherman*

U.S. Patent Publ. No. 2007/0232358 to Sherman (“*Sherman*”) (Ex. 1014) was filed April 2, 2007, and published October 4, 2007, and is prior art to the ’793 Patent under at least 35 U.S.C. § 102(a), (b), and (e) (pre-AIA). *Sherman* was neither cited nor considered during the prosecution of the ’793 Patent.

Sherman describes a method and apparatus for implementing WiMAX transceivers into a mobile terminal for cellular communication. *Sherman*, Abstract. The mobile terminal may be a cellular phone or personal digital assistant (PDA). *Id.*, [0021]. Specifically, *Sherman* teaches a cellular phone capable of both Bluetooth and WiMAX communication. *Id.*, Abstract. The communication network may include multiple cellular phones, a Bluetooth headset, and WiMAX base station. *Id.*, [0015], Fig. 1.



Id., Fig. 1. *Sherman* teaches a cellular phone that includes a processor, RF transceiver, memory, keypad, display, Bluetooth interface, WiMAX interface, and Bluetooth/WiMAX coexistence block. *Id.* [0053]-[0054], Fig. 2. The Bluetooth/WiMAX coexistence block is operative to “synchronize the time base of the Bluetooth transceiver to WiMAX frames[.]” *Id.* [0028].



Id., Fig. 2.

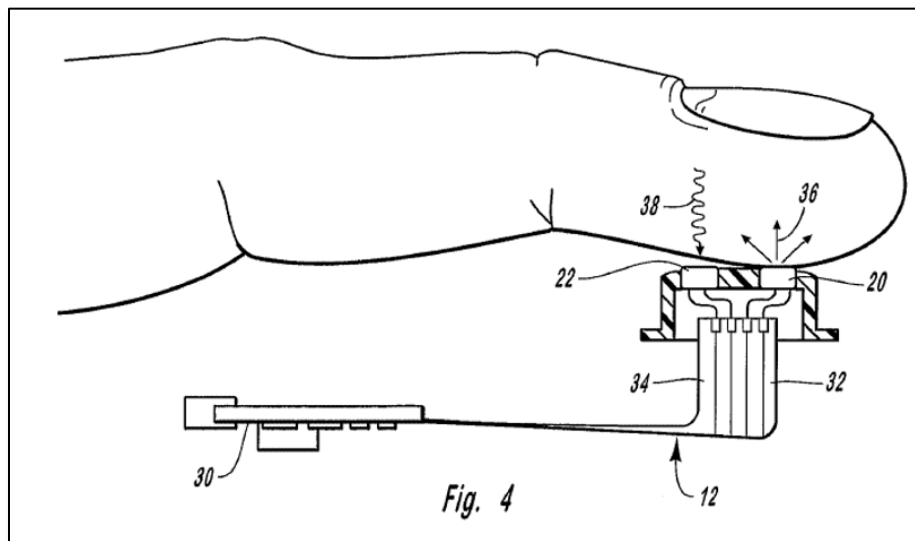
G. Overview of *Murakami*

International Patent Publ. No. WO 01/95246 to Murakami et al. (“*Murakami*”) (Ex. 1009) was filed June 7, 2001, published December 13, 2001, and is prior art to the ’793 Patent under at least 35 U.S.C. § 102(a) and (b) (pre-AIA). *Murakami* was neither cited nor considered during the prosecution of the ’793 Patent.

Murakami describes a method and apparatus for using physiological biometric parameters to activate a device, participate in a transaction, or identify a user. *Murakami*, 1:8-13. The biometric parameters may be represented by a “composite waveform reflecting anatomical structure and physiological processes, such as blood

flow, heart rate, blood pressure, and surrounding bone and blood vessel structure.”
Id., 19:9-12. Features of the measured waveforms may be compared to stored waveforms, and based on their similarities, the system may “grant or deny access to a device or [provide] authorization for transaction.” *Id.*, 16:35-17:3.

As illustrated in Figs. 1-2, *Murakami’s* device may be a mobile phone with a biometric authentication button or switch 26 for enabling the device and a chip 30 for receiving and processing the biometric identifier. *Id.*, 20:18-20, 21:14-16.



Id., Fig. 4.

IV. PROCEDURAL REQUIREMENTS UNDER 37 C.F.R. § 42.104

A. Standing Under 37 C.F.R. § 42.104(a)

Petitioner certifies that the '793 Patent is available for IPR and that Petitioner is not barred or estopped from requesting an IPR challenging the claims of the '793 Patent.

B. Challenge Under 37 C.F.R. § 42.104(b) and Relief Requested

In view of the prior art and evidence presented, the Challenged Claims of the '793 Patent are unpatentable and should be cancelled. 37 C.F.R. § 42.104(b)(1). Further, based on the prior art references identified below, IPR of the Challenged Claims should be granted. 37 C.F.R. §42.104(b)(2).

Proposed Ground of Unpatentability	Exhibits
Ground 1: Claims 1, 3-5, 7, and 9-11 are obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> in view of <i>ISO-14443</i> and <i>Jazayeri</i> .	Ex. 1005 Ex. 1016 Ex. 1007
Ground 2: Claims 2 and 6 are obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> in view of <i>ISO-14443</i> , <i>Jazayeri</i> , and <i>Doyle</i> .	Ex. 1005 Ex. 1016 Ex. 1007 Ex. 1008
Ground 3: Claims 4, 9, and 11 are obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> in view of <i>ISO-14443</i> , <i>Jazayeri</i> , and <i>Birch</i> .	Ex. 1005 Ex. 1016 Ex. 1007 Ex. 1031
Ground 4: Claim 8 is obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> in view of <i>ISO-14443</i> , <i>Jazayeri</i> , and <i>Sherman</i> .	Ex. 1005 Ex. 1016 Ex. 1007 Ex. 1014
Ground 5: Claims 1, 3-5, 7, and 9-11 are obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> in view of <i>ISO-14443</i> , <i>Jazayeri</i> , and <i>Murakami</i> .	Ex. 1005 Ex. 1016 Ex. 1007 Ex. 1009

<u>Ground 6:</u> Claims 2 and 6 are obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> in view of <i>ISO-14443</i> , <i>Jazayeri</i> , <i>Doyle</i> , and <i>Murakami</i> .	Ex. 1005 Ex. 1016 Ex. 1007 Ex. 1008 Ex. 1009
<u>Ground 7:</u> Claims 4, 9, and 11 are obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> in view of <i>ISO-14443</i> , <i>Jazayeri</i> , <i>Birch</i> , and <i>Murakami</i> .	Ex. 1005 Ex. 1016 Ex. 1007 Ex. 1031 Ex. 1009
<u>Ground 8:</u> Claim 8 is obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> in view of <i>ISO-14443</i> , <i>Jazayeri</i> , <i>Sherman</i> , and <i>Murakami</i> .	Ex. 1005 Ex. 1016 Ex. 1007 Ex. 1014 Ex. 1009

Section V identifies where each element of the Challenged Claims is found in the prior art. 37 C.F.R. §42.104(b)(4). The exhibit numbers of the evidence relied upon to support the challenges are provided above and the relevance of the evidence to the challenges raised is provided in Section V. 37 C.F.R. §42.104(b)(5). Exhibits 1001-1041 are also attached.

V. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. Ground 1: Claims 1, 3-5, 7, and 9-11 are obvious over *Carlson* in view of *Jazayeri* and *ISO-14443*

Carlson teaches a wireless device for conducting financial transactions with a POS terminal. *Carlson* acknowledges that a user may unlock the device to perform a financial transaction via fingerprint authentication but does not elaborate on the hardware or processes for sensing said fingerprint or comparing the sensed data to criterion. Ground 1 relies on *Jazayeri*'s detailed description of a fingerprint

authentication process, establishing that a POSITA would have been motivated to implement *Carlson* pursuant to *Jazayeri*'s authentication process. *Carlson* also teaches that its device may use standardized NFC protocols, expressly recommending ISO 14443, but does not describe the low-level details of ISO 14443. Ground 1 relies on *ISO-14443* for those details, establishing that a POSITA would have been motivated to implement *Carlson* pursuant to this standardized protocol.

i. Claim 1

[1(Pre)] A method comprising:

To the extent the preamble is limiting, *Carlson* teaches Claim 1(Pre). *Carlson* discloses “a ***method*** of processing a transaction[.]” *Carlson*, 14:4-5, Fig. 4. *Carlson* further discloses an exemplary system coextensive with the method of processing a transaction. *See, e.g., id.*, Fig. 1; *Dec.*, ¶97 (explaining how *Carlson*'s system implements its described method).

[1(a)] sensing a physiological parameter; then

Carlson in view of *Jazayeri* teaches Claim 1(a). Petitioner applies the proposed construction of *physiological parameter*, consistent with PO's assertions in related litigation, to include static biometric identification features such as fingerprint or facial geometry. *See* Section II.C.

Carlson's Teachings

Carlson discloses enabling a device (e.g., wireless device) to perform a financial transaction by first unlocking the device. *Carlson*, 6:6-11. *Carlson* explains that “biometric information (e.g. ***fingerprint***)” may be used to unlock the device to facilitate the transaction. *Id.*, 12:13-24.

Jazayeri's Teachings

Like *Carlson*, *Jazayeri* discloses providing access to secure data on a device using biometric data such as “***fingerprint data*** . . . for identification and authentication purposes.” *Jazayeri*, [0029]. To identify a user, *Jazayeri*'s device “will capture the user's biometric data ***via the biometric sensor*** 214 then compare the biometric data against biometric templates stored in the non-volatile memory 206 for verification.” *Id.*, [0030].

Carlson Modified Pursuant to Jazayeri

Carlson modified to unlock its device pursuant to the biometric authentication process described by *Jazayeri* teaches *sensing a physiological parameter*. *Dec.*, ¶101.⁴

⁴ Consistent with Petitioner's mapping, PO asserts in the parallel litigation that Claim 1 encompasses biometric authentication used to unlock a phone before conducting a financial transaction. *See* Ex. 1010.

For several reasons, a POSITA would have been motivated to modify *Carlson's* device to implement *Jazayeri's* biometric authentication process. *Dec.*, ¶102. First, *Carlson* explicitly contemplates unlocking the device with a fingerprint before a user can proceed with a financial transaction but does not describe how this functionality is implemented. *Id.* (discussing *Carlson*, 12:13-24). *Jazayeri* provides a detailed description of the authentication process for controlling access to a mobile device with a fingerprint. *Jazayeri*, [0028]-[0032], [0041]-[0044]. Because biometric authentication was well-known and had “long been in use to provide additional security[,]” (*Id.*, [0002]), a POSITA would have been motivated to look to *Jazayeri* as a guide for implementing biometric authentication in *Carlson's* device. *Dec.*, ¶102; *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (motivation exists “[w]hen there is a design need . . . and there are a finite number of identified, predictable solutions” within a POSITA’s “technical grasp”); *see also In re Translogic Technology, Inc.*, 504 F.3d 1249, 1262 (Fed. Cir 2007).

Second, a POSITA would have recognized that the proposed combination would improve *Carlson's* system in the same way *Jazayeri's* similar system benefits from more robust security realized by the biometric authentication process. *Dec.*, ¶103 (establishing that *Carlson* and *Jazayeri* describe similar systems); *KSR*, 550 U.S. at 417-18. *Carlson's* financial transactions involve access to sensitive financial

data, so a POSITA would have understood that strict security protocols were necessary to secure that data. *Dec.*, ¶¶104.

Finally, a POSITA would have recognized that *Jazayeri's* match point-based biometric authentication process accurately detects a user's fingerprint without requiring precise placement on the sensor face. *Dec.*, ¶105. Accordingly, *Jazayeri's* match point comparison strikes a balance between security and usability. *Id.*

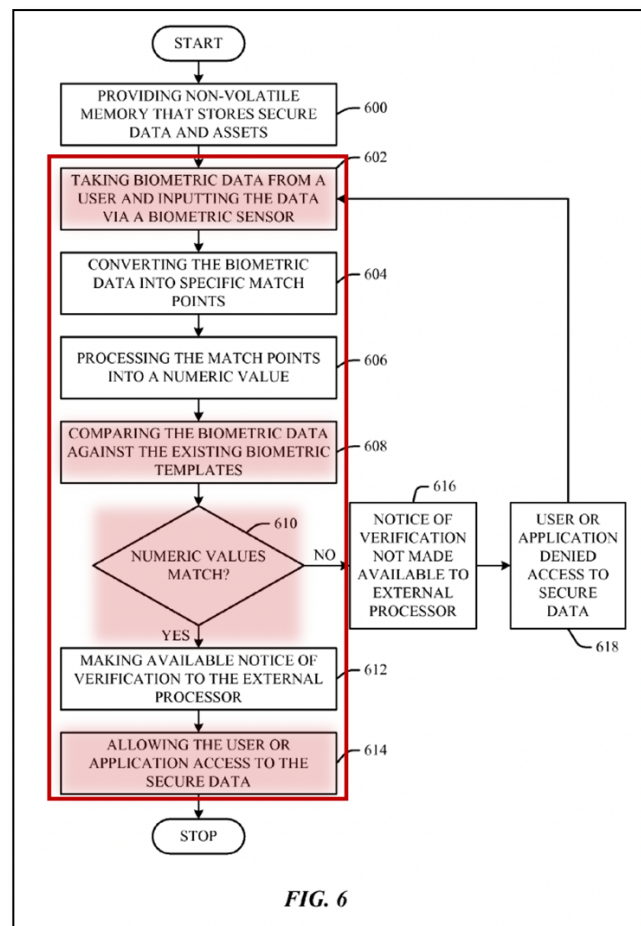
Further, a POSITA would have had a reasonable expectation of success when modifying *Carlson* according to *Jazayeri's* teachings. *Dec.*, ¶106. *Jazayeri's* biometric authentication technique requires simple components that are commonly integrated in systems like *Carlson's*. *Id.* *Carlson's* wireless device already includes the necessary elements for *Jazayeri's* biometric authentication, such as a memory and processor. *Carlson*, 14:47-59. Further, biometric sensors were prolific in mobile devices at the time for use in biometric authentication. *Dec.*, ¶106. This is supported by *Carlson's* explicit contemplation of using a fingerprint to unlock its wireless device. *Id.*

[1(b)] determining whether or not the physiological parameter sensed satisfies a criterion; then

Carlson in view of *Jazayeri* teaches Claim 1(b). *Jazayeri's* authentication process discloses specific implementation details for determining whether or not the physiological parameter sensed satisfies a criterion. Namely, *Jazayeri* teaches that

after the user's biometric data is captured using the biometric sensor 214, the data is compared "against biometric templates stored in the non-volatile memory 206 for verification. *If the data matches, then notice of successful verification is made available. . . and the user or application is allowed access to the secure assets[.]*"

Jazayeri, [0030], Fig. 6.



Id., Fig. 6 (annotated). Accordingly, *Carlson* implementing *Jazayeri*'s biometric authentication process teaches determining whether or not the scanned fingerprint

data (sensed physiological parameter) matches the biometric template data (satisfies a criterion).

[1(c)] responsive to the physiological parameter sensed satisfying the criterion, enabling at least one first function; then

Carlson in view of *Jazayeri* teaches that once a user has been verified via biometric information, the wireless device is unlocked, and a user is allowed to proceed with a financial transaction. *See supra* Claims 1(a)-(b); *Carlson*, 12:18-24. A POSITA would have understood that unlocking the wireless device is enabling at least one first function because it transitions the device from a locked state into an unlocked state, thereby granting the user access to the device's full functionality, including the ability to conduct a financial transaction. *Dec.*, ¶108; *see* Ex. 1010, 6 (asserting Claim 1(c) against enabling a first function by unlocking a phone); *also* Ex. 1015, 19-25 (same). Further, because the wireless device is unlocked as a result of authenticating a user's biometric data based on satisfying criteria, the enabled function—unlocking the wireless device—is responsive to the physiological parameter sensed satisfying the criterion. *Dec.*, ¶108.

[1(d)] while said at least one first function is enabled, responsive to having sensed the physiological parameter and responsive to having determined that the physiological parameter sensed satisfies the criterion, requesting an authorization to establish a function to conduct a financial transaction; then

Carlson-Jazayeri teaches sensing a fingerprint and, responsive to determining the fingerprint matches a template, unlocking the device. *See* Claims 1(a)-(c).

Carlson further teaches that while the device is unlocked (e.g., first function is enabled), the user selects which virtual card they would like to use to conduct a financial transaction and “the portable wireless device 202 may then **request a pseudo primary account identifier [(“PPAI”)]**⁵ that corresponds with a primary account identifier from the payment processing network 210.” *Carlson*, 12:34-37. Upon receiving the request for the PPAI, the payment processing network generates a PPAI, and returns the PPAI to the wireless device to complete that particular transaction or a particular limited set of transactions. *Id.*, 12:51-59. More specifically, *Carlson* teaches that a remote, or “back-end,” server computer at the payment processing network generates and sends the PPAI before completing that particular transaction or a particular limited set of transactions. *Id.*, 3:6-8, 15:56-60. “Once the portable wireless device has received the [PPAI] the transaction may continue.” *Id.*, 13:10-11, 12:59:61.

Because the financial transaction requires requesting and receiving the PPAI before the transaction may proceed for that particular transaction or a particular limited set of transactions, the PPAI is an authorization to conduct that particular

⁵ *Carlson* uses “pseudo primary account identifier” and “pseudo primary account number” interchangeably. For consistency, Petitioner uses “PPAI” any time *Carlson* is referring to the pseudo primary account number/identifier.

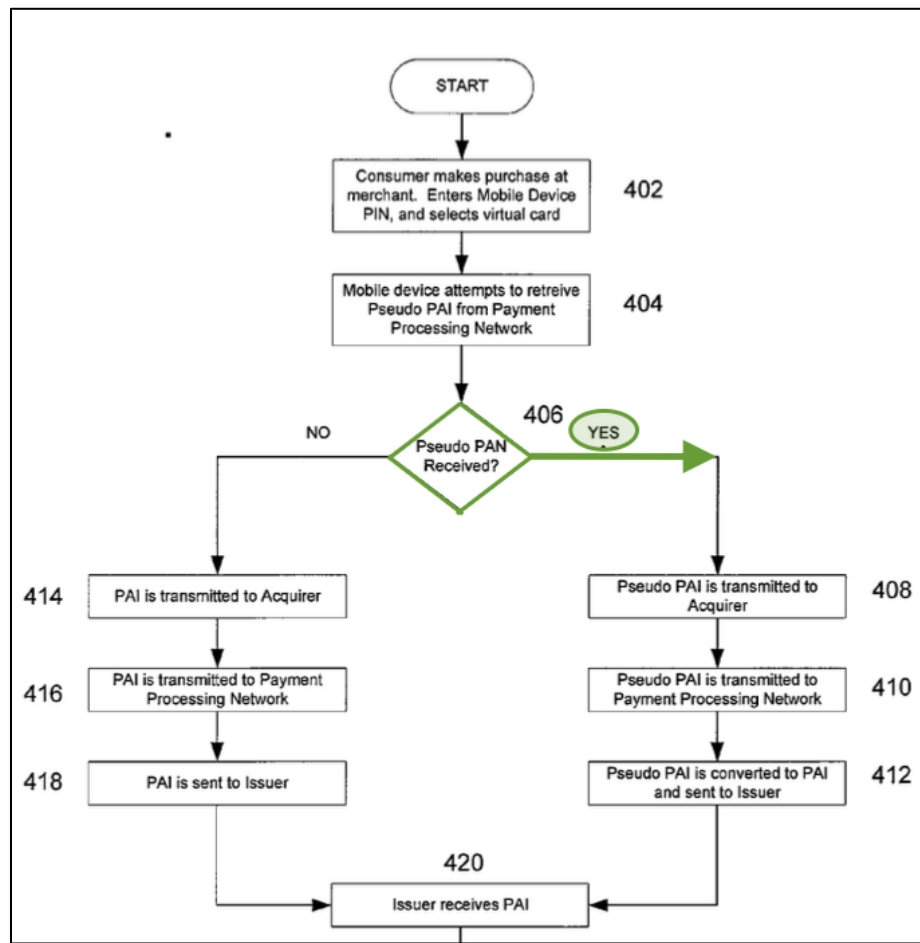
transaction or a particular limited set of transactions in *Carlson's* system. *See* Claims 1(e)-(j), *infra* (detailing transaction process that depends on receiving PPAI). Furthermore, because the PPAI is requested only after unlocking the device following biometric authentication, the request for authentication is responsive to biometrically authenticating a user and while the first function is enabled.

[1(e)] responsive to the requesting, receiving the authorization to establish the function to conduct the financial transaction; then

Once the request for the PPAI is sent to the remote server computer at the payment processing network, the PPAI is generated and sent back to the device. *Carlson*, 12:51-59. Then, “[o]nce the portable *wireless device has received the [PPAI]*, the transaction may continue.” *Id.*, 13:10-11. Thus, responsive to the request for the PPAI, the device receives the PPAI (authorization) to establish the function to conduct the subsequent financial transaction.

[1(f)] responsive to receiving the authorization, establishing the function to conduct the financial transaction; and then

Carlson teaches that once the wireless device receives the PPAI “that is associated with a primary account identifier and has been enabled for use, the user may then proceed to use the portable wireless device to conduct a transaction.” *Id.*, 7:43-47. *Carlson's* Fig. 4 demonstrates at step 406 (green), the system confirms receipt of the PPAI before moving forward with the financial transaction.



Carlson, Fig. 4 (excerpted and annotated). If receipt of the PPAI is confirmed by the wireless device at step 406, the process continues through steps 408, 410, and 412, using the PPAI for the financial transaction. *Id.*, 14:15-17; *see also supra* Claim 1(d). In contrast, “[i]f the portable wireless device fails to retrieve a [PPAI] at step 406 the process continues on to step 414 where the transaction proceeds using the primary

account identifier” instead of the PPAI.⁶ *Id.*, 14:24-27. Thus, confirming receipt of the PPAI at step 406 establishes the function to conduct the financial transaction using the PPAI. *Dec.*, ¶112.

[1(g)] responsive to satisfying a proximity condition relative to an entity and responsive to sensing the physiological parameter and determining that the physiological parameter sensed satisfies the criterion, using the function that has been established to conduct the financial transaction and conducting the financial transaction by paying for a product;

Carlson-Jazayeri-ISO-14443 teaches Claim 1(g). *Carlson* in view of *Jazayeri* teaches establishing a function to conduct a financial transaction in response to unlocking a wireless device upon confirming a user’s biometric identity and then requesting and receiving an authorization to do so. *See supra* Claims 1(a)-(f). Claim 1(g) further requires: (1) a proximity condition be met relative to an entity; (2) the established function be used in response to the proximity condition being met; and (3) conducting the financial transaction by paying for a product.

⁶ The proposed grounds rely on the PPAI-based financial transaction. Accordingly, when *Carlson*’s system determines that **no** PPAI was received, in the context of the proposed grounds, it serves as an indication that the function to conduct the PPAI-based financial transaction has **not** been established. While it may still be possible in *Carlson*’s system to conduct a different financial transaction (e.g., a less secure process that uses a PAN, rather than PPAI), the function relied upon in the Proposed Grounds is not established absent a PPAI.

A POSITA reading Claim 1(g) in light of the specification and the plain language of the claim would understand that only a single instance of sensing and verifying a user's physiological parameter is required. *Dec.*, ¶114. Thus, because *Carlson-Jazayeri* teaches unlocking the wireless device with an initial biometric verification, each subsequent step of the financial transaction is responsive to sensing the physiological parameter and determining that the physiological parameter satisfies the criterion. *Id.* However, to the extent PO argues that Claim 1(g) requires a second physiological sensing (e.g., a first prior to seeking authorization and a second prior to conducting the financial transaction), it would have been obvious to further modify *Carlson* in view of *Jazayeri* to perform a second biometric verification, as discussed in further detail below.

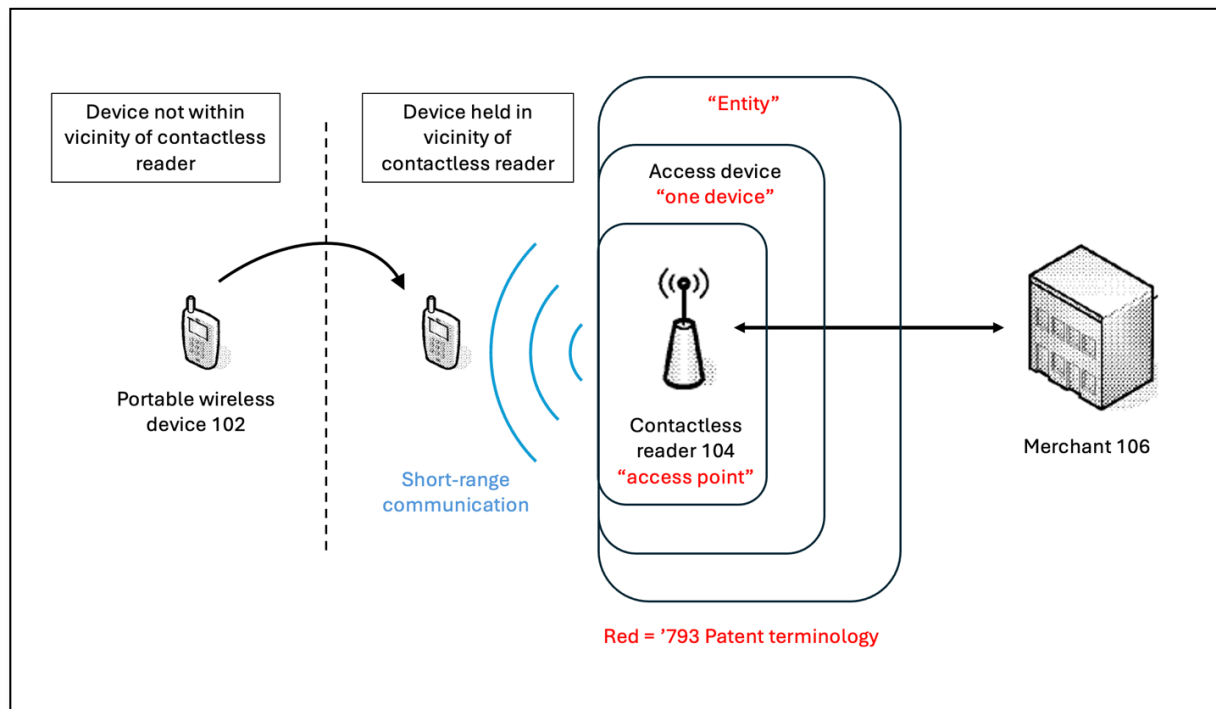
1. Satisfying A Proximity Condition Relative to an Entity

Carlson-Jazayeri-ISO-14443 teaches that once the wireless device has been placed in the vicinity of the contactless reader, NFC is employed to facilitate the use of the established function to purchase goods.

Carlson's Teachings

Carlson teaches transmitting the PPAI to the contactless reader over short-range communications upon being held in the vicinity of the contactless reader. *Carlson*, 13:10-18.

Carlson teaches that the contactless reader is located “at a merchant site” and “can be part of an access device” such as a “point-of-sale (POS) terminal[.]” *Id.*, 7:59-67. Additionally, the contactless reader 104 includes communications hardware to receive primary and pseudo primary account identifiers from the portable wireless device. *Id.*, 10:37-42. Thus, a POSITA would have understood *Carlson*’s contactless reader to be part of an access device (e.g., POS terminal) located at the merchant site. *Dec.*, ¶117. A POSITA would have further understood the access device and reader are an entity representing the merchant’s location, consistent with the ’793 Patent’s teachings. *Id.*; ’793 Patent, 3:54-62 (broadly describing an entity as “a person, an animal, a vehicle . . . a building . . . a product . . . a store . . . a check-out counter in a store . . . one or more locations in time and/or space, a geographic area and/or a multi-dimensional region in time and/or space.”).



Dec., ¶117 (annotated figure based on *Carlson*’s Fig. 1 disclosure).

Carlson describes a wireless device that contains a short-range communications element in the form of a “contactless element.” *Carlson*, 16:24-17:2. This contactless element permits “transferring and receiving data *using a near field communications (“NFC”) capability* (or near field communications medium) typically in accordance with a standardized protocol or data transfer mechanism (e.g., ISO 14443/NFC).” *Id.*, 17:3-8 (explaining that “[n]ear field communications capability is a short-range communications capability”). So, *Carlson*’s portable wireless device “is capable of communicating and transferring data and/or control instructions via both cellular network and *near field communications capability*.” *Id.*, 17:7-15.

ISO-14443's Teachings

As defined in *ISO-14443*, “[t]he frequency f_c of the RF operating field shall be 13,56 MHz[.]” *ISO-14443*, 18. *ISO-14443* specifies a minimum and maximum operating field, H_{min} and H_{max} , of 1.5 A/m and 7.5 A/m, respectively. *Id.*

In general, *ISO-14443* discloses the following consecutive operations of the initial dialogue between PCD (e.g., POS terminal) and PICC (e.g., smartcard or smartcard-equipped device): 1) “activation of the PICC by the RF operating field of the PCD;” 2) “the PICC shall wait silently for a command from the PCD;” 3) “transmission of a command by the PCD;” 4) “transmission of a response by the PICC.” *Id.*

More specifically, *ISO-14443* specifies a PICC shall exit its POWER-OFF State and enter its IDLE state when it “is in an energizing magnetic field⁷ greater than H_{min} [.]” *ISO-14443*, 46. In the IDLE State, “the PICC is powered” and it listens for and recognizes commands from the PCD. *Id.* In other words, the PICC is powered and actively listens for commands only if the magnetic field of the PCD remains

⁷ For consistency, Petitioner adopts “magnetic field.” *ISO-14443* uses the terms “RF field” and “magnetic field” interchangeably in its disclosure. *Compare, ISO-14443*, 22 (“ H is the (rms) value of magnetic field strength in A/m”), *Id.*, 46 (“magnetic field greater than H_{min} ”) *with Id.*, 18 (“RF operating field of the PCD”). The units of A/m disclosed by *ISO-14443* connote a magnetic field. *Dec.*, ¶121.

above H_{min} (1.5 A/m). *Id.* A POSITA would have understood that magnetic field and distance are directly correlated, e.g., magnetic field strength decreases with increasing distance from the PCD. *Dec.*, ¶121. A POSITA would also have understood that a minimum distance can be calculated where field strength curve of the PICC and the interrogation field strength of the PCD are known. *Id.*, (describing an exemplary calculation where 1.5 A/m results in a range of 10 cm). Thus, when implementing the ISO-14443 standard, the PICC satisfies a proximity condition, as claimed, when it is close enough to the PCD to experience a magnetic field stronger than 1.5 A/m, which corresponds to a specific calculable distance. *Id.*

Carlson Modified Pursuant to ISO-14443

Carlson-Jazayeri further modified by *ISO-14443* to conduct short-range NFC communications between the wireless device and the access device teaches satisfying a proximity condition relative to an entity, as claimed, where the entity comprises the contactless reader and access device located at the merchant's location. *Dec.*, ¶122.

In the proposed combination, *Carlson's* contactless reader is implemented as the PCD (pursuant to *ISO-14443's* teachings) and *Carlson's* wireless device is configured to communicate via NFC as the PICC (pursuant to *ISO-14443's* teachings). *Id.* ¶¶123-124. Thus, when bringing the wireless device “within the vicinity of the contactless reader,” the magnetic field generated by the contactless

reader activates the PICC (placing it in the IDLE state) only upon exceeding 1.5 A/m (i.e., when the device is within the calculable distance corresponding to this magnetic field threshold). *Id.*

A POSITA would have been motivated to implement *ISO-14443*'s teachings in this way for several reasons. First, *Carlson* expressly motivates the combination, teaching that “[c]ontactless element 618 is capable of [communicating] using . . . (‘NFC’) . . . typically in accordance with a standardized protocol or data transfer mechanism (e.g., ISO 14443/NFC).” *Carlson*, 17:3-7; *KSR*, 550 U.S. at 418-19. From this express suggestion to implement NFC functionality “in accordance with” *ISO-14443*, a POSITA would have been motivated to implement *Carlson*'s NFC communications pursuant to *ISO-14443*. *Dec.*, ¶125 (discussing *Carlson*, 17:3-15). *ISO-14443* explicitly teaches how short-range communication using NFC is initialized between wireless communication devices like *Carlson*'s. Because *Carlson* expressly identifies *ISO-14443*, but does not describe the low-level NFC implementation details, a POSITA would have been motivated to use *ISO-14443* to guide implementing NFC short-range communications in *Carlson*'s system. *Dec.*, ¶125; *KSR*, 550 U.S. at 421; *see also Translogic*, 504 F.3d at 1262.

Additionally, a POSITA would have been motivated to look to *ISO-14443*'s teachings when implementing NFC capability to communicate the PPAI from the wireless device for improved security and efficiency. *Dec.*, ¶126. For example, NFC

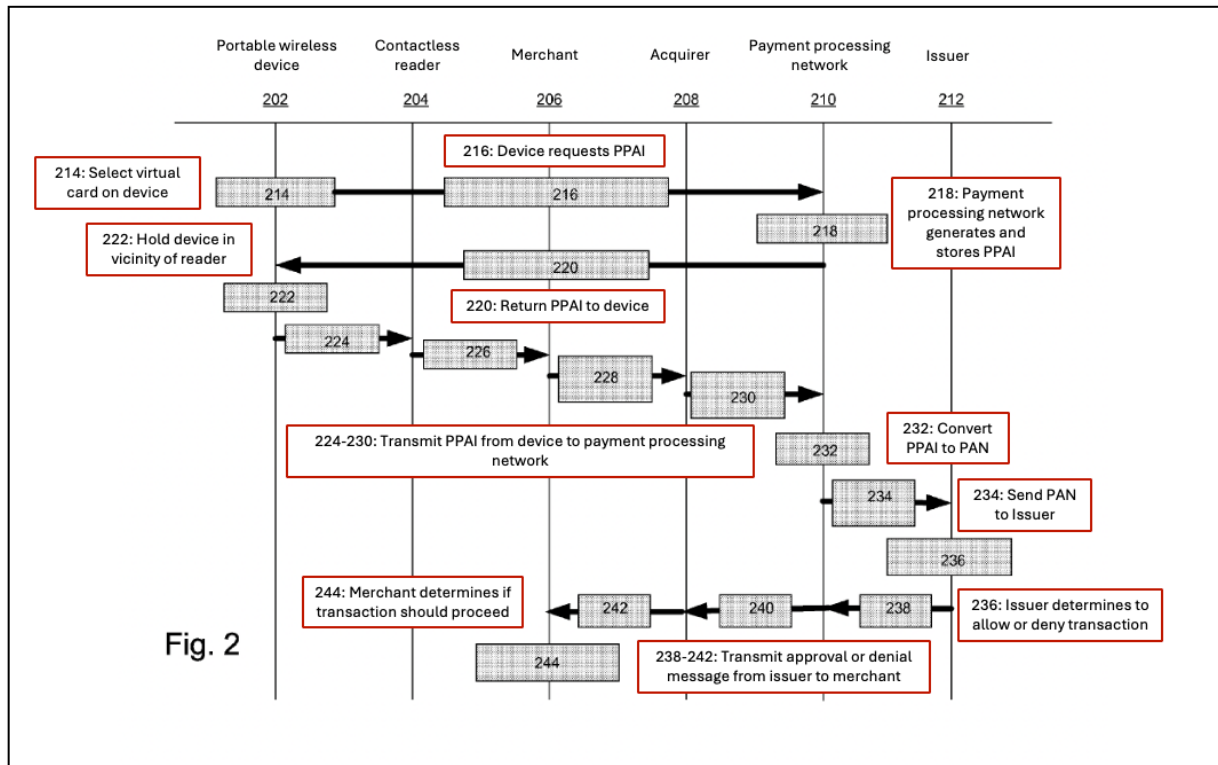
only operates within a limited distance, making it less susceptible to interference than other forms of short-range communications. *Id.* A POSITA would have understood that, especially when transferring critical financial information, limiting the risk of interference from a malicious eavesdropper would have benefited *Carlson's* system. *Id.* This is especially true in environments like a crowded grocery store where the threat of interception is higher. *Id.* Indeed, *Carlson* acknowledges the importance of preventing eavesdropping and emphasizes the value of its invention as an additional safeguard against eavesdropping within the context of contactless readers. *Carlson*, 1:62-2:18. Additionally, short-range communications using NFC as defined in *ISO-14443* do not require a formal pairing process that other short-range communications like Bluetooth would require but instead permits transmission of information immediately upon satisfying the proximity condition, therefore creating more efficient information transfer. *Dec.*, ¶126. Lastly, short-range communications using NFC, as defined by *ISO-14443*, operate with lower power consumption because the PCD, upon becoming close enough to the PICC, activates the PICC, absolving the need for additional battery or resource consumption on the phone during transmission. *Id.*

Finally, a POSITA would have had a reasonable expectation of success when modifying *Carlson* according to *ISO-14443's* teachings. *Dec.*, ¶127. Detecting proximity thresholds during short-range communications using NFC was well-

known, as evidenced by *ISO-14443*'s standardized link initialization prior to the '793 Patent. *Id.* Further, the use of short-range communications using NFC in mobile payment systems specifically were well-known prior to the alleged invention. *Id.*

2. Using the Established Function in Response to the Proximity Condition Being Met

As described in Claim 1(d), *Carlson* establishes a function consisting of using a PPAI to authorize and conduct a financial transaction. The function is used when the PPAI is transmitted from the wireless device to the access device (224), and subsequently to the merchant (226), the acquirer (228), the payment processing network (230), and ultimately to the issuer (as the PAN) (234). *Carlson*, Fig. 2. Further, because the PPAI is transmitted via NFC upon satisfying the proximity threshold when bringing the wireless device within the vicinity of the entity (step 222), the function is used in response to the proximity condition being met.



Id., Fig. 2 (annotated).

3. Conducting the Financial Transaction by Paying for a Product

Carlson's financial transaction consists of paying for a product. *Carlson's* financial transaction is initiated, shown at step 402 (red), when a consumer decides to purchase a product (e.g., a good) at a merchant.

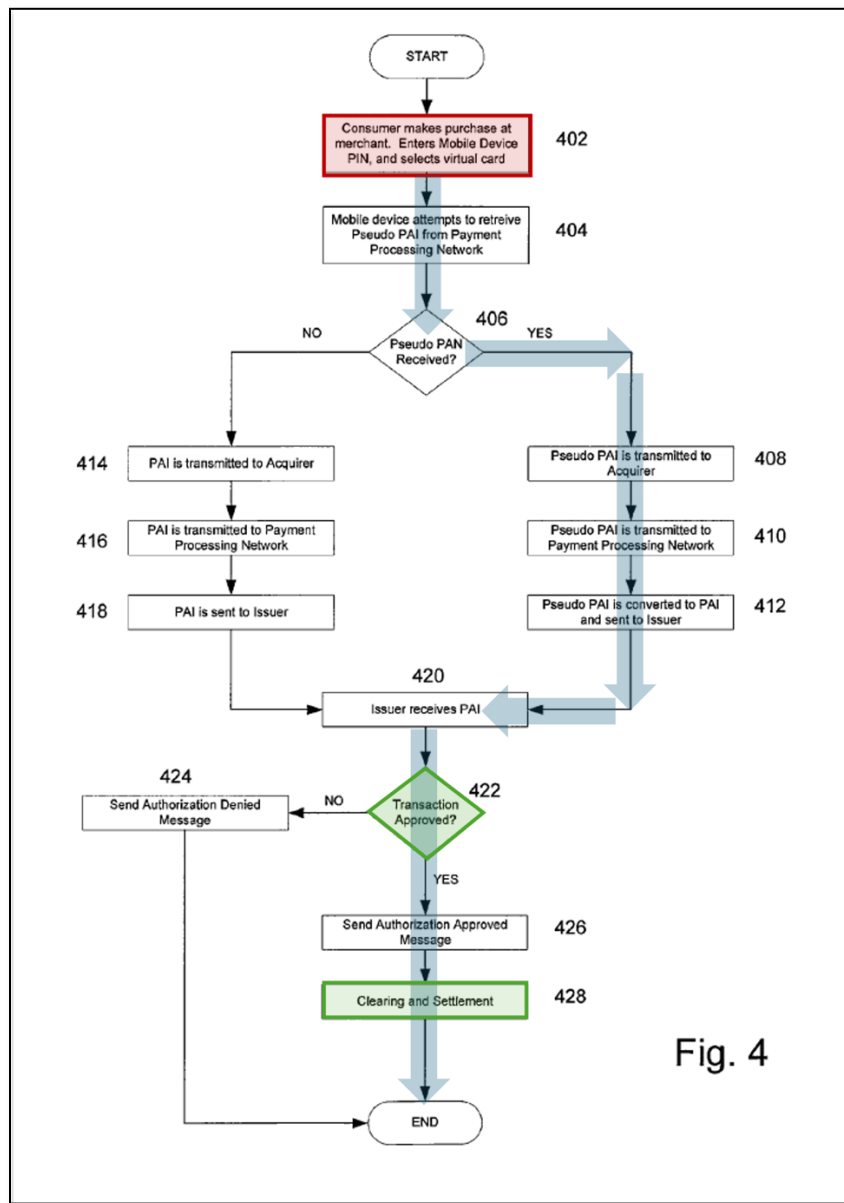


Fig. 4

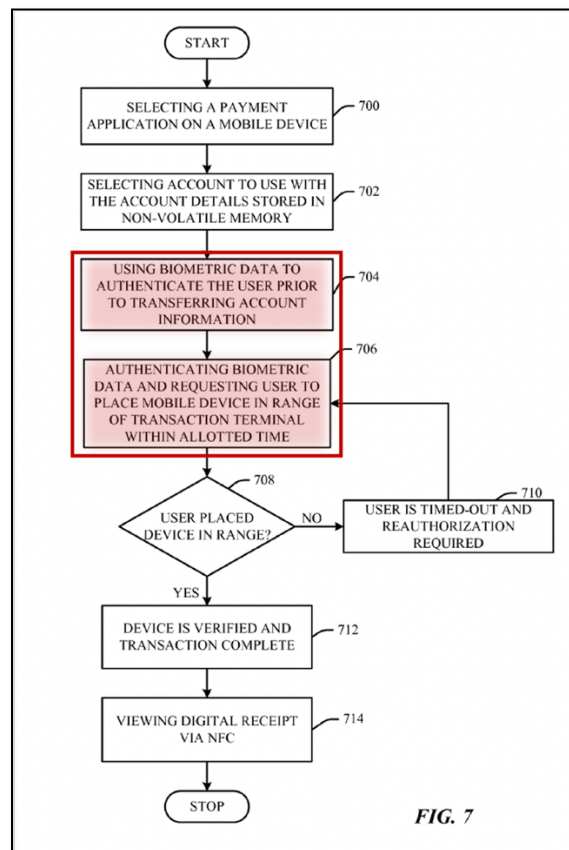
Carlson, Fig. 4 (annotated); 14:4-8 (“The process begins at 402 where a consumer has chosen to *purchase goods* and or services from a merchant.”). Further, when the issuer approves the transaction, the funds are transferred from the user’s account to the merchant to complete the purchase. *Id.*, 14:42-46. Thus, the financial transaction comprises *paying for a product*.

Conducting the financial transaction by paying for a product includes passing the PPAI from the wireless device to the contactless reader and merchant, which causes this information to be communicated to the acquirer, to the payment processing network, and to the issuer before funds are deducted to complete the transaction. The '793 Patent describes paying for a product wherein “an amount of money associated with the paying may be deducted/withdrawn *from an account associated with an owner/user of the first wireless communications device.*” ’793 Patent, 5:64-67. The ’793 Patent contains no other disclosures regarding withdrawing money in any other manner. Accordingly, consistent with the intrinsic record, because *Carlson’s* financial transaction is the direct result of the wireless device establishing the transaction, the wireless device conducts the financial transaction, as claimed. Although portions of the financial transaction (e.g., withdrawing money) take place away from the wireless device (e.g., at the issuer), the wireless device still conducts the financial transaction by paying for a product. Indeed, this is consistent with PO’s litigation theories. Ex. 1010, 15-18.

4. Responsive to Sensing a Physiological Parameter a Second Time

To the extent PO argues that a second biometric authentication step is required, *Carlson* in view of *Jazayeri* teaches it. *Jazayeri* discloses authenticating a

user via biometric data immediately prior to exchanging account information to make a purchase. *Jazayeri*, [0049]-[0052], Fig. 7.



Id., Fig. 7 (annotated). At step 704, “biometric data is used to authenticate the user prior to transferring account information.” *Id.*, [0050]. A user’s biometric data (e.g., fingerprint) is authenticated in the same manner previously discussed wherein the sensed fingerprint is compared to stored biometric templates to determine whether the data matches. *See supra* Claims 1(a)-(c); *also Jazayeri*, [0050] (“If the data matches, notification of verification is made available to the user and account information is accessed”). Then, at step 706, “the biometric data is authenticated and

the user has some amount of time (perhaps 5-10 seconds) to place the mobile device within the range of a transaction terminal before reauthorization is required.” *Id.*, [0051].

A POSITA would have been motivated to further modify *Carlson* to include a second biometric authentication step immediately before conducting its financial transaction, consistent with *Jazayeri*’s teachings, for added security. *Dec.*, ¶132. Although *Carlson* teaches that the financial transaction cannot progress without unlocking the wireless device, a POSITA would have understood that there may be instances in which a user unlocks their wireless device independent from making a financial transaction. *Id.* Thus, *Carlson*’s native process allows access to the financial transaction function regardless of the amount of time passed between unlocking the wireless device and selecting a virtual card. A POSITA would have been motivated to add/require a second biometric authentication, immediately preceding the financial transaction, in order to further protect access to sensitive financial information. *Id.* Indeed, *Jazayeri* highlights the value in limiting access to financial information to a short temporal window to prevent unwanted or malicious access. *Jazayeri*, [0051] (restricting a user to 5-10 seconds to progress the transaction before requiring authentication again).

A POSITA would have considered this a straightforward modification, requiring zero additional components. Indeed, as previously discussed, *Carlson*-

Jazayeri already teaches the exact same biometric authentication process. *See supra* Claims 1(a)-(c). Thus, the proposed modification would simply incorporate a temporal component via minimal software changes to facilitate the modification. *Dec.*, ¶133. Thus, there would have been a reasonable expectation of success in modifying *Carlson* consistent with *Jazayeri*'s teachings to incorporate a second biometric authentication immediately prior to accessing financial information. *Id.*

[1(h)] wherein said paying for a product comprises sensing that the proximity condition is satisfied relative to an access point maintained by a vendor at a point of purchase counter, by detecting a short-range signal that is transmitted by the access point, determining that the physiological parameter sensed satisfies the criterion and then, responsive to having sensed that the proximity condition is satisfied relative to the access point and having determined that the physiological parameter sensed satisfies the criterion, paying for the product by selectively sending information to at least one device;

Carlson-Jazayeri-ISO-14443 teaches (1) satisfying a proximity condition relative to an *entity*⁸ upon bringing the wireless device within the vicinity of the contactless reader and (2) subsequently transmitting the PPAI from the wireless device to the contactless reader via NFC. *See supra* Claim 1(g). *Carlson-Jazayeri-ISO-14443* further teaches proximity detection relative to an access point maintained

⁸ As set forth above with reference to limitation [1(g)], using the '793 Patent's terminology, *Carlson*'s access device and reader are an "entity" representing the merchant's location. Because *Carlson*'s access point is part of this entity, detecting proximity to the access point also detects proximity to the entity.

by a vendor at a point of purchase counter by detecting a short-range signal transmitted by the access point wherein the access point is the contactless reader.

1. Access Point Maintained by A Vendor at a Point of Purchase Counter

An access point, according to the '793 Patent, is maintained by the vendor or on behalf of the vendor and “can be a toll bo[o]th, a point of purchase counter, or a check out counter” and may be “configured to radiate a signal” indicating that the access point can be a device or at least include a device. '793 Patent, 11:57-62, 4:57-66. A POSITA would have understood that *Carlson's* contactless reader is an access point maintained by a vendor at a point of purchase counter because, like the access point of the '793 Patent, it transmits and receives signals to/from the portable wireless device (*Id.*, 15:6-9), it is maintained by the merchant and located at a merchant site (*Id.*, 7:62-67, 10:42-44), and is part of an access device (e.g., POS terminal) that allows the portable wireless device to transmit information (*Id.*, 7:62-67). *Dec.*, ¶135; *see also supra* Claim 1(g).

2. Detecting a Short-range Signal that is Transmitted by the Access Point

Carlson-Jazayeri-ISO-14443 teaches sensing that a proximity condition is met by the wireless device detecting a short-range signal from the contactless reader. Specifically, the wireless device, configured as the PICC in *ISO-14443*, is powered by the magnetic field of the PCD and enters the IDLE state. *See supra* Claim 1(g).

The PICC “shall recognize” commands from the PCD during initialization. *ISO-14443*, 46; *see also, id.*, 47 (describing “commands used by the PCD”), and 47-55 (describing the commands). A POSITA would have understood that the commands are signals and are transmitted by the contactless reader (configured as the PCD pursuant to *ISO-14443*) and detected by the wireless device (configured as the PICC pursuant to *ISO-14443*). *Dec.*, ¶136. The commands constitute a *short-range* signal because they are transmitted according to *ISO-14443* standards. *Carlson*, 17:7-8 (teaching that NFC capability pursuant to ISO 14443 “is a short-range communications capability.”). Thus, *Carlson-Jazayeri-ISO-14443* teaches sensing that the proximity condition is satisfied relative to an access point maintained by a vendor at a point of purchase counter, by detecting a short-range signal that is transmitted by the access point.

3. Paying for the Product by Selectively Sending Information to at Least One Device

Carlson discloses that to pay for a product, “the [PPAI] may be transmitted 224 to the contactless reader 204 and to the merchant 206, 226.” *Carlson*, 13:15-17. A POSITA would have understood that the PPAI is selectively sent to the access device (e.g., POS terminal) including the sensed contactless reader that satisfies the proximity condition. *See supra*, Claim 1(g)-(h). *Dec.*, ¶137. Further, a POSITA would have understood that the wireless device is “selective” about the content and

destination. Namely, it selects the PPAI (from the available data on the device) and selects the access device as the target of the transmission. *Id.* Therefore, the PPAI (information) is selectively sent to the contactless reader (access point) and, consequently, the access device (at least one device) for paying for the product.⁹ *Id.* Additionally, paying for the product occurs in response to the proximity condition and physiological parameter for at least the same reasons discussed in Claim 1(g). *See supra* Claim 1(g).

[1(i)] wherein said paying for the product by selectively sending information to at least one device comprises selectively and wirelessly transmitting information to the at least one device using unlicensed frequencies; and

Carlson-Jazayeri-ISO-14443 teaches paying for the product by selectively and wirelessly transmitting information to the access device (at least one device) using NFC. *See supra* Claim 1(g). Because NFC and *ISO-14443* wirelessly transmit and receive information at a frequency of 13.56 MHz, the selective transmission of PPAI from the wireless device to the POS terminal via NFC uses unlicensed frequencies. *Dec.*, ¶138.

[1(j)] wherein said paying for a product further comprises deducting/withdrawing an amount of money from an account.

⁹ This is further consistent with PO's litigation position wherein the claimed "access point" is contained within the "at least one device." Ex. 1010, 15-23.

Carlson-Jazayeri-ISO-14443 teaches Claim 1(j). *Carlson* discloses that the “settlement and clearing processes occur[s] at step 428 **to actually transfer funds from the account held at the issuer to the merchant.**” *Carlson*, 14:43-46. A POSITA would have understood that transferring funds from an account requires deducting/withdrawing an amount of money from [one] account and being deposited into another account. *Dec.*, ¶139.

ii. Claim 3

The method of claim 1, wherein said paying for a product further comprises wirelessly receiving information from at least one device using unlicensed frequencies.

Carlson-Jazayeri-ISO-14443 teaches Claim 3. *Carlson-Jazayeri-ISO-14443* teaches the wireless device receiving information in the form of a digital receipt from the contactless reader using NFC, which uses unlicensed frequencies.

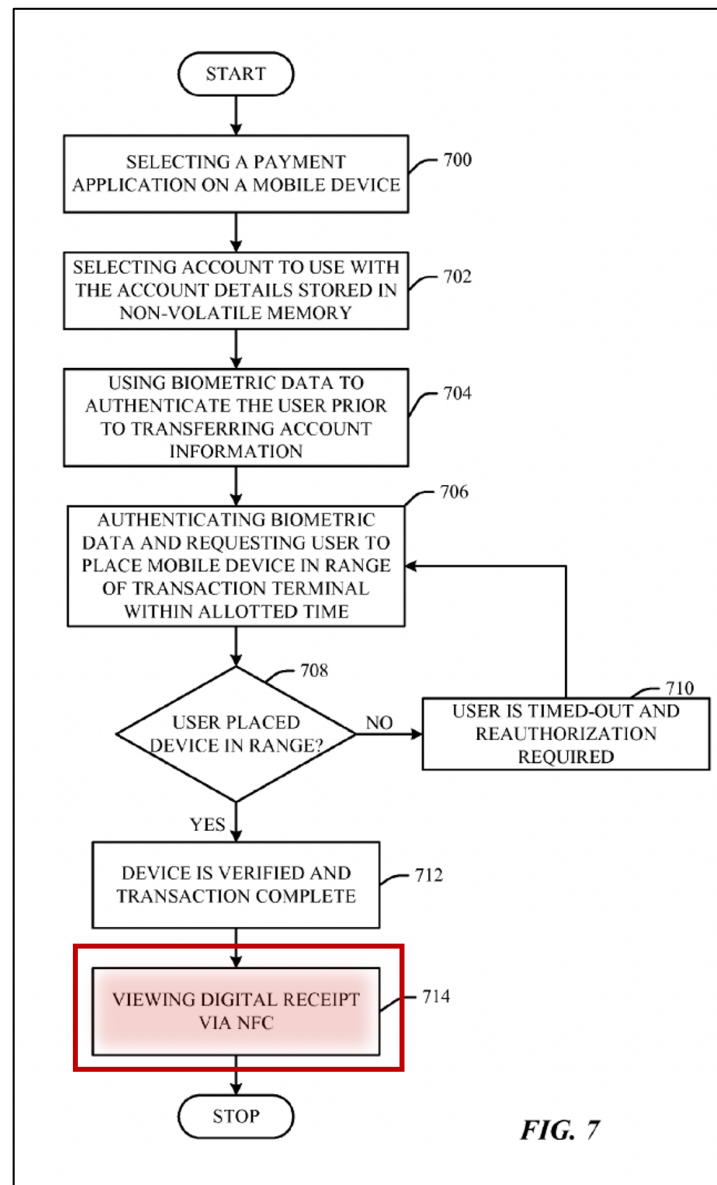
Carlson’s Teachings

After determining whether to authorize the requested transaction, “the issuer may **return an authorization response** to the payment processing network over the transaction processing network.” *Carlson*, 9:17-20. Consequently, the response is sent from the payment processing network, back to the acquirer, and then “to the originating merchant[.]” *Id.*, 9:21-25. Finally, the user “receives **indication from the response to indicate that the transaction has been approved or denied.**” Examples

of such indication could be an approval message displayed on a screen at the merchant or a receipt being printed at the merchant.” *Id.*, 9:26-30.

Jazayeri’s Teachings

Like *Carlson*, *Jazayeri* teaches returning a digital receipt to the user. *Jazayeri* teaches that, at the conclusion of a transaction, “the user can view the ***digital receipt received on the mobile device*** or utilize short message system (SMS) to view transaction details.” *Jazayeri*, [0052]. Figure 7 illustrates that the receipt is received at the mobile device via NFC.



Id., Fig. 7 (annotated).

Carlson Modified Pursuant to Jazayeri

Carlson-Jazayeri-ISO-14443 modified to receive a digital receipt responsive to a financial transaction pursuant to *Jazayeri* teaches receiving information from at least one device using unlicensed frequencies. Dec., ¶143.

A POSITA would have been motivated to modify *Carlson*'s device to receive a digital receipt via NFC pursuant to *Jazayeri*'s teachings. *Dec.*, ¶144. First, *Carlson* expressly contemplates providing the user a receipt—either displayed by the merchant or printed. *Id.* (discussing *Carlson*, 9:26-30). *Jazayeri* describes providing the user similar data, but sends a digital receipt to the mobile device instead. *Id.* A POSITA would have understood that *Jazayeri*'s approach (1) beneficially reduces paper waste over *Carlson*'s printed receipt, and (2) beneficially allows financial auditing on the user's device, which is not possible in *Carlson*'s embodiment in which the merchant displays a receipt. *Dec.*, ¶144; *KSR*, 550 U.S. at 421; *see also Translogic*, 504 F.3d at 1262.

A POSITA would have had a reasonable expectation of success when modifying *Carlson* according to *Jazayeri*'s teachings. *Dec.*, ¶145. *Jazayeri*'s digital receipt requires simple components that are commonly integrated in systems like *Carlson*'s. *Id.* *Carlson*'s wireless device already includes the necessary elements for *Jazayeri*'s digital receipts such as a memory, processor, and NFC capability. *Carlson*, 14:47-59, 15:45-48. *Jazayeri*'s digital receipt is communicated via NFC as shown in *Jazayeri*'s Figure 7. *Jazayeri*, Fig. 7 (step 714, describing “VIEWING DIGITAL RECEIPT VIA NFC”). As *Carlson*'s PPAI methodology uses *ISO-14443/NFC* to communicate, a POSITA would have had a reasonable expectation of success to

transmit the digital receipt from the access device to the *Carlson-Jazayeri-ISO-14443* device utilizing existing architecture found in *Carlson. Dec.*, ¶145.

iii. Claim 4

[4(a)] The method of claim 3, wherein said wirelessly transmitting information to the at least one device using unlicensed frequencies and said wirelessly receiving information from at least one device using unlicensed frequencies comprises using unlicensed frequencies over a short-range link in a Time Division Duplex operation; and

Carlson-Jazayeri-ISO-14443 teaches Claim 4(a). Information is wirelessly transmitted to and received from the contactless reader using unlicensed frequencies through NFC. *See supra* Claims 1(i), 3. NFC signals/messages are also sent over a short-range link in a Time Division Duplex operation.

Carlson discloses “[n]ear field communications capability is a short-range communications capability[.]” *Carlson*, 17:7-8. A POSITA would have understood that short-range communications occur over a short-range link. *Dec.*, ¶147.

The ’793 Patent describes Time Division Duplex as “a common set of frequencies are used bi-directionally (at different times) to provide uplink and downlink communications[.]” ’793 Patent, 7:27-29. *ISO-14443* specifies that PCD and PICC devices operate at the common carrier frequency of 13.56 MHz. *ISO-14443*, 18. The *ISO-14443* communication interface between PCD and PICC is bi-directional. *Id.*, 14. Further, the data block transmission protocol defined by *ISO-14443* is half-duplex. *Id.*, 107. In the half-duplex protocol, the PICC waits for the

PCD to send a data block, then the PCD switches to receive mode and waits for the PICC to send a response data block. *Id.*, 113. In view of the specification of the '793 Patent and a POSITA's understanding of half-duplex, a POSITA would have understood the communications, as disclosed by *ISO-14443*, to be a Time Division Duplex operation.¹⁰ *Dec.*, ¶148.

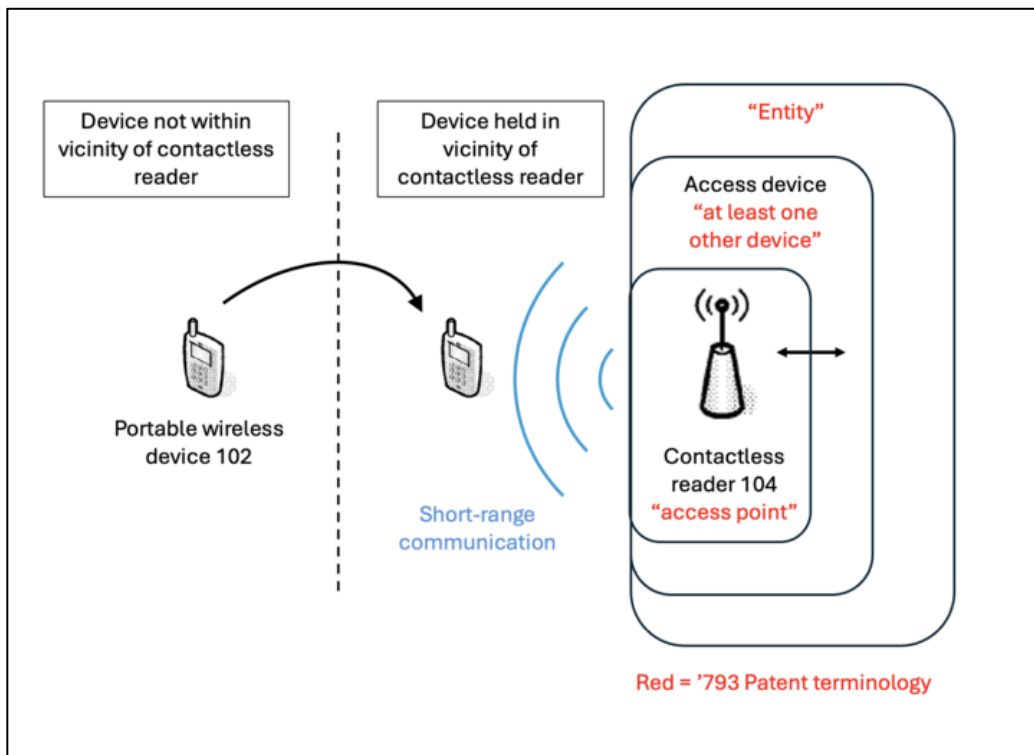
[4(b)] wherein said selectively and wirelessly transmitting information to the at least one device further comprises selectively and wirelessly transmitting information to the access point maintained by the vendor at the point of purchase counter and to at least one other device that is predetermined; and further comprises wirelessly receiving information from the access point maintained by the vendor at the point of purchase counter and from at least one other device that is predetermined.

Claim 1(h) requires paying for the product by selectively sending information to at least one device. Claim 1(i) further requires the information is sent to the at least one device wirelessly and using unlicensed frequencies. Claim 3 requires information is received from the at least one device using unlicensed frequencies. Claim 4(a), mapped above, further narrows the claimed transmission and reception to short-range and Time Division Duplex. Finally, Claim 4(b) narrows the transmission and reception to include communications with (a) an access point and (b) at least one other device that is predetermined.

¹⁰ Consistent with Petitioner's mapping, PO's litigation theories assert NFC as Time Division Duplex protocol. *See Ex. 1015*, 100.

The '793 Patent does not teach or suggest multiple distinct, short-range, wireless, and unlicensed communications conducted with a user's device when paying for a product. At best, it contemplates only a single such link. *See, e.g.*, '793 Patent, 8:13-65 (describing a short-range link between the wireless communications device and RF-equipped shopping cart). Because the intrinsic record supports only a single wireless link of this type during a transaction, a proper read of Claim 4(b) is limited to this single-link arrangement.¹¹ As set forth below, the proposed combination satisfies this limitation because the claimed access point and predetermined device may be part of the larger entity (e.g., at the point of purchase counter). This scenario is depicted below:

¹¹ Ground 3 captures an additional scenario—not taught or suggested by the intrinsic record—in which two *separate* short-range wireless links are used.



Dec., ¶150. In this scenario, information is transmitted to and received from both the access point and at least one other device using the same short-range wireless link.

PO's litigation theories diverge drastically from the claim language, pointing to cellular communications, which are not short-range or unlicensed. Ex. 1015, 102-110. Petitioner demonstrates below that this theory, although divorced from the claim language, is also satisfied by the proposed combination.

1. Access Point

In all mappings, *Carlson* in view of *Jazayeri* and *ISO-14443* teaches that the PPAI (information) is selectively sent to the contactless reader (access point) that is incorporated into an access device such as a POS terminal (at least one device) and

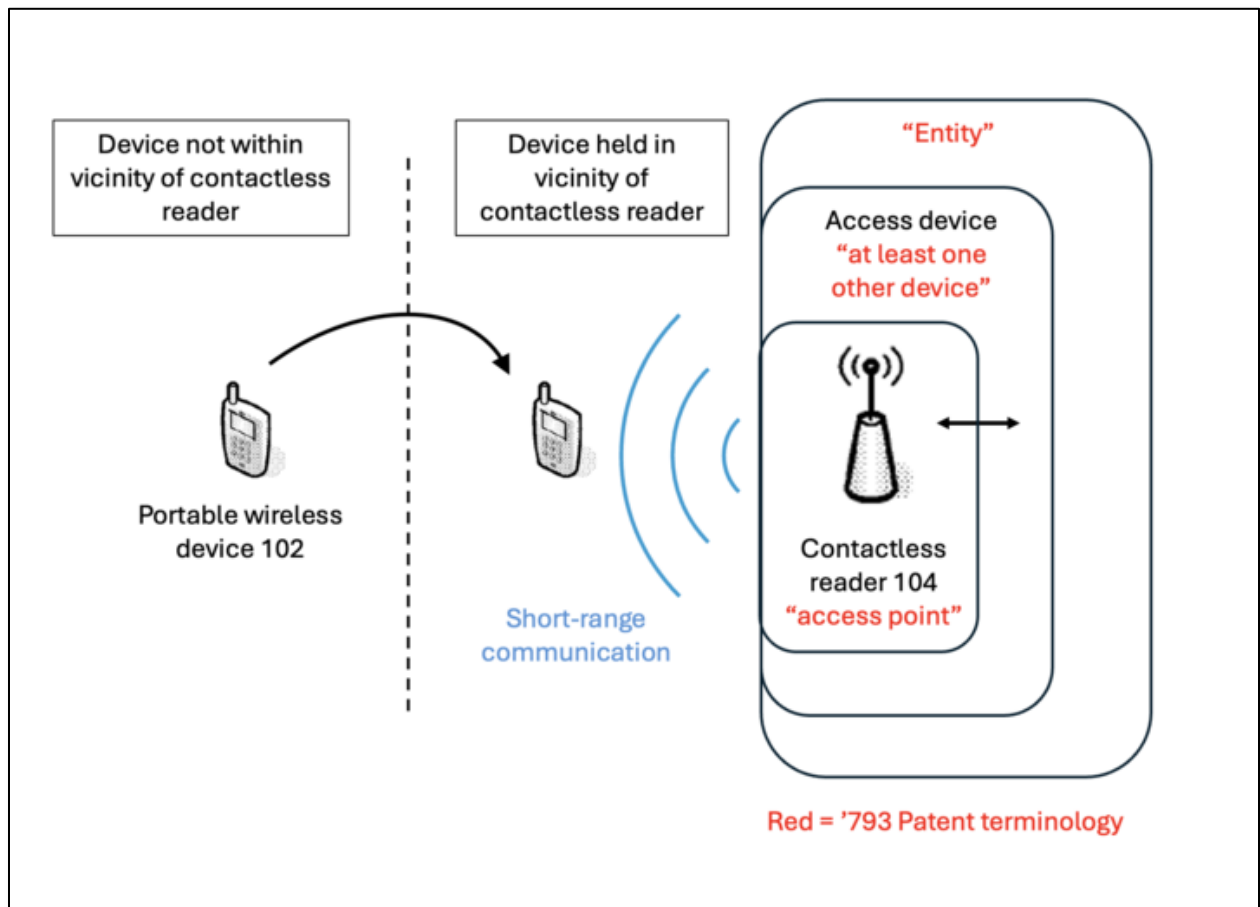
maintained at the merchant's location (*entity*). *See supra* Claim 1(h). Further, the wireless device receives information from the contactless reader during the NFC data exchange protocol and/or upon obtaining a digital receipt. *See supra* Claim 3. Thus, information is wirelessly and selectively transmitted and received to/from the access point maintained by the vendor at the point of purchase counter.

2. Predetermined Device

As set forth below, *Carlson-Jazayeri-ISO-14443* satisfies Claim 4(b) because transmitting/receiving to/from the POS terminal constitutes communicating with both the access device (i.e., the predetermined “one other device”) and the access point contained within the access device. Petitioner also shows, in the alternative, that the prior art captures PO's litigation theory—targeting *long-range communication* with a cellular base station. *See* Ex. 1015, 102-106.

The Predetermined “One Other Device” is the Access Device

Under a first interpretation of Claim 4(b), the predetermined “one other device” is part of the same entity containing the access point. As illustrated below, communicating with the access device (e.g., POS terminal) also comprises transmitting/receiving to/from the access point contained within the access device. *Dec.*, ¶152; *See also supra* Claims 1(g)-(h).



Dec., ¶152 (annotated figure based on *Carlson*'s Fig. 1 disclosure).

A POSITA would have understood that the access device is predetermined via the user choosing to make a specific transaction associated with a specific POS terminal. *Dec.*, ¶153; *see supra* Claim 1(g).

Under this interpretation, in addition to communicating information with the contactless reader (access point), *Carlson-Jazayeri-ISO-14443* receives and transmits information to/from the access device (device that is predetermined) containing the contactless reader.

PO's Litigation Interpretation

According to Patent Owner's infringement contentions, sending/receiving information to/from the "at least one other device" need not occur over unlicensed frequencies. Ex. 1015, 102-110. Applying PO's theory to *Carlson-Jazayeri-ISO-14443*, the wireless device also transmits data to and from the remote server computer at the payment processing network (one other device that is predetermined). For example, during the PPAI authorization process, the wireless device transmits a PPAI request to, and receives a PPAI from, the remote server computer at the payment processing network through a wireless access point 118¹² and communication network 116. *Carlson*, 10:7-18, 14:60-65, Fig. 1. Thus, *Carlson-Jazayeri-ISO-14443* teaches Claim 4(b) even under PO's litigation interpretation.

iv. Claim 5

*[5(Pre)]*¹³

To the extent the preamble is limiting, *Carlson* in view of *Jazayeri* teaches a portable wireless device (e.g., "a mobile cellular phone") with a biometric sensor used to sense a user's fingerprint. *See supra* Claims 1(a)-(c). Further, because

¹² Wireless access point 118, used for long-range communication, is distinct from the access point of the contactless reader used for short-range communication and mapped to the claimed access point.

¹³ Complete claim language is provided in the Claim Appendix.

Carlson's mobile cellular phone comprises advanced functionality, such as making a payment, a POSITA would have understood it to be a smartphone. *Dec.*, ¶155 (explaining that smartphone is a colloquial term for a mobile phone capable of performing more operations than a standard mobile phone).

[5(a)]

See supra, Claim 1(a).

[5(b)]

See supra, Claim 1(b).

[5(c)]

See supra, Claim 1(c). The first function of unlocking the wireless device is of the wireless device because it consists of unlocking the device to enable the functionality of the wireless device itself.

[5(d)]

See supra Claim 1(d). *Carlson* teaches requesting the PPAI from the remote server computer at the payment processing network (second device).

[5(e)]

See supra Claim 1(e). *Carlson* teaches receiving the PPAI from the remote server computer at the payment processing network (second device).

[5(f)]

See supra Claim 1(f). *Carlson* teaches confirming receipt of the PPAI (i.e., establishing the function to conduct the financial transaction) at the wireless device.

[5(g)]

See supra Claim 1(g).

[5(h)]

See supra Claim 1(h).

[5(i)]

See supra Claim 1(i).

[5(j)]

See supra Claim 1(j); *see also supra* Claim 1(g) (describing the withdrawal/deduction of money from an account taking place off the device as consistent with the claims, specification, and PO's assertions).

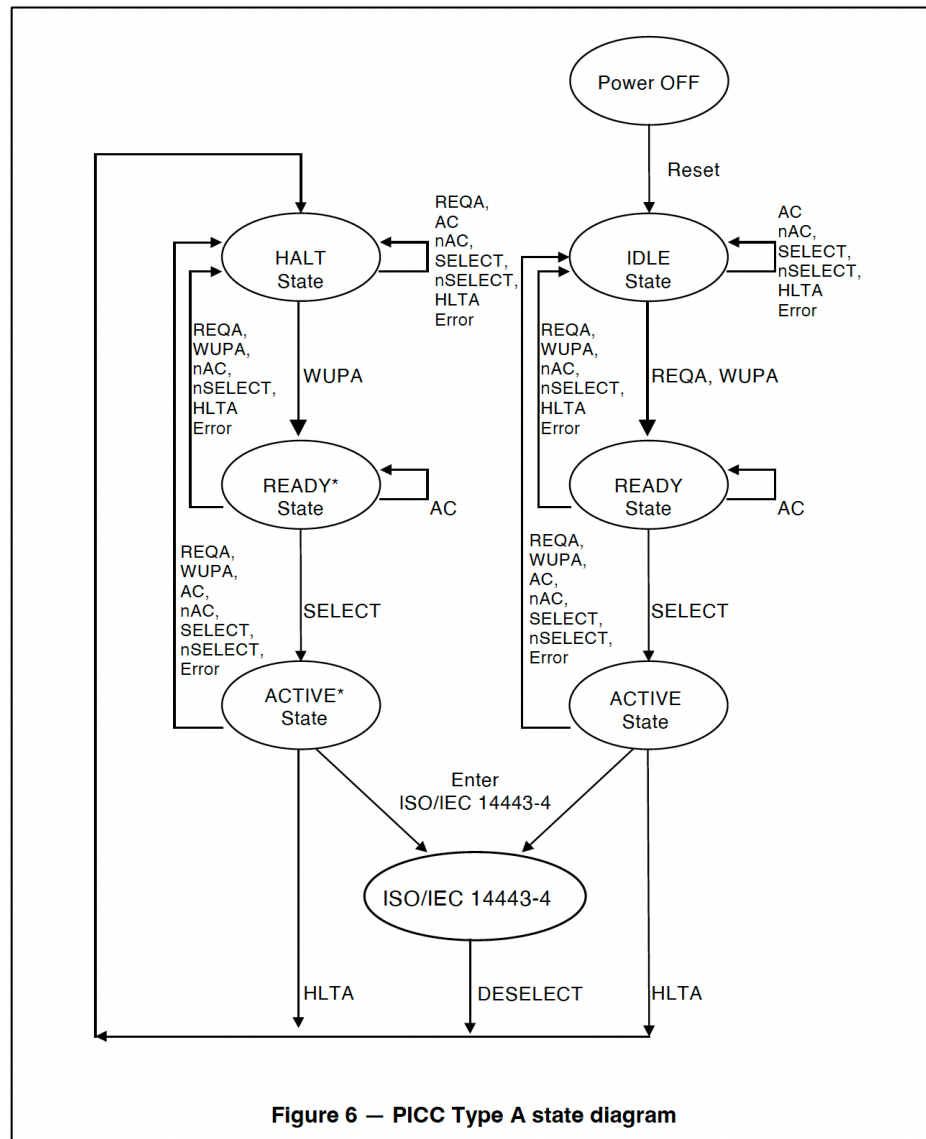
v. Claim 7

[7(a)]

Carlson-Jazayeri-ISO-14443 teaches Claim 7(a). *Carlson* teaches sending the PPAI over short-range communications to the contactless reader upon being held in the vicinity of the contactless reader. *See supra* Claims 1(g)-(h). A POSITA would have understood that sending data between the wireless device and contactless reader through NFC requires establishing a short-range wireless link between the devices. *Dec.*, ¶166.

ISO-14443 specifies initialization and anticollision methods “required to initialize communications between a PICC and PCD.” *ISO-14443*, 36. For example,

during initialization, the PICC participates in initialization by traversing states in response to commands from the PCD. *Id.*, 44-47.



Id., 45 (Fig. 6). The PICC also participates in anticollision, for example, by responding to ANTICOLLISION commands with its UID CL_n. *Id.*, 48, 51. Successful initialization and anticollision allows data to be exchanged between the PCD and PICC devices. *Id.*, 98 (illustrating “Exchange Transparent Data”). *See also*

supra Claim 4(a) (describing communications occurring over the established short-range link). Because the data exchange cannot take place until the PICC device has participated in successful initialization and anticollision, a POSITA would have understood the short-range wireless link to be established by the wireless device. *Dec.*, ¶167.

[7(b)]

See supra Claims 1(i), 5(i).

[7(c)]

See supra Claim 3.

[7(d)]

See supra Claim 4(a).

[7(e)]

Carlson-Jazayeri-ISO-14443 teaches Claim 7(e). *Carlson* and *Jazayeri* teach a wireless device being unlocked by sensing a fingerprint that matches a template. *See supra* Claims 5(a)-(c). *Carlson-ISO-14443* teach satisfying a proximity condition between the wireless device and a contactless reader then establishing the short-range wireless link. *See supra* Claims 5(g) and 7(a). Claim 7(e) further requires establishing the short-range link responsive to the physiological parameter and the proximity condition each being satisfied. Because the short-range wireless link is established only after unlocking the device with a successful fingerprint scan and

after the device is brought into the vicinity of the contactless reader, establishing the wireless link is responsive to the physiological parameter and to the proximity condition.¹⁴

vi. Claim 9

[9(a)]

See supra Claim 4(a).

[9(b)]

See supra Claim 4(b).

vii. Claim 10

See supra Claim 3.

viii. Claim 11

[11(a)]

See supra Claim 4(a).

[11(b)]

See supra Claim 4(b).

B. Ground 2: Claims 2 and 6 are obvious over *Carlson* in view of *Jazayeri*, *ISO-14443*, and *Doyle*.

i. Claim 2

¹⁴ In the alternative mapping of *Carlson* and *Jazayeri* where a second fingerprint authorization is required, this additional security check also occurs before the wireless link is established. *Dec.*, ¶171.

In the litigation, PO has asserted Claim 2 against unlocking and locking a phone (1) where unlocking enables the device's functions while simultaneously disabling the lock function and (2) where locking the phone disables its functions while simultaneously enabling the lock function. Ex. 1015, 73-97. As set forth below, *Carlson-Jazayeri-ISO-14443-Doyle* satisfies this interpretation of Claim 2.

[2(pre)]

Carlson-Jazayeri-ISO-14443 teaches Claim 2(pre). *Carlson* discloses unlocking a wireless device using a fingerprint scanner, enabling a function that allows a PPAI to be requested and, pursuant to PO's claim interpretation in the parallel litigation, simultaneously disables the lock function. *Carlson*, 12:18-20; *see supra* Claims 1(a)-(c);

[2(a)]

Carlson-Jazayeri-ISO-14443 in further view of *Doyle* teaches Claim 2(a). *Jazayeri* discloses comparing a scanned fingerprint to a template stored in the memory of a device. *Jazayeri*, [0025]. While *Carlson* and *Jazayeri* do not disclose repeatedly sensing a fingerprint to maintain enabled/disabled functions of the device, as set forth below, a POSITA would have been motivated to modify *Carlson-Jazayeri* pursuant to *Doyle*, which teaches repeatedly sensing a physiological parameter and repeatedly deciding, based on comparing the physiological parameter sensed to the criterion, whether to maintain a function.

Doyle's Teachings

Doyle teaches a device “equipped with a biometric sensor (such as a thumbprint scanner . . .) that is capable of repeatedly ***checking the user's identity during the entire period the device is in use.***” *Doyle*, [0084]. The biometric sensor can be located in a position where a user is in constant contact with the sensor, for example, “a pair of thumbprints sensors may be provided on opposing sides of a physical device, such that the device may be held in either the right or left hand and one of the sensors is therefore naturally activated while the device is being held.” *Id.*, [0087]. *Doyle's* system checks a user's identity at random times during use, when switching applications, or during use of an application. *Id.*, [0086]. If there is a loss of biometric input or a change in biometric input “[t]he integrated ***device may also be deactivated***, if desired for a particular environment, based on the assumption that the device is now in the possession of the wrong person.” *Id.*, [0087].

Modifying Carlson-Jazayeri-ISO-14443 Pursuant to Doyle

Carlson-Jazayeri-ISO-14443-Doyle repeatedly scans the fingerprint of a user when in use and maintains enabling the unlock function and maintains disabling the lock function, allowing the PPAI request to persist as long as the user's fingerprint continues to match the saved template. *Dec.*, ¶181. As taught by *Doyle*, if the scanned fingerprint is invalid or absent, the unlocking function is disabled, the locking function is enabled, and the ability to request PPAI is terminated. *Id.*

A POSITA would have been motivated to incorporate the repeatedly sensing functionality of *Doyle* into the wireless device of *Carlson-Jazayeri* to increase security. *Dec.*, ¶182; *see also Doyle*, Abstract (describing how continuous authentication of a user increases device security). A POSITA would have understood the importance of increasing the security of a wireless device that is to be used for monetary transactions like *Carlson*. *Dec.*, ¶182. Indeed, *Carlson* recognizes the importance of security, suggesting that the PPAI may be set to expire after a number of transactions or a set time period. *Carlson*, 6:59-65. Thus, a POSITA would have understood requiring continuous authentication, in light of *Doyle*'s teachings, would improve the security of the wireless device in *Carlson-Jazayeri-ISO-14443*. *Dec.*, ¶182.

Additionally, a POSITA would have had a reasonable expectation of success in implementing the teachings of *Doyle* into the wireless device of *Carlson-Jazayeri*. *Dec.*, ¶183. *Doyle*'s teachings can be applied to any "pervasive computing devices," including cell phones. *Doyle*, [0005], [0008], [0019]. Further, *Carlson*'s wireless device, modified pursuant to *Jazayeri*, already includes the necessary components to further modify *Carlson*'s wireless device to include the repetitive sensing taught by *Doyle*. *Dec.*, ¶183. Thus, the proposed modification would not interfere with the combination on the whole. *Id.*

[2(b)]

Carlson-Jazayeri-ISO-14443-Doyle teaches maintaining enabled the unlock function and maintaining disabled the lock function as long as the user's fingerprint continues to match the saved template. *See supra* Claim 2(a).

[2(c)]

Carlson-Jazayeri-ISO-14443-Doyle teaches disabling the unlocking function and enabling the lock function if the scanned fingerprint is invalid or absent. *See supra* Claim 2(a).

ii. Claim 6

[6(a)]

See supra Claims 2(pre)-(a), 5.

[6(b)]

See supra Claim 6(a).

[6(c)]

See supra Claim 6(a).

C. Ground 3: Claims 4, 9, and 11 are obvious over *Carlson* in view of *Jazayeri, ISO-14443*, and *Birch*

As set forth in Ground 1's Claim 4 mapping, (1) the intrinsic record does not contemplate a wireless device communicating via multiple short-range wireless links in the context of a transaction and (2) PO's litigation theories do not align with the claim language in many respects. To account for the possibility that Claim 4 is interpreted to require multiple distinct wireless links, Ground 3 proposes that

Carlson-Jazayeri-ISO-14443 would additionally be modified pursuant to *Birch*'s coupon process, which, in the context of a single transaction, incorporates a second distinct short-range wireless link to a device other than the access point. This Ground is identical to Ground 1, except that the one other predetermined device is the back-end system of *Birch*. All arguments and evidence from Ground 1 are hereby incorporated by reference.

Carlson-Jazayeri-ISO-14443 teaches wirelessly transmitting and receiving information to and from the access point maintained by the vendor at the point of purchase counter using short-range unlicensed frequencies. See *supra* Ground 1, Claim 4(b). *Carlson-Jazayeri-ISO-14443-Birch* teaches wirelessly transmitting and receiving information to and from at least one other device that is predetermined where the device is *Birch*'s back-end system 200. Further, *Carlson-Jazayeri-ISO-14443-Birch* teaches doing so via short-range, unlicensed frequencies in the form of Bluetooth.

Birch's Teachings

Like *Carlson*, *Birch* discloses a mobile device capable of making financial transactions over a short-range communication technology. Specifically, *Birch* describes a personal trusted device ("PTD") that can be a mobile phone, PDA, or smartphone. *Birch*, 2:48-61. The PTD can be equipped with a "wireless short distance technolog[y], such as Bluetooth, Infrared Data Association Financial

Management (IrDAFM), or Mobile Electronic Transaction Forum (MeT)” to “[enable] the PTD to communicate with the back-end system.” *Id.*, 3:21-34. The PTD is capable of establishing a wireless connection with the vendor’s POS device to make a payment, *and with a third-party back-end system 200* “to obtain additional pricing or discounting information prior to completion of a sale.” *Id.*, 7:55-8:5. When making a mobile commerce transaction, a customer may query the PTD to determine if coupons or discounts exist. *Id.*, 12:27-28. The PTD may download coupons or discounts from the back-end system and display them to the customer. *Id.*, 12:36-47.

Carlson Modified Pursuant to Birch

Carlson-Jazayeri-ISO-14443-Birch teaches a mobile device (PTD) requesting (*transmitting*) and downloading (*receiving*) coupons/discounts (*information*) from back-end system 200 (*one other device that is predetermined*). *Dec.*, ¶192. The back-end system is *predetermined* because the coupons and discounts are downloaded based on the user and the specific transaction. *Id.*, ¶192. *Carlson-Jazayeri-ISO-14443-Birch* further teaches requesting and receiving the coupons/discounts using via Bluetooth. *Dec.*, ¶193. A POSITA would have understood that Bluetooth, like NFC, is a *short-range* technology that uses *unlicensed frequencies* and a *Time Division Duplex protocol*. *Id.*

A POSITA would have been motivated to incorporate *Birch*'s teachings to request and receive coupons/discounts from a back-end system to provide convenience and savings to a user. *Dec.*, ¶194. Further, a POSITA would have been motivated to implement *Birch*'s teachings using Bluetooth specifically because it is expressly contemplated by both *Carlson* and *Birch*, and is one of multiple available wireless communication protocols that could be used to communicate with the backend system. *Dec.*, ¶194; *KSR Int'l Co.*, 550 U.S. at 421; *see also Translogic*, 504 F.3d at 1262.

Further, a POSITA would have had a reasonable expectation of success implementing the teachings of *Birch* with *Carlson*. First, *Carlson* teaches that its device is equipped for Bluetooth communication (*Carlson*, 17:7-11, 6:29-31). *Dec.*, ¶195. Second, *Birch* discloses a similar financial transaction process as *Carlson*, where a mobile device conducts a financial transaction using short-range communications with a merchant POS device, and further teaches receiving and transmitting digital coupons during its transaction. *Birch*, 7:61-8:5. Thus, a POSITA would have expected success in implementing the teachings of *Birch* into *Carlson*'s similar system to include an additional transmission and receipt of information with a third-party back-end system. *Dec.*, ¶195.

D. Ground 4: Claim 8 is obvious over *Carlson* in view of *Jazayeri*, *ISO-14443*, and *Sherman*

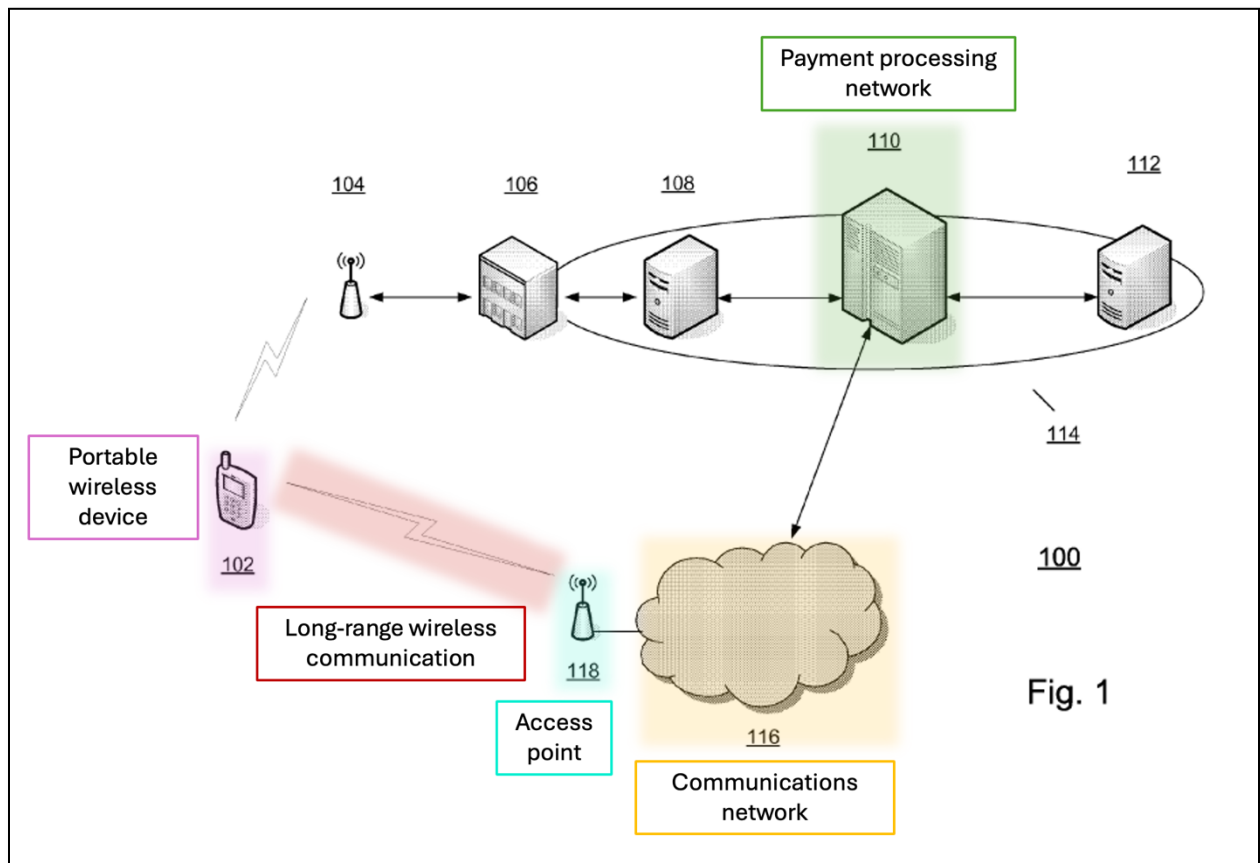
i. Claim 8

[8(Pre)]

See supra Claim 5.

[8(a)]

Carlson-Jazayeri-ISO-14443 teaches Claim 8(a). *Carlson's* wireless device requests and receives the PPAI from a remote server at the payment processing network (second device). *Carlson*, 12:34-59; *see supra* Claims 5(d)-(f). To request and receive the PPAI, *Carlson's* wireless device communicates with the payment processing network 110 through a wireless access point 118 and communication network 116. *Carlson*, 10:7-18, 14:60-65, Fig. 1. *Carlson* further discloses that the communications network may be a cellular network. *Carlson*, 10:7-15. A POSITA would have understood that the device must establish a link, including a wireless link to access point 118 and further link(s) with communications network 116, so that the request can be communicated to the remote server at the payment processing network. *Dec.*, ¶197.



Carlson, Fig. 1 (annotated).

[8(b)]

Carlson-Jazayeri-ISO-14443 teaches Claim 8(b). *Carlson* discloses that cellular communication, Bluetooth, or WiFi can be used to connect with the access point to access the communications network. *Carlson*, 6:26-31. A POSITA would have understood that cellular networks use licensed frequencies, while Bluetooth and WiFi use unlicensed frequencies. *Dec.*, ¶198. Thus, regardless of which wireless technology is used for the wireless link to access point 118, a POSITA would have

understood that transmitting/receiving to/from the payment processing network device (*second device*) uses unlicensed or licensed frequencies. *Id.*

[8(c)]

See supra Claim 8(b).

[8(d)]

As discussed in Claims 18(b)-(c), *Carlson* teaches wirelessly transmitting a request for a PPAI and receiving a PPAI via a cellular network between the wireless device and payment processing network. *See supra* Claim 18(a). *Sherman* teaches communicating over a cellular network using orthogonal frequency division multiplexing air interface protocol.

Sherman's Teachings

Sherman teaches a mobile communication device terminal, such as a cellular phone, that utilizes WiMAX transceivers for cellular communication in a manner that allows coexistence with RF communication. *Sherman*, Abstract, [0021], [0043], [0018], [0051]. *Sherman's* communication device comprises a “WiMAX radio and interface 123 and antenna 125.” *Id.*, [0054]. *Sherman* explains that WiMAX is “a **long range system that uses licensed spectrum** to deliver a point-to-point connection to the Internet from an ISP to an end user.” *Id.*, [0009]. *Sherman* further details that “mobile WiMAX technology is based on the IEEE 802.16e standard”

which defines WiMAX as a Time Division Duplex (TDD) operation that *implements OFDM protocol*. *Id.*, [0064], [0011].

Carlson Modified Pursuant to Sherman

The wireless device of *Carlson* modified by *Sherman* to communicate via the communications network with WiMAX technology teaches wirelessly transmitting and/or receiving using an orthogonal frequency division multiplexing air interface protocol. *Dec.*, ¶202.

A POSITA would have been motivated to implement *Carlson's* wireless device and communications network with *Sherman's* WiMAX mobile communication module. *Dec.*, ¶203. Indeed, WiMAX was a well-known and deployed cellular technology used by members of the public for licensed telecommunications. *Carlson* expressly teaches that its long-range communications may be conducted over cellular, but it does not specify which cellular technology should be used. Accordingly, a POSITA would have been motivated to look to *Sherman* as a guide for implementing WiMAX, specifically, in *Carlson's* system. *KSR*, 550 U.S. at 402; *Dec.*, ¶203. A POSITA would have understood that WiMAX was one of a small number of technologies deployed at the time for cellular data communications. Accordingly, a POSITA would have understood that the teachings of *Sherman* would apply to common mobile phones, like that described by *Carlson*. *Dec.*, ¶203. A POSITA would have also understood that the teachings of *Sherman*

would apply to telecommunications networks, like communications network 116 of *Carlson*. *Id.*

Further, a POSITA would have had a reasonable expectation of success when modifying *Carlson* according to *Sherman's* teachings. *Sherman's* WiMAX communication method requires simple components that are commonly integrated into wireless devices like that of *Carlson*. *Dec.*, ¶204. *Carlson's* wireless device already includes a memory, processor, and short-range and long-range communication elements with cellular connectivity. *Carlson*, 14:47-59. *Carlson's* communication network also includes access point 118 which provides similar functionality as *Sherman's* WiMAX base station. *Dec.*, ¶204.

[8(e)]

Carlson-Jazayeri-ISO-14443-Sherman teaches Claim 8(e). *Carlson* in view of *Jazayeri* teaches the wireless device sensing the physiological parameter and determining the sensed parameter satisfies criterion. *See supra* Claims 5(a)-(c). Because the wireless device requests and receives the PPAI from the remote server computer at the payment processing network over the established link, establishing the link is responsive to the physiological parameter being sensed and satisfying the criterion. *See supra* Claims 5(d)-(f); *Dec.*, ¶205.

E. Grounds 5-8: Claims 1, 3-5, 7, and 9-11 are obvious over *Carlson* in view of *Jazayeri*, *ISO-14443*, and *Murakami*; Claims 2 and 6 are obvious over *Carlson* in view of *Jazayeri*, *ISO-14443*, *Doyle*, and

***Murakami*; Claims 4, 9, and 11 are obvious over *Carlson* in view of *Jazayeri*, *ISO-14443*, *Birch*, and *Murakami*; and Claim 8 is obvious over *Carlson* in view of *Jazayeri*, *ISO-14443*, *Sherman*, and *Murakami*.**

As discussed above in Grounds 1-4, *Carlson* in view of *Jazayeri*, *ISO-14443*, *Birch*, *Doyle*, and *Sherman* teaches, or at least renders obvious each limitation of the Challenged Claims as those limitations have been asserted by PO in related litigation. Namely, Grounds 1-4 apply a broader interpretation of physiological parameter that captures static biometric data (e.g., a fingerprint). Grounds 5-8 apply a narrower interpretation aligned with the intrinsic record, sensing variable physiological state data. Capturing this narrower interpretation, Grounds 5-8 establish that a POSITA would have been motivated to modify *Carlson* pursuant to *Murakami*.

As set forth in detail below, a POSITA would have been motivated to implement *Murakami*'s biometric sensor and authentication process taught by *Murakami*. The biometric sensor of *Murakami* measures parameters associated with a heart rate and blood pressure of a user and compares the data to expected values to authenticate a user. *Murakami*, 19:4-20. Specifically, in one embodiment the sensor is used to measure a heartbeat waveform, a dynamic variable determined by measuring a user's heartbeat. *Id.*, 32:30-33:6. Measuring a user's heartbeat, as taught

by *Murakami*, is a dynamic parameter that is consistent with a physiological parameter as described in the '793 Patent specification. See Section II.C.i.

Grounds 5-8 differ from Grounds 1-4 only in the proposed modifications to *Carlson* pertaining to the biometric sensor and authentication process. See, e.g., *supra* Claims 1(a)-(c). In Grounds 1-4, the proposed *Carlson-Jazayeri* combination involved modifying *Carlson* pursuant to *Jazayeri's* biometric sensor (e.g., fingerprint scanner) and authentication process (e.g., comparing scanned data to biometric templates). In Grounds 5-8, in place of *Jazayeri*, the proposed combination involves modifying *Carlson* pursuant to *Murakami's* biometric sensor and authentication process. *Jazayeri* is maintained in Grounds 5-8 for the purposes of alternatively mapping an additional biometric authentication step prior to conducting the financial transaction for Claim 1(g).

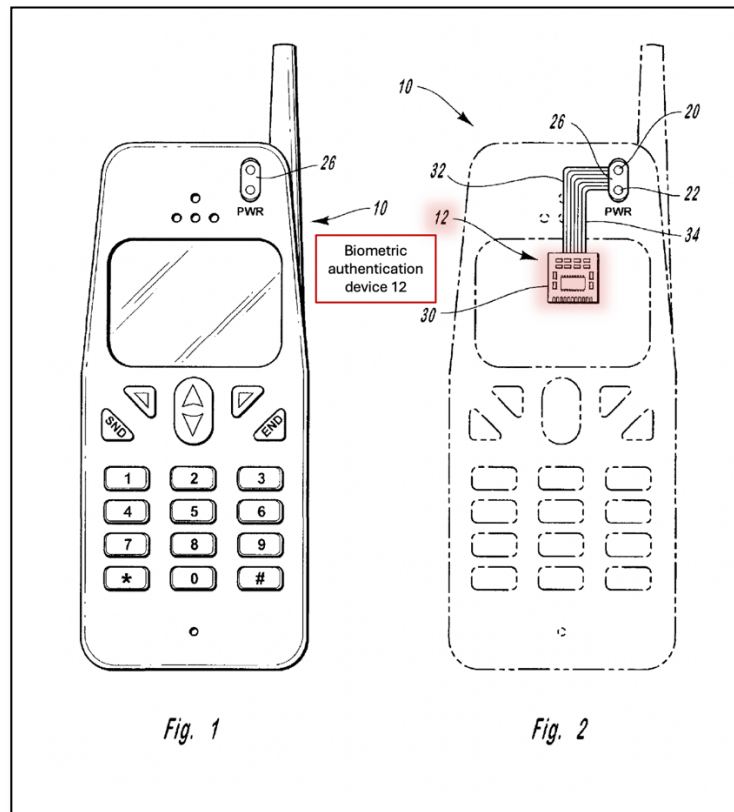
All arguments and evidence from Grounds 1-4 are hereby incorporated by reference. Petitioner sets forth the motivation to modify *Carlson* pursuant to *Murakami* in the following paragraphs.

Murakami's Teachings

Like *Carlson*, *Murakami* discloses providing access on a device after using biometric data to authenticate a user. *Murakami* describes a method and apparatus for using physiological biometric parameters to activate a device, participate in a transaction, or identify a user. *Murakami*, 1:8-13. *Murakami* discloses an infrared

“*biometric authentication device 12*” (a sensor) incorporated into a mobile phone.

Id., 20:19-20, Figs. 1-2.



Id., Figs. 1 and 2 (annotated).

Murakami teaches that biometric parameters may be represented by a “composite waveform reflecting anatomical structure and physiological processes, such as blood flow, heart rate, blood pressure, and surrounding bone and blood vessel structure.” *Id.*, 19:9-12. When a user places their finger on the sensor, a signal is emitted by transmitter 20, partially absorbed by the user’s tissue, and partially reflected into receiver 22. *Id.*, 20:27-33. The sensed signal is filtered and digitized into a waveform. *Id.*, 21:14-16. Features of the measured waveforms may be

compared to stored waveforms, and based on their similarities, the system may “grant or deny access to a device or [provide] authorization for transaction.” *Id.*, 16:35-17:3.

Carlson Modified Pursuant to Murakami

Carlson modified to unlock its device pursuant to the biometric authentication process described by *Murakami* teaches the claimed physiological parameter limitations. *Dec.*, ¶212.

A POSITA would have understood that modifying *Carlson* pursuant to *Murakami* would provide several benefits including increased privacy, minimized costs, consistency, and greater safety:

For example, use of a physiological marker such as arterial blood pressure is *less likely to raise the types of privacy issues associated with the use of fingerprints, does not require expensive scanning equipment, is not subject to behavioral variability, and does not raise issues of undesirable and potentially infectious contact with sensitive tissues.*

Murakami, 7:4-10; *Dec.*, ¶213. A POSITA would have recognized that the proposed combination would improve *Carlson*’s system in the same way *Murakami*’s similar system benefits from using a physiological marker for biometric authentication. *Dec.*, ¶213 (establishing that *Carlson* and *Murakami* describe similar systems); *KSR*, 550 U.S. at 417-18.

In addition to the reasons listed explicitly in *Murakami*, a POSITA would have been further motivated to implement *Murakami*'s biometric authentication teachings to provide a system that balances user convenience and security. *Dec.*, ¶214. A POSITA would have understood that *Murakami*'s template comparison allows for expected variance in a user's physiology over time, avoiding false negatives while still providing a high level of accuracy/security, which results in a security system that is both secure and functional. *Id.*

Further, a POSITA would have had a reasonable expectation of success when modifying *Carlson* according to *Murakami*'s teachings. *Dec.*, ¶215. *Murakami*'s biometric authentication technique requires simple components that are commonly integrated in systems like *Carlson*'s. *Id.* *Carlson*'s wireless device already includes the necessary elements for *Murakami*'s biometric authentication such as a memory and processor. *Carlson*, 14:47-59. Further, biometric sensors were prolific in wireless devices at the time for use in biometric authentication. *Dec.*, ¶215. This is supported by *Carlson*'s explicit contemplation of using a fingerprint to unlock its wireless device. *Id.*

VI. CONCLUSION

For the foregoing reasons, Petitioner respectfully requests *inter partes* review of Claims 1-11 of the '793 Patent.

Respectfully submitted,

By: /s/ Paul R. Hart
Paul R. Hart, Reg. No. 59,646

COUNSEL FOR PETITIONER

VII. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(A)(1)

A. Real Party-In-Interest

Petitioner is the real party-in-interest. 37 C.F.R. § 42.8(b)(1).

B. Related Matters

Pursuant to 37 C.F.R. § 42.8(b)(2), Petitioner is aware of the following matters involving the '793 Patent:

- *Telcom Ventures LLC v. Apple Inc.*, No. 1:24-cv-23837 (S.D. Fla.), transferred to Northern District of California (5:25-cv-05041)
- *Telcom Ventures LLC v. Samsung Electronics Co. Ltd. et al.*, No. 2:24-cv-00691 (E.D. Tex.)
- *Samsung Electronics Co. Ltd. et al. v. Telcom Ventures LLC*, IPR2025-00978 (PTAB)
- *Samsung Electronics Co. Ltd. et al. v. Telcom Ventures LLC*, IPR2025-00957 (PTAB), challenging related U.S. Patent No. 11,937,172
- *Samsung Electronics Co. Ltd. et al. v. Telcom Ventures LLC*, IPR2025-00976 (PTAB), challenging related U.S. Patent No. 11,924,743
- *Samsung Electronics Co. Ltd. et al. v. Telcom Ventures LLC*, IPR2025-00977 (PTAB), challenging related U.S. Patent No. 11,770,756
- *Samsung Electronics Co. Ltd. et al. v. Telcom Ventures LLC*, IPR2025-00974 (PTAB), challenging related U.S. Patent No. 10,674,432

- *Samsung Electronics Co. Ltd. et al. v. Telcom Ventures LLC*, IPR2025-00972 (PTAB), challenging related U.S. Patent No. 10,219,199
- *Samsung Electronics Co. Ltd. et al. v. Telcom Ventures LLC*, IPR2025-00975 (PTAB), challenging related U.S. Patent No. 9,832,708
- *Samsung Electronics Co. Ltd. et al. v. Telcom Ventures LLC*, IPR2025-00973 (PTAB), challenging related U.S. Patent No. 9,462,411
- *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01238 (PTAB), challenging related U.S. Patent No. 11,937,172
- *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01237 (PTAB), challenging related U.S. Patent No. 11,924,743
- *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01236 (PTAB), challenging related U.S. Patent No. 11,770,756
- *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01235 (PTAB), challenging related U.S. Patent No. 10,674,432
- *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01234 (PTAB), challenging related U.S. Patent No. 10,219,199
- *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01233 (PTAB), challenging related U.S. Patent No. 9,832,708

- *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01232 (PTAB),
challenging related U.S. Patent No. 9,462,411

C. Lead and Back-Up Counsel

Petitioner provides the following designation and service information for lead and back-up counsel. 37 C.F.R. § 42.8(b)(3) and (b)(4).

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CLAIM APPENDIX

Claim Designation	Claim Language
Claim 1(Pre)	A method comprising:
Claim 1(a)	sensing a physiological parameter; then
Claim 1(b)	determining whether or not the physiological parameter sensed satisfies a criterion; then
Claim 1(c)	responsive to the physiological parameter sensed satisfying the criterion, enabling at least one first function; then
Claim 1(d)	while said at least one first function is enabled, responsive to having sensed the physiological parameter and responsive to having determined that the physiological parameter sensed satisfies the criterion, requesting an authorization to establish a function to conduct a financial transaction; then
Claim 1(e)	responsive to the requesting, receiving the authorization to establish the function to conduct the financial transaction; then
Claim 1(f)	responsive to receiving the authorization, establishing the function to conduct the financial transaction; and then
Claim 1(g)	responsive to satisfying a proximity condition relative to an entity and responsive to sensing the physiological parameter and determining that the physiological parameter sensed satisfies the criterion, using the function that has been established to conduct the financial transaction and conducting the financial transaction by paying for a product;
Claim 1(h)	wherein said paying for a product comprises sensing that the proximity condition is satisfied relative to an access point maintained by a vendor at a point of purchase counter, by detecting a short-range signal that is transmitted by the access point, determining that the physiological parameter sensed satisfies the criterion and then, responsive to having sensed that the proximity condition is satisfied relative to the access point and having determined that the physiological parameter sensed satisfies the criterion, paying for the product by selectively sending information to at least one device;
Claim 1(i)	wherein said paying for the product by selectively sending information to at least one device comprises selectively and

	wirelessly transmitting information to the at least one device using unlicensed frequencies; and
Claim 1(j)	wherein said paying for a product further comprises deducting/withdrawing an amount of money from an account.
Claim 2(Pre)	The method of claim 1, wherein said enabling at least one first function comprises enabling the at least one first function and disabling a second function; and wherein the method further comprises:
Claim 2(a)	repeatedly sensing the physiological parameter and repeatedly deciding, based on comparing the physiological parameter sensed to the criterion, whether or not to maintain enabled said at least one first function while maintaining disabled said second function; and
Claim 2(b)	maintaining enabled said at least one first function while maintaining disabled said second function responsive to deciding that the physiological parameter sensed satisfies the criterion; or
Claim 2(c)	disabling said at least one first function and enabling said second function responsive to deciding that the physiological parameter sensed no longer satisfies the criterion.
Claim 3	The method of claim 1, wherein said paying for a product further comprises wirelessly receiving information from at least one device using unlicensed frequencies.
Claim 4(a)	The method of claim 3, wherein said wirelessly transmitting information to the at least one device using unlicensed frequencies and said wirelessly receiving information from at least one device using unlicensed frequencies comprises using unlicensed frequencies over a short-range link in a Time Division Duplex operation; and
Claim 4(b)	wherein said selectively and wirelessly transmitting information to the at least one device further comprises selectively and wirelessly transmitting information to the access point maintained by the vendor at the point of purchase counter and to at least one other device that is predetermined; and further comprises wirelessly receiving information from the access point maintained by the vendor at the point of purchase counter and from at least one other device that is predetermined.

Claim 5(Pre)	A wireless device that comprises a smartphone and a sensor; wherein the wireless device is configured to perform operations comprising:
Claim 5(a)	sensing, by the sensor, a physiological parameter of a user of the wireless device; then
Claim 5(b)	determining whether or not the physiological parameter sensed satisfies a criterion; then
Claim 5(c)	responsive to the physiological parameter sensed satisfying the criterion, enabling at least one first function of the wireless device; then
Claim 5(d)	while said at least one function is enabled, responsive to having sensed the physiological parameter and responsive to having determined that the physiological parameter sensed satisfies the criterion, requesting from a second device an authorization to establish a function to conduct a financial transaction; then
Claim 5(e)	responsive to the requesting, receiving from the second device the authorization to establish the function to conduct the financial transaction; then
Claim 5(f)	responsive to receiving the authorization, establishing at the wireless device the function to conduct the financial transaction; and then
Claim 5(g)	responsive to the wireless device satisfying a proximity condition relative to an entity and responsive to the wireless device sensing the physiological parameter and determining that the physiological parameter sensed satisfies the criterion, using the function that has been established at the wireless device to conduct the financial transaction and conducting the financial transaction by paying for a product;
Claim 5(h)	wherein said paying for a product comprises sensing that the proximity condition is satisfied relative to an access point maintained by a vendor at a point of purchase counter, by detecting a short-range signal that is transmitted by the access point, determining that the physiological parameter sensed satisfies the criterion and then, responsive to having sensed that the proximity condition is satisfied relative to the access point and having determined that the physiological parameter sensed satisfies the criterion, paying for the product by selectively sending information to at least one device;

Claim 5(i)	wherein said paying for the product by selectively sending information to at least one device comprises selectively and wirelessly transmitting information to the at least one device using unlicensed frequencies; and
Claim 5(j)	wherein said paying for a product further comprises deducting/withdrawing an amount of money from an account.
Claim 6(a)	The wireless device of claim 5, wherein said enabling at least one first function of the wireless device comprises enabling the at least one first function of the wireless device and disabling a second function of the wireless device; and wherein the operations further comprise: repeatedly sensing the physiological parameter and repeatedly deciding, based on comparing the physiological parameter sensed to the criterion, whether or not to maintain enabled said at least one first function while maintaining disabled said second function; and
Claim 6(b)	maintaining enabled said at least one first function while maintaining disabled said second function responsive to deciding that the physiological parameter sensed satisfies the criterion; or
Claim 6(c)	disabling said at least one first function and enabling said second function responsive to deciding that the physiological parameter sensed no longer satisfies the criterion.
Claim 7(a)	The wireless device of claim 5, wherein said conducting the financial transaction by paying for a product comprises: establishing by the wireless device a short-range wireless link with the entity;
Claim 7(b)	wirelessly transmitting information to the entity using unlicensed frequencies; and
Claim 7(c)	wirelessly receiving information from the entity using unlicensed frequencies;
Claim 7(d)	wherein said wirelessly transmitting information to the entity and said wirelessly receiving information from the entity comprises using unlicensed frequencies in a time division duplex operation; and
Claim 7(e)	wherein said establishing by the wireless device a short-range wireless link with the entity comprises establishing the short-range wireless link with the entity responsive to the wireless device satisfying the proximity condition relative to the entity and responsive to the wireless device sensing the physiological

	parameter and determining that the physiological parameter sensed satisfies the criterion.
Claim 8(Pre)	The wireless device of claim 5, wherein said requesting from a second device an authorization to establish a function to conduct a financial transaction and/or said receiving from the second device the authorization to establish the function to conduct the financial transaction comprises:
Claim 8(a)	establishing by the wireless device a link with the second device, said link comprising a wireless link;
Claim 8(b)	wirelessly transmitting information to the second device over said wireless link using unlicensed and/or licensed frequencies; and
Claim 8(c)	wirelessly receiving information from the second device over said wireless link using unlicensed and/or licensed frequencies;
Claim 8(d)	wherein said wirelessly transmitting information to the second device and/or said wirelessly receiving information from the second device comprises using a WiFi air interface protocol, an orthogonal frequency division multiplexing air interface protocol and/or an orthogonal frequency division multiple access air interface protocol; and
Claim 8(e)	wherein said establishing by the wireless device a link with the second device comprises establishing the link with the second device responsive to the wireless device sensing the physiological parameter and determining that the physiological parameter sensed satisfies the criterion.
Claim 9(a)	The wireless device of claim 5, wherein said using unlicensed frequencies comprises using unlicensed frequencies over a short-range link in a Time Division Duplex operation; and
Claim 9(b)	wherein said selectively sending information to at least one device further comprises selectively sending information to the access point maintained by the vendor at the point of purchase counter and to at least one other device that is predetermined; and selectively receiving information from the access point maintained by the vendor at the point of purchase counter and from at least one other device that is predetermined.
Claim 10	The wireless device of claim 5, wherein said paying for a product further comprises wirelessly receiving information from at least one device using unlicensed frequencies.

Claim 11(a)	The wireless device of claim 10, wherein said wirelessly transmitting information to the at least one device using unlicensed frequencies and said wirelessly receiving information from at least one device using unlicensed frequencies comprises using unlicensed frequencies over a short-range link in a Time Division Duplex operation; and
Claim 11(b)	wherein said selectively and wirelessly transmitting information to the at least one device further comprises selectively and wirelessly transmitting information to the access point maintained by the vendor at the point of purchase counter and to at least one other device that is predetermined; and further comprises wirelessly receiving information from the access point maintained by the vendor at the point of purchase counter and from at least one other device that is predetermined.

APPENDIX OF EXHIBITS

Exhibit	Description
1001	U.S. Patent No. 12,028,793 (“ <i>the ’793 Patent</i> ”)
1002	File History of the ’793 Patent (“ <i>File History</i> ”)
1003	Declaration of Stuart Lipoff
1004	Intentionally Left Blank
1005	U.S. Patent No. 8,229,852 to Carlson (“ <i>Carlson</i> ”)
1006	U.S. Patent No. 9,558,485 to Griffin and Stone (“ <i>Griffin</i> ”)
1007	U.S. Patent Publication No. 2008/0155268 to Jazayeri et al. (“ <i>Jazayeri</i> ”)
1008	U.S. Patent Publication No. 2002/0095586 to Doyle et al. (“ <i>Doyle</i> ”)
1009	WIPO International Publication No. WO 01/95246 to Murakami et al. (“ <i>Murakami</i> ”)
1010	Complaint, Exhibit P, Claim Chart, 1:24-cv-23837-JEM, Doc 1-16
1011	Intentionally Left Blank
1012	Intentionally Left Blank
1013	Intentionally Left Blank
1014	U.S. Patent Publication No. 2007/0232358 to Sherman (“ <i>Sherman</i> ”)
1015	Samsung Electronics Co. Ltd. et al. Preliminary Infringement Contentions, 2:24-cv-00691
1016	Int’l Org. for Standardization & Int’l Electrotechnical Comm’n, <i>ISO/IEC 14443-1: Identification Cards—Contactless Integrated Circuit(s) Cards—Proximity Cards—Part 1: Physical Characteristics</i> (1st ed. Apr. 15, 2000) Int’l Org. for Standardization & Int’l Electrotechnical Comm’n, <i>ISO/IEC 14443-2: Identification Cards—Contactless Integrated Circuit(s) Cards—Proximity Cards—Part 2: Radio Frequency Power and Signal Interface</i> (1st ed. July 1, 2001) Int’l Org. for Standardization & Int’l Electrotechnical Comm’n, <i>ISO/IEC 14443-3: Identification Cards—Contactless Integrated Circuit(s) Cards—Proximity Cards—Part 3: Initialization and Anticollision</i> (1st ed. Feb. 1, 2001) Int’l Org. for Standardization & Int’l Electrotechnical Comm’n, <i>ISO/IEC 14443-4: Identification Cards—Contactless Integrated Circuit(s) Cards—Proximity Cards—Part 4: Transmission Protocol</i> (1st ed. Feb. 1, 2001) (collectively, “<i>ISO-14443</i>”)
1017	Intentionally Left Blank

1018	Intentionally Left Blank
1019	Intentionally Left Blank
1020	Merriam-Webster's Collegiate Dictionary (10th ed. 1998) (" <i>Merriam-Webster</i> ")
1021	Smart Card Alliance, <i>Contactless Payment and the Retail Point of Sale: Applications, Technologies and Transaction Models</i> (Mar. 2003) (" <i>Smartcard Alliance 2003</i> ")
1022	Sony Corp., <i>Philips and Sony Announce Strategic Cooperation to Define Next-Generation Near Field Radio-Frequency Communications</i> (Sept. 5, 2002), https://www.sony.com/en/SonyInfo/News/Press/200209/02-0905E/ (" <i>Sony</i> ")
1023	Smart Card Alliance, <i>Proximity Mobile Payments: Leveraging NFC and the Contactless Financial Payments Infrastructure</i> (Sept. 2007) (" <i>SC Alliance 2007</i> ")
1024	Agnieszka Zmijewska, <i>Evaluating Wireless Technologies in Mobile Payments—A Customer Centric Approach</i> , in Proc. Int'l Conf. on Mobile Bus. (ICMB '05) (2005) (" <i>Zmijewska</i> ")
1025	Kaveh Pahlavan & Prashant Krishnamurthy, <i>Principles of Wireless Networks</i> (Prentice Hall 2002) (" <i>Wireless Networks</i> ")
1026	Vedat Coskun, Kerem Ok & Busra Ozdenizci, <i>Near Field Communication: From Theory to Practice</i> (John Wiley & Sons Ltd. 2012) (" <i>NFC Textbook</i> ")
1027	Klaus Finkenzeller, <i>RFID Handbook: Fundamentals and Applications in Contactless Smart Cards, Radio Frequency Identification, and Near-Field Communication</i> (2d ed. John Wiley & Sons Ltd 2003) (" <i>RFID Handbook</i> ")
1028	Rudolf Graf, <i>Modern Dictionary of Electronics</i> (7th ed. Newnes 1999) (" <i>Graf</i> ")
1029	Harry Newton, <i>Newton's Telecom Dictionary</i> (23d ed. Flatiron Publishing 2007) (" <i>Newton's Telecom Dictionary</i> ")
1030	Intentionally Left Blank
1031	U.S. Patent No. 7,213,742 to Birch et al. (" <i>Birch</i> ")
1032	WIPO International Publication No. WO 02/49322 to Holloway and Falck (" <i>Holloway</i> ")
1033	Declaration of June Munford

1034	Brent A. Miller & Chatschik Bisdikian, <i>Bluetooth Revealed: The Insider's Guide to an Open Specification for Global Wireless Communications</i> (Prentice Hall 2001) (" <i>Bluetooth Revealed</i> ")
1035	CNET, <i>Photos: Hands-On With the Porsche P9521 Phone</i> (2007), https://www.cnet.com/tech/mobile/photos-hands-on-with-the-porsche-p9521-phone/ (" <i>Porsche P9521</i> ")
1036	Mobile Phone Museum, <i>Portégé G910</i> (Jan. 21, 2008), https://www.mobilephonemuseum.com/phone-detail/portege-g910 (" <i>Toshiba G910</i> ")
1037	CNET, <i>Toshiba Portege G500 Review</i> (June 2007), https://www.cnet.com/reviews/toshiba-portege-g500-review/ (" <i>Toshiba G500</i> ")
1038	CNET, <i>Toshiba Portégé G900 Review</i> (2007), https://www.cnet.com/reviews/toshiba-portege-g900-review/ (" <i>Toshiba G900</i> ")
1039	Farpoint Group, <i>The Broad Reach of Biometrics: Fingerprint Recognition and Mobile Security</i> , Farpoint Grp. Tech. Note No. FPG 2008-435.1 (Nov. 2008), https://media.techtarget.com/searchMobileComputing/downloads/Fingerprint_Recognition_and_Mobile_Security.pdf (" <i>Farpoint Group</i> ")
1040	U.S. Patent No. 8,943,580 to Fadell et al. (" <i>Fadell</i> ")
1041	Inst. of Elec. & Elecs. Eng'rs, <i>IEEE Standard for Information Technology—Telecommunications and Information Exchange Between Systems—Local and Metropolitan Area Networks—Specific Requirements—Part 15.1: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for Wireless Personal Area Networks (WPANs)</i> , IEEE Std 802.15.1™-2005 (June 14, 2005) (" <i>Bluetooth</i> ")

CERTIFICATION OF WORD COUNT

The undersigned certifies pursuant to 37 C.F.R. § 42.24 that the foregoing Petition for Inter Partes Review, excluding any table of contents, mandatory notices under 37 C.F.R. § 42.8, certificates of service or word count, or appendix of exhibits, contains 13,982 words according to the word-processing program used to prepare this document (Microsoft Word).

Dated: August 5, 2025

Respectfully submitted,

By: /s/ Paul R. Hart
Paul R. Hart, Reg. No. 59,646

COUNSEL FOR PETITIONER

**CERTIFICATE OF SERVICE ON PATENT OWNER UNDER 37 C.F.R. §
42.105**

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105, the undersigned certifies that on August 5, 2025, a complete and entire copy of this Petition for *Inter Partes* Review including exhibits was provided via Federal Express to the Patent Owner by serving the correspondence address of record for the '793 Patent as listed on PAIR:

Carlson, Caspers, Vandenburg & Lindquist, P.A.
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Further, a courtesy copy of this Petition for Inter Partes Review was sent via email to Patent Owner's litigation counsel:

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