UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner

v.

TELCOM VENTURES LLC,
Patent Owner

Patent No. 11,770,756

PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,770,756

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I. INTRODUCTION

Google LLC ("Petitioner") respectfully requests *inter partes* review of claims 1-18 ("the challenged claims") of U.S. Patent No. 11,770,756 ("the '756 patent") (EX1001) assigned to Telcom Ventures LLC ("Patent Owner").

II. MANDATORY NOTICES

Real Parties-in-Interest: Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner identifies Google LLC as the real party-in-interest.[1]

Related Matters: The '756 patent is asserted in *Telcom Ventures LLC v. Samsung Electronics Co., Ltd.*, Case No. 2:24-cv-00691 (E.D. Tex.) and *Telcom Ventures LLC v. Apple Inc.*, Case No. 3:25-cv-05041 (N.D. Cal.).

The '756 patent is also at issue in *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00977 (PTAB) and *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01236 (PTAB). Petitioner was not involved in any way with these earlier IPRs.

The '756 patent originates from U.S. Patent Application No. 17/653,748, filed on March 7, 2022, which is a continuation of application No. 15/929,609, filed on

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[1] Google LLC is a subsidiary of XXVI Holdings Inc., which is a subsidiary of Alphabet Inc. XXVI Holdings Inc. and Alphabet Inc. are not real parties-in-interest to this proceeding.

May 12, 2020, now Patent No. 11,304,118, which is a continuation of application No. 16/012,513, filed on June 19, 2018, now Patent No. 10,660,015, which is a division of application No. 15/800,885, filed on November 1, 2017, now Patent No. 10,219,199 ("the '199 patent"), which is a continuation of application No. 15/251,882, filed on August 30, 2016, now Patent No. 9,832,708 ("the '708 patent"), which is a continuation of application No. 12/264,711, filed on November 4, 2008, now Patent No. 9,462,411 ("the '411 patent). (EX1001, Cover.)

The '199, '708, and '411 patents, as well as related U.S. Patent Nos. 10,674,432 ("the '432 patent"), 11,924,743 ("the '743 patent"), 11,937,172 ("the '172 patent"), and 12,028,793 ("the '793 patent"), are all also at issue in *Telcom Ventures LLC v. Samsung Electronics Co., Ltd.*, Case No. 2:24-cv-00691 (E.D. Tex.) and *Telcom Ventures LLC v. Apple Inc.*, Case No. 3:25-cv-05041 (N.D. Cal.).

Petitioner has filed IPR petitions challenging the '743, '172, '708, and '793 patents in *Google LLC v. Telcom Ventures LLC*, IPR2025-01349 (PTAB); *Google LLC v. Telcom Ventures LLC*, IPR2025-01389 (PTAB); *Google LLC v. Telcom Ventures LLC*, IPR2025-01401 (PTAB); and *Google LLC v. Telcom Ventures LLC*, IPR2025-01408 (PTAB).

Additionally, the '411, '708, '199, '432, '743, '172, and '793 patents are at issue in *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00973 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*,

IPR2025-00975 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00972 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00974 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00976 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00957 (PTAB); *Samsung Electronics America, Inc. v. Telcom Ventures LLC*, IPR2025-00978 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01232 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01233 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01234 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01235 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01237 (PTAB); *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01238 (PTAB); and *Apple Inc. v. Telcom Ventures LLC*, IPR2025-01239 (PTAB). Petitioner was not involved in any way with those earlier IPRs.

Counsel and Service Information: Lead counsel is Naveen Modi (Reg. No. 46,224). Backup counsel are Daniel Zeilberger (Reg. No. 65,349), Quadeer Ahmed (Reg. No. 60,835), Alexa Lowman (*pro hac vice* to be filed), and Maksim Mints (Reg. No. 78,507). Service information is Paul Hastings LLP, 2050 M Street NW, Washington, D.C. 20036, Tel.: 202.551.1700, Fax: 202.551.1705, email: PH-Google-Telcom-IPR@paulhastings.com. Petitioner consents to electronic service.

III. PAYMENT OF FEES UNDER 37 C.F.R. §§ 42.15 AND 42.103

The PTO is authorized to charge any fees due during this proceeding to Deposit Account No. 50-2613.

IV. GROUNDS FOR STANDING

Petitioner certifies under 37 C.F.R. § 42.104(a) that the '756 patent is available for review and Petitioner is not barred or estopped from requesting review on the grounds identified herein.

V. PRECISE RELIEF REQUESTED AND GROUNDS RAISED

Petitioner respectfully requests review of claims 1-18 of the '756 patent and cancellation of these claims as unpatentable. The challenged claims should be found unpatentable on the following grounds:

Ground 1: Claims 1, 2, 6, 7 are unpatentable under pre-AIA 35 U.S.C. § 103 as being obvious in view of U.S. Patent Application Publication No. 2009/0170483 A1 to Barnett et al. ("Barnett") (EX1005) and International Patent Publication No. WO 2006/087503 A1 to Waters et al. ("Waters") (EX1006).

Ground 2: Claims 3-5, 8-16, and 18 are unpatentable under pre-AIA 35 U.S.C. § 103 as being obvious in view of Barnett, Waters, and U.S. Patent No. 7,434,723 to White et al. ("White") (EX1007).

Ground 3: Claim 17 is unpatentable under pre-AIA 35 U.S.C. § 103 as being obvious in view of Barnett, Waters, White, and International Patent Publication No. WO 02/09005 A1 to Smith et al. ("Smith") (EX1018).

The earliest possible priority date of the '756 patent is November 4, 2008.[2] Barnett published from an application filed December 28, 2007 (EX1005, Cover), and thus qualifies as prior art under at least § 102(e). Waters published on August 24, 2006 from an application filed February 15, 2005, and thus qualifies as prior art under at least §§ 102(a), (b), and (e). White issued on October 14, 2008 from an application filed May 26, 2005, and thus qualifies as prior art under at least §§ 102(a) and (e). Smith published on January 31, 2002 from an application filed on July 23, 2001, and thus qualifies as prior art under at least §§ 102(a), (b), and (e).

Barnett, Waters, White, and Smith were not considered by the Office during prosecution. (EX1001, Cover; *see also generally* EX1004.)

VI. LEVEL OF ORDINARY SKILL

A person of ordinary skill in the art at the time of the alleged invention of the '756 patent ("POSITA") would have had an undergraduate degree in electrical engineering, computer engineering, computer science or a related field along with

[2] Petitioner does not concede that the '756 patent is entitled to a November 4, 2008, priority date.

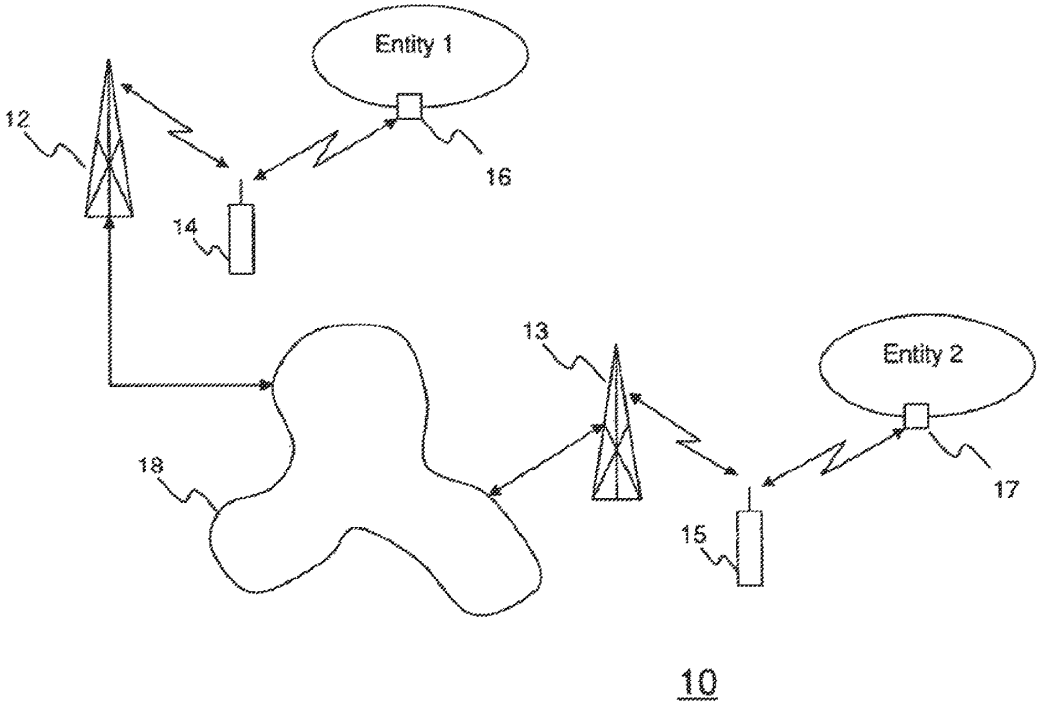
two years of work experience in the field of mobile communication applications. (EX1002, ¶¶20-21.)[3] More education can supplement practical experience and vice versa. (*Id*.)

VII. OVERVIEW OF THE '756 PATENT

The '756 patent describes "enabling one or more functions of a device" based on sensing "a physiological parameter of a user of the device." (EX1001, Abstract.) The '756 patent describes a system containing what it refers to as a first device 14, a second device 15, an entity 1 and entity 2, and a communications system 18, among other components. (EX1001, 8:62-10:31.) The '756 patent explains that the devices 14 and 15 may be mobile devices such as a mobile phone. (*Id.*, 3:13-22.) Entity 1 and entity 2 may be "a person, an animal, a vehicle…, a building…, a product that is for sale, a store that sells one or more products, a check-out counter in a store, a shopping cart that may be used by a customer to carry one or more products selected by the customer for purchase, one or more locations in time and/or space, a geographic area and/or a multi-dimensional region in time and/or space." (*Id.*, 3:51-59.) The communications system 18 may be, for example, a wireless

[3] Petitioner submits the declaration of Dr. Sandeep Chatterjee (EX1002), an expert in the field of the '756 patent. (EX1002, ¶¶1-19; EX1003.)

communications system that wirelessly communicates with the first and second devices. (*Id.*, 12:6-10.)



(*Id.*, FIG. 1.)

The '756 patent broadly describes communication features between these devices and entities. For example, "a method in a system 10 is provided comprising: detecting that a proximity criterion is satisfied between a first device 14, such as a mobile subscriber device, and Entity 1; and enabling a mode of the first device and/or a mode of a second device 15 responsive to the detecting." (*Id.*, 8:65-9:3; *see also id.*, 9:7-10.)

The claims of the '756 patent focus on one embodiment in which "[t]he function enabled…[is] a financial transaction." (*Id.*, 9:15-16; *see also id.*, claims 1-

18.) The '756 patent explains with respect to a mobile phone used in this financial transaction embodiment that "a mobile subscriber device 14 linked to a communications system 18 via base station 12 can enable a function when the device 14 comes within a proximity of Entity 1." (*Id.*, 9:7-10, 9:18-24.)

VIII. CLAIM CONSTRUCTION

For IPR proceedings, the Board applies the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*). *See* 83 Fed. Reg. 51,340-59 (Oct. 11, 2018). Under *Phillips*, claim terms are typically given their ordinary and customary meanings, as would have been understood by a POSITA, at the time of the invention, having taken into consideration the language of the claims, the specification, and the prosecution history of record. *Phillips*, 415 F.3d at 1313; *see also id.* at 1312-16.

The Board, however, only construes the claims when necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Sys., Inc.*, IPR2015-00633, Paper No. 11 at 16 (P.T.A.B. Aug. 14, 2015) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Here, given the correlation between the prior art references and the challenged claims of the '756 patent, the

Board need not construe any terms of the challenged claims to resolve the underlying controversy, as any reasonable construction reads on the prior art. (EX1002, ¶46.)[4]

IX. DETAILED EXPLANATION OF GROUNDS

As detailed below, each of the challenged claims are unpatentable. (EX1002, ¶¶22-153.)

A. Ground 1: Barnett and Waters Render Obvious Claims 1, 2, 6, and 7

1. Claim 1

i) [1.pre] "A method of operating a device, the method comprising:"

To the extent the preamble is limiting, Barnett discloses the limitations therein. (EX1002, ¶¶48-54.)

Barnett discloses a "system and method of communicating shopping information between a consumer and a retailer," including a "system for enabling a consumer to obtain shopping information from a retailer, and the retailer to obtain information from the consumer, using a communication device, such as a mobile phone." (EX1005, ¶[0001].) Barnett explains that "a consumer may utilize…a portable communications device 14, such as a mobile phone" ("device") (*id.*,

[4] Petitioner reserves all rights to raise claim construction and other arguments in other venues.

¶[0011]), which is "adapted to communicate with a Near Field Communication (NFC) device, a wireless network, such as a Wi-Fi system, and a Bluetooth system, as well as a cellular phone system" (*id.*, ¶[0012]). Barnett explains that the mobile phone14 not only operates as a cellular phone using a cellular network (*id.*, ¶¶[0005], [0012], [0027]), but also "combines the functions of a Wi-Fi device, a contact-less credit card, and a cell phone" (*id.*, ¶[0012]).

Barnett explains that a store may have "stand-alone NFC-enabled devices 34 [which] are used to identify products to NFC-enabled devices." (EX1005, ¶[0023].) As shown in Figure 1 below, a consumer may place their "NFC-enabled mobile phone 14" (in red below) "proximate to the product identifier 34" (in yellow below) so that "information is extracted from the product identifier 34 and transmitted to, and stored within, the NFC-enabled mobile phone 14 in a manner similar to a bar code reader." (*Id.*, ¶[0023].) For example, the consumer may "retrieve and store information" such as "the identity of the product" (*id.*, ¶[0033]), which may further include "the name of the produce and the price of the product, as well as technical information about the product, such as the specifications" (*id.*, ¶[0023]).

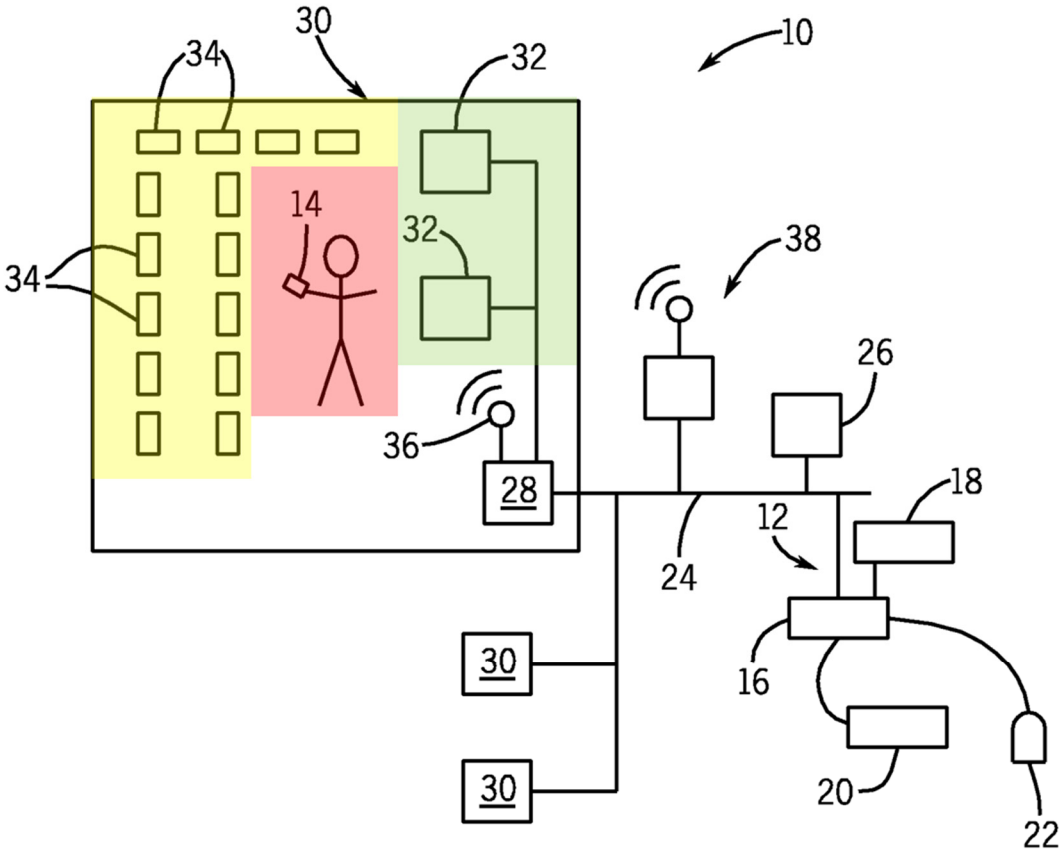


FIG. 1

(*Id.*, FIG. 1 (annotated); EX1002, ¶50.)

Barnett also explains that "[w]ithin the store 30 are a series of displays 32 that are connected to the store computing system 28." (EX1005, ¶[0021].) These "displays 32" (in green above) may be "NFC-enabled displays that can interact with a NFC-enabled mobile phone 14 using device-to-device communication." (*Id.*) "Alternatively, the displays 32 may be Bluetooth-enabled communications devices" such that "when a Bluetooth-enabled mobile phone is located near the display 32,

information is transmitted between the Bluetooth-enabled mobile phone 14 and the display 32." (*Id.*, ¶[0022].)

Barnett explains that the NFC displays 32 have multiple purposes. (EX1002, ¶52.) First, Barnett discloses that after retrieving product identity information from devices 34, a "consumer may then place the mobile phone 14 proximate to a NFC-display 32 which reads the product identity information from the mobile phone 14 and retrieves additional information regarding the product to the consumer." (EX1005, ¶[0033].) The NFC display 32 may also be used to enable Wi-Fi communication in a consumer's mobile phone so that the consumer can obtain additional information from the retailer via the Internet. (*Id.*, ¶¶[0015], [0016], [0026], [0035], [0041].)

Barnett explains that a display 32, as shown in Figure 3 below, may also "us[e] the NFC interface…to complete the transaction using the cell phone as a credit card, debit card, or electronic purse." (*Id.*, ¶[0040]; *see also id.*, [0037].) As shown in Figure 3 below, "[t]he NFC-enabled display 32 has an NFC interface 58" (in green) "that is adapted to transmit data between the mobile phone 14 and the display 32." (*Id.*, ¶[0038].) For example, Barnett discloses that "the mobile phone 14 may be programmed to provide a specific credit card number when the mobile phone 14 is used in making purchases in a specific store." (*Id.*, ¶[0032].)

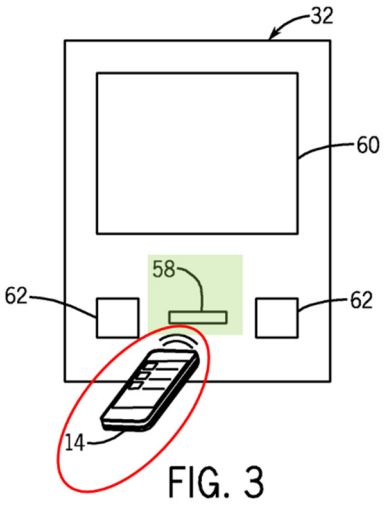


FIG. 3

(*Id.*, FIG. 3 (annotated); EX1002, ¶53.) Barnett discloses that transmission of data between the consumer's phone (in red above) and the NFC display 32 via NFC interface 58 (in green above) may occur when devices are within "a short distance, such as a decimeter." (EX1005, ¶[0013].)

Thus, Barnett discloses "[a] method of operating a device," e.g., to perform a financial transaction using NFC communication. (EX1002, ¶54.)

ii) [1.a] "sensing by the device, using a device-based sensor, a parameter that is associated with the device, an environment of the device and/or a user of the device;"

Barnett in view of Waters discloses and/or suggests this limitation. (EX1002, ¶¶55-64.)

While Barnett does not explicitly disclose sensing a parameter associated with the device or the device's environment or user, a POSITA would have been

motivated to modify the Barnett system/method in view of Waters such that it performs "sensing by the device, using a device-based sensor, a parameter that is associated with the device, an environment of the device and/or a user of the device" in order to enable the NFC capabilities in the user's phone. (*Id.*, ¶55.)

Like Barnett, Waters discloses a system/method of performing a financial transaction using an NFC-enabled mobile device. (*Id.*, ¶56.) For example, Waters discloses a "mobile terminal 1" such as a "handheld mobile telephone" (EX1006, 4), which includes a "near field or RFID tag 41" (*id.*, 8).[5] Waters discloses that the near field tag of the mobile terminal may be used to conduct various transactions, such as paying for public transport, making a toll fee payment, or paying for a school lunch. (*Id.*, 1, 11.) Waters discloses that the near field tag is able to "exchange information with a tag reader when the two are brought into close proximity." (*Id.*, 9.) Thus, Waters is similar to Barnett, which discloses a system/method of purchasing products in a store at an NFC-enabled display/register using an NFC-enabled mobile device. (*See* Section IX.A.1.i.) In other words, both Barnett and Waters relate to conducting financial transactions using a mobile device based at least in part on

[5] Citations to Waters are to the originally-marked page numbers of the WIPO publication.

proximity of the mobile device to a point-of-sale device. A POSITA would have therefore been motivated to consider the teachings of Waters when implementing Barnett's system/method. (EX1002, ¶56.)

Waters additionally discloses that "the mobile telecommunication device is operable to selectively enable the near field communication device." (EX1006, 4.) Waters explains that "[t]he near field tag 41 may be selectively enabled and disabled in order to reduce the opportunity to obtain information from the near field tag 41 by an unauthorised reader." (*Id.*, 13.) For example, Waters discloses various types of sensors that can be used to activate the near field/RF tag, such as a light sensor, pressure sensor (in combination with a fingerprint or skin resistance sensor), or heat sensor. (*Id.*, 15-16; EX1002, ¶57.) Waters provides this functionality to enhance the device's security features for conducting financial transactions. (EX1002, ¶57; EX1006, Title ("Improved Security for Wireless Communication"), Abstract, 2 ("The present invention, in one aspect, seeks to provide additional or improved security."), 4, 13-16.)

With respect to a light sensor, Waters explains that "a photodiode (a sensor that modifies an electric current when exposed to a light source) could be built into the casing of the mobile terminal 1 and act as a switch to activate or deactivate the RF tag 41." (EX1006, 15.) "The RF tag 41 is controlled by the photo diode so that the RF tag 41 is ***only enabled*** when the mobile terminal 1 is exposed to light," and

is otherwise disabled (e.g., if the mobile terminal is an opaque case or user's pocket). (*Id.*) Waters discloses that the "photodiode may be sensitive to a particular frequency range—for example visible light, infra red or ultra violet," and "[t]he tag reader may be provided with a light emitter that emits light at this frequency, in order to activate the tag." (*Id.*; EX1002, ¶58.)

Waters discloses that a "pressure sensor on the casing of mobile terminal 1" may "act[] as a switch" instead of the light sensor, where the near field/"RF tag 41 is ***only enabled*** when the user physically presses the pressure sensor," and is otherwise disabled (e.g., when in a case or user's pocket). (EX1006, 15.) Such a "pressure sensor may be combined with [a] fingerprint scanner 45" so that "[t]he combined sensor detects, not only that pressure is applied, but also that an authorized person is pressing the sensor." (*Id.*; *see also id.*, 14; EX1002, ¶59.)

"Alternatively, the pressure sensor could be combined with an electrical resistance meter and used to detect that it is a human hand pressing the pressure sensor, rather than some other object." (EX1006, 15.) For example, Waters explains that "a skin resistance sensor may be provided on the casing of the mobile terminal 1 in dependence of the presence of the pressure sensor described above." (*Id.*, 16.) "The near field tag 41 will ***only be operated*** when an appropriate resistance, capacitance or inductance is detected, indicating that the user's hand is touching the sensor." (*Id.*; EX1002, ¶60.)

"Heat sensors" can similarly be "incorporated in an appropriate position on the casing of the mobile terminal 1" and "configured to detect that the mobile terminal is in a user's hand by detecting the heat from the hand, and ***only enabling*** the near field tag 41 when heat from the hand is so detected." (EX1006, 15-16; EX1002, ¶61.)

Accordingly, Waters discloses sensing by the user's phone ("sensing by the device"), using a sensor of the device (e.g., a light sensor, fingerprint/pressure sensor, skin resistance/pressure sensor, or heat sensor) ("using a device-based sensor"), "a parameter that is associated with…an environment of the device" (e.g., the type/frequency of light around the device) or "a parameter that is associated with…a user of the device" (e.g., a fingerprint/pressure combination to determine if a specific user is pressing the sensor, a skin resistance/pressure combination to determine if a human hand is pressing the sensor, or a parameter associated with the heat from a user's hand), and then determining that the parameter sensed satisfies some threshold criterion (e.g., the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is

actively pressing the sensor, or heat is actively being applied) and only enabling the near field tag while that value is satisfied.[6] (EX1002, ¶62.)

A POSITA would have been motivated to incorporate such a sensing mechanism, similar to that disclosed by Waters, to selectively enable/disable the NFC tag in Barnett's device. (*Id.*, ¶63.) Waters explains, as noted above, that the selective enablement/disablement of the near field tag is intended to improve the security of the tag to prevent unauthorized access (e.g., by an unauthorized reader). (EX1006, 9, 13.) A POSITA would have understood the benefit of such a security measure in the context of Barnett's system/method, which as discussed above, involves a user similarly interacting with many NFC readers/displays in the same store. (EX1002, ¶63.) Barnett explains that these NFC readers are largely unmonitored by retail workers, since the goal of the invention is to reduce the number of higher cost human employees in the store. (EX1005, ¶[0043].) A POSITA would have understood that the presence of employees provides a security benefit to a store by deterring theft or other unauthorized access to merchandise and store technology. (EX1002, ¶63.) For example, in a store with more employees, a

[6] While Petitioner identifies two of the optional parameter types as being disclosed in the Barnett-Waters combination, only one is required by the claim.

bad actor may be less likely to install a card skimming device or similar unauthorized NFC reader to gain access to customer credit/debit card information. (*Id.*) A POSITA would have thus recognized the importance of implementing security features at each user's mobile phone in an environment with fewer employees, so as to reduce the risk of unauthorized access by an unauthorized NFC reader. (*Id.*) Barnett also emphasizes that security is an important feature of mobile phone communication technologies by explaining, for example, the benefits of authentication mechanisms for accessing wireless internet (EX1005 ¶¶[0005], [0012]) and "secure" Bluetooth technologies (*id.*, ¶[0017]). A POSITA would have thus recognized that communication security is important to the mobile phone and would have been motivated to implement security improvements to the mobile phone's NFC technology, e.g., by selectively enabling/disabling the NFC tag to prevent access by an unauthorized reader. (EX1002, ¶63.) A POSITA would have understood that selectively enabling and disabling the NFC tag of a mobile phone would have numerous user experience benefits as well, such as preventing unintended financial transactions or other unintended use of the NFC tag, and helping preserve mobile phone battery by disabling the NFC tag when it is not needed. (*Id.*)

A POSITA would have also had a reasonable expectation of success combining the teachings of Barnett and Waters. (EX1002, ¶64.) As discussed

above, both references are in the same field of art. Moreover, Barnett suggests that its system/method is flexible and modifications to the NFC-enabled mobile phone are contemplated. (EX1005, ¶[0044].) A POSITA would have had the skill to implement and reasonable expectation of success in achieving such a modification because it would have involved a combination of known technologies (e.g., known system/method for performing financial transactions using an NFC-enabled mobile phone (Barnett)) according to known methods (e.g., known methods of selectively enabling and disabling NFC tags in mobile phones for use in financial transactions (Waters)) to yield the predictable result of a modified Barnett-Waters system/method with improved security features that implements a sensing mechanism in each user's phone to selectively enable and disable the phone's NFC tag such that sensing a value of the parameter and determining that it meets some criterion is required in order to activate the NFC tag used to conduct financial transactions in the store. (EX1002, ¶64.) *KSR Int'l. Co. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

iii) [1.b] "determining by the device a value of the parameter that is sensed; and"

The Barnett-Waters combination discloses and/or suggests this limitation. (EX1002, ¶65.) As discussed for limitation [1.a], in the Barnett-Waters combination, the NFC capability of the mobile phone is enabled when the phone senses a value of a parameter (e.g., the type/frequency of light, a fingerprint/pressure combination, a skin resistance/pressure combination or heat) ("determining by the

device a value of the parameter that is sensed") and determines that the value satisfies a threshold criterion (e.g., the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is actively pressing the sensor, or heat is actively being applied). (*See* Section IX.A.1.ii.)

iv) [1.c] "responsive to the value that is determined by the device for the parameter that is sensed satisfying a threshold criterion, enabling by the device a number of functions of the device and disabling by the device a function of the device;"

The Barnett-Waters combination discloses and/or suggests this limitation. (EX1002, ¶¶66-71.)

As discussed for limitation [1.a], in the Barnett-Waters combination, if the mobile phone determines that a value of a sensed parameter (e.g., the type/frequency of light, a fingerprint/pressure combination, a skin resistance/pressure combination or heat) satisfies a threshold criterion (e.g., the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is actively pressing the sensor, or heat is actively being applied) ("responsive to the value that is determined by the device for the parameter that is sensed satisfying a threshold criterion"), then the NFC function of the phone is enabled,

thus allowing the phone to, e.g., conduct a transaction at an NFC-enabled display/payment register ("enabling by the device a number of functions").[7] (*See* Section IX.A.1.ii.)

A POSITA would have further been motivated to implement the Barnett-Waters combination in view of Barnett such that when the phone's NFC function is enabled ("enabling by the device a number of functions of the device") (i.e., in response to the sensor condition being satisfied), some second function of the device is disabled ("disabling by the device a function of the device"). (*Id.*, ¶68.)

Barnett discloses that "the mobile phone 14 may be programmed with a plurality of different credit card numbers" and "to provide a specific credit card number when the mobile phone 14 is used in making purchases in a specific store." (EX1005, ¶[0032].) In particular, "the mobile phone 14 may be programmed to provide a first credit card number when the consumer is in a first store and provide a second credit card number when the consumer is in a second store." (*Id.*) Barnett discloses that "once this information is initially programmed into the mobile phone

[7] As recited in dependent claim 2 (*see* Section IX.A.2), "a number of functions" may be any number of functions greater than or equal to one, i.e., a single enabled function is sufficient to meet the language of limitation [1.c].

14, the configuration of the mobile phone 14 as a credit card is done automatically simply by placing the mobile phone 14 proximate to the NFC-enabled display 32 so that the desired information may be exchanged between the two." (*Id.*) In other words, the credit card used for a particular transaction is selected at the time of the transaction so that the "consumer does not have to scroll through menus or follow any other time consuming process simply to configure the mobile phone 14 each time they make a purchase." (*Id.*; EX1002, ¶69.)

A POSITA would have understood from Barnett's disclosure that it would have been beneficial to implement the Barnett-Waters system/method such that when the NFC function is enabled, allowing a user to perform an NFC-enabled transaction with the phone, the phone's function allowing for the selection of one of several credit cards would have been disabled.[8] (EX1002, ¶70.) A POSITA would

[8] These communication/payment "function[s]" (i.e., the NFC function (a communication function) and the credit card selection function (a payment function)) are consistent with those described in the '756 patent, which describes "functions" broadly as encompassing an "ever-increasing suite" of features/tasks, including communication and payment functions. (EX1001, 1:35-39, 4:35-6:12

have understood that such an implementation would have provided increased security by limiting the potential exposure of credit card information. (*Id.*) Limiting exposure of the other credit cards not currently being used for a transaction would have been beneficial in order to reduce the risk of unauthorized access to that credit card information. (*Id.*) Disabling the ability to select other credit cards when the mobile phone's NFC capability associated with a first credit card is enabled would have also reduced the risk of accidental charges to a different credit card, and would have streamlined the implementation of the transaction process at the consumer's mobile phone. (*Id.*)

(enabling a "pay toll" function), 6:17-8:12 (enabling a communications function), 8:9-61 (enabling a "pay" function), 9:10-21 (describing a "function" broadly as "any number of functions at the mobile subscriber device 14 or even at the mobile subscriber device 15" (i.e., at first or second mobile device), and explaining that the "function enabled can be a financial transaction, the transmission of communications, such as data, and/or some other function that may provision the mobile subscriber device 14 and/or the mobile subscriber device 15 with additional functionality not previously available/activated at the respective devices").)

A POSITA would have had the skill to implement and reasonable expectation of success in achieving such a modification because it would have involved a combination of known technologies (e.g., known systems/methods for performing financial transactions using an NFC-enabled mobile phone (Barnett, Waters)) according to known methods (e.g., known methods for selecting certain credit cards for a transaction (Barnett)) to yield the predictable result of a modified Barnett-Waters system/method in which, in response to the sensor condition being satisfied ("responsive to the value that is determined by the device for the parameter that is sensed satisfying a threshold criterion"), the phone enables the NFC capability ("enabling by the device a number of functions of the device") and disables the credit card selection capability ("disabling by the device a function of the device"). (EX1002, ¶71.) *KSR*, 550 U.S. at 416.

v) [1.d] "wherein the parameter that is sensed using the device-based sensor, comprises a velocity, an acceleration, a time-of-day, a humidity, a temperature, a height, a level of brightness, a level of darkness, a blood pressure, a heart rate, a blood content, a physiological state and/or a psychological state; and"

The Barnett-Waters combination discloses and/or suggests this limitation. (EX1002, ¶72.) As discussed for limitation [1.a], the parameter sensed by the device sensor to activate the NFC tag ("wherein the value of the parameter that is sensed using the device-based sensor comprises") may be a light sensor which senses either

exposure to light or the presence of a certain frequency of light ("a level of brightness"), a combination fingerprint/pressure sensor which senses that a certain authorized person is pressing the sensor ("a physiological state"), a combination skin resistance/pressure sensor which senses that a human hand is pressing the sensor ("a physiological state"), or a heat sensor that senses heat being applied to the device sensor (e.g., from a hand holding the device) ("a temperature").[9] (*See* Section IX.A.1.ii; EX1002, ¶72.)

vi) [1.e] "wherein the device comprises a smartphone."

Barnett discloses and/or suggests this limitation. (EX1002, ¶73.) As discussed for limitation [1.pre], Barnett explains that the "mobile phone 14 combines the functions of a Wi-Fi device, a contact-less credit card, and a cell phone" (EX1005, ¶[0012]), and thus a POSITA would have understood that a consumer's mobile phone ("device") operates as a "smartphone" because it has advanced features beyond the standard calling and texting features of a cellular phone. (EX1002, ¶73.)

[9] While Petitioner identifies three of the optional parameters as being disclosed in the Barnett-Waters combination, only one is required by the claim.

2. Claim 2: "The method of claim 1, wherein said enabling by the device a number of functions of the device comprises enabling by the device a number of functions of the device that is greater than or equal to one."

The Barnett-Waters combination discloses and/or suggests these limitations. (EX1002, ¶74.) As discussed for limitation [1.c], enabling the NFC function of the phone, thus allowing the phone to conduct a transaction at an NFC-enabled display/payment register, involves enabling at least one function ("wherein said enabling by the device a number of functions of the device comprises enabling by the device a number of functions of the device that is greater than or equal to one"). (*See* Section IX.A.1.iv.)

3. Claim 6

i) [6.pre] "A device that is configured to perform operations comprising;"

To the extent the preamble is limiting, Barnett discloses the limitations therein. (EX1002, ¶75.) As discussed for limitation [1.pre], Barnett discloses a mobile phone ("device") that is "configured to perform operations" associated with conducting a financial transaction using NFC communication. (*See* Section IX.A.1.i.)

ii) [6.a] "sensing by the device, using a device-based sensor, a parameter that is associated with the device, an environment of the device and/or a user of the device;"

The Barnett-Waters combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [1.a]. (EX1002, ¶76; *see* Section IX.A.1.ii.)

iii) [6.b] "determining by the device a value of the parameter that is sensed; and"

The Barnett-Waters combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [1.b]. (EX1002, ¶77; *see* Section IX.A.1.iii.)

iv) [6.c] "responsive to the value that is determined by the device for the parameter that is sensed satisfying a threshold criterion, enabling by the device a number of functions of the device and disabling by the device a function of the device;"

The Barnett-Waters combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [1.c]. (EX1002, ¶78; *see* Section IX.A.1.iv.)

v) [6.d] "wherein the parameter that is sensed using the device-based sensor, comprises a velocity, an acceleration, a time-of-day, a humidity, a temperature, a height, a level of brightness, a level of darkness, a blood pressure, a heart rate, a blood content, a physiological state and/or a psychological state; and"

The Barnett-Waters combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [1.d]. (EX1002, ¶79; *see* Section IX.A.1.v.)

vi) [6.e] "wherein the device comprises a smartphone."

The Barnett-Waters combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [1.e]. (EX1002, ¶80; *see* Section IX.A.1.vi.)

4. Claim 7: "The device of claim 6, wherein said enabling by the device a number of functions of the device comprises enabling by the device a number of functions of the device that is greater than or equal to one."

The Waters-White combination discloses and/or suggests these limitations for the same reasons as discussed for claim 2. (EX1002, ¶81; *see* Section IX.A.2.)

B. Ground 2: Barnett, Waters, and White Render Obvious Claims 3-5, 8-16, and 18

1. Claim 3

i) [3.pre] "The method of claim 1, further comprising:"

[3.a] "while said number of functions is enabled by having sensed by the device the parameter and by having determined by the device that the value of the parameter that is sensed satisfies the threshold criterion, requesting by the device from a second device an authorization to enable a function for conducting a financial transaction by the device;"

Barnett in view of Waters and White discloses and/or suggests these limitations. (EX1002, ¶¶82-97.)

As discussed for limitation [1.a], the Barnett-Waters combination discloses and/or suggests that the NFC capability of the phone used to perform a transaction is enabled ("said number of functions is enabled") by sensing a parameter (e.g., the type/frequency of light, a fingerprint/pressure combination, a skin resistance/pressure combination or heat) ("by having sensed by the device the parameter") and determining that the value of the parameter meets some threshold criterion (e.g., the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is actively pressing the sensor, or heat is actively being applied) ("and by having determined by the device that the value of the parameter that is sensed satisfies the threshold criterion"). (*See*

Section IX.A.1.ii.) While the Barnett-Waters combination does not explicitly disclose and/or suggest "requesting by the device from a second device an authorization to enable a function for conducting a financial transaction by the device" while the NFC function is enabled, a POSITA would have been motivated to further modify the Barnett-Waters system/method in view of White such that it performs this feature. (EX1002, ¶83.)

Like Barnett and Waters, White discloses a system/method of using a mobile device to perform a financial transaction at a point-of-sale device. (*Id.*, ¶84.) White describes a "system and method of completing a pending purchase." (EX1007, Abstract.) "The system and method include one or more communication devices, wherein a first communication device participates in a transaction with a point-of-sale [device]." (*Id.*, 3:21-23.) White discloses that the consumer's device (the first communications device) may be a mobile phone. (*Id.*, 3:35-36, 4:15-17.) The "point-of-sale (POS) device…records sales and mediates payments for products or services." (*Id.*, 3:46-56.) For example, "[i]n credit card transactions, the POS device 102 may communicate with a credit card payment system to obtain payment or payment authorization." (*Id.*, 3:56-58.) "The POS device 102 may mediate payment from an electronic purse, a debit card, or other payment methods." (*Id.*, 3:58-60.) White explains that "[t]he POS device 102 communicates with the first communication device 120 to provide purchase information and to

receive…payment information, such as credit card numbers." (*Id.*, 3:60-65.) The user's mobile device (the first communication device) "may include one or more adapters for communicating with the POS device 102," such as a "contactless chip operable to provide a communication link with a compatible device using contactless communication." (*Id.*, 5:6-10.) Thus, White is similar to both Barnett and Waters, which both disclose systems/methods of purchasing products in a store at a point-of-sale terminal using a chip-enabled mobile phone (e.g., NFC, which a POSITA would have understood is implemented via a chip/tag in the mobile phone). (*See* Sections IX.A.1.i, IX.A.1.ii.(1); EX1002, ¶84.) A POSITA would have therefore been motivated to consider the teachings of White when implementing the Barnett-Waters system/method. (EX1002, ¶84.)

White additionally discloses that its system/method may be used for "mobile payment approval." (EX1007, 1:23-25.) White discloses that the "system 100 for subscriber payment approval" is shown in Figure 1 below and "includes a point-of-sale (POS) device 102" (in green below), "a network 110, a first communication device 120" (in red below), "a second communication device 130" (in blue below), "and a proxy subscriber approval server 140." (*Id.*, 3:46-50.) Like the first communication device (in red below), the second communication device (in blue below) may be a computer-based entity such as a mobile phone. (*Id.*, 4:11-15.) Communication between the first and second communication devices occurs

"through the network 110" (*id.*, 4:17-19), which may include "the Internet, a telecommunication wired/wireless network, and/or other computer-based networked systems" (*id.*, 4:5-7).

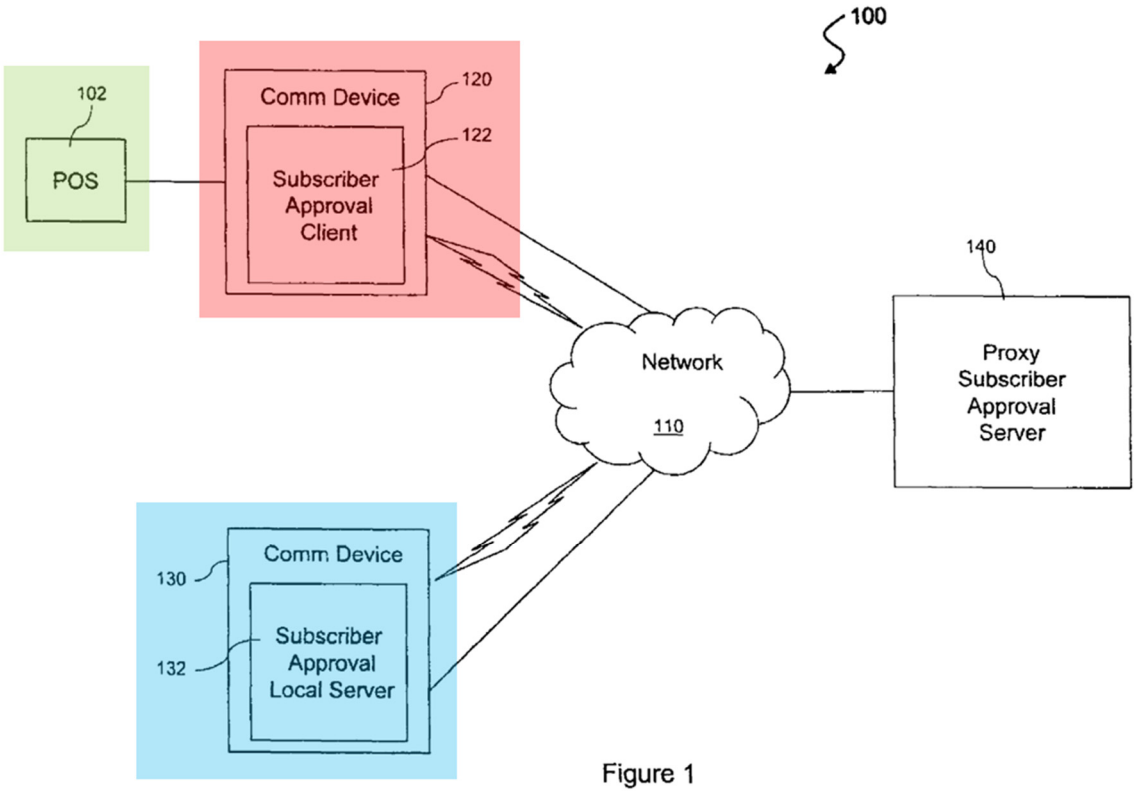


Figure 1

(*Id.*, FIG. 1 (annotated); EX1002, ¶85.)

White discloses that when initiating a transaction, a consumer's first communication device 120 is first "presented to the POS device 102." (EX1007, 4:43-44.) "The POS device 102 communicates purchasing information to the first communication device 120 that may include purchase price, identity of the

purchased item, identity of the vendor and/or location of the POS device 102." (*Id.*, 4:44-48.) Upon receiving the purchasing information from the POS terminal/device, the first communication device then initiates a subscriber payment approval process in which the first device transmits a subscriber approval request (containing the purchasing information) to the second communication device, which is responsible for approving the pending purchase. (*Id.*, 1:41-44, 4:48-52.) The second communication device 130 communicates approval of the transaction via a subscriber approval response sent to the first communication device 120. (*Id.*, 1:45-48, 4:52-54; EX1002, ¶86.)

If the second communication device 130 does not acknowledge the communication of the first communication device 120, the first communication device 120 may either interpret the lack of response as a rejection or may direct the approval request to the proxy subscriber approval server 140, a computer-based entity (e.g., a general purpose computer) which can decide whether to approve the transaction based on certain rules. (EX1007, 3:26-31, 4:59-5:5, 7:4-7.) White explains that while communicating with the proxy subscriber approval server may be a fall-back procedure, it may also be used to apply approval rules without communicating with a second communication device (e.g., a parent). (*Id.*, 5:30-44, 6:27-39, FIG. 2B (depicting at blocks 212 and 214 that the proxy subscriber approval

server may be initially chosen as the approval entity), 7:53-8:3 (describing FIG. 2B); *see also id.*, 5:30-44; EX1002, ¶87.)

If, however, the transaction is approved (e.g., by the second communication device or the proxy subscriber approval server), the consumer's "first communication device 120 then provides credit card information, debit card information, or electronic purse information to the POS device 102 to complete the payment transaction." (EX1007, 4:55-58.) The POS device then sends that payment information to an authorization entity, such as a financial institution, which returns a completion response upon authorization, thereby completing the payment approval process. (*Id.*, 3:31-39, 3:56-58, 7:40-44; EX1002, ¶88.)

White discloses that the above steps performed by the first communication device 120 may be performed by the first device's "subscriber approval client 122…enabled as a software program, an application, or a function," where the subscriber approval client 122 "operate[s] to collect pending purchase information from the POS device 102," "includes information for completing the pending purchase," and "may also operate to communicate with the second communication device 130 and/or the proxy subscriber approval server 140 through the network 110." (EX1007, 5:30-44.) Similarly, White discloses that the above steps performed by the second communication device 130 may be performed by the second device's "subscriber approval local server" which "include[s] one or more payment

information associated with a credit card number, a debit card number, and/or other monetary account information," as well as "rules established within the subscriber local approval server" which may be "appl[ied]…to approve payment via the subscriber approval client 122." (*Id.*, 6:9-39; EX1002, ¶89.)

White discloses that the above payment approval process is applicable to a variety of different scenarios, such that the second communication device to approve the transaction is selected based on the context. (EX1002, ¶90.) For example, an owner of a credit card or debit card may be required to remotely authorize (e.g., from a second, remotely located device) transactions performed by an authorized user of the credit card (e.g., using a first device). (EX1007, 3:7-21, 4:38-42, 4:43-58.) In other remote authorization scenarios, "the operation of the system 100 for subscriber payment approval may be employed for parental control of child spending at the POS device 102," where the parent's "second communication device 130 may be alerted through voice, video, and/or text messaging" and the "parent may have the option of approving or rejecting the pending purchase." (*Id.*, 6:9-64.) Alternatively, "a user of the second communication device 130 may include an employer (i.e., a boss or manager of a business) while, the first communication device 120 may be operated by an employee," where "[t]he employer may in real-time control the pending purchase(s) made on behalf of the employee." (*Id.*, 6:65-7:3.) In other words, White discloses that the second communication device that is sent a

subscriber approval request by the first communication device may be chosen based on the card used and the relationship between users (i.e., the request is sent to a remotely located device operated by the owner of a specific card used by the authorized user, or by the parent or boss of that authorized user). (EX1002, ¶90.)

Accordingly, White discloses that the consumer's phone ("device") sends a subscriber approval request to a second communication device (e.g., a device corresponding to the owner of the card used for the transaction, or a proxy subscriber approval server) ("requesting by the device from a second device") to request authorization to enable the consumer's phone to perform the transaction ("an authorization to enable a function for conducting a financial transaction by the device"). (*Id.*, ¶91.)

A POSITA would have been motivated to further modify the Barnett-Waters system/method to incorporate such an authorization feature, similar to that disclosed by White, to enable the authorization communication mode and send an authorization request to a second communications device in response to the presentation of the consumer's mobile device in proximity to an NFC-enabled payment terminal. (EX1002, ¶92.) It was well known at the time of the alleged invention that authorization rules could be established such that one individual (or their device) could remotely authorize transactions performed by another individual using a mobile phone. (*Id.*) For example, Waters discloses a parent may set times

during which their child is able to use a near field/RF tag enabled device to make payments, e.g., for school lunch. (EX1006, 6; *see also* EX1009, ¶¶[0004], [0022], [0028] (describing transaction approval by the device of an "authorizer"); EX1010, FIG. 1, ¶[0016] (authorizing party may approve e-transactions of a proposing party); EX1011, FIG. 2, Abstract, ¶¶[0011]-[0012] (a third party authorizer/approver (e.g., parent or legal guardian of a child) may approve the purchaser's e-commerce transactions according to certain authorization rules); EX1012, ¶¶[0027], [0050]-[0059] (describing approval of a transaction/funds transfer by a third party, such as a parent); EX1013, Abstract, ¶¶[0174]-[0200] (parent may use their own mobile phone to authorize charges requested by a child's mobile phone).) Thus, a POSITA would have been motivated to consider various authorization methods in order to allow for purchase approval in the Barnett-Waters system/method. (EX1002, ¶92.)

White discloses that its authorization method is beneficial because unlike other prior art authorization methods, it allows for an owner of a card/payment method to remotely approve transactions on a purchase-by-purchase basis. (EX1007, 3:7-21, 6:9-64, 6:65-7:30.) Thus, a POSITA would have understood that White's authorization method would have allowed for enhanced flexibility, while still offering the security benefits of an authorization process that allows a card owner to approve transactions performed by authorized users. (EX1002, ¶93.) A POSITA would have also understood that White's authorization method would have

improved security by increasing oversight of transactions and reducing the risk of unauthorized or inappropriate transactions, consistent with both Barnett's and Waters' security goals. (*Id.*; EX1005, ¶¶[0005], [0012], [0017]; EX1006, 9, 13.)

A POSITA would have also had a reasonable expectation of success combining the teachings of Barnett, Waters, and White. (EX1002, ¶94.) As discussed above, all three references are in the same field of art. Moreover, Barnett suggests that its system/method is flexible and modifications to the NFC-enabled mobile phone are contemplated. (EX1005, ¶[0044].) A POSITA would have understood that White's authorization method would have been easily implemented in the Barnett-Waters system/method because Barnett and White use similar technologies. (EX1002, ¶94.) For example, White discloses that the first mobile device may communicate with a second mobile device via the Internet or similar wireless network communication (EX1007, 4:3-19), and Barnett discloses that the consumer's mobile phone can communicate over a Wi-Fi system (EX1005, ¶¶[0016], [0026], [0035]). In addition, Barnett already discloses configuring Wi-Fi communication in response to a user presenting their mobile phone in proximity to an NFC-enabled display/payment terminal. (*Id.*, ¶[0035].) Thus, a POSITA would have recognized that it would be straightforward to modify the Barnett-Waters system/method to include a feature similar to that disclosed by White, in which the first mobile device uses the store's Wi-Fi network to communicate with a remote

second mobile device in response to the first device being presented in proximity to an NFC-enabled display/payment terminal. (EX1002, ¶94.)

A POSITA would have had the skill to implement and reasonable expectation of success in achieving such a modification because it would have involved a combination of known technologies (e.g., known systems/methods for performing financial transactions using an NFC-enabled mobile phone (Barnett, Waters)) according to known methods (e.g., known approval mechanisms for authorizing purchases in mobile phone payment systems (White)) to yield the predictable result of a modified Barnett-Waters-White system/method that further implements a process in which, in response to a user presenting their mobile device in proximity to a POS terminal and receiving purchase information in return, an authorization request is sent via Wi-Fi from the mobile device to a second communication device responsible for approving the transaction. (EX1002, ¶95.) *KSR*, 550 U.S. at 416.

Consistent with the above and in such a combined system, for example, a consumer shopping in a store and using an NFC-enabled mobile phone as a credit/debit card to perform a financial transaction (as taught by Barnett) would have first enabled the NFC tag in the phone by providing a sustained input via, e.g., a light sensor, fingerprint/pressure sensor, skin resistance/pressure sensor, or heat sensor (as taught by Waters). (EX1002, ¶96.) For example, if the mobile device had a light sensor, a user would present the device to a light source (e.g., implemented at an

NFC-enabled POS terminal); if the device had a combination fingerprint/pressure sensor, the user would hold their fingerprint on a sensor included in the device; if the device had a combination skin resistance/pressure sensor, the user would press a sensor using their hand; and if the device had a heat sensor, the user would hold the device to provide heat to the sensor. (*Id.*) Consistent with Waters' disclosure, the NFC tag of the mobile phone would only be enabled while the mobile device detects that a value of the sensor parameter satisfies some threshold criterion (e.g., the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is actively pressing the sensor, or heat is actively being applied) ("said number of functions is enabled by having sensed by the device the parameter and by having determined by the device that the value of the parameter that is sensed satisfies the threshold criterion"). (*Id.*) Thus, in the combined system/method, a user would simultaneously (i.e., while providing sensor input) bring the mobile device in proximity of one of the store's NFC-enabled displays/payment terminals to perform the transaction. (*Id.*)

Then, consistent with White's disclosure, the POS terminal would return purchase information (e.g., price) to the consumer's mobile device if both the sensed value of the parameter satisfies some criterion (as discussed above) and if the consumer's mobile device is in close enough proximity to the NFC-enabled POS

terminal (i.e., if both conditions for NFC activation and transmission are satisfied) (*see* Sections IX.A.1.i-ii, IX.B.2.i (further discussing the proximity condition)). (EX1002, ¶97.) This would trigger the consumer's mobile device to seek authorization to perform the transaction from a specific approving device (e.g., the owner of the specific card for which the consumer is an authorized user, or a proxy subscriber approval server). (*Id.*) In particular, while the NFC capability is still enabled ("while said number of functions is enabled by having sensed by the device the parameter and by having determined by the device that the value of the parameter that is sensed satisfies the threshold criterion") and the phone is being used at the POS terminal, the consumer's phone would send a subscriber approval request to the approving device ("requesting by the device from a second device an authorization to enable a function for conducting a financial transaction by the device"), e.g., using the store Wi-Fi network, upon which the approving device is able to authorize the transaction by returning to the consumer's mobile device a subscriber approval response. (*Id.*) Upon approval, the consumer's mobile phone is able to perform the financial transaction ("enable a function for conducting a financial transaction by the device") by transmitting payment information to the NFC-enabled POS terminal to complete the transaction. (*Id.*) Consistent with White's disclosure, the POS terminal sends that payment information to an

authorization entity (e.g., financial institution), which returns a response upon authorization, thereby completing the purchasing/approval process. (*Id.*)

ii) [3.b] "responsive to the requesting, receiving by the device from the second device the authorization to enable the function for conducting the financial transaction; and"

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶98.) As discussed for limitation [3.a], in the Barnett-Waters-White system/method, a consumer's mobile device requests authorization for a transaction based on the card used (e.g., requests authorization from the card owner's device) or approval rules in place (e.g., requests authorization from the proxy subscriber approval server) by sending a subscriber approval request to the approving device (e.g., card owner's second mobile device or proxy subscriber approval server). (*See* Section IX.B.1.i.) As further discussed, in response to this request ("responsive to the requesting"), the approving device may authorize the transaction by returning to the consumer's mobile phone a subscriber approval response, which provides the consumer's phone with the capability to conduct the financial transaction ("receiving by the device from the second device the authorization to enable the function for conducting the financial transaction"). (*Id.*)

iii) [3.c] "responsive to receiving the authorization, enabling at the device the function for conducting the financial transaction."

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶99.) As discussed for limitations [3.a], in the Barnett-Waters-White system/method, if the consumer's phone receives a subscriber approval response from the approving device authorizing the transaction ("responsive to receiving the authorization"), the consumer's phone is granted the capability to conduct the financial transaction ("enabling at the device the function for conducting the financial transaction"). (*See* Section IX.B.1.i.)

2. Claim 4

i) [4.pre] "The method of claim 3, further comprising:"

[4.a] "responsive to the device satisfying a proximity condition relative to an entity and responsive to the device sensing the parameter and determining the value that is associated with parameter that is sensed satisfies the threshold criterion, using by the device the function for conducting the financial transaction and conducting by the device the financial transaction by paying for a product."

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶100.) As discussed for limitation [3.a], in the Barnett-Waters-White combination, the consumer initiates a transaction by bringing their mobile device within proximity of the NFC-enabled POS terminal ("the device satisfying a proximity condition relative to an entity") and providing some sensor input to the

phone (that satisfies a specified criterion for a light sensor, fingerprint/pressure sensor, skin resistance/pressure sensor, or heat sensor) to simultaneously activate the phone's NFC tag ("the device sensing the parameter and determining the value that is associated with parameter that is sensed satisfies the threshold criterion"). (*See* Section IX.B.1.i.) If the user's smartphone detects that both of these conditions are met ("responsive to the device satisfying a proximity condition relative to an entity and responsive to the device sensing the parameter and determining the value that is associated with parameter that is sensed satisfies the threshold criterion"), then the consumer's mobile phone will request/receive approval from a second device to establish the capability to perform the transaction ("function for conducting the financial transaction"), and then subsequently use that approval to actually conduct the transaction ("using by the device the function for conducting the financial transaction") by sending payment information to the POS terminal via NFC to complete purchase of a product ("conducting by the device the financial transaction by paying for a product"). (*Id.*)

3. Claim 5

i) [5.pre] "The method of claim 3, further comprising:"

[5.a] "enabling at the second device a function for conducting the financial transaction."

The Barnett-Waters-White combination discloses and/or suggests these limitations. (EX1002, ¶101.) As discussed for limitation [3.a], in the Barnett-

Waters-White combination, a consumer's phone seeks authorization to perform a transaction by sending a subscriber approval request to the approving device (e.g., the card owner's device or proxy subscriber approval server), upon which the second device is able to approve the transaction (e.g., by returning a subscriber approval response) or reject the transaction. (*See* Section IX.B.1.i.) A POSITA would have understood that the consumer's phone triggers (e.g., by sending a subscriber approval request) the enablement of a transaction approval function at the approving device ("enabling at the second device a function for conducting the financial transaction"). (EX1002, ¶101.) The transaction approval function is a "function for conducting the financial transaction" because it is a critical step in the multi-device process for conducting a financial transaction. (*Id.*)

4. Claim 8

i) [8.pre] "The device of claim 6, wherein the operations further comprise"

[8.a] "while said number of functions is enabled by having sensed the parameter and by having determined by the device that the value of the parameter that is sensed satisfies the threshold criterion, requesting by the device from a second device an authorization to enable a function for conducting a financial transaction by the device;"

The Barnett-Waters-White combination discloses and/or suggests these limitations for the same reasons as discussed for limitations [3.pre]-[3.a]. (EX1002, ¶102; *see* Section IX.B.1.i.)

ii) [8.b] "responsive to the requesting, receiving from the second device the authorization to enable the function for conducting the financial transaction; and"

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [3.b]. (EX1002, ¶103; *see* Section IX.B.1.ii.)

iii) [8.c] "responsive to receiving the authorization, enabling the function for conducting the financial transaction."

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [3.c]. (EX1002, ¶104; *see* Section IX.B.1.iii.)

5. Claim 9

i) [9.pre] "The device of claim 8, wherein the operations further comprise:"

[9.a] "detecting by the device that a proximity condition has been satisfied between the device and an entity;"

[9.b] "sensing by the device the parameter and determining by the device the value that is associated with the parameter that is sensed satisfies the threshold criterion; and"

[9.c] "responsive to the value that is associated with the parameter that is sensed satisfying the threshold criterion, using by the device the function for conducting the financial transaction and conducting by the device the financial transaction by paying for a product."

The Barnett-Waters-White combination discloses and/or suggests these limitations. (EX1002, ¶105.) As discussed for limitation [3.a], in the Barnett-Waters-White combination, the consumer initiates a transaction by bringing their mobile device within sufficient proximity of the NFC-enabled POS terminal ("detecting by the device that a proximity condition has been satisfied between the device and an entity") and providing some sensor input to the phone (that satisfies a specified criterion for a light sensor, fingerprint/pressure sensor, skin resistance/pressure sensor, or heat sensor) to simultaneously activate the phone's NFC tag ("sensing by the device the parameter and determining by the device the value that is associated with the parameter that is sensed satisfies the threshold

criterion"). (*See* Section IX.B.1.i.) If the user's smartphone detects that both the proximity condition is met and the parameter condition is met ("responsive to the value that is associated with the parameter that is sensed satisfying the threshold criterion"), then the consumer's mobile phone will request/receive approval from a second device to establish the capability to perform the transaction ("function for conducting the financial transaction"), and then subsequently use that approval to actually conduct the transaction ("using by the device the function for conducting the financial transaction") by sending payment information to the POS terminal via NFC to complete purchase of a product ("conducting by the device the financial transaction by paying for a product"). (*Id.*)

6. Claim 10

i) [10.pre] "The device of claim 8, wherein the operations further comprise:"

[10.a] "causing a function for conducting the financial transaction to be enabled at the second device."

The Barnett-Waters-White combination discloses and/or suggests these limitations. (EX1002, ¶106.) As discussed for limitations [3.a] and [5.pre]-[5.a], in the Barnett-Waters-White combination, a consumer's phone seeks authorization to perform a transaction by sending a subscriber approval request to the approving device (e.g., the card owner's device or proxy subscriber approval server), upon which the second device is able to approve the transaction (e.g., by returning a

subscriber approval response) or reject the transaction. (*See* Sections IX.B.1.i, IX.B.3.i.) A POSITA would have understood that the consumer's phone thus performs operations (e.g., by sending a subscriber approval request) that cause the enablement of a transaction approval function at the approving device ("causing a function for conducting the financial transaction to be enabled at the second device"). (EX1002, ¶106.) The transaction approval function is a "function for conducting the financial transaction" because it is a critical step in the multi-device process for conducting a financial transaction. (*Id.*)

7. Claim 11

i) [11.pre] "A method of operating a wireless device, the method comprising:"

To the extent the preamble is limiting, Barnett discloses the limitations therein. (EX1002, ¶107.) As discussed for limitation [1.pre], Barnett discloses a "method of operating a device," where the device is a wireless smartphone configured to wirelessly communicate with other devices in a store environment to perform operations associated with conducting an NFC-based financial transaction ("method of operating a wireless device"). (*See* Section IX.A.1.i.)

ii) [11.a] "sensing by the wireless device, using a sensor of the wireless device, a parameter that is associated with the wireless device, an environment of the wireless device and/or a user of the wireless device;"

Barnett in view of Waters discloses and/or suggests this limitation for the same reasons as discussed for limitation [1.a]. (EX1002, ¶108; *see* Section IX.A.1.ii.)

iii) [11.b] "determining by the wireless device a value of the parameter that is sensed and determining by the wireless device whether or not the value that is sensed satisfies a threshold criterion;"

The Barnett-Waters combination discloses and/or suggests this limitation. (EX1002, ¶109.) As discussed for limitations [1.b] and [1.c], in the Barnett-Waters combination, the NFC capability of the mobile phone is enabled when the phone senses a value of a parameter (e.g., the type/frequency of light, a fingerprint/pressure combination, a skin resistance/pressure combination or heat) ("determining by the wireless device a value of the parameter that is sensed") and determines that the value satisfies a threshold criterion (e.g., the light is sustained and of a certain type/frequency, a fingerprint matches a certain user and the pressure is actively being applied, a resistance sensor and pressure sensor combination detects that a human hand is actively pressing the sensor, or heat is actively being applied) ("determining by the wireless device whether or not the value that is sensed satisfies a threshold criterion"). (*See* Sections IX.A.1.iii-iv.)

iv) [11.c] "responsive to the value that is sensed satisfying the threshold criterion, enabling a number of functions of the wireless device and disabling a function of the wireless device;"

The Barnett-Waters combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [1.c]. (EX1002, ¶110; *see* Section IX.A.1.iv.)

v) [11.d] "requesting by the wireless device from a second device an authorization to enable a function for conducting a financial transaction;"

Barnett in view of Waters and White discloses and/or suggests this limitation for the same reasons as discussed for limitation [3.a]. (EX1002, ¶111; *see* Section IX.B.1.i.)

vi) [11.e] "responsive to the requesting, receiving by the wireless device from the second device the authorization to enable the function for conducting the financial transaction;"

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [3.b]. (EX1002, ¶112; *see* Section IX.B.1.ii.)

vii) [11.f] "responsive to receiving the authorization, enabling at the wireless device the function for conducting the financial transaction; and"

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [3.c]. (EX1002, ¶113; *see* Section IX.B.1.iii.)

viii) [11.g] "responsive to the wireless device satisfying a proximity condition relative to an entity and responsive to the wireless device sensing the parameter and determining that the value sensed satisfies the threshold criterion, using the function for conducting the financial transaction and conducting the financial transaction by paying for a product;"

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [4.a]. (EX1002, ¶114; *see* Section IX.B.2.i.)

ix) [11.h] "wherein the parameter that is sensed, using the sensor of the wireless device, comprises a velocity, an acceleration, a time-of-day, a humidity, a temperature, a height, a level of brightness, a level of darkness, a blood pressure, a heart rate, a blood content, a physiological state and/or a psychological state; and"

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [1.d], which recites nearly identical language but recites a "device-based sensor" instead of the "sensor of the wireless device." (EX1002, ¶115; *see* Section IX.A.1.v.) A POSITA would have

understood that the light sensor, fingerprint/pressure sensor, skin resistance/pressure sensor, or heat sensor is similarly a "sensor of the wireless device" because it is incorporated in the consumer's wireless phone. (EX1002, ¶115.)

x) [11.i] "wherein the wireless device comprises a smartphone."

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [1.e]. (EX1002, ¶116; *see* Section IX.A.1.vi.)

8. Claim 12: "The method of claim 11, wherein said enabling a number of functions of the wireless device comprises enabling a number of functions of the wireless device that is greater than or equal to one."

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for claim 2. (EX1002, ¶117; *see* Section IX.A.2.)

9. Claim 13

i) [13.pre] "The method of claim 11, further comprising:"

[13.a] "enabling at the second device a function for conducting the financial transaction."

The Barnett-Waters-White combination discloses and/or suggests these limitations for the same reasons as discussed for limitations [5.pre]-[5.a]. (EX1002, ¶118; *see* Section IX.B.3.i.)

10. Claim 14

i) [14.pre] "A wireless device that is configured to perform operations comprising:"

To the extent the preamble is limiting, Barnett discloses the limitations therein. (EX1002, ¶119.) As discussed for limitation [1.pre], Barnett discloses a wireless smartphone configured to wirelessly communicate with other devices in a store environment to perform associated with conducting an NFC-based financial transaction. ("[a] wireless device that is configured to perform operations"). (*See* Section IX.A.1.i.)

ii) [14.a] "using a sensor of the wireless device and sensing a parameter that is associated with the wireless device, an environment of the wireless device and/or a user of the wireless device;"

Barnett in view of Waters discloses and/or suggests this limitation for the same reasons as discussed for limitation [11.a]. (EX1002, ¶120; *see* Section IX.B.7.ii.)

iii) [14.b] "determining a value that is associated with the parameter that is sensed and determining whether or not the value satisfies a threshold criterion;"

The Barnett-Waters combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [11.b]. (EX1002, ¶121; *see* Section IX.B.7.iii.)

iv) [14.c] "responsive to the value satisfying the threshold criterion, enabling a number of functions of the wireless device and disabling a function of the wireless device;"

The Barnett-Waters combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [11.c]. (EX1002, ¶122; *see* Section IX.B.7.iv.)

v) [14.d] "requesting from a second device an authorization to enable a function for conducting a financial transaction;"

Barnett in view of Waters and White discloses and/or suggests this limitation for the same reasons as discussed for limitation [11.d]. (EX1002, ¶123; *see* Section IX.B.7.v.)

vi) [14.e] "responsive to the requesting, receiving from the second device the authorization to enable the function for conducting the financial transaction;"

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [11.e]. (EX1002, ¶124; *see* Section IX.B.7.vi.)

vii) [14.f] "responsive to receiving the authorization, enabling the function for conducting the financial transaction; and"

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [11.f]. (EX1002, ¶125; *see* Section IX.B.7.vii.)

viii) **[14.g] "responsive to the wireless device satisfying a proximity condition relative to an entity and responsive to the wireless device sensing the parameter and determining that the value of the parameter sensed satisfies the threshold criterion, using the function for conducting the financial transaction and conducting the financial transaction by paying for a product;"**

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [14.g]. (EX1002, ¶126; *see* Section IX.B.7.viii.)

ix) **[14.h] "wherein the parameter that is sensed comprises a velocity, an acceleration, a time-of-day, a humidity, a temperature, a height, a level of brightness, a level of darkness, a blood pressure, a heart rate, a blood content, a physiological state and/or a psychological state; and"**

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [14.h]. (EX1002, ¶127; *see* Section IX.B.7.ix.)

x) **[14.i] "wherein the wireless device comprises a smartphone."**

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for limitation [14.i]. (EX1002, ¶128; *see* Section IX.B.7.x.)

11. Claim 15: "The wireless device of claim 14, wherein said enabling a number of functions of the wireless device comprises enabling a number of functions of the wireless device that is greater than or equal to one."

The Barnett-Waters-White combination discloses and/or suggests this limitation for the same reasons as discussed for claim 12. (EX1002, ¶129; *see* Section IX.B.8.)

12. Claim 16

i) [16.pre] "The wireless device of claim 14, wherein the operations further comprise:"

[16.a] "causing a function for conducting the financial transaction to be enabled at the second device."

The Barnett-Waters-White combination discloses and/or suggests these limitations for the same reasons as discussed for limitations [10.pre]-[10.a]. (EX1002, ¶130; *see* Section IX.B.6.i.)

13. Claim 18

i) [18.pre] "The wireless device of claim 14, wherein said requesting from a second device an authorization to enable a function for conducting a financial transaction and/or said receiving from the second device the authorization to enable the function for conducting the financial transaction comprises,"

[18.a] "establishing by the wireless device a link with the second device, comprising a wireless link that comprises a distance that is greater than a distance associated with the proximity condition;"

The Barnett-Waters-White combination discloses and/or suggests these limitations. (EX1002, ¶131.) As discussed for limitation [3.a], a consumer's mobile device is Wi-Fi enabled and sends a subscriber approval request to the approving device (e.g., the card owner's device or proxy subscriber approval server) ("requesting from a second device an authorization to enable a function for conducting a financial transaction") and receives approval via a subscriber approval response ("receiving from the second device the authorization to enable the function for conducting the financial transaction") by wirelessly transmitting and receiving information over the store's Wi-Fi network. (*See* Section IX.B.1.i.) A POSITA would have understood that when a consumer's phone ("wireless device") uses a store's Wi-Fi network to communicate with a remote approving device ("second device"), a wireless link is established allowing for wireless communication between the two devices ("establishing by the wireless device a link with the second device").

(EX1002, ¶131.) Moreover, a POSITA would have understood that the wireless link between a consumer and an approving device would comprise a greater distance than the proximity condition (i.e., the distance between the consumer's phone and the POS terminal when conducting a transaction) ("comprising a wireless link that comprises a distance that is greater than a distance associated with the proximity condition"). (*Id.*) Indeed, as discussed for limitation [3.a], White discloses that the consumer is in the store while the approving device may be remotely located (e.g., outside of the store) (*see* Section IX.B.1.i; *see also* EX1007, 3:16-21), whereas as discussed for limitation [1.pre], Barnett discloses that the consumer's phone must be within a decimeter of the NFC-enabled display/POS terminal (*see* Section IX.A.1.i; *see also* EX1005, ¶[0013]). (EX1002, ¶131.)

ii) [18.b] "wirelessly transmitting information to the second device over said wireless link using unlicensed and/or licensed frequencies; and"

iii) [18.c] "wirelessly receiving information from the second device over said wireless link using unlicensed and/or licensed frequencies;"

The Barnett-Waters-White combination discloses and/or suggests these limitations. (EX1002, ¶132.) As an initial matter, the terms "unlicensed…frequencies" and "licensed frequencies" should not be given patentable weight because they are directed to non-functional descriptive material. *See, e.g.*, *Praxair Distrib. v. Mallinckrodt Hosp. Prods. IP*, 890 F.3d 1024, 1032

(Fed. Cir. 2018). Moreover, because all wireless communication uses unlicensed or licensed frequencies, the term "unlicensed and/or licensed frequencies" does not limit the claim language in any way. (EX1002, ¶133.) In any event, however, a POSITA would have understood that wirelessly transmitting a subscriber approval request to the approving device ("wirelessly transmitting information to the second device") and wirelessly receiving a subscriber approval request from the approving device ("wirelessly receiving information from the second device"), using a Wi-Fi connection ("over said wireless link"), would have involved "using unlicensed…frequencies" because the use of unlicensed frequencies was a standard feature of Wi-Fi. (*See, e.g.*, EX1005, ¶[0015] ("The mobile phone 14 also is adapted to access a Wi-Fi system (IEEE 802.11)."); EX1027, Abstract ("the 802.11 compliant transceiving normally operating in an unlicensed band at 2.4 GHz…"); EX1028, ¶¶[0004] (describing wireless networks operating on "unlicensed frequency bands").)

iv) [18.d] "wherein said wirelessly transmitting and/or said wirelessly receiving comprises using an orthogonal frequency division multiplexing and/or orthogonal frequency division multiple access protocol; and"

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶133.) As discussed for limitation [3.a], the consumer's phone can use a store's Wi-Fi network to wirelessly transmit a subscriber approval request

to an approving device and wirelessly receive a subscriber approval response in return ("said wirelessly transmitting and/or said wirelessly receiving"). (*See* Section IX.B.1.i.) Barnett explains that the consumer's mobile phone is adapted to access the Wi-Fi system in accordance with IEEE 802.11 standards. (EX1005, ¶¶[0005], [0015].) A POSITA would have understood that at the time of the alleged invention, the IEEE 802.11 family standards specified that Wi-Fi interfaces used orthogonal frequency division multiplexing (OFDM) technology. (EX1019, ¶[0002]; EX1020, ¶[0008]; *see also* EX1021 (IEEE Std 802.11a-1999, part of the IEEE 802.11 family); EX1002, ¶133.) Accordingly, the Barnett-Waters-White combination discloses and/or suggests that the consumer phone's Wi-Fi communication with an approving device comprises using an OFDM protocol ("comprises using an orthogonal frequency division multiplexing and/or orthogonal frequency division multiple access protocol"). (EX1002, ¶133.)

v) [18.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 parameter and determining that the value sensed satisfies the threshold criterion."

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶134.) As discussed for limitation [3.a], the transaction approval process, which involves a consumer's mobile phone using a Wi-Fi connection to communicate with a remote approver's device ("wherein said

establishing by the wireless device a link with the second device comprises establishing the link with the second device"), where the communication occurs in response to the consumer's phone detecting that the phone is within a certain proximity to the POS terminal, and detecting that a parameter sensed by the phone meets a specified criterion ("responsive to the wireless device sensing the parameter and determining that the value sensed satisfies the criterion"). (*See* Section IX.B.1.i.)

C. Ground 3: Barnett, Waters, White, and Smith Render Obvious Claim 17

1. Claim 17

i) [17.pre] "The wireless device of claim 14, wherein said conducting the financial transaction by paying for a product comprises,"

[17.a] "establishing by the wireless device a short-range wireless link with the entity;"

The Barnett-Waters-White combination discloses and/or suggests these limitations. (EX1002, ¶135.) As discussed for limitations [1.pre] and [3.a], paying for a product involves the consumer's phone ("wireless device") establishing an NFC connection with a POS terminal ("entity") to transmit payment information from the consumer's phone to the POS terminal via NFC. (*See* Sections IX.A.1.i, IX.B.1.i.) Barnett describes this established "NFC link" (EX1005, ¶[0025]) as "short-range high frequency wireless communication…which enables the exchange

of data between devices over about a short distance, such as a decimeter" (*id.*, ¶[0013]) ("establishing by the wireless device a short-range wireless link with the entity").

ii) [17.b] "wirelessly transmitting information to the entity using unlicensed frequencies; and"

The Barnett-Waters-White combination discloses and/or suggests this limitation. (EX1002, ¶136.) As an initial matter, the term "unlicensed frequencies" should not be given patentable weight because it is directed to non-functional descriptive material. *See, e.g.*, *Praxair Distrib.*, 890 F.3d at 1032. In any event, however, a POSITA would have understood that transmitting payment information to the POS terminal ("transmitting information to the entity") via NFC would have been wireless and would have used unlicensed frequencies ("wirelessly transmitting information to the entity using unlicensed frequencies"), as those were standard features of near field communication. (*See, e.g.*, EX1006, 8-9; EX1002, ¶136.)

iii) [17.c] "wirelessly receiving information from the entity using unlicensed frequencies;"

Barnett in view of Waters, White, and Smith discloses and/or suggests this limitation. (EX1002, ¶¶137-145.)

As discussed for limitation [3.a], when a mobile phone completes a financial transaction, the phone sends payment information (e.g., credit card information) to

the POS terminal device ("entity"). (*See* Section IX.B.1.i; *see also* EX1005, ¶¶[0032], [0037], [0038], [0040]; EX1007, 1:45-48.)

While the Barnett-Waters-White combination does not explicitly disclose and/or suggest that conducting the financial transaction by paying for a product further comprises "wirelessly receiving information from the using unlicensed frequencies," a POSITA would have been motivated to further modify the Barnett-Waters-White combination in view of Smith such that receipt information from the POS terminal is wirelessly received at the user's phone using NFC (i.e., unlicensed frequencies). (EX1002, ¶139; *see also* Section IX.C.1.ii (explaining that NFC uses unlicensed frequencies).)

Like Barnett, Waters, and White, Smith discloses a system/method of using a mobile device to perform a financial transaction at a point-of-sale device. (EX1002, ¶140.) Smith relates to "[e]lectronic transactions involving the transfer of money," including those involving "[g]oods and services…purchased…using credit or debit accounts with electronic authorization." (EX1018, 1:17-20.) Smith describes electronic transactions occurring between a "purchaser device" (e.g., a "wireless purchasing device (WPD)") and a "vendor device at a point-of-sale." (*Id.*, 4:5-21.) The wireless purchaser device "may take the form of a personal digital assistant (PDA), a wireless phone or some other wireless communication device." (*Id.*, 4:19-21.) Smith explains that the wireless purchaser device and the vendor point-of-sale

device may operate in a wireless system, where communication between the two devices may occur through various short-range wireless networking technologies. (*Id.*, 4:22-26, 6:12-20, 6:30-7:6.) Thus, Smith is similar to Barnett, Waters, and White, which also disclose systems/methods of purchasing products at a point-of-sale terminal using short-range wireless communication technologies (e.g., NFC). (*See* Sections IX.A.1.ii, IX.B.1.i; EX1002, ¶140.) A POSITA would have therefore been motivated to consider the teachings of Smith when implementing the Barnett-Waters-White system/method. (EX1002, ¶140.)

Smith additionally discloses that its system/method allows for the vendor point-of-sale device to transmit electronic receipts to the purchaser device after a transaction is authorized and completed. (*Id.*, ¶141.) Smith explains that "[t]ransactions involving a credit or debit account require authorization from the organization who issues the card," where "authorization is generally obtained at the point-of-sale by a vendor through electronic communications channels." (EX1018, 1:26-34.) Following authorization by the card issuer or authorization processor, Smith discloses that "an electronic receipt will be generated by a vendor device at a point-of-sale." (*Id.*, 4:5-6.) "When a transaction takes place, an electronic receipt may be transmitted from the vendor device to a purchaser device where the receipt may be stored for further processing within the device or for further transmission to other devices and systems." (*Id.*, 4:6-8; *see also id.*, 4:15-17.) Smith explains that

the receipt is transmitted from the point-of-sale device to the purchaser device using the short-range wireless connection. (*Id.*, 4:23-24, 6:16-17, 7:6-8.) Smith discloses that the receipt generated at the point-of-sale device may include "purchase transaction information including, but not limited to, total purchase price, vendor ID, purchaser ID, item descriptions, itemized pricing, purchase date, purchase time, discount information, creditor information, authorization information, receipt management information and other transaction information." (*Id.*, 7:34-8:3; *see also id.*, 3:33-4:2.)

Thus, Smith discloses that after paying for a product, a consumer's phone may receive a receipt from the vendor point-of-sale device used in the transaction, where the receipt includes various information pertaining to the transaction ("receiving information from the entity"). (EX1002, ¶142.) A POSITA would have also understood that this information may be received "wirelessly…using unlicensed frequencies." (*Id.*) Smith describes the receipt information as being received via various wireless short-range communications (EX1018, 4:22-26, 6:12-20, 6:30-7:6) and explains that the short-range communications may include technologies such as Bluetooth (*id.*, 3:13-24, 4:23-24, 6:18-20, 6:34-35), which a POSITA would have understood uses unlicensed frequencies. (*See, e.g.*, EX1005, ¶[0017].) Thus, a POSITA would have understood that "wirelessly receiving information from the

entity" is compatible with various wireless short-range communication technologies that use unlicensed frequencies. (EX1002, ¶142.)

A POSITA would have been motivated to modify the Barnett-Waters-White combination to provide a receipt to the consumer's phone after completing a transaction, similar to that disclosed by Smith. (*Id.*, ¶143.) A POSITA would have understood that providing a receipt to a consumer would have offered numerous benefits, including providing proof of purchase, the amount of the purchase, and a record of the transaction for tracking purposes, as well as providing a means for consumers to later make a return or exchange of the purchased goods. (*Id.*) A POSITA would have understood that providing a transaction receipt would have had organizational and efficiency benefits as well, as it would have allowed a user to more effectively track purchases and manage/budget their finances. (*Id.*)

A POSITA would have also had a reasonable expectation of success combining the teachings of Barnett, Waters, White, and Smith. (EX1002, ¶144.) As discussed above, both references are in the same field of art. Moreover, Barnett suggests that its system/method is flexible and modifications to the NFC-enabled mobile phone are contemplated. (EX1005, ¶[0044].) Smith similarly discloses that its receipt feature can be adapted to a variety of short-range wireless communication methods, including those that a POSITA would have understood use unlicensed frequencies. (EX1018, 4:22-26, 6:12-20, 6:30-7:6; EX1002, ¶144.) Thus, a

POSITA would have understood that it would have been straightforward to modify the NFC-based system of the Barnett-Waters-White combination to include an NFC-based receipt feature similar to that disclosed by Smith. (EX1002, ¶144; *see also* Section IX.C.1.ii (describing how NFC uses unlicensed frequencies).)

A POSITA would have had the skill to implement and reasonable expectation of success in achieving such a modification because it would have involved a combination of known technologies (e.g., known system/method for performing financial transactions using an NFC-enabled mobile phone (Barnett, Waters, and White)) according to known methods (e.g., known methods of transmitting receipt information from a POS terminal (Smith)) to yield the predictable result of a modified Barnett-Waters-White-Smith system/method in which a user's phone may receive receipt information from a POS terminal after conducting a transaction ("wirelessly receiving information from the entity"), where information may be received using NFC, which as explained for limitation [17.b] "us[es] unlicensed frequencies." (EX1002, ¶145; Section IX.C.1.ii.) *KSR*, 550 U.S. at 416.

iv) [17.d] "wherein said wirelessly transmitting and said wirelessly receiving comprises using a time domain duplex protocol; and"[10]

The Barnett-Waters-White-Smith combination discloses and/or suggests these limitations. (EX1002, ¶¶146-151.)

A POSITA would have further been motivated to implement the Barnett-Waters-White-Smith combination in view of Barnett and Smith such that the short-range wireless communication between a consumer's mobile phone and the POS terminal ("said wirelessly transmitting and said wirelessly receiving") occurs via Bluetooth instead of NFC. (EX1002, ¶147.) A POSITA would have understood that Bluetooth "us[es] a time [division] duplex protocol" as these were standard features of Bluetooth communication. (EX1005, ¶[0017]; EX1008, 48:5-6.)

In particular, Barnett explains that a consumer's mobile phone may also be "adapted to communicate with…a Bluetooth system" in addition to NFC. (EX1005, ¶[0012].) Barnett discloses that instead of the displays 32 (used as POS terminals) being NFC-enabled displays, "[a]lternatively, the displays 32 may be Bluetooth-enabled communications devices" such that "when a Bluetooth-enabled mobile

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[10] A POSITA would have understood the recited "time domain duplex protocol" to refer to a time division duplex protocol. Indeed, the specification only discusses a time division duplex protocol. (EX1001, 7:17-27.)

phone is located near the display 32, information is transmitted between the Bluetooth-enabled mobile phone 14 and the display 32." (*Id.*, ¶[0022]; EX1002, ¶148.) Barnett discloses that Bluetooth is beneficial because it "provide[s] low-rate mesh networking, allowing low-cost devices to form networks within the retail environment." (EX1005, ¶[0017].)

Moreover, as further discussed for claim 3, Smith explains that the short-range communications device used to communicate with a POS terminal may be a Bluetooth transceiver. (EX1018, 6:18-20, 6:34-35; *see also* Section IX.C.1.iii.) Smith also explains that Bluetooth is a "viable and economical networking solution for interconnection of cell phones, computers, printers, modems, computer peripherals, fax machines and other communications and computing devices," and is beneficial because "[t]he size of the Bluetooth® transceiver makes it usable in devices as small as palm computers and cell phones," and the "range of about 10 meters…may be extended to about 100 meters by increasing transmitter power." (EX1018, 3:18-24.)

A POSITA would have thus been motivated to consider Bluetooth instead of or in addition to NFC when implementing the communication features between a mobile phone and POS terminal in the Barnett-Waters-White-Smith system/method. (EX1002, ¶150.) A POSITA would have also understood that Bluetooth would have been beneficial in stores where a longer communication range is desired (e.g., up to

10 meters), or where faster data transfer speeds are desired. (*Id.*) A POSITA would have also understood that Bluetooth would have been ideally suited to the mobile device applications of the Barnett-Waters-White-Smith system/method. (*Id*.)

A POSITA would have also had a reasonable expectation of success in implementing the Barnett-Waters-White-Smith system/method in view of Barnett and Smith in this manner because it would have involved an implementation that Barnett and Smith already suggest is feasible—using Bluetooth instead of NFC to perform transactions using mobile phones at POS terminals. (*Id.*, ¶151.) A POSITA would have had the skill to implement and reasonable expectation of success in achieving such a modification because it would have involved a combination of known technologies (e.g., known systems/methods for performing financial transactions using an NFC or chip-enabled mobile phone (Barnett, Waters, White, Smith)) according to known methods (e.g., known methods of using Bluetooth instead of NFC for mobile phone transactions at POS terminals (Barnett, Smith)) to yield the predictable result of a modified Barnett-Waters-White-Smith system/method that further uses Bluetooth (which "us[es] a time [division] duplex protocol," as discussed above) communication instead of NFC when wirelessly transmitting/receiving information to/from the POS terminal ("wherein said wirelessly transmitting and said wirelessly receiving comprises using a time [division] duplex protocol"). (EX1002, ¶151.) *KSR*, 550 U.S. at 416.

v) [17.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 parameter and determining that the value associated therewith satisfies the threshold criterion."

The Barnett-Waters-White-Smith combination discloses and/or suggests this limitation. (EX1002, ¶152.) As discussed for limitation [3.a], the short-range wireless link between the consumer's phone and the POS terminal is established ("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") in response to the phone detecting that it is within a certain proximity to the POS terminal ("responsive to the wireless device satisfying the proximity condition relative to the entity") and in response to the phone determining that the value of a parameter (sensed by a phone's sensor) meets a specific threshold criterion ("responsive to the wireless device sensing the parameter and determining that the value associated therewith satisfies the threshold criterion"). (*See* Section IX.C.1.i.)

X. DISCRETIONARY DENIAL IS NOT APPROPRIATE

In view of the Patent Office's interim process regarding discretionary denial, Petitioner will substantively address this issue during discretionary denial briefing.

XI. CONCLUSION

Petitioner requests institution of IPR for claims 1-18 of the ’756 patent based on the grounds specified in this petition.

Respectfully submitted,

Dated: August 12, 2025

By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)
Counsel for Petitioner

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 11,770,756 contains, as measured by the word-processing system used to prepare this paper, 13,998 words. This word count does not include the items excluded by 37 C.F.R. § 42.24 as not counting towards the word limit.

Respectfully submitted,

Dated: August 12, 2025

By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)
Counsel for Petitioner

CERTIFICATE OF SERVICE

I hereby certify that on August 12, 2025, I caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 11,770,756 and supporting exhibits to be served via express mail on the Patent Owner at the following correspondence address of record as listed on Patent Center:

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