

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.
Petitioner

v.

TELCOM VENTURES LLC
Patent Owner

Case No. IPR2025-01233
U.S Patent No. 9,832,708

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 9,832,708**

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I. INTRODUCTION

Petitioner Apple Inc. (“Petitioner”) requests *Inter Partes* Review (“IPR”) and cancellation of Claims 1-19 (the “Challenged Claims”) of U.S. Patent No. 9,832,708 (“the ’708 Patent”).

II. SUMMARY OF THE ’708 PATENT

A. The ’708 Patent’s Alleged Invention

The ’708 Patent is generally directed to “adaptive enablement of one or more communications modes based upon having satisfied a proximity criterion.” ’708 Patent (Ex. 1001), 1:17-22.

The ’708 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.*, 1:31-39 (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 ’708 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.*, 1:40-46.

The ’708 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.*, 4:29-6:5. 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.*, 4:35-48. 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.*, 4:48-56. 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.*, 5:5-21.

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.*, 6:9-8:4. Based on the estimated location and/or parameter value, a particular communication mode is enabled or preferred from among several modes. *Id.*, 6:15-7:12. 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.*, 8:8-60. The cart detects when items are placed in and taken out of the cart, and price information is transmitted to the mobile device. *Id.*, 8:29-46. 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.*, 8:47-60.

The Challenged Claims do not align with any of these examples. Instead, they recite methods and systems for a smartphone conducting a financial transaction with an entity using a first and a second air interface. *See id.*, Claim 1. The smartphone communicates with the entity over the first air interface when it is proximate to the entity and communicates with a base station concurrently over the second air interface to receive a communications service. *Id.*

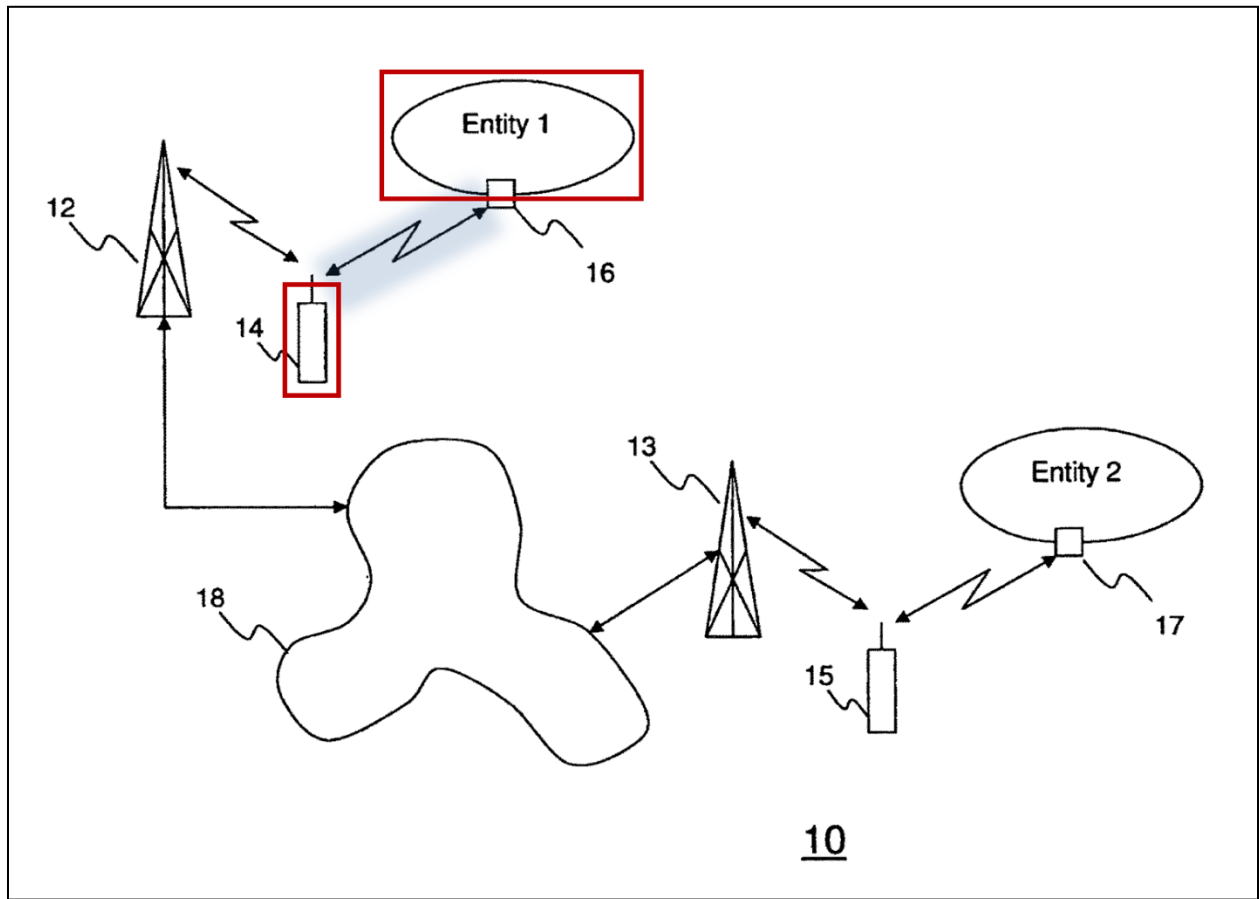
B. The '708 Patent's Prosecution

The '708 Patent issued from U.S. Appl. No. 15/251,882 (the "'882 Application") filed on August 30, 2016. The '882 Application is a continuation that tracks priority 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.

During prosecution of the '708 Patent, a single Office action was issued rejecting Claims 1-11 under (1) 35 U.S.C. § 103; and (2) non-statutory double patenting. Ex. 1002, 58-60. In response, PO filed a terminal disclaimer to overcome the double patenting rejection, amended dependent claims 4 and 8, added new independent claims, and argued that the Examiner's combination did not teach the original independent claims 1 and 5. *Id.*, 98-111.

In response to the Office action’s prior art-based rejection, PO sought to distinguish the prior art for failing to teach or suggest a smartphone that ***concurrently*** communicates with an entity over a first air interface while receiving communications using a second air interface. *Id.*, 108-10. Specifically, PO argued the prior art provides ***two alternative paths***, which it characterized as a ***mutually exclusive selection*** of either a licensed or unlicensed communication. *Id.*, 110-11. PO argued that such a mutually exclusive selection between communication paths “does ***not***¹ disclose or suggest the ***concurrently performance*** recited in independent Claims 1 and 5.” *Id.* PO further argued that newly added claims 15 and 17 included additional recitations to distinguish over the prior art, including “the communicating [...] is performed ***over a point-to-point short-range link*** between the smartphone and the entity[.]” *Id.*, 112. PO noted that “device 14 [] has a point-to-point link with Entity 1/device 16.” *Id.*

¹ All emphasis in the Petition is added unless otherwise noted.



'708 Patent, Fig. 1 (annotated).

Following an Examiner interview, claims 19-27 were cancelled via Examiner's amendment, and the application was put into a condition for allowance.

Ex. 1002, 139.

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. 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.²

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 '708 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.*, ¶46.³

III. OVERVIEW OF THE PRIOR ART

A. Overview of *Carlson*

² Petitioner does not waive any argument in litigation that claim terms in the '708 Patent are indefinite or additional terms need construction.

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

U.S. Patent No. 8,229,852 to Carlson (“*Carlson*”) (Ex. 1005) was filed June 24, 2008, and is prior art to the ’708 Patent under at least 35 U.S.C. § 102(e) (pre-AIA). *Carlson* was neither cited nor considered during the prosecution of the ’708 Patent.

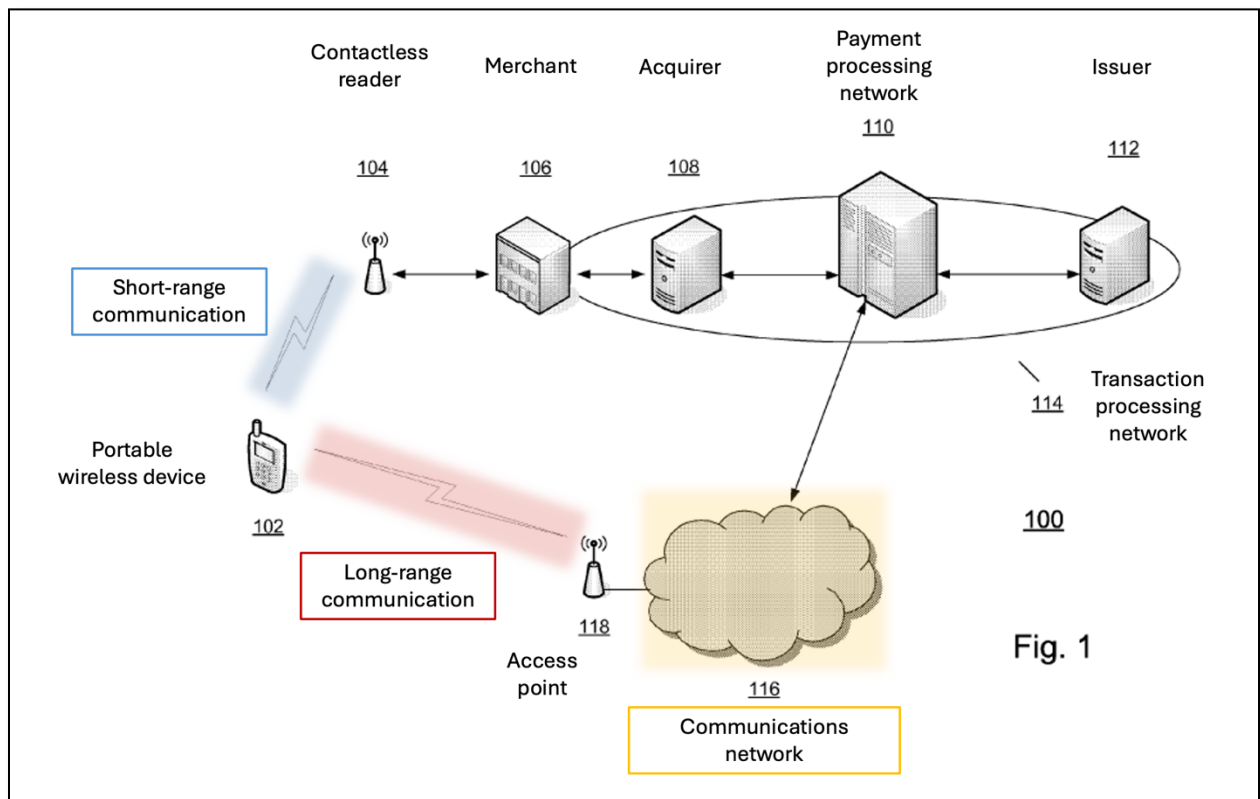
Carlson describes a method and system for conducting transactions between a portable wireless device, such as a cellular phone or PDA, and a contactless reader using a pseudo primary account identifier (PPAI) to prevent an unauthorized user from obtaining and using the primary account identifier (PAI). *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-

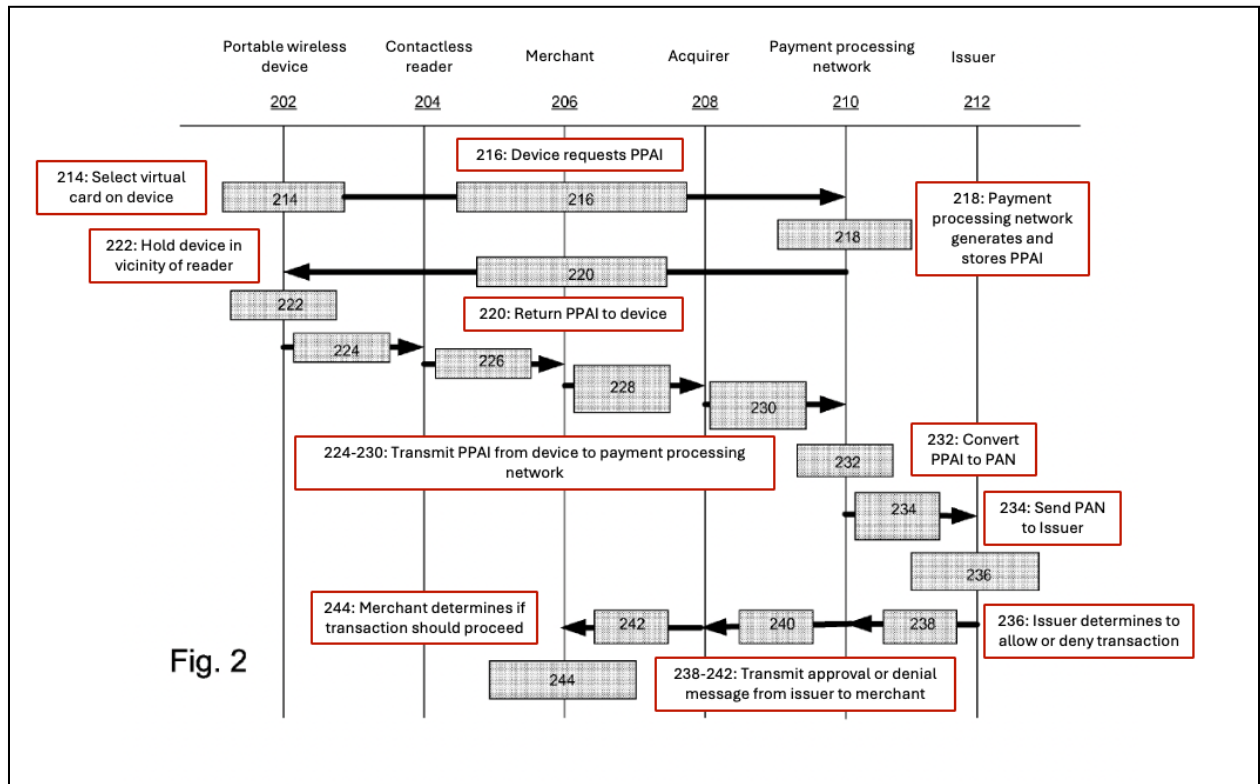
56. The payment processing network then stores the PPAI and sends the PPAI back to the device through the communications network for use in subsequent financial transactions. *Id.*, 12:56-60.

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 *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 ’708 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 ’708 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.

C. 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 ’708 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 ’708 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].

D. 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 ’708 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 ’708 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.

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

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

Petitioner certifies that the ’708 Patent is available for IPR and that Petitioner is not barred or estopped from requesting an IPR challenging the claims of the ’708 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 '708 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, 5-8, 10-13, and 15-19 are obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> in view of <i>ISO-14443</i> .	Ex. 1005 Ex. 1016
Ground 2: Claim 9 is 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 3: Claims 4 and 14 are obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> in view of <i>ISO-14443</i> and <i>Birch</i> .	Ex. 1005 Ex. 1016 Ex. 1031

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, 5-8, 10-13, and 15-19 are obvious over *Carlson* in view of *ISO-14443*

i. Claim 1

[1(Pre)] A method of operating a smartphone using a first air interface and a second air interface that differs from the first air interface, the 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.*, ¶85 (explaining how *Carlson*’s system implements its described method).

Carlson discloses using a wireless device (e.g., mobile cellular phone) to perform a financial transaction. *Carlson*, 6:6-11. Because *Carlson*’s wireless cellular phone comprises advanced functionality, such as making a payment, a POSITA would have understood it to be a smartphone. *Dec.*, ¶86 (explaining that smartphone is a colloquial term for a mobile phone capable of performing more operations than a standard mobile phone). Further, *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**.” *Carlson*, 17:7-15.

Carlson’s method of processing a transaction comprises wirelessly sending a primary account identifier (“PPAI”)⁴ to a contactless reader within an access device located at a merchant using short-range NFC (first air interface). *See infra* Claim

⁴ *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.

1(a). *Carlson's* method of processing a transaction further comprises wirelessly requesting and receiving a PPAI from a payment processing network using long-range cellular communication (*second air interface*). *Carlson*, 10:7-18, 14:60-65, Fig. 1. *See infra* Claim 1(c). A POSITA would have understood that, because these two types of communications in *Carlson's* system invoke different endpoints with which the wireless device communicates and use different forms of communication, communications using the *first air interface* differ from communications using the *second air interface*. *Dec.*, ¶87.

[1(a)] communicating between the smartphone and an entity using the first air interface responsive to a proximity criterion having been satisfied between the smartphone and the entity to provide information to the entity over a short-range link between the smartphone and the entity;

Carlson-ISO-14443 teaches Claim 1(a). This claim requires (1) determining a proximity criterion is satisfied relative to an entity, and (2) in response, communicating between the smartphone and entity to provide information to the entity over a short-range link.

1. Proximity Criterion Having Been Satisfied Between the Smartphone and the Entity

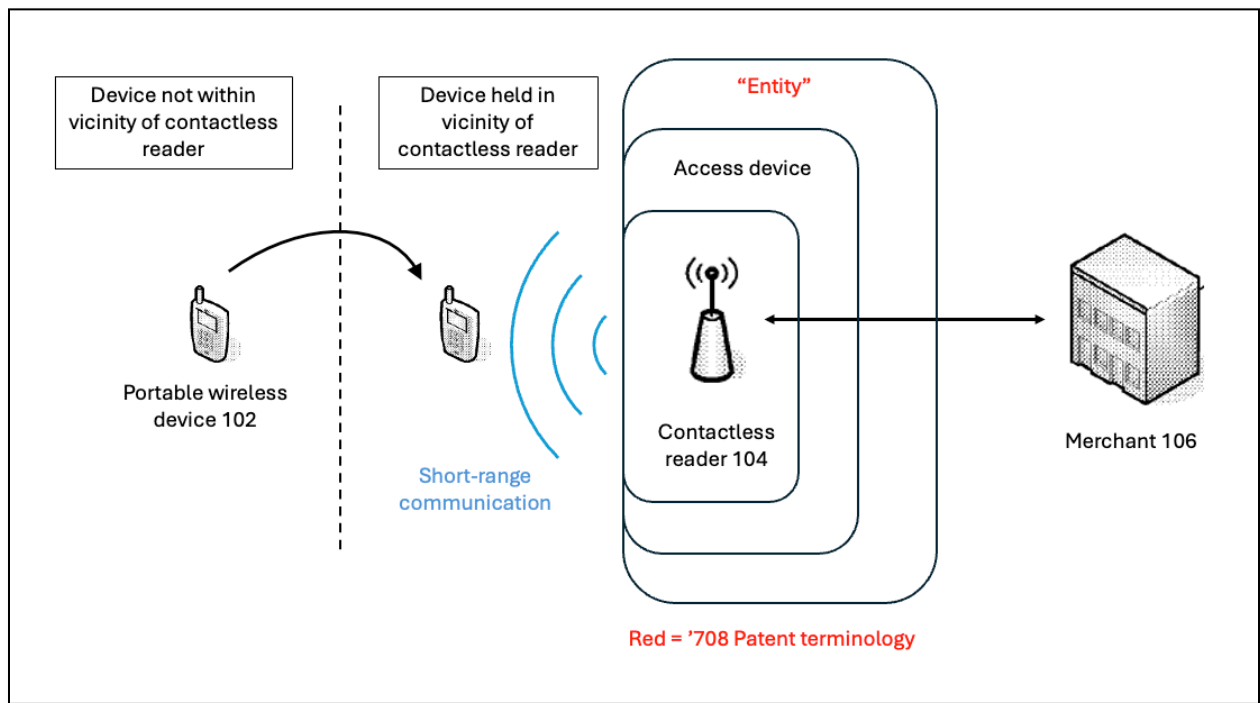
Carlson-ISO-14443 teaches that NFC is employed to facilitate a transaction after the wireless device has been placed in the vicinity of the contactless reader.

Carlson's Teachings

Carlson teaches requesting and receiving a PPAI used to make a financial transaction. *See infra* Claim 1(c). 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.” *Carlson*, 12:56-60, 13:10-13, Figs. 1-2. Using short-range communications, the PPAI is 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.

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 is part of an access device (e.g., POS terminal) located at the merchant site. *Dec.*, ¶91. A POSITA would have further understood the access device and reader are an entity representing the merchant’s location, consistent with the ’708 Patent’s teachings. *Id.*; ’708 Patent, 3:42-50 (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., ¶91 (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 that a PICC shall exit its POWER-OFF State and enter its IDLE state when it “is in an energizing magnetic field⁵

⁵ 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”), *ISO-14443*, 46 (“magnetic field greater than H_{min} ”) *with ISO-14443*, 18 (“RF operating field of the

greater than $H_{min}[\cdot]$ ” *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 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. 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. *Dec.*, ¶95 (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 modified by *ISO-14443* to conduct short-range NFC communications between the wireless device and the access device teaches a proximity condition having been satisfied between the smartphone and the entity, as claimed, wherein

PCD”). The units of A/m disclosed by *ISO-14443* connote a magnetic field. *Dec.*, ¶95.

the entity comprises the contactless reader and access device located at the merchant's location. *Dec.*, ¶96.

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). *Dec.*, ¶¶97-98. 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 Int’l Co.*, 550 U.S. 398, 418-19 (2007). 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.*, ¶99 (discussing *Carlson*, 17:3-15). *ISO-14443* explicitly teaches how short-range communication using NFC is initialized between 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. *Id.*; *KSR*, 550 U.S. at 421; *see also In re Translogic Technology, Inc.*, 504 F.3d 1249, 1262 (Fed. Cir 2007).

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.*, ¶100. 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.*, ¶100. 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.*, ¶101. Detecting proximity thresholds during short-range communications using NFC was well-known, as evidenced by *ISO-14443*'s standardized link initialization, prior to the '708 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. Communicating Between the Smartphone and Entity to Provide Information to the Entity over a Short-Range Link

Carlson modified by *ISO-14443*, as described in the preceding section, teaches communicating information between the wireless device (smartphone) and the access device (entity) by providing information, in the form of the PPAI, to the entity using NFC. A POSITA would have understood that sending data between the wireless device (smartphone) and access device (entity) using NFC (first air interface) is conducted over a short-range wireless link between the devices. *Dec.*,

¶102. The short-range wireless link facilitates communication between the wireless device and the entity using NFC.

Further, the wireless device and contactless reader exchange information via NFC during the initialization protocol, including in block format. When the wireless device (configured as the PICC pursuant to *ISO-14443*) is brought within the vicinity of the contactless reader (configured as the PCD pursuant to *ISO-14443*), the reader sends a signal to the wireless device. *See supra* Claim 1(a). As disclosed by *ISO-14443*, following initialization, the PCD and PICC exchange information during “[p]rotocol activation” and when they “exchange transparent data[.]” *ISO-14443*, 97-98. In protocol activation, the PICC receives information in the form of commands and requests. *Id.*, 97-104 (discussing RATS and PPS request). During data exchange, the PICC receives information in block format. *Id.*, 107-116. The I-block (Information Block) format is “used to convey information[.]” *Id.*, 108. Thus, *Carlson-ISO-14443* teaches communicating between the smartphone and an entity using the first air interface.

[1(b)] refraining from communicating between the smartphone and the entity by the smartphone using the first air interface absent the proximity criterion having been satisfied between the smartphone and the entity; and

Carlson-ISO-14443 teaches communicating between the wireless device (smartphone) and the access device (entity) via NFC (first air interface) when a proximity criterion has been satisfied. *See supra* Claim 1(a). *Carlson-ISO-14443*

further teaches refraining from communicating absent a proximity condition being satisfied.

ISO-14443 specifies that the wireless device (PICC) remains inactive until the proximity condition is met. *See supra* Claim 1(a). A PICC shall exit its POWER-OFF State and enter its IDLE state when it “is in an energizing magnetic field greater than $H_{min}[\cdot]$ ” *ISO-14443*, 46. In the IDLE State, “the PICC is powered” and it listens for and recognizes commands from the PCD. *Id.* A POSITA would have understood that because the PICC remains idle unless and until powered by the PCD, NFC between the wireless device and the access device is not possible using NFC (*first air interface*) absent the proximity condition being satisfied. *Dec.*, ¶105. Thus, the wireless device refrain[s] from communicating . . . absent the proximity criterion having been satisfied.

[1(c)] communicating between the smartphone and a base station using the second air interface to receive a communications service from the base station via the second air interface, wherein the smartphone receives the communications service from the base station via the second air interface but does not receive the communications service from the entity via the first air interface,

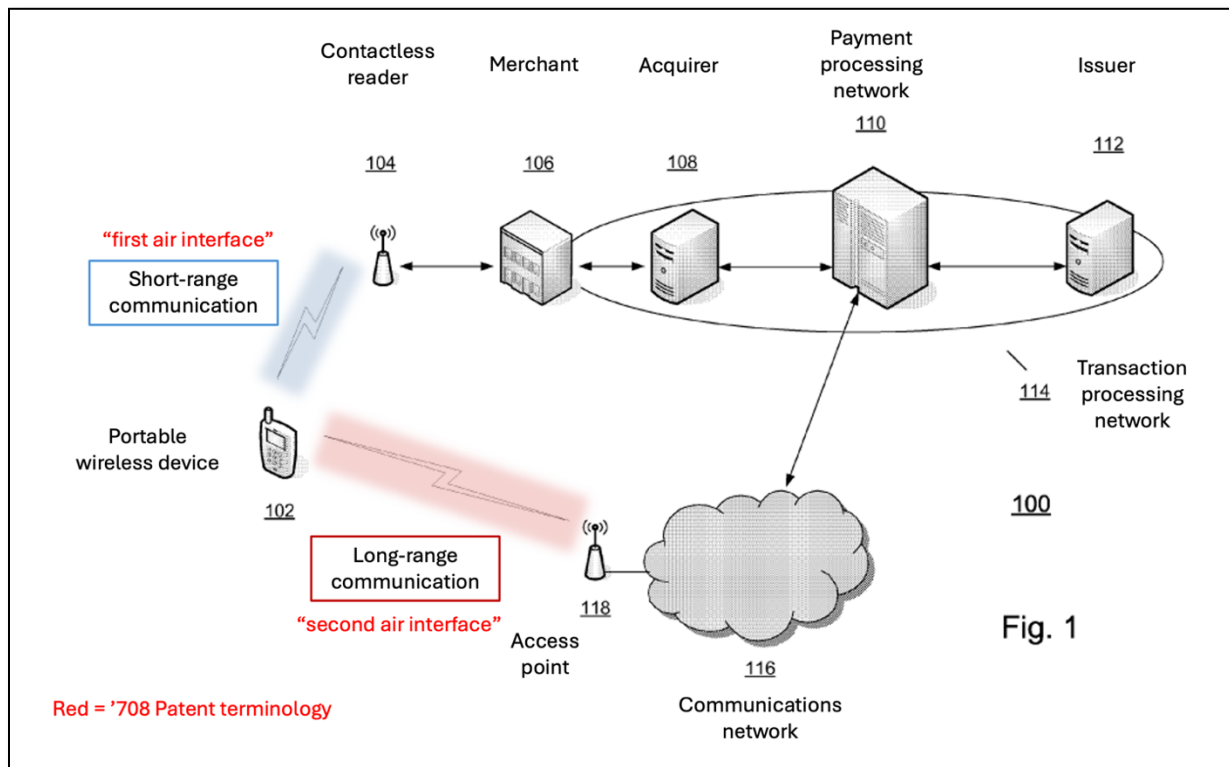
Carlson-ISO-1443 teaches Claim 1(c).

1. Communicating to Receive a Communications Service from the Base Station Via the Second Air Interface

Carlson teaches a process for requesting and receiving a PPAI from a payment processing network through a cellular network. Specifically, after a user unlocks the wireless device, 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”)]* 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. *Id.*, 12:51-59. “Once the portable wireless device has received the [PPAI] the transaction may continue.” *Id.*, 13:10-11, 12:59:61.

Carlson describes that requesting and receiving the PPAI from the payment processing network occurs via a long-range connection to wireless access point 118 (*a base station*) and communications network 116, wherein the communications network may be a cellular network. *Carlson*, 10:7-18, 14:60-65, Fig. 1.



Id., Fig. 1 (annotated). *Carlson* explains that the “access points 118 may be **wireless base stations** that provide coverage to large geographic areas[.]” *Id.*, 10:9-11. The wireless device contains a “long range wireless communications element 504” to transmit and receive communications between the device and wireless access point. *Id.*, 14:60-65. *Carlson* discloses that long-range communication can be cellular or “[o]ther types of wireless access technologies [that] include Bluetooth, WiFi, and the like.” *Id.*, 6:26-31. This long-range cellular communication (second air interface) allows the wireless device to communicate a request for a PPAI and receive said PPAI from the payment processing network 110 through the cellular network 116 via access point 118.

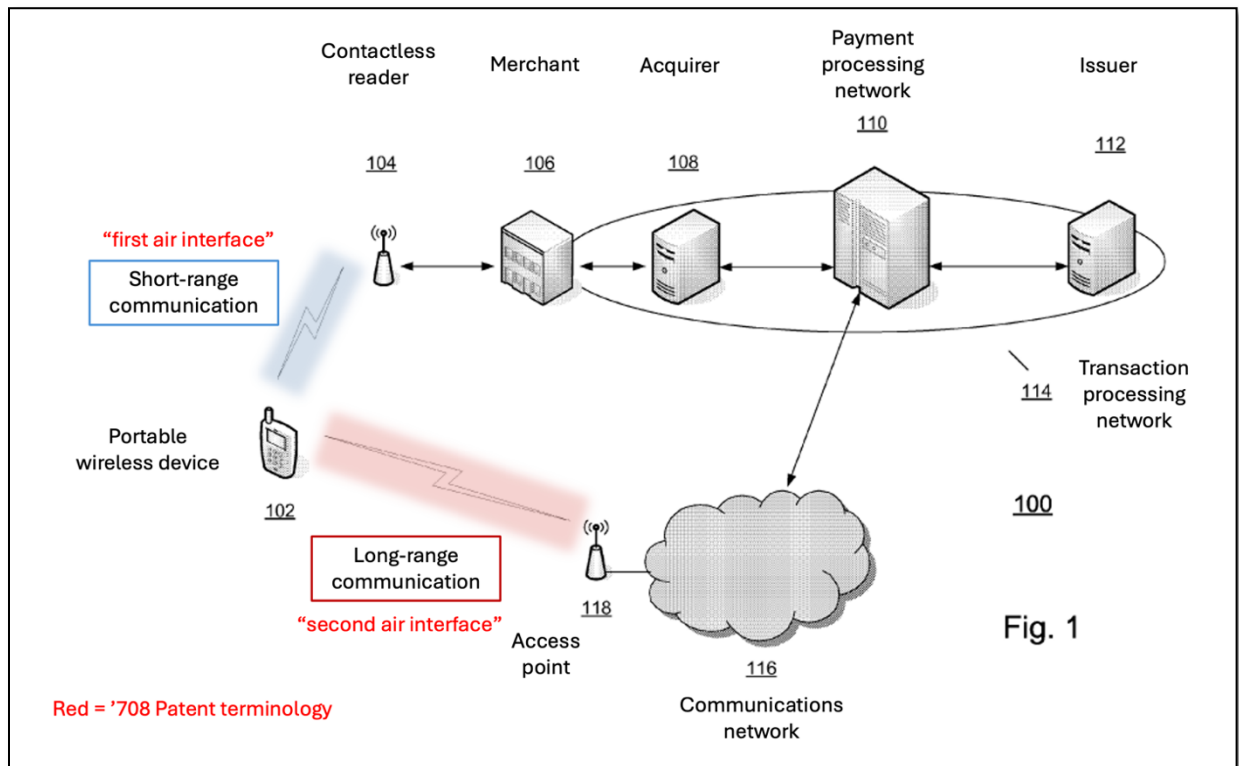
A POSITA would have understood that Carlson discloses the wireless device using a communications service provided by the cellular network 116 to enable connectivity between the wireless device and the payment processing network to allow the PPAI to be requested and received. *Dec.*, ¶109.

2. Does Not Receive Communications Service from the Entity via the First Air Interface

The communications service provided by the cellular network is received by the wireless device without involving the entity, and the entity functions independently of the communication service. *Carlson* teaches that the PPAI may be received using long-range cellular communication (second air interface) through a cellular telephone network that is “***completely unrelated to transaction processing.***” *Carlson*, 5:57-64. For example, the cellular network can be used for functions like “general voice communication. . . data communications, to enable a user to perform tasks such as surfing the internet, reading e-mail, or any other tasks that are ***associated with a general purpose data network.***” *Id.*, 5:65-6:3. A POSITA would have understood that these services require that the wireless device and access point 118 communicate to provide the wireless device with the communications services provided by the cellular network 116. *Dec.*, ¶110.

Further, the communications service provided by the cellular network is received by the wireless device without using NFC (first air interface). Particularly, the access device (entity) is not an access point 118 of the cellular network 116 and

therefore is not involved in providing the wireless device with the communications service. See Carlson, Fig. 1 (showing the wireless device uses the short-range NFC connection to communicate with access point 104, which connects directly to transaction processing network 114, not to cellular network 116).



Id., Fig. 1 (annotated). Thus, the wireless device does not receive the communications service from the entity via the first air interface.

[1(d)] wherein the communicating between the smartphone and the entity using the first air interface responsive to the proximity criterion having been satisfied between the smartphone and the entity to provide information to the entity over the short-range link between the smartphone and the entity is performed concurrently with the communicating between the smartphone and the base station using the second air interface to receive a communications service from the base station via the second air interface.

Carlson-ISO-14443 teaches sending a PPAI (information) from the wireless device (smartphone) to a contactless reader at an access point (entity) over NFC (first air interface) responsive to [a] proximity criterion having been satisfied between the smartphone and the entity. See *supra* Claim 1(a). *Carlson-ISO-14443* further teaches communicating between the smartphone and the base station using the second air interface to receive a communications service from the base station via the second air interface. See *supra* Claim 1(c).

The specification does not use the term “concurrently” outside the claims. Nor is there any discussion in the specification that describes two air interfaces actively communicating at the same time. There is, however, express discussion of intentionally disabling one communication mode to favor a different communication mode. ’708 Patent, 6:46-7:2 (“*[I]n some embodiments, . . . the wireless communications device may be configured to selectively and/or preferentially enable a first communications mode, . . . that uses, for example, a first air interface protocol . . . while refraining from using . . . a second communications mode, . . . comprising . . . a second air interface protocol. In some embodiments, refraining from using . . . a second communications mode comprises selectively and/or preferentially disabling the second communications mode that uses, for example, the second air interface protocol and/or the second set of frequencies.*”). A POSITA would understand that disabling one air interface to utilize a second air interface, is

a mutually exclusive mode selection that would **not** satisfy the concurrent requirement of limitation 1(d). *Dec.*, ¶113. Indeed, this is the precise rationale advanced by Applicant during prosecution to distinguish the prior art. *See supra* Section II.B (noting that Applicant argued the prior art provides **two alternative paths**, which it characterized as a **mutually exclusive selection** of communication modes and insisted that such a mutually exclusive selection between communication paths “does **not** disclose or suggest the **concurrently performance** recited in” the claims).

In contrast to this mutual exclusivity approach described in the specification and addressed during prosecution, a POSITA would understand limitation 1(e) captures only systems that provide two communication modes (over separate air interfaces) that operate independently such that one need not be disabled to use the other. *Dec.*, ¶114. This is consistent with PO’s interpretation of the limitation as advanced in the parallel litigation matter. Ex. 1015, 11. PO does not advocate a narrower interpretation of the claimed concurrent communication that requires actively communicating data via both air interfaces simultaneously, nor would a POSITA find any intrinsic support for requiring simultaneous data exchange over both air interfaces. *Dec.*, ¶114. Instead, the claim merely requires independent communication modes (using separate air interfaces) that can each be used to communicate without actively disabling the other. *Id.*

Carlson teaches precisely the arrangement required of this limitation. As set forth above, *Carlson* teaches its device requests and receives a PPAI using long-range cellular communication (second air interface). See *supra* Claim 1(c). After the PPAI is received, *Carlson's* device communicates the PPAI to a POS terminal via NFC (first air interface) to further a financial transaction. See *supra* Claim 1(a). *Carlson* does not teach or suggest disabling either communication mode during these processes, and a POSITA would understand that disabling one communication mode to favor the other was not required of multi-mode devices at the time. *Dec.*, ¶115 (discussing U.S. Patent Publ. No. 2007/0232358 to Sherman (“*Sherman*”), which describes techniques for simultaneously communicating via cellular and Bluetooth). *Carlson* expressly notes that a different process is employed when the cellular network is unavailable. *Carlson*, 13:44-14:3 (teaching that a less secure transaction may proceed via NFC using the primary account identifier, rather than PPAI, when the cellular network is unavailable). From this, a POSITA would understand that *Carlson's* default mode keeps both air interfaces—the NFC air interface and cellular air interface—active and does not intentionally disable either interface during operation. *Id.*

Accordingly, a POSITA would have understood that communicating between the wireless device (smartphone) and access point 118 (base station) using long-range cellular communication (second air interface) to receive the communications

service occurs independently of the NFC communications (first air interface) and does not require disabling the NFC communications. *Dec.*, ¶116. Thus, a POSITA would have understood that Carlson's communications via its first and second air interfaces are performed concurrently. *Id.*

ii. Claim 2

The method according to claim 1, further comprising detecting that the proximity criterion between the smartphone and the entity is satisfied.

Carlson-ISO-14443 teaches conducting short-range NFC communications between the wireless device and the access device only after a proximity criterion has been satisfied. *See supra* Claims 1(a)-(b). *Carlson-ISO-14443* further teaches detecting that the proximity criterion has been satisfied. 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(a). 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.*, ¶117. Thus, *Carlson-Jazayeri-ISO-14443* teaches detecting that the proximity criterion between the smartphone and the entity is satisfied by detecting a

short-range signal transmitted by the access point and received by the wireless device.

iii. Claim 3

[3(a)] The method according to claim 2, wherein the detecting comprises: detecting that a proximity criterion of less than 10 meters in distance is satisfied between the smartphone and the entity,

Carlson-ISO-14443 teaches Claim 3(a). *Carlson-ISO-14443* teaches detecting that a proximity criterion is satisfied between the wireless device and an entity. *See supra* Claim 2. A POSITA would have understood that the proximity condition of 1.5 A/m as taught by *ISO-14443* correlates to a distance of less than 10 meters as claimed. *Dec.*, ¶118 (discussing *Griffin's* discussion of functional NFC range to be less than 20 centimeters).

[3(b)] wherein the detecting is performed by the smartphone, by a device that is associated with the entity and/or by a system that is associated with the smartphone.

Carlson-ISO-14443 teaches detecting that a proximity criterion is satisfied between the wireless device and an entity specifically by the smartphone. *See supra* Claim 2. Namely, *Carlson-ISO-14443* teaches detecting that a proximity condition is satisfied by the wireless device receiving a short-range signal from the contactless reader. *Id.* Thus, *Carlson-ISO-14443's* proximity detection is performed by the smartphone.

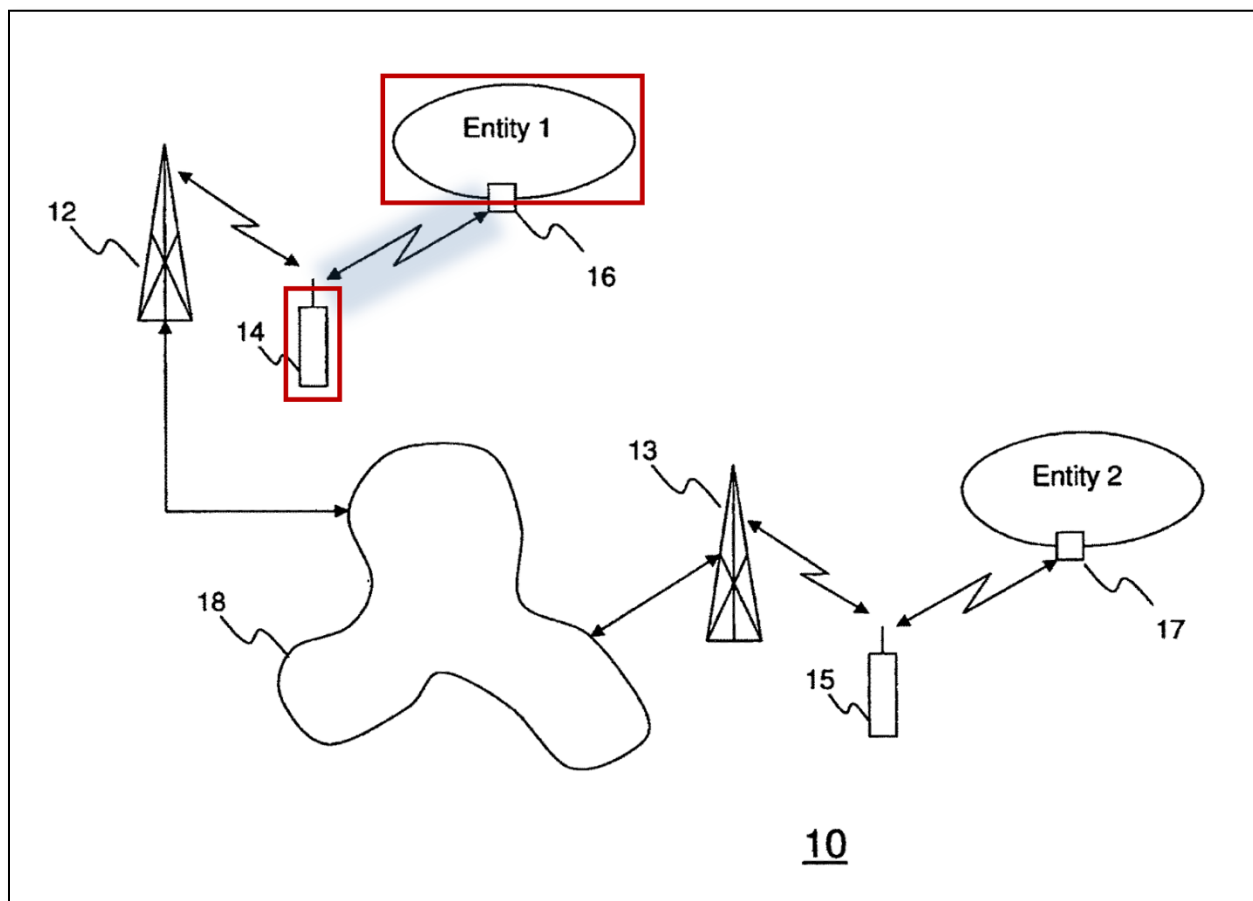
iv. Claim 5

The method according to claim 1, wherein the communicating, over the short-range link, between the smartphone and the entity using the first air interface responsive to the proximity criterion having been satisfied is performed over a point-to-point short-range link between the smartphone and the entity using a time division duplex protocol.

*Carlson-ISO-14443 teaches Claim 5. Carlson-ISO-14443 teaches communicating between the wireless device (smartphone) and access device (entity) via NFC (over a short-range link using the first air interface) after bringing the wireless device within the vicinity of the contactless reader (proximity criterion having been satisfied). See *supra* Claim 1(a). Such communication is performed over (1) a point-to-point short range link and (2) using a time division duplex (TDD) protocol.*

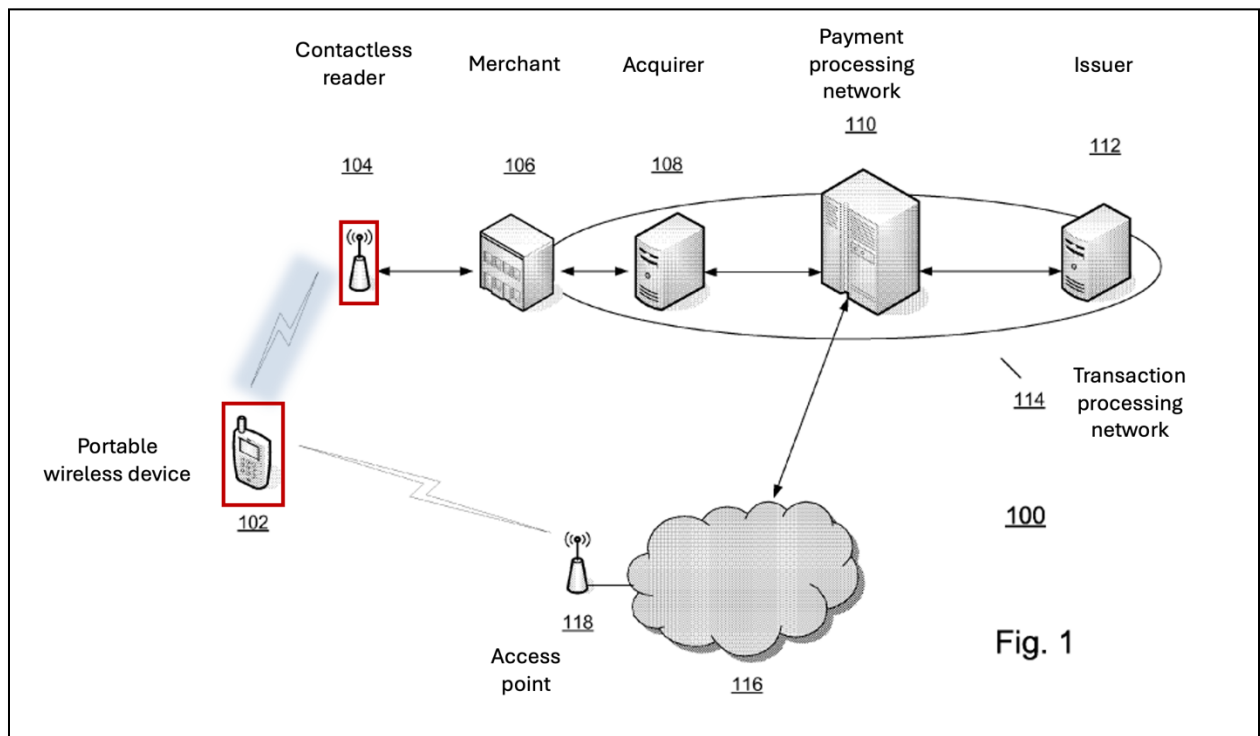
1. Point-to-Point Link Between the Smartphone and the Entity

In prosecution, Applicant relied on Fig. 1 of the '708 Patent to illustrate the point-to-point link between the smartphone and the entity. Ex. 1002, 112.



'708 Patent Fig. 1 (annotated); *Dec.*, ¶121. A POSITA would have understood '708 Patent Fig. 1 illustrates a link between the smartphone and the entity with no intervening access devices (i.e. a direct link). *Dec.*, ¶¶121; *see supra* Section II.B.

A POSITA would have further understood that *Carlson* Fig. 1 similarly depicts the wireless device with a point-to-point link to the contactless reader of the access point (entity) via short-range communication (NFC).⁶ *Dec.*, ¶122.



Carlson, Fig. 1 (annotated); *Dec.*, ¶122. Thus, *Carlson-ISO-14443* teaches a point-to-point short-range link between the smartphone and the entity.

2. Time Division Duplex Protocol

⁶ This is consistent with PO's interpretation of "point-to-point" as advanced in the parallel litigation. Ex. 1015, 34-37.

Carlson-ISO-14443 teaches that information is wirelessly transmitted to the contactless reader through NFC. *See supra* Claims 1(pre)-(a). NFC signals/messages are sent over a Time Division Duplex protocol.

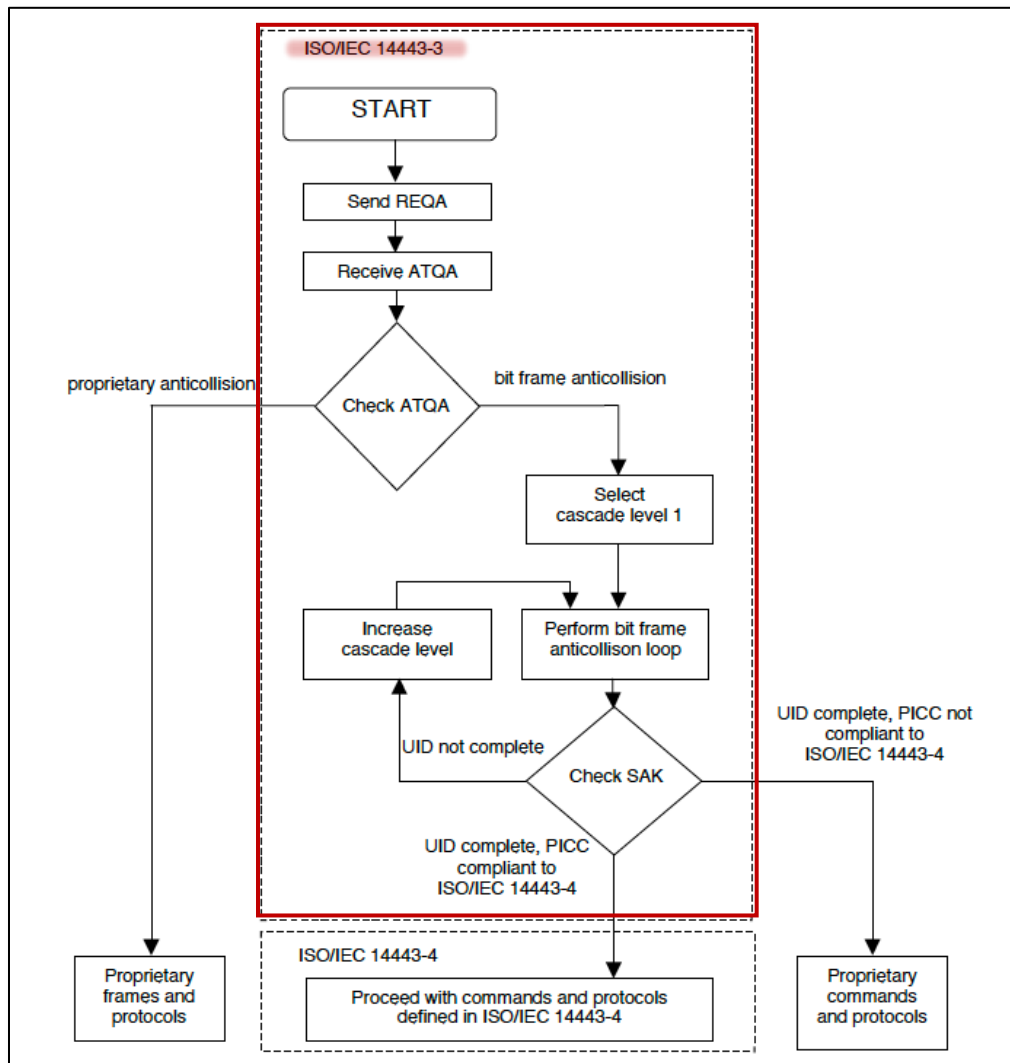
The '708 Patent describes Time Division Duplex as “a common set of frequencies are used bi-directionally (at different times) to provide uplink and downlink communications[.]” '708 Patent, 7:19-21. *ISO-14443* specifies that PCD and PICC devices operate at the common carrier frequency of 13.56 MHz. *ISO-14443*, 18. And 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 '708 Patent and a POSITA's understanding of half-duplex, a POSITA would have understood the communications, as disclosed by *ISO-14443*, to use a Time Division Duplex protocol.⁷ *Dec.*, ¶124.

v. Claim 6

The method of claim 1, further comprising enabling a function by the smartphone in response to an identity, wherein the identity is communicated between the smartphone and the entity.

⁷ Consistent with Petitioner's mapping, PO's litigation theories assert NFC as Time Division Duplex protocol. *See* Ex. 1015, 34-37.

Carlson-ISO-14443 teaches Claim 6. *ISO-14443* teaches that an identity is communicated between the PICC (wireless device) and PCD (reader) during the initialization process. As discussed in Claim 1(a), *ISO-14443* specifies initialization and anticollision methods. *ISO-14443*, 16. For example, during initialization, the PICC enters its IDLE State where “it listens for commands and shall recognize REQA and WUPA Commands.” *Id.*, 46. The initialization process encompasses several steps, as illustrated below:



Id., 49 (Fig. 8) (annotated). Successful initialization allows data to be exchanged between the PCD and PICC devices. *Id.*, 98. During the anticollision loop of the initialization, “***all PICCs in the field shall respond with their complete UID CLn[.]***” in which the UID is a unique identifier of the PICC. *Id.*, 51, 39. After no further collisions occur, the PCD transmits “all 40 bits of UID CLn[.]” *Id.*, 51. The PICC compares the transmitted UID to ensure it matches its UID. *Id.*, 51. (Step 13: “The PICC which UID CLn matches the 40 bits shall respond with its SAK.”). After confirming a matching UID and responding with its SAK, the PICC enters its ACTIVE state. *Id.*, 51. In the ACTIVE State, the “PICC listens to any higher layer message.” *Id.*, 46.

Therefore, the wireless device (PICC) transmits its UID to the contactless reader (PCD) of the access device (*entity*) during the anticollision loop of the initialization. In response to receiving the UID, the contactless reader performs the anticollision loop, and at the end of the loop transmits the UID (*an identity*) of the wireless device. The wireless device, matching the transmitted UID, responds and is placed in an ACTIVE state (*enabling a function by the smartphone*), allowing the wireless device and access device to communicate via NFC. Thus, *a function* of the wireless device allowing the PPAI to be transmitted to the access device (*first entity*) is enabled *in response to an identity communicated between the smartphone and entity*.

vi. Claim 7

The method of claim 6, wherein the enabling the function is performed in response to comparing the identity with one or more identities.

Carlson-ISO-14443 teaches Claim 7. The contactless reader sends the UID of the wireless device to all the PICCs within range. *See supra* Claim 6; *ISO-14443*, 51; *Dec.*, ¶127. Consequently, only the PICC with a matching UID responds. *ISO-14443*, 51. A POSITA would have understood that in order to determine whether the transmitted UID matches, each PICC compares its own UID (*one or more identities*) against the transmitted UID (*identity*). *Dec.*, ¶127. The PICC that matches the transmitted identity is then enabled to perform NFC communications. *See supra* Claim 6; *ISO-14443*, 51. Therefore, the function allowing the PPAI to be sent to the access device is *performed in response to comparing* the UID (*identity*) sent with the UID of the PICC (*one or more identities*).

vii. Claim 8

The method of claim 6, further comprising establishing the short-range link between the smartphone and the entity in further response to the identity.

Carlson-ISO-14443 teaches Claim 8. Receiving the UID correlating to the PICC from the PCD places the PICC in the ACTIVE state. *See supra* Claim 6; *ISO-14443*, 46. *ISO-14443* teaches that the PICC, after entering its ACTIVE state, can exchange data between the PCD and PICC devices. *ISO-14443*, 98 (illustrating “Exchange Transparent Data”). Because the data exchange cannot take place until the wireless device has participated in successful initialization and anticollision with

the contactless reader wherein the UID is communicated and compared, a POSITA would have understood the short-range wireless link to be established by the wireless device in response to the identity. Dec., ¶128.

viii. Claim 10

[10(a)] The method of claim 1, wherein the entity comprises a first device to which the smartphone provides the information over the short-range link, and

Carlson-ISO-14443 teaches Claim 10(a). *Carlson* teaches sending the PPAI (*information*) to an access device (first device) of the entity, such as a POS terminal, via NFC (over the short-range link). See *supra* Claim 1(a).

[10(b)] wherein the method further comprises sending the information to a second device responsive to the proximity criterion having been satisfied between the smartphone and the entity.

Carlson-ISO-14443 teaches wirelessly transmitting the PPAI (information) to the access device (first device) responsive to bringing the phone within the vicinity of the access device (proximity criterion having been satisfied) and conducting a financial transaction. See *supra* Claim 1(a). *Carlson* further teaches sending the PPAI (the information) to multiple other devices in the process of conducting the financial transaction. For example, *Carlson* teaches that an authorization request message containing the PPAI (the information) is transmitted from the wireless device (smartphone) via the contactless reader through a merchant to an acquirer and then forwarded to the remote server at the payment processing network. *Carlson*, 13:17-27. Dec., ¶130 (explaining that each device receives the PPAI that originates

at the wireless device). The merchant, acquirer, and payment processing network each receive the PPAI (information) and therefore each is a second device as claimed.

ix. Claim 11

[11(Pre)] A smartphone comprising:

Carlson teaches Claim 11(Pre). *See supra* Claim 1(Pre).

[11(a)] a processor that is configured to control the smartphone to perform operations comprising:

Carlson teaches Claim 11(a). *Carlson's* wireless device comprises “**processor 508** in communication with both the long and short range communications elements[.]” *Carlson*, 14:47-59. The processor also communicates with the device’s memory and user interface. *Id. See also id.*, Fig. 5. Because *Carlson's* processor interacts with the communication elements, memory, and the user interface of *Carlson's* device, a POSITA would have understood that processor 508 is configured to control the smartphone to perform operations. Dec., ¶132.

[11(b)] communicating between the smartphone and an entity using a first air interface responsive to a proximity criterion having been satisfied between the smartphone and the entity to provide information to the entity over a short-range link between the smartphone and the entity;

See supra Claim 1(a).

[11(c)] refraining from communicating between the smartphone and the entity by the smartphone using the first air interface absent the proximity criterion having been satisfied between the smartphone and the entity; and

See supra Claim 1(b).

[11(d)] communicating between the smartphone and a base station using a second air interface to receive a communications service from the base station via the

second air interface, wherein the smartphone receives the communications service from the base station via the second air interface but does not receive the communications service from the entity via the first air interface,

See supra Claim 1(c).

[11(e)] wherein the communicating between the smartphone and the entity using the first air interface responsive to the proximity criterion having been satisfied between the smartphone and the entity to provide information to the entity over the short-range link between the smartphone and the entity is performed concurrently with the communicating between the smartphone and the base station using the second air interface to receive a communications service from the base station via the second air interface.

See supra Claim 1(d).

x. Claim 12

The smartphone according to claim 11, wherein the operations further comprise detecting that the proximity criterion between the smartphone and the entity is satisfied.

See supra Claim 2.

xi. Claim 13

[13(a)] The smartphone according to claim 12, wherein the detecting comprises: detecting that a proximity criterion of less than 10 meters in distance is satisfied between the smartphone and the entity,

See supra Claim 3(a).

[13(b)] wherein the detecting is performed by the smartphone, by a device that is associated with the entity and/or by a system that is associated with the smartphone.

See supra Claim 3(b).

xii. Claim 15

The smartphone according to claim 11, wherein the communicating, over the short-range link, between the smartphone and the entity using the first air interface responsive to the proximity criterion having been satisfied is performed

over a point-to-point short-range link between the smartphone and the entity using a time division duplex protocol.

See supra Claim 5.

xiii. Claim 16

[16(Pre)] A method of operating a smartphone using a first air interface and a second air interface that differs from the first air interface, the method comprising:

See supra Claim 1(Pre).

[16(a)] communicating between the smartphone and an entity using the first air interface responsive to a proximity criterion having been satisfied between the smartphone and the entity to provide information to the entity;

See supra Claim 1(a).

[16(b)] refraining from communicating between the smartphone and the entity by the smartphone using the first air interface absent the proximity criterion having been satisfied between the smartphone and the entity; and

See supra Claim 1(b).

[16(c)] communicating, by the smartphone, using the second air interface to receive a communications service via the second air interface, wherein the smartphone receives the communications service via the second air interface but does not receive the communications service from the entity via the first air interface,

Carlson-ISO-14443 teaches Claim 16(c). Claim 16(c) differs from Claim 1(c) in that it lacks the express requirement of a base station. Thus, a POSITA would have understood Claim 16(c) to be broader, and, therefore, taught by *Carlson* for the same reasons explained in Claim 1(c). *Dec.* ¶144.

[16(d)] wherein the communicating between the smartphone and the entity using the first air interface responsive to the proximity criterion having been satisfied between the smartphone and the entity to provide information to the entity is

performed concurrently with the communicating by the smartphone using the second air interface to receive the communications service via the second air interface,

See supra Claim 1(d).

[16(e)] wherein the communicating between the smartphone and the entity using the first air interface responsive to the proximity criterion having been satisfied between the smartphone and the entity to provide information to the entity is performed over a point-to-point short-range link between the smartphone and the entity using a time division duplex protocol, and

See supra Claim 5.

[16(f)] wherein the entity is not involved in providing the communications service.

Carlson-ISO-14443 teaches Claim 16(f). *See supra* Claims 16(c), 1(c). Since *Carlson* discloses the communications service is not received from the access device via NFC, a POSITA would have understood that the access device (entity) is not involved in providing the communications service. Dec. ¶147.

xiv. Claim 17

The method according to claim 16, wherein the communicating by the smartphone using the second air interface to receive the communications service via the second air interface comprises communicating between the smartphone and a base station using the second air interface to receive the communications service from the base station via the second air interface.

See supra Claim 1(c).

xv. Claim 18

[18(Pre)] A smartphone comprising:

See supra Claim 1(Pre).

[18(a)] a processor that is configured to control the smartphone to perform operations comprising:

See supra Claim 11(a).

[18(b)] communicating between the smartphone and an entity using a first air interface responsive to a proximity criterion having been satisfied between the smartphone and the entity to provide information to the entity;

See supra Claim 1(a).

[18(c)] refraining from communicating between the smartphone and the entity by the smartphone using the first air interface absent the proximity criterion having been satisfied between the smartphone and the entity; and

See supra Claim 1(b).

[18(d)] communicating, by the smartphone, using a second air interface to receive a communications service via the second air interface, wherein the smartphone receives the communications service via the second air interface but does not receive the communications service from the entity via the first air interface,

See supra Claim 16(c).

[18(e)] wherein the communicating between the smartphone and the entity using the first air interface responsive to the proximity criterion having been satisfied between the smartphone and the entity to provide information to the entity is performed concurrently with the communicating by the smartphone using the second air interface to receive the communications service via the second air interface,

See supra Claim 1(d).

[18(f)] wherein the communicating between the smartphone and the entity using the first air interface responsive to the proximity criterion having been satisfied between the smartphone and the entity to provide information to the entity is performed over a point-to-point short-range link between the smartphone and the entity using a time division duplex protocol, and

See supra Claim 5.

[18(g)] wherein the entity is not involved in providing the communications service.

See supra Claim 16(f).

xvi. Claim 19

The smartphone according to claim 18, wherein the communicating by the smartphone using the second air interface to receive the communications service via the second air interface comprises communicating between the smartphone and a base station using the second air interface to receive the communications service from the base station via the second air interface.

See supra Claim 17.

B. Ground 2: Claim 9 is obvious under pre-AIA 35 U.S.C. § 103 over Carlson in view of ISO-14443 and Jazayeri

i. Claim 9

The method of claim 1, further comprising providing a notification at the smartphone in response to receiving a signal from the entity.

Carlson-Jazayeri-ISO-14443 teaches Claim 9. *Carlson-Jazayeri-ISO-14443* teaches the wireless device receiving a signal in the form of a digital receipt from the contactless reader using NFC and displayed on the device screen.

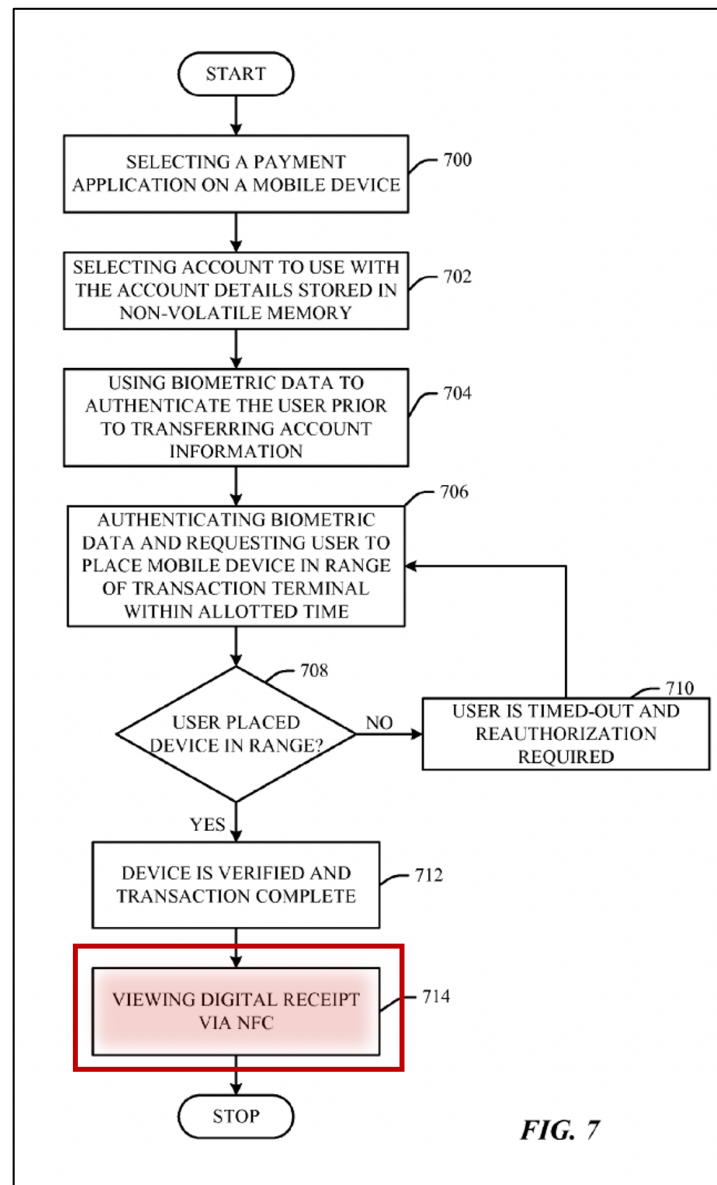
Carlson's Teachings

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.

Carlson also teaches that the wireless device can include a “user interface module 512” which can be a “touch screen[.]” *Carlson*, 15:45-48. A POSITA would have understood *Carlson*’s user interface module, or touch screen, to be capable of displaying data on a wireless device. *Dec.*, ¶160.

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 providing a notification at the smartphone in response to receiving a signal from the entity. Dec., ¶162. In the

Carlson-Jazayeri-ISO-14443 combination, the receipt (a signal) is transmitted from the access device (entity) to the wireless device (smartphone) via NFC and is displayed (a notification) on the wireless device. Because the receipt (signal) must be received prior to being displayed, the notification is provided in response to receiving the receipt data (signal) via NFC. *Dec.*, ¶162.

A POSITA would have been motivated to modify *Carlson*'s device to receive a digital receipt via NFC pursuant to *Jazayeri*'s teachings. *Dec.*, ¶163. 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.*, ¶163; *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.*, ¶164. *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 receiving and displaying *Jazayeri*'s digital receipts such as a memory, processor,

display, and NFC capability. *Carlson*, 14:47-59, 15:45-48, 17:18-20. *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* wireless device utilizing existing architecture found in *Carlson. Dec.*, ¶164.

C. Ground 3: Claims 4 and 14 are obvious under pre-AIA 35 U.S.C. § 103 over *Carlson* in view of *ISO-14443* and *Birch*

i. Claim 4

[4(a)] The method according to claim 1, wherein the entity comprises a first device,
Carlson-ISO-14443 teaches Claim 4(a). *Carlson* discloses an access device located at a merchant site (*entity comprising a first device*). See *supra* Claim 1(a).

[4(b)] wherein the information provided to the entity comprises first information, and

Carlson-ISO-14443 teaches Claim 4(b). *Carlson* teaches sending a PPAI (*first information*) to the access device (*entity*). See *supra* Claim 1(a).

[4(c)] wherein the method further comprises: selectively sending, by the smartphone, second information to a second device and receiving, by the smartphone, third information from the second device responsive to the proximity criterion having been satisfied between the smartphone and the entity,

Carlson-ISO-14443-Birch teaches Claim 4(c). *Carlson-ISO-14443* teaches sending information over NFC *responsive to the proximity criterion having been satisfied between the smartphone and the entity.*

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-ISO-14443-Birch teaches a wireless device (smartphone) sending a request (second information) for and receiving digital coupons/discounts (third information) from back-end system 200 (second device). *Dec.*, ¶169. *Carlson-ISO-14443-Birch* further teaches requesting and receiving the coupons/discounts via Bluetooth. *Id.* The request for coupons sent to the back-end system by the wireless device is selectively sent and received because the coupons and discounts are downloaded based on the user and the specific transaction. *Id.* Finally, the request and receipt of coupons/discounts is responsive to the proximity criterion having been satisfied because it takes place during a financial transaction which occurs only after satisfying the proximity criterion. *See supra* Claim 1(a). Indeed, a POSITA would have understood that the request for and receipt of coupons/discounts is responsive to the proximity condition being satisfied, as the request is specific to the items being purchased, information that does not exist on the device prior to NFC communication between the wireless device and access device. *Dec.*, ¶169.

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.*, ¶170. 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 server. *Id*; *KSR*, 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.*, ¶171. 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.

[4(d)] wherein the smartphone does not receive the communications service from the second device.

Carlson-ISO-14443-Birch teaches Claim 4(d). The communications service provided is received by the wireless device from cellular network 116. *See supra* Claim 1(c). The third-party back end system of *Birch* is not an access point of a cellular network and therefore is not involved in providing the wireless device with the communications service. *Dec.*, ¶172. Thus, the wireless device does not receive the communications service from the second device.

ii. Claim 14

[14(a)] The smartphone according to claim 11, wherein the entity comprises a first device,

See supra Claim 4(a).

[14(b)] wherein the information provided to the entity comprises first information, and

See supra Claim 4(b).

[14(c)] wherein the operations further comprise: selectively sending, by the smartphone, second information to a second device and receiving, by the smartphone, third information from the second device responsive to the proximity criterion having been satisfied between the smartphone and the entity,

See supra Claim 4(c).

[14(d)] wherein the smartphone does not receive the communications service from the second device.

See supra Claim 4(d).

VI. CONCLUSION

For the foregoing reasons, Petitioner respectfully requests *inter partes* review of Claims 1-19 of the '708 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 '708 Patent or related patents:

- *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*, IPR2025-00975 (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*, IPR2025-00978 (PTAB), challenging related U.S. Patent No. 12,028,793
- *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*, IPR2025-01239 (PTAB), challenging related U.S. Patent No. 12,028,793

- *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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APPENDIX OF EXHIBITS

Exhibit	Description
1001	U.S. Patent No. 9,832,708 (“ <i>the ’708 Patent</i> ”)
1002	File History of the ’708 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	Intentionally Left Blank
1009	WIPO International Publication No. WO 01/95246 to Murakami et al. (“ <i>Murakami</i> ”)
1010	Intentionally Left Blank
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—</i>

	<i>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 10,741 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 '708 Patent as listed on PAIR:

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