

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

TELCOM VENTURES LLC,

Patent Owner.

Case No. IPR2025-01389
U.S. Patent No. 11,937,172

DECLARATION OF CHUCK EASTTOM

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1. Barnett-Waters-White Does Not Disclose or Render Obvious “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability.”.....28

i. *Barnett-Waters-White* Does Not Disclose or Render Obvious “performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability.”.....29

ii. A POSITA Would Not Have Been Motivated to Combine *Barnett* and *Waters*. 34

iii. A POSITA Would Not Have Been Motivated to Combine *Barnett, Waters, and White*. 44

2. *Barnett-Waters-White* Does Not Disclose or Render Obvious “while the mode is enabled, and as a precursor to performing a second step of said two-step process, transmitting by the smartphone first data to a first device requesting the authorization to establish said capability to perform said at least one financial transaction.” 49

3. *Barnett-Waters-White* Does Not Disclose or Render Obvious the Two-Step Process Required by Claim Limitations 1[a], 1[b], and 1[d]. 51

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TABLE OF EXHIBITS

Exhibit Number	Description
2001	Interim Processes for PTAB Workload Management, Acting Director Memorandum (March 26, 2025) (https://www.uspto.gov/sites/default/files/documents/InterimProcesses-PTABWorkloadMgmt-20250326.pdf)
2002	Telcom Ventures' Local Patent Rule 3.1 and 3.2 Disclosures, Served November 21, 2024
2003	Telcom Ventures' Subpoena to Google, Served July 18, 2025
2004	Stipulated Protective Order for Non-Party Google, Dated September 11, 2025
2005	Third Amended Docket Control Order
2006	Civil Standing Order for Cases Before Judge Rita F. Lin
2007	Telcom Ventures' Proposed Schedule in the Apple Litigation
2008	Order Denying Samsung's Motion to Stay, Dated August 27, 2025
2009	Exhibit A16 to Samsung's Invalidity Contentions
2010	Exhibit A13 to Samsung's Invalidity Contentions
2011	Paul Hasting's Notices of Appearance in the Samsung Litigation
2012	Declaration of Dr. Chuck Easttom
2013	<i>Curriculum Vitae</i> of Dr. Chuck Easttom
2014	Chiradeep BasuMallick, "What is NFC (Near Field Communication)? Definition, Working, and Examples" (Sept. 29, 2022), https://www.spiceworks.com/tech/networking/articles/what-is-near-field-communication/
2015	Liu et al., "Near-Field Communications: A Comprehensive Survey," IEEE (June 2025)
2016	"The Creation of the NFC Forum and its Vision" (2011) https://cs.stanford.edu/people/eroberts/courses/cs181/projects/2010-11/NFCChips/nfcforum.html
2017	McHugh & Yarmey, "Near Field Communication: Introduction and Implication," ERIC (2012)
2018	Coskun et al., "The Survey on Near Field Communication," Sensors (June 5, 2015)

I. INTRODUCTION

1. My name is Dr. Chuck Easttom, and I have been retained as a technical expert by counsel for Patent Owner Telcom Ventures LLC (“Telcom Ventures” or “Patent Owner”) to investigate and opine as to the validity of the claims in U.S. Patent No. 11,937,172 (“the ’172 Patent”) in view of Petitioner Google LLC’s (“Petitioner” or “Google”) Petition for *Inter Partes* Review (the “Petition”) (Paper 1).

2. This declaration is based on information currently available to me. To the extent that additional information becomes available, I reserve the right to continue my investigation and study, and thus may expand or modify my opinions as my investigation and study continues. I may also supplement my opinions in response to any additional information that becomes available to me, any matters raised by Petitioner and/or opinions rendered by Petitioner’s experts, or in light of any relevant orders from the Board.

3. My opinions are based on my years of education, research, and experience, as well as my investigation and study of relevant materials.

4. I am being compensated at the rate of \$550 per hour for my work in this case, including time spent testifying. I am also being reimbursed for reasonable fees and expenses, including hotel and travel expenses, incurred as a result of my work in this case. Neither I nor my company have received any additional compensation

for my work in this *inter partes* review. My compensation is not tied in any way to the substance of my testimony or the outcome of this proceeding. I have no other financial interest in this *inter partes* review or to the parties. I am available to offer these opinions at deposition and at a hearing if called upon to do so.

II. QUALIFICATIONS

5. I have summarized in this section my educational background, work experience, and other relevant qualifications. A true and correct copy of my *curriculum vitae* is attached as Ex. 2013 to Patent Owner's Preliminary Response which includes a list of all other cases in which, during the previous four years, I have testified at trial or by deposition.

6. I have over thirty years of experience in the computer science industry including extensive experience with computer security, mobile devices, and related topics. I have authored forty-five computer science books, including books on mobile devices and on cryptography. I also have authored over eighty research papers and am an inventor with twenty-seven computer science patents.

7. I hold a Doctor of Science (D.Sc.) degree in Cyber Security from Capitol Technology University (Dissertation Topic: "A Comparative Study of Lattice Based Algorithms for Post Quantum Computing"). I also hold a Doctor of Philosophy (Ph.D.) in Technology focused on nanotechnology (Dissertation Topic: "The Effects of Complexity on Carbon Nanotube Failures") from Capitol

Technology University. I also have a Doctor of Philosophy (Ph.D.) in Computer Science from the University of Portsmouth (Dissertation Topic: “A Systematic Framework for Network Forensics Using Graph Theory”). I also hold four Master’s degrees—one in Applied Computer Science, one in Education, one in Defense and Strategic Studies, and one in Systems Engineering.

8. I am currently an Adjunct Lecturer for Georgetown University teaching graduate courses in requirements engineering, artificial intelligence, cybersecurity, and cryptography. I am also an adjunct for Vanderbilt University teaching graduate computer science courses in quantum computing, digital forensics, algorithms, and cybersecurity. I also developed a graduate course in digital forensics for the University of Dallas and taught that course from 2019 to 2022.

9. I am a Senior Member and Distinguished Speaker for the Association of Computing Machinery (“ACM”) and a Senior Member and Distinguished Visitor of the Institute for Electrical and Electronics Engineering (“IEEE”). The IEEE is the world’s largest and most preeminent engineering organization. Among other activities, the IEEE creates industry standards for a wide range of engineering disciplines, including software development. I am also a Distinguished Visitor of the IEEE. I have been involved in IEEE standards creation for several years.

10. I have extensive experience with smart cards, Near Field Communications (“NFC”), the ISO/IEC 7810 standard for identification cards, the

ISO/IEC 7816 standard for electronic cards for identification, the ISO/IEC 14443 standard for contactless integrated circuit cards, the EMV standard, and related standards and technologies.

11. I have worked with smart cards as an authentication method since the Department of Defense began using the Common Access Card in the early 2000s. Near Field Communications were covered in networking courses that I took as part of my second Master's degree and in some of the networking certifications I hold. I have also worked with NFC since at least 2005. Specific certifications I hold that are relevant to NFC and/or mobile devices include:

- Associate of Systems Engineering (ASEP) from INCOSE (International Council on Systems Engineering) 275062
- CompTIA Network + Certified COMP10163630
- CompTIA Network Infrastructure Professional – CNIP COMP10163630
- EC Council Certified Security Administrator (ECSA) ECC947248
- EC Council Certified Encryption Specialist (ECES)
- CISSP – ISSAP – Certified Information Systems Architecture Professional #387731
- CISSP – ISSEP Information Systems Security Engineering Professional #387731

- Oxygen Phone Forensics Certified
- CompTIA Security+ COMP001021522764
- SC-300 - Microsoft Identity and Access Administrator

12. Specific publications that I have authored or participated in related to NFC, chip design, and/or mobile devices include the following:

- Easttom, C. (2005). Introduction to Computer Security. New York City, New York: Pearson Press.

- Easttom, C. & Dulaney, E. (2015). CompTIA Security+ Study Guide: SY0-401. Hoboken, New Jersey: Sybex Press.

- Easttom, C. & Roberts, R. (2018). Networking Fundamentals, 3rd Edition. Goodheart-Wilcox Publishing.

- Easttom, C. (2020). Modern Cryptography: Applied Mathematics for Encryption and Information Security 2nd Edition. New York City, New York: Springer Press.

- Easttom, C. (2021). An In-Depth Guide to Mobile Device Forensics. CRC Press.

- Easttom, C., Mei, N. (2019). Mitigating Implanted Medical Device Cybersecurity Risks. IEEE 10th Annual Computing and Communication Conference UEMCON.

- Easttom, C., Sanders, W. (2019). On the Efficacy of Using Android Debugging Bridge for Android Device Forensics. IEEE 10th Annual Computing and Communication Conference UEMCON.

13. I am qualified to render the opinions set forth herein. Under my definition of a POSITA or Dr. Chatterjee's definition, set forth below, I am and was as of the priority date of the '172 Patent, at least one of ordinary skill in the art.

III. MATERIALS CONSIDERED

14. I have reviewed the '172 Patent, including the challenged claims, its prosecution history, and the relevant patent family. The '172 Patent was marked as Exhibit 1001, and its prosecution history was marked as Exhibit 1004.

15. I also reviewed the Petition and each of Exhibits 1001-1018 attached to the Petition.

16. In forming my opinions, I have considered the materials listed above and any other documents cited in this declaration. I have also relied on my own education, knowledge, and experience in the relevant art.

17. I have also considered the understanding of a person of ordinary skill in the art at the time of the invention of the '172 Patent.

IV. SCOPE OF OPINIONS

18. I set forth my opinions throughout this declaration.

19. I understand that Petitioner argues that all of claims 1-16 (the “Challenged Claims”) would have been obvious over one of two Grounds. Pet. at 4-5. Petitioner and Dr. Chatterjee, allege in Ground 1 claims 1-4, 6-12, and 14-16 would have been obvious over U.S. Patent Application Publication No. 2009/0170483 A1 to *Barnett* et al. (“*Barnett*”) (Ex. 1005), International Patent Publication No. WO 2006/087503 A1 to *Waters* et al. (“*Waters*”) (Ex. 1006), and U.S. Patent No. 7,434,723 to *White* et al. (“*White*”) (Ex. 1007). Pet. at 4. Petitioner and Dr. Chatterjee allege in Ground 2 that claims 5, 8, 13, and 16 would have been obvious over *Barnett*, *Waters*, *White*, and International Patent Publication No. WO 02/09005 to Smith et al (“*Smith*”) (Ex. 1018). *Id.* Both grounds rely on *Barnett* as a primary reference, and Dr. Chatterjee suggests that a person of ordinary skill would have been motivated to combine *Barnett* with two or three different secondary references to meet the language of the claims. Claims 1 and 9 are the independent claims and are addressed in Ground 1. All other claims, across Grounds 1 and 2, depend from one of these two claims.

20. I disagree. It is my opinion that the challenged claims of the ’172 Patent would not have been obvious in view of the asserted references, alone or in combination, for the reasons discussed herein. While I address certain limitations and combinations to demonstrate that each of the Challenged Claims is not unpatentable, I reserve the right to supplement this declaration to include additional

information and opinions related to any and all Challenged Claims and claim elements and the asserted Grounds and prior art references.

V. RELATED DISTRICT COURT CASE

21. Patent Owner filed a complaint against Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. (collectively “Samsung”) in the Eastern District of Texas, styled *Telcom Ventures LC v. Samsung Electronics Co., Ltd. et al.*, Case No. 2:24-cv-00691-JRG (filed August 21, 2024) (“Samsung Litigation”).

22. I understand Patent Owner initially asserted a total of eight patents against Samsung in that action: U.S. Patent Nos. 9,462,411, 9,832,708, 10,219,199, 10,674,432, 11,770,756, 11,924,743, 11,937,172, and 12,028,793. I understand that Patent Owner informed Samsung that it was withdrawing its infringement allegations of U.S. Patent Nos. 11,924,743 and 11,770,756 in the Samsung Litigation, but Samsung responded the same day by filing declaratory judgment claims of invalidity on all eight of the patents. Accordingly, the validity of all eight patents remains at issue in the Samsung Litigation.

23. I understand that Patent Owner has accused Google products as infringing products in the Samsung Litigation. Ex. 2002.

24. I understand that and Google is participating in the Samsung Litigation as a subpoenaed third party. Exs. 2003, 2004.

25. I understand that a jury trial for the suit between Patent Owner and Samsung is expected to begin on June 1, 2026. Ex. 2005 at 1.

26. I understand that Petitioner filed IPR petitions against seven patents asserted by Patent Owner. These are:

- IPR2025-01349, regarding U.S. Patent No. 11,924,743
- IPR2025-01389, regarding U.S. Patent No. 11,937,172 (the instant Petition)
- IPR2025-01401, regarding U.S. Patent No. 12,028,793
- IPR2025-01408, regarding U.S. Patent No. 9,832,708
- IPR2025-01409, regarding U.S. Patent No. 11,770,756
- IPR2025-01419, regarding U.S. Patent No. 10,219,199
- IPR2025-01421, regarding U.S. Patent No. 10,674,432

27. I understand Samsung has filed IPR petitions against the eight patents asserted by Patent Owner in the Samsung Litigation. These are:

- IPR2025-00957, regarding U.S. Patent No. 11,937,172
- IPR2025-00972, regarding U.S. Patent No. 10,219,199
- IPR2025-00973, regarding U.S. Patent No. 9,462,411
- IPR2025-00974, regarding U.S. Patent No. 10,674,432
- IPR2025-00975, regarding U.S. Patent No. 9,832,708
- IPR2025-00976, regarding U.S. Patent No. 11,924,743

- IPR2025-00977, regarding U.S. Patent No. 11,770,756
- IPR2025-00978, regarding U.S. Patent No. 12,028,793

28. I understand that institution was denied in all eight of Samsung's Petitions.

29. I also understand Patent Owner asserted the '172 Patent against Apple Inc. in the Northern District of California, styled *Telcom Ventures LLC v. Apple Inc.*, Case No. 5:25-cv-05041 (filed October 4, 2024).

30. I understand Patent Owner asserted the same eight patents against Apple Inc. in that action.

31. I understand that Apple Inc. has filed IPR petitions against all eight patents asserted by Patent Owner. These are:

- IPR2025-01232, regarding U.S. Patent No. 9,462,411
- IPR2025-01233, regarding U.S. Patent No. 9,832,708
- IPR2025-01234, regarding U.S. Patent No. 10,219,199
- IPR2025-01235, regarding U.S. Patent No. 10,674,432
- IPR2025-01236, regarding U.S. Patent No. 11,770,756
- IPR2025-01237, regarding U.S. Patent No. 11,924,743
- IPR2025-01238, regarding U.S. Patent No. 11,937,172
- IPR2025-01239, regarding U.S. Patent No. 12,028,793

32. As of the signing of this declaration, I have been retained to provide an opinion in all seven IPRs filed by Petitioner against the patents asserted by Patent Owner. I have also been retained to provide an opinion in each of the IPRs filed by Apple Inc. and Samsung.

VI. LEGAL STANDARDS

33. For purposes of this Declaration, I use the legal principles below as a guide in formulating my opinions. I am not an attorney, and I am not offering any opinions regarding legal matters; however, I have been informed by Telcom Ventures' counsel of the legal principles relevant to the issues herein and have the following understanding.

34. In an *inter partes* review proceeding, I understand that a party seeking to invalidate a claim must prove invalidity by a preponderance of the evidence, which I understand to mean evidence that convinces someone that it is more likely than not that the particular proposition is true. I understand that the preponderance of the evidence standard applies to all aspects of an allegation of anticipation or obviousness, including the prior art status of the relevant reference(s).

A. Claim Construction

35. I understand the first step in determining whether a patent claim is valid is to properly construe the claims. I understand that the words of a claim are generally given their ordinary and customary meaning (sometimes referred to as

their plain and ordinary meaning) as understood by a person of ordinary skill in the art at the time of the invention. I also understand that, as a general matter, a claim should not be limited to a preferred embodiment, but that in certain cases, the scope of the right to exclude may be limited by a narrow disclosure or by positions taken, such as by statements made during patent prosecution. I also understand the claims must be supported by the specification. Also, to the extent that a patent claims priority to an earlier filed application, the claims must be supported by the disclosure in that application. For terms that have not been construed, I understand that they should be afforded their plain and ordinary meaning to one of ordinary skill in the art.

36. I understand that the plain and ordinary meaning of a claim term is the meaning that a person of ordinary skill in the art would have understood at the time of the effective date in view of the specification and the prosecution history.

B. Obviousness

37. I understand that a claimed invention is not patentable under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Obviousness, as I understand it, is based on the scope and content of the prior art,

the differences between the prior art and the claim, the level of ordinary skill in the art, and objective indicia of non-obviousness to the extent they exist.

38. I understand that whether there are any relevant differences between the prior art and the claimed invention is to be analyzed from the perspective of a person of ordinary skill in the art at the time of the invention. A person of ordinary skill in the art is a hypothetical person who is presumed to be aware of all of the relevant art at the time of the invention. The person of ordinary skill is not an automaton, and may be able to fit together the teachings of multiple patents employing ordinary creativity and the common sense that familiar items may have obvious uses in another context or beyond their primary purposes.

39. I understand that if a reference or proposed combination of references does not disclose or suggest all of the elements of a claim, the combination cannot render the claim obvious. I also understand that in order to combine prior art references to show obviousness, a person of ordinary skill in the art, without knowledge of the claimed invention, or without the use of hindsight, must have been motivated to combine the prior art by some suggestion or teaching in the prior art, the knowledge of one of skill in the art, or the nature of the problem to be solved.

40. I understand that an invention would have been obvious if a designer of ordinary skill in the art, facing the wide range of needs created by developments in the field, would have seen an obvious benefit to the solutions tried by the applicant.

When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, it may have been obvious to a person of ordinary skill to try the known options. If a technique has been used to improve one device, and a person of ordinary skill in the art would have recognized that it would improve similar devices in the same way, using the technique may have been obvious. I understand, however, that routine experimentation does not necessarily preclude patentability.

41. I understand that obviousness of a patent claim cannot properly be established through hindsight, and that elements from different prior art references, or different embodiments of a single prior art reference, cannot be selected to create the claimed invention using the invention itself as a roadmap. I understand that the claimed invention as a whole must be compared to the prior art as a whole, and courts and the Board must avoid aggregating pieces of prior art through hindsight that would not have been combined absent the inventors' insight.

C. Motivations to Combine

42. I understand that, in deciding obviousness, it is appropriate to consider whether some teaching, suggestion, or motivation would have led a person of ordinary skill in the art to combine the invalidating references. I also understand that a reason to combine the teachings is needed even in a single-reference obviousness ground. I understand that there must be a showing of a suggestion or motivation to

modify the teachings of that reference. I also understand that it is appropriate to look to a variety of factors when evaluating reasons to combine teachings or modify the teachings of a reference in an obviousness analysis, and that it is important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine or modify the prior art elements in the manner claimed. I understand that in determining obviousness, it may be helpful to consider whether there is some teaching, suggestion, or motivation to combine or modify teachings and a reasonable expectation of success in doing so. I understand, however, that the teaching, suggestion, or motivation to combine inquiry is not required and may not be relied upon in lieu of the obviousness analysis outlined above. I understand that a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was independently known in the prior art. I also understand that this is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

VII. LEVEL OF ORDINARY SKILL IN THE ART

43. I understand that patent claims are to be interpreted from the viewpoint of a person of ordinary skill in the relevant art. To determine the level of skill that would be “ordinary,” I understand that a person of ordinary skill in the art

(“POSITA”) must generally have the capability of understanding the general principles that are applicable to the pertinent art.

44. In my opinion, a POSITA would have had at least a bachelor’s degree in electrical engineering, computer engineering, or a related field, with about two years of experience in wireless communications. More work or practical experience may qualify one not having the requisite education as a person of ordinary skill in the art while a higher level of education could offset less experience. I was at least a person of ordinary skill in the art as of the effective filing dates of the Asserted Patents under this definition.

45. I have reviewed Dr. Chatterjee’s Declaration. Ex. 1002. I understand that Dr. Chatterjee contends that a POSITA would have had “an undergraduate degree in electrical engineering, computer engineering, computer science or a related field along with two years of work experience in the field of mobile communication applications.” Ex. 1002, ¶20. I do not agree with Dr. Chatterjee’s definition of a POSITA, in particular that two years of work experience in the field of mobile communication applications is required because the claims are not directed towards “applications” and it is unclear what Dr. Chatterjee means by “mobile communications applications.” I was at least a person of ordinary skill in the art as of the effective filing dates of the Asserted Patents under Dr. Chatterjee’s definition. Thus, I met the requirements of a POSITA under either my definition or Dr.

Chatterjee's definition as of the priority date of the '172 Patent. Furthermore, whether I apply Dr. Chatterjee's definition of a POSITA or my own, my opinions herein would not change.

VIII. CLAIM CONSTRUCTION

46. I understand that Petitioner contends that “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.” Pet. at 9. Other than explaining the plain and ordinary meaning of certain terms, which I do below, I do not offer an opinion on the correct construction of any disputed terms because, in my opinion, the Challenged Claims are not taught or suggested by the prior art. I reserve the right to respond to any future claim construction argument asserted by Petitioner or Dr. Chatterjee.

IX. TECHNOLOGY BACKGROUND

47. Below, I provide a brief overview of the history of contactless smart cards, or proximity cards, and the use of the same technologies in devices.

A. Near Field Communications (“NFC”)

48. Near Field Communication (“NFC”) is a broad term for short-range wireless communication technology that allows devices to exchange data when they are brought very close together. It is an extension of Radio Frequency Identification (“RFID”) technology, designed for secure, quick, and convenient data transfer.

49. NFC-capable devices can communicate with other NFC-capable devices in either active or passive mode. In active mode, both devices generate their own radio frequency field to transmit data. Ex. 2014 at 4. In passive mode, one device generates the radio frequency field while the other responds without a power source. *Id.*

50. A paper by Liu et al. provides a history of NFC, stretching back to the first understanding of the wave theory of light. Ex. 2015 at 4. That paper includes an overview of NFC history which is shown here:

TABLE I: Timeline of NFC Milestones

1678	.....	•	Huygens presented his “Wave Theory of Light”.
1801	.....	•	Young presented the double-slit diffraction experiment.
1815	.....	•	Fresnel presented a series of memoirs about his understanding of diffraction.
1821	.....	•	Fraunhofer constructed the first diffraction grating.
1887	.....	•	Hertz demonstrated the existence of radio waves.
1891	.....	•	Lord Rayleigh calculated the Rayleigh distance $\frac{A^2}{2\lambda}$.
1947	.....	•	Cutler <i>et al.</i> reformulated the Rayleigh distance as $\frac{2A^2}{\lambda}$.
1956	.....	•	Polk calculated the Fresnel distance.
1983	.....	•	The first patent on RFID-based NFC was granted.
1984	.....	•	Winters formulated the initial theory of MIMO.
1994	.....	•	The first patent on MIMO was granted.
1996	.....	•	Foschini laid down crucial theoretical foundations for MIMO.
1999	.....	•	Driessen and Foschini utilized a spherical wave-based model to characterize LoS MIMO.
2003	.....	•	Jiang <i>et al.</i> proposed to use spherical wave-based models to describe short-range MIMO.
2010	.....	•	Marzetta proposed the concept of massive MIMO.
2015	.....	•	Channel measurement results on massive MIMO necessitated the use of a spherical wave-based channel model.
2016	.....	•	Prather proposed the concept of holographic MIMO.
2017	.....	•	Hu <i>et al.</i> re-showed the potential of large intelligent surfaces in enhancing wireless transmissions.
2018	.....	•	Amiri <i>et al.</i> proposed the concept of ELAA.
2023	.....	•	The first tutorial review of NFC was presented.

51. Despite the long history of the physics and technology supporting NFC, NFC itself is relatively new. For example, the NFC Forum was created in 2004 to ensure maximum compatibility across all implementations of NFC technology. Ex. 2016 at 1. But the NFC Forum was not even founded until many years after the first standards related to smart cards were published. As late as 2012, *see* Ex. 2017 at 1, and even 2015, some sources still referred to NFC as an “emerging technology.” Ex. 2018 at 1.

52. Within the umbrella of NFC, there are numerous individual standards that are more specific. One such standard is ISO/IEC 14443. The ISO/IEC 14443 standard has four parts. Part 1 defines the physical properties of the card (e.g., size, durability, environmental tolerance). Part 2 specifies how the card is powered by the RF field of the reader and how modulation/coding are done for transmitting and receiving signals. Part 3 describes card initialization and how multiple cards in the field are identified and selected (anti-collision protocol). Part 4 defines higher-level data exchange protocols, including how commands and responses are structured.

53. The specificity of individual NFC standards means that any such standard is self-sufficient. In other words, a POSITA consulting one of these standards, such as ISO/IEC 14443, would have a complete solution for near field communications and would not need to look to other standards or technologies.

X. U.S. PATENT NO. 11,937,172 (“’172 Patent”) (Ex. 1001)

A. Priority Date

54. Through a series of continuation applications, the ’172 Patent claims the benefit of U.S. Patent Application No. 12/264,711—later issued as U.S. Patent No. 9,462,411, which has a filing date of November 4, 2008.

55. I understand that Petitioner does not challenge this priority date for purposes of the Petition, and I have assumed that each of the challenged claims is entitled to a priority date of November 4, 2008. Pet. at 4.

B. ’172 Patent Overview

56. The ’172 Patent describes mobile wireless devices and methods of using a mobile wireless device to perform financial transactions, but only when certain conditions or criteria are met, such as the satisfaction of a proximity condition and a value of a parameter, e.g., a physiological parameter, satisfying a criterion. Ex. 1001, 1:30-35; 6:17-27. The specification recognizes that devices in the art were rigidly configured to perform a predetermined number of functions. *Id.*, 1:44-49. The ’172 Patent addresses this rigidity problem by providing devices and methods that “may be used to enable adaptively one or more modes/functions of a device” based upon the satisfaction of certain criteria. *Id.*, 1:54-59. The specification explains that the invention advantageously allows “a mobile wireless device [to] act as a ‘wallet’ (over and above other functions) only when it is time to pay for an item and not act as a wallet when there is no need to do so.” *Id.*, 1:49-52.

57. The '172 Patent also describes estimating “a value of at least one other parameter that may be associated with the wireless communications device . . . and/or an entity (living or otherwise) that is associated with and/or is proximate to the wireless communications device.” *Id.*, 6:19-23. Such parameters include “velocity, acceleration, ToD, ToM, ToY, humidity, temperature, height, level of brightness, level of darkness, a blood pressure, a heart rate, a blood content, a physiological state, a psychological state, etc.” *Id.*, 6:25-28. These parameters can be estimated using “sensors that may, according to some embodiments, be device-based and/or network assisted/based means and/or sensors.” *Id.*, 6:32-34. The disclosed wireless communications devices may be “configured to selectively enable the first communications mode/function” responsive to a value of such a parameter. *Id.*, 6:45-49.

C. The '172 Patent's Prosecution History

58. I have reviewed the prosecution history of the '172 Patent.

59. U.S. Patent Application No. 18/523,863 was filed on November 29, 2023 and issued as U.S. Patent No. 11,937,172 on March 19, 2024.

60. The Examiner allowed the claims of the '172 Patent without any rejections. The Examiner stated in the Notice of Allowance that the closest prior art of record, U.S. Patent Application Publication No. 2009/0058637, failed to teach or

suggest “receiving by the smartphone second data from the first device, comprising the authorization . . . ” and other limitations of claims 1 and 9. Ex. 1004 at 348-49.

XI. ASSERTED REFERENCES

A. *Barnett* (Ex. 1005)

61. United States Patent Application No. 2009/0170483 to *Barnett*, et al. (“*Barnett*”) is titled “System and Method for Transmitting Information Using a Mobile Phone.”

62. *Barnett* is a fully self-sustained system that is narrowly limited to an efficient means of providing a customer information while they are shopping in a store. *See Barnett* ¶[0001] (“The invention relates generally to a system and method of communicating shopping information between a consumer and a retailer. In particular, the invention relates to 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.”) Figure 1 (reproduced below) illustrates this system. *Barnett* explains that, for example, “[t]he information transmitted to the retailer may include a shopping list of goods or services desired by the consumer. In return, the retailer may provide the home computer system 12 and portable communications device will information regarding the desired goods or services.” *Id.*, ¶[0011].

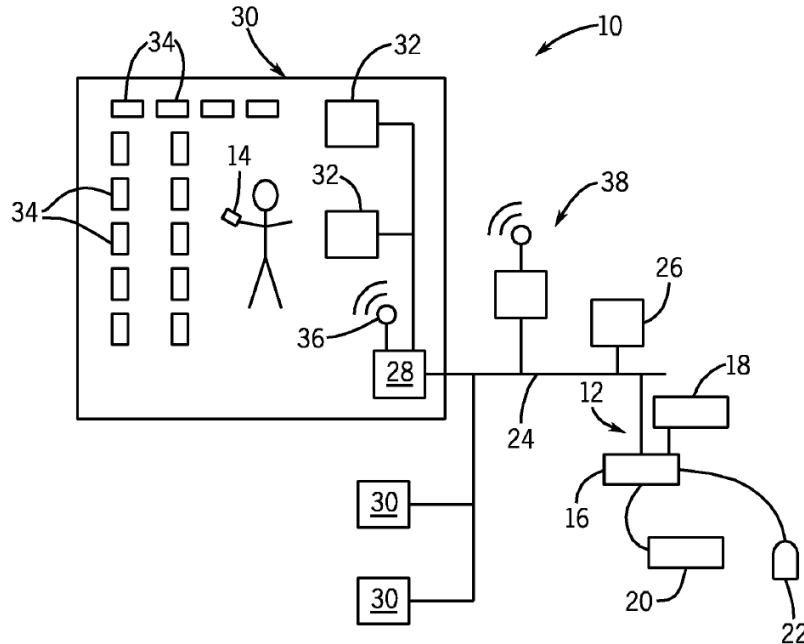


FIG. 1

Barnett, Fig. 1.

63. *Barnett* also discloses how the store's infrastructure is self-sustained, explaining that "[w]ithin the store 30 are a series of displays 32 that are connected to the store computing system 28. In this embodiment, the displays 32 are NFC-enabled displays that can interact with a NFC-enabled mobile phone 14 using device-to-device communication" (*Barnett* ¶[0021]) and that "[s]tand-alone NFC-enabled devices 34 that have been programmed with specific information are located around the store 30. In this embodiment, the stand-alone NFC-enabled devices 34 are used to identify products to NFC-enabled devices." *Barnett* ¶[0023].

64. *Barnett* discloses an infrastructure for reducing the time the customer spends in the store by streamlining the exchange of communication about the products to the customer. *See Barnett* ¶¶[0002] (“[A] consumer may go to a store to purchase an item and find on arriving at the store that the item is not in stock. In addition, even if the item is in stock, considerable time may be wasted looking for the item in the store. Locating a store employee to ask the employee a question about a product can also be very time consuming. There are many other examples of problems that a consumer can experience when shopping that lead to considerable amounts of time being wasted.”); [0042] (“Generally the time that the consumer spends in a store may be used more efficiently. For example, the consumer knows immediately whether or not an item is in stock at a nearby store. In addition, there is less need to find a person at the store to obtain additional information.”).

B. *Waters* (Ex. 1006)

65. International Patent Publication No. 2006/087503 to *Waters*, et al. (“*Waters*”) is titled “Improved Security for Wireless Communication.”

66. *Waters* focuses on limiting NFC capability. For example, *Waters* discloses a method of authenticating a subscriber identity module (SIM) to “control to some extent the operation of the near field tag 41” so that the near field tag 41 is “under control of the SIM 15, by means of communication link 43.” *Waters*, 9.

67. As one example, *Waters* discloses a “[j]amming device” where “near field tag 41 and/or the mobile terminal 1 is designed to jam/disrupt the low level communications of all other RF tags within range of the jamming device. Instead of following the anti-collision protocol commonly used in near field tag technology, the device attempts to create collisions and other forms of interference. The jamming device is disabled, or the near field tag 41 is removed from proximity of the jamming device, when authorised use of the card is required.” *Waters*, 16-17.

C. *White* (Ex. 1007)

68. United States Patent No. 7,434,723 to *White*, et al. (“*White*”) is titled “Mobile Payment Authorization System and Method.”

69. *White* “is directed to a payment approval system, and more particularly, but not by way of limitation, to a system and method for mobile payment approval.” *White*, 1:20-25. Specifically, *White* provides embodiments for systems and methods for “completing a pending purchase” and “payment approval.” *White*, 1:38-2:8.

70. Figure 1 (reproduced below) provides an exemplary architecture for an embodiment of *White*’s system.

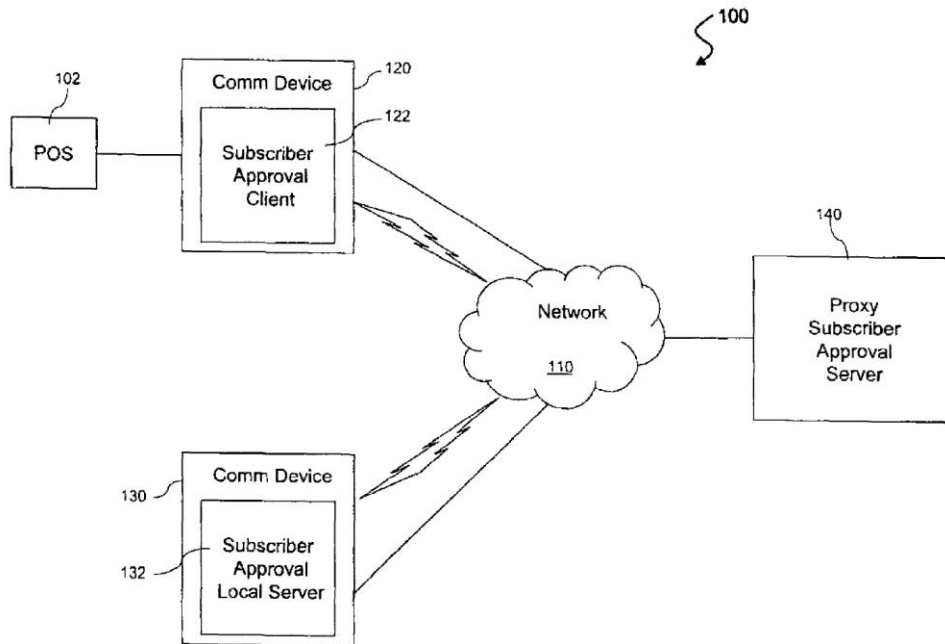


Figure 1

White, Fig. 1.

71. Regarding communicating with the second communication device 130 in Figure 1, *White* explains that “[t]he first communication device 120 communicates with the second communication device 130 through the network 110” (*White*, 4:17-19) and that these devices can be “computer-based entities, such as personal digital assistants (PDAs), mobile phones, personal computers (PC), laptop computers, or traditional wireless or wire-line telephones.” *White*, 4:12-15.

XII. THE CHALLENGED CLAIMS OF THE '172 PATENT WOULD NOT HAVE BEEN OBVIOUS

A. Petitioner’s Ground 1 Fails Because the Claims Would Not Have Been Obvious in View of *Barnett*, *Waters*, and *White*

72. The following paragraphs address examples of why the Challenged Claims would not have been obvious in view of *Barnett* in combination with *Waters* and/or *White*.

73. In Ground 1,¹ Dr. Chatterjee argues that *Barnett* in view of *Waters* and *White* teaches the limitations of claims 1-4, 6-12, and 14-16, including independent claims 1 and 9. *See generally* Ex. 1002, §VIII.A. All dependent claims of the '172 Patent depend from one of these two independent claims. I understand that Dr. Chatterjee provides only one initial analysis for claim 1, and then incorporates that analysis into the limitations of claim 9. Ex. 1002, ¶¶117-118. Accordingly, while I focus on Dr. Chatterjee's arguments with respect to claim 1, my analysis applies equally to claim 9. I disagree with Dr. Chatterjee: the references in Ground 1 neither disclose the Challenged Claims nor, individually or in combination, would they have rendered those claims obvious.

74. While I address certain limitations to demonstrate that each of the Challenged Claims is not unpatentable, I reserve the right to supplement this declaration to include additional information and opinions related to any and all challenged claims and claim elements.

¹ Dr. Chatterjee asserts a second Ground, Ground 2, with respect to certain dependent claims. If instituted, I reserve the right to address Ground 2 at that time.

1. Barnett-Waters-White Does Not Disclose or Render Obvious “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability.”

75. Claim limitation 1[a] requires “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability.” Claim limitation 9[a] similarly requires “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate information requesting an authorization to establish said capability.” All dependent claims of the ’172 Patent depend from independent claims 1 and 9, and therefore, all claims of the ’172 Patent require a “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate [by the smartphone] information requesting an authorization to establish said capability.” ’172 Patent, cls. 1[a], 9[a].

76. Dr. Chatterjee states that, “[w]hile *Barnett* does not expressly disclose” limitation 1[a], “a person of ordinary skill in the art would have been motivated to implement such features in the *Barnett* system/method in view of *Waters* and *White*.” Ex. 1002, ¶58. He goes on to develop his combined *Barnett-Waters-White* system, which he contends meets limitation 1[a]. *Id.*

77. As detailed below, Dr. Chatterjee’s analysis and opinion is flawed for two separate reasons. First, Dr. Chatterjee fails to show how “enabling a mode to communicate” is ever met by his *Barnett-Waters-White* system/method. Second, a POSITA would not have been motivated to combine *Barnett*, *Waters*, and *White* as Dr. Chatterjee suggests.

- i. ***Barnett-Waters-White* Does Not Disclose or Render Obvious “performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability.”**

78. Limitation 1[a] specifically requires “performing a first step of said two-step process by *enabling a mode to communicate* by the smartphone information requesting an authorization to establish said capability”² that occurs “responsive to sensing at least one parameter by at least one sensor of the smartphone

² All emphasis added unless otherwise noted.

and responsive to determining that the at least one parameter that is sensed satisfies a criterion.”

79. Dr. Chatterjee points to *White* as disclosing “a ‘mode to communicate by the smartphone information requesting an authorization to establish said capability’ to conduct a financial transaction, where the communication mode involves the consumer’s phone sending a subscriber approval request (‘information requesting an authorization’) from the first communication device to a second communication device.” Ex. 1002, ¶78³. Later, Dr. Chatterjee confirms his reliance on *White* when he alleges that a consumer triggering “the consumer’s mobile device to enable an authorization/approval process communication mode in which the mobile device sends a subscriber approval request to a specific approver’s device (e.g., the owner of the specific card for which the consumer is an authorized user, or a proxy subscriber approval server)” of *White* meets “performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability” as required by limitation 1[a]. Ex. 1002, ¶84. In my opinion, however, Dr. Chatterjee’s analysis improperly conflates the mere act of sending a transmission with the claimed “enabling *a mode*

³ All claim language that is underlined herein is replicated from and originally appears in Dr. Chatterjee’s declaration (Ex. 1002).

to communicate.” Nowhere does Dr. Chatterjee assert that “a mode” is enabled in *Barnett-Waters-White* “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion.” ’172 Patent, cls. 1[a], 9[a].

80. For example, in paragraph 79, Dr. Chatterjee asserts that in response to satisfying proximity conditions, the consumer’s phone will “enable the authorization communication mode and send an authorization request” in accordance with *White*. Ex. 1002, ¶79. Then, in paragraph 80, Dr. Chatterjee sets forth his opinion on the benefits of the authorization method of *White*, claiming it is “beneficial because . . . it allows for an owner of a card/payment method to remotely approve transactions on a purchase-by-purchase basis” and “would have allowed for enhanced flexibility, while still offering the security benefits of an authorization process.” Ex. 1002, ¶80 (citing *White*, 3:7-21). Neither paragraph of Dr. Chatterjee’s report describes enabling *a mode to communicate*. Instead, Dr. Chatterjee describes the transmission and benefits of an “authorization request” over an already enabled communication pathway. *See id.*; *see also White*, 4:22-25 (disclosing that the authorization request in *White* can be sent over a variety of networks, such as “voice-based telephony, video conference, internet protocol, multimedia messaging service (MMS), short messaging service (SMS), email, instant text messaging, and/or other means of communication”).

81. Further, Dr. Chatterjee fails to demonstrate that “*enabling a mode to communicate* [by the smartphone] information requesting an authorization to establish said capability” occurs “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion.” ’172 Patent, cls. 1[a], 9[a]. Dr. Chatterjee suggests that “[c]onsistent 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 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).” Ex. 1002, ¶83. Even if Dr. Chatterjee were correct with regard to “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 criterion,” his argument underscores the flaws in the analysis. Specifically, as admitted by Dr. Chatterjee, the proposed *Barnett-Waters-White* combination enables NFC in response to a sensed parameter satisfying a criterion, but NFC is not the mode of communication used for the purpose of “requesting an authorization to establish said capability” (e.g., the *White* authorization process). NFC is instead used to initiate an NFC payment transaction with an NFC-enabled point-of-sale (“POS”).

82. Indeed, when Dr. Chatterjee discusses the *White* authorization process, Dr. Chatterjee does so with respect to already established modes of communication. For example, Dr. Chatterjee states that *White* discloses communication via the Internet or similar wireless network communication, while *Barnett* discloses such communication over a Wi-Fi system. Ex. 1002, ¶81 (citing *White*, 4:3-19 and *Barnett*, ¶¶[0016], [0026], [0035]). *White* never discloses sending the authorization message via NFC. See *White*, 4:22-25 (listing “voice-based telephony, video conference, internet protocol, multimedia messaging service (MMS), short messaging service (SMS), email, instant text messaging, and/or other means of communication” as available communication networks between the requesting and authorizing devices).

83. Dr. Chatterjee fails to show that *Barnett-Waters-White* discloses or suggests “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate [by the smartphone information requesting an authorization to establish said capability.” ’172 Patent, cl. 1[a]; see also ’172 Patent, cl. 9[a] (“responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by

enabling a mode to communicate information requesting an authorization to establish said capability”). Thus, in my opinion, *Barnett-Waters-White* does not disclose or render obvious claim limitations 1[a] and 9[a] of the ’172 Patent, and as a result, Ground 1 does not disclose nor would it have rendered obvious independent claims 1 and 9, and all dependent claims. Ground 2, which is directed only to certain dependent claims, does not alter this analysis or conclusion.

ii. A POSITA Would Not Have Been Motivated to Combine *Barnett* and *Waters*.

84. In drawing his conclusion that the *Barnett-Waters-White* system would have rendered obvious limitation 1[a], Dr. Chatterjee first sets forth an analysis explaining why a POSITA would have been motivated to combine *Barnett* with *Waters*. He states that a POSITA would have been motivated to combine “a sensing mechanism, similar to that disclosed by *Waters*, to selectively enable/disable the NFC tag in *Barnett*.” Ex. 1002, ¶67 (citing *Waters*, 9, 13 and *Barnett*, ¶¶[0005], [0043]). He states that a POSITA would have been so motivated because *Barnett*’s system of using NFC devices is meant to permit fewer employees, and “[a] person of ordinary skill in the art 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.* I disagree. As set forth below, these references are directed to

conflicting goals: *Barnett* is concerned with speed and ease, while *Waters* forgoes speed and ease for improved security.

85. *Barnett* discloses a technique focused on efficiency and time savings in the specific context of shopping. *Barnett* is directed to an NFC-enabled system for providing information to a customer within a retail store. *Barnett*, Abstract. Specifically, *Barnett* discloses a technique focused on “efficiency” in the shopping experience. *See, e.g., Barnett*, ¶¶[0004] (“Therefore, a technique is desired that would improve the efficiency of the shopping experience, both to the consumer and to the retail store owner.”); [0042] (“There are many ways that the consumer may benefit from the techniques described above. Generally the time that the consumer spends in a store may be used more efficiently.”). *Barnett* explains that efficiency can be improved by, for example, “reduc[ing] the amount of time that a consumer spends locating items, getting information about items, and purchasing an item” and “enabl[ing] a consumer’s shopping preferences to be identified by a retailer quickly and easily in order for the retailer to optimize the shopping experience for the consumer.” *Barnett*, ¶[0004]; *see also id.*, ¶¶[0002] (“A lot of time is wasted by consumers during the process of shopping. For example, a consumer may go to a store to purchase an item and find on arriving at the store that the item is not in stock. In addition, even if the item is in stock, considerable time may be wasted looking for the item in the store. Locating a store employee to ask the employee a question about

a product can also be very time consuming. There are many other examples of problems that a consumer can experience when shopping that lead to considerable amounts of time being wasted.”); [0003] (“In addition, each consumer may have preferences that differ from other consumers, and which differ depending upon their location. A retailer typically likes to provide the best shopping experience to each consumer when they enter their store. Some consumers may prefer to shop anonymously, while other consumer's may wish to identify themselves to the retailer so that their shopping experience may be optimized for their individual preferences based on past experiences with the retailer.”); [0042] (“Generally the time that the consumer spends in a store may be used more efficiently. For example, the consumer knows immediately whether or not an item is in stock at a nearby store. In addition, there is less need to find a person at the store to obtain additional information. Obtaining unbiased information on new items is possible while in the store without having to connect to the Internet and/or Internet access is provided to the consumer in the form of a Wi-Fi system that may be accessed by the consumer's mobile phone.”); [0043] (“The retailer benefits from these techniques, as well. A retail store does not need as many people employed at the store to handle tasks like finding out if the item is in stock, finding out technical questions, etc. By not requiring product experts to be employed in each store, lower cost employees can be employed to work in the store. The store can attract those that don't like big box stores because the

displays can provide more personalized and intelligent responses to their questions, combining canned responses with human interaction. People employed for their technical expertise can be located anywhere in the world, including countries where the labor costs are low. In addition, time is saved at the checkout line.”). Notably, this system is not restricted to the use of NFC at the point of sale, but discloses the use of NFC to “enable a consumer to obtain information regarding the availability, location, and/or price of the goods or services provided in the shopping list by using either the NFC capability of the mobile phone . . . to receive information from the retailer within a retail stores.” *Barnett*, ¶[0016]. *Barnett* also discloses using NFC to “provide the display 32 [of the store computing system] with the identity of the customer. Thus, informing the store computing system 28 that the consumer is in the store 30.” *Barnett*, ¶[0021]. *Barnett*’s goals are directed to efficiency, personalization, and time savings during the shopping experience and as a result, methods that would restrict, complicate, or add time consuming steps to this system, such as restrictive security mechanisms implementing sensors that must validate inputs before use, would teach away from *Barnett*.

86. *Barnett* does not contemplate a system where NFC is restricted, as suggested by *Waters*. The system of *Barnett* is “NFC-enabled” meaning that NFC should *always* be enabled, otherwise *Barnett* cannot work. *Barnett*, ¶¶[0021] (“Within the store 30 are a series of displays 32 that are connected to the store

computing system 28. In this embodiment, the displays 32 are NFC-enabled displays that can interact with a NFC-enabled mobile phone 14 using device-to-device communication. When a consumer enters the store 30, the consumer can place their NFC-enabled mobile phone 14 proximate to the display 32 to establish communications with the store computing system 28.”); [0023] (“Stand-alone NFC-enabled devices 34 that have been programmed with specific information are located around the store 30. In this embodiment, the stand-alone NFC-enabled devices 34 are used to identify products to NFC-enabled devices. The product identifiers 34 are located proximate to the products that they are used to identify, such as on a shelf supporting the product. In this embodiment, the product identifiers 34 are an RFID device, such as a contact-less smart card. When the NFC-enabled mobile phone 14 is placed proximate to the product identifier 34, the information is extracted from the product identifier 34 and transmitted to, and stored within, the NFC-enabled mobile phone 14.”); [0033] (“as the consumer travels through the store 30, the consumer may see other items of interest. The consumer may hold their mobile phone next to a product identifier 34 and retrieve and store information regarding the product, such as the identity of the product”); [0032] (“Here, once this information is initially programmed into the mobile phone 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.”); [0042] (“the consumer knows *immediately* whether or not an item is in stock at a nearby store”). *Barnett* also contemplates using NFC information “to direct the consumer” and “to analyze traffic flows through the store.” *Barnett*, ¶[0025]. The system of *Barnett* relies “information to be transmitted to and from a[n] NFC-enabled mobile phone.” *Barnett*, ¶[0044]. *Barnett* relies on the consumer’s device being NFC-enabled—not restricted—otherwise the *Barnett* system would not work.

87. Moreover, in light of *Barnett*’s unrestrained system, *Barnett* is specifically designed with pre-authorization goals in mind. For example, *Barnett* explains that “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” 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.” *Barnett*, ¶[0032]. Indeed, in this payment example, *Barnett* includes security features as it limits where each card can be used and enables automatic payments only at approved locations. *Id.* Thus, *Barnett* addresses security concerns by limiting where a card can be used so as to reduce risk and, as a result, does not need to and, in fact, teaches away, from additional security measures that would impede the use of NFC, especially to make a purchase, that might detract from its goals of time savings and efficiency. A

POSITA would have understood that the security features in *Barnett* are both sufficient and intentionally streamlined to support the system's core objectives.

88. On the other hand and in stark contrast, *Waters* is directed to restricting NFC by providing means for added security measures just to turn NFC on and off. *See Waters*, 2 (“there is provided apparatus for controlling use of a near field communication device, wherein [a] smart card means is operable to receive from the mobile telecommunications network data for controlling use of the near field communication device and is operable to selectively enable the near field communication device in dependence upon the data.”). These measures can include requiring input from users that require validation and requiring that the mobile device be in a specific authorized “cell” area such that the device's SIM is authorized. *See Waters*, 13 (“In the modification to this arrangement, the mobile terminal 1 does not have to be always authenticated with the network 3 for the tag 41 to be enabled. However, the tag 41 is configured so that it is only enabled when it receives messages from the SIM 15 indicating that the SIM 15 has been authenticated at predetermined times or events - for example, once a day or on powering on/off of the mobile terminal 1”). For example, *Waters* explains that “the user of the mobile terminal 1 may initiate a communication session (such as a SIP communication session) with the mobile telecommunications network 1 to configure the times or places in which the RF tag 41 should be enabled. This updating process

may require entry of a password, or employ some other security mechanism, to prevent unauthorised persons from reconfiguring the times and/or locations at which the near field tag is rendered operable or inoperable.” *Waters*, 12. *Waters* also provides an example whereby “the keypad 37 of the mobile terminal 1 is used to enter a PIN (or other secret password) to enable the near field tag 41. The user's PIN may be stored in a secure location in the mobile terminal 1 or in the SIM 15. When the user enters their PIN using the keypad 37, the entered PIN is compared with the stored PIN. If the PINs match, the SIM transmits a message, via link 43, to the near field tag 41 to activate the near field tag.” *Waters*, 14. Thus, until the correct PIN or password is entered, NFC is not enabled for *any* purpose. The techniques disclosed in *Waters* are in line with its goals of restricting NFC usage.

89. Employing a time-consuming and/or multi-step process to enable NFC, as disclosed in *Waters*, would slow down and detrimentally interfere with the use of NFC called for in *Barnett*’s shopping environment. For example, in *Barnett*, credit cards are programmed to be automatically used in certain stores, such that the shopper does not have to spend time picking a credit card, configuring their device to be used as a credit card, or authorizing the use of that card. *See Barnett*, ¶[0032]. In contrast, prior to being able to use a mobile device to complete a purchase via NFC as required by *Waters*, a shopper would need to, for example, do exactly what *Barnett*’s system is designed to prevent: spend time opening their phone, selecting a

credit card, inputting a PIN or password, waiting for the PIN or password to be validated before finally being able to complete a purchase. As another example, the “light sensor” embodiment relied on by Dr. Chatterjee may not work in a dimly lit furniture store or a store using fluorescent lighting depending on the frequency range that light sensor of *Waters* is configured to recognize. Ex. 1002, ¶62 (citing *Waters*, 15). Similarly, the “pressure sensor” embodiment relied on by Dr. Chatterjee, which can be combined with a fingerprint scanner would fail to validate, for example, in a hypothetical example where a husband gives his phone to his wife to go shopping in a store using the *Barnett* system. Ex. 1002, ¶¶63-64 (citing *Waters*, 14-15). *Barnett* in fact explicitly contemplates a scenario where “the mobile phone 14 may have an ‘anonymous’ option so that the consumer may use some of the features the store provides, but the mobile phone 14 does not reveal the consumer’s name to the store.” *Barnett*, ¶[0031]. Use of *Waters*’ sensor would render this embodiment non-functional.

90. Further, Dr. Chatterjee misrepresents *Barnett*’s disclosure in paragraph [0043]. Dr. Chatterjee cites to paragraph [0043] and states that, in his opinion, “a person of ordinary skill in the art would have understood the benefit of such a security measure [of *Waters*] in the context of *Barnett*’s system/method . . . involves a user interacting with many NFC readers/displays in the same store. *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.” Ex. 1002, ¶67 (citing *Barnett* ¶[0043]). However, *Barnett* never contemplates reducing the number of works in the store, just those that are highly compensated due to product-specific expertise. *Barnett*, ¶[0043]. Indeed, paragraph [0043] states that the invention is beneficial to reduce the number of “product experts” and replace them with “lower cost” employees. *Id.* That is, *Barnett* is trying to reduce the cost of “people employed at the store to handle tasks like finding out if the item is in stock, finding out technical questions, etc.” *Id.* *Barnett* says nothing about removing or reducing the number of employees at checkout or in such a way that security would be impaired. As a result, *Barnett* does not support Dr. Chaterjee’s alleged motivation to combine.

91. Thus, in my opinion, a POSITA would not be motivated to modify *Barnett* in view of *Waters* to achieve “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability.” ’172 Patent, cl. 1[a]; *see also* ’172 Patent, cl. 9[a] (“responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step

process by enabling a mode to communicate information requesting an authorization to establish said capability”). Thus, in my opinion, *Barnett-Waters-White* does not disclose or render obvious claim limitations 1[a] and 9[a] of the ’172 Patent, and as a result, Ground 1 does not disclose nor would it have rendered obvious independent claims 1 and 9, and all dependent claims. Ground 2, which is directed only to certain dependent claims, does not alter this analysis or conclusion.

iii. A POSITA Would Not Have Been Motivated to Combine *Barnett, Waters, and White*.

92. Next, Dr. Chatterjee argues that a POSITA would be motivated to further combine *White* into his *Barnett-Waters* system. He states that “a person of ordinary skill in the art would have been motivated to further modify the *Barnett-Waters* system/method in view of *White* such that it performs the following bolded/italicized features: “*responsive to* sensing at least one parameter by at least one sensor of the smartphone and *responsive to* determining that the at least one parameter that is sensed satisfies a criterion, *performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability*.” Ex. 1002, ¶69 (emphasis in original). I disagree.

93. For all of the reasons why a POSITA would not be motivated to modify *Barnett* to implement the features of *Waters*, as discussed above in §XII.A.1.ii, the

same holds true for implementing the restrictive authorization process as disclosed by *White*.

94. *White* explains that its approval/authorization process can involve various time-consuming steps. For example, *White* contemplates the use of a “subscriber approval local server” through which the operator of a “second communication device 130” may “view pending purchase information, and . . . approve the pending purchase.” *White*, 7:27-34. *White* also discloses the purchasing user communicating with the approving user mid-purchase, such as a child whose purchase request is denied, and “may subsequently communicate with the parent to further describe and discuss the pending purchase with the parent, which may be referred to as disputing the rejection of the pending purchase.” *White*, 6:49-56; *see also id.*, 7:46-52. *White* also contemplates the request for approval timing out, disclosing that “if the subscriber approval local server 132 is unable to respond to a request for approval from the subscriber approval client 122 after a pre-determined time the process 210 may proceed to block 214 or to block 216.” *White*, 7:53-62. Implementing the authorization procedure of *White* to *Barnett* would detract from its goals of ease and efficiency and would, like *Waters*, introduce additional time-consuming steps whereby a purchase can be left pending for extended periods of time.

95. Dr. Chatterjee asserts that a POSITA would have been motivated to “modify the *Barnett-Waters* system/method to incorporate such an authorization feature, similar to that disclosed by *White*,” but provides not a single reason why. Ex. 1002, ¶79. Instead, Dr. Chatterjee states that it was well-known at the time of the invention that authorization rules could be established so that remote authorizations of transactions could occur. *Id.* However, this does not explain why a POSITA would be motivated to modify *Barnett* to need a remote authorization in view of *White*. Dr. Chatterjee’s argument that a POSITA “would have been motivated to consider various authorization methods in order to allow for purchase approval in the *Barnett-Waters* system/method” is unsubstantiated by *Barnett*, as illustrated by his failure to tie any of his cited disclosures to *Barnett*. *Id.*

96. In addition, Dr. Chatterjee argues 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.” Ex. 1002, ¶80 (citing *White*, 3:7-21, 6:9-64, 6:65-7:30; *Barnett* ¶¶[0005], [0012], [0017]; and *Waters*, 9, 13). But, this makes no sense. *White*’s authorization is not “flexible” simply because a second device is remotely authorizing transactions. *White*’s disclosed invention is to require each individual transaction be approved on a purchase-by-purchase basis. *See, e.g., White*, 3:14-29 (“However, the credit card owner may not readily revise the limitations at any time

and/or on a purchase-by-purchase basis. Some of the embodiments discussed below contemplate a system and method for completing a pending purchase at a point-of-sale involving *a purchase-by-purchase approval by the owner or controller of the credit card or other financial account, for example by a remote device or individual controlling the remote device*. The system and method include one or more communication devices, wherein a first communication device participates in a transaction with a point-of-sale. A second communication device communicates with the first communication device to provide approval of the transaction with the point-of-sale system. The second communication device and/or the first communication device may also communicate with a proxy server wherein one or more rules may be stored.”). The approval/authorization process disclosed by *White* is for completing a single *pending* purchase. A POSITA would not look to *White* to modify *Barnett*, and would not do so in addition to the already restrictive input validation functionality Dr. Chatterjee suggests be applied from *Waters*.

97. And, as discussed above, so concerned is *Barnett* with security (e.g., pre-authorization) and time-savings that *Barnett* contemplates a scenario where specific credit cards can be pre-authorized to be used in specific stores so as to maintain security while reducing time spent by the user at the time of use. *See, supra* ¶87; *Barnett* ¶[0032]. Combining the time-consuming step of authorization

disclosed in *White* would eliminate the time savings desired by this disclosure in *Barnett*.

98. Thus, it is my opinion that a POSITA would not be motivated to combine *Barnett* in view of *Waters* and/or *White* to achieve “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability.” ’172 Patent, cl. 1[a]; *see also* ’172 Patent, cl. 9[a] (“responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion, performing a first step of said two-step process by enabling a mode to communicate information requesting an authorization to establish said capability”). Thus, in my opinion, *Barnett-Waters-White* does not disclose or render obvious claim limitations 1[a] and 9[a] of the ’172 Patent, and as a result, Ground 1 does not disclose nor would it have rendered obvious independent claims 1 and 9, and all dependent claims. Ground 2, which is directed only to certain dependent claims, does not alter this analysis or conclusion.

2. *Barnett-Waters-White Does Not Disclose or Render Obvious “while the mode is enabled, and as a precursor to performing a second step of said two-step process, transmitting by the smartphone first data to a first device requesting the authorization to establish said capability to perform said at least one financial transaction.”*

99. As recited in limitations 1[b] and 9[b], the claimed “transmitting” and “receiving” steps occur “*while the mode is enabled.*” ’172 Patent, cls. 1[b], 9[b]. In arguing that *Barnett-Waters-White* meets the requirements of limitation 1[b], Dr. Chatterjee incorporates his analysis for claim element 1[a] and explains that “while communication between a consumer’s mobile device [] and an approver’s device [] is enabled (“while the mode is enabled”) and before the actual transaction is performed [], a consumer’s mobile device requests authorization for a transaction by sending a subscriber approval request to the approver’s device” Ex. 1002, ¶85 (underlining in original); *see also id.*, ¶118 (incorporating his analysis of claim 1 for claim 9). That is, Dr. Chatterjee maps “a consumer’s mobile device requests authorization for a transaction by sending a subscriber approval request to the approver’s device” to the claim recitation of “transmitting by the smartphone first data to a first device.” *Id.* But Dr. Chatterjee overlooks that he relied on the same subscriber approval request for limitation 1[a]— “performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability.” Ex. 1002, ¶84 (similarly

pointing to “the mobile device send[ing] a subscriber approval request to a specific approver’s device”).

100. To be clear, Dr. Chatterjee is relying on the same subscriber approval request for multiple distinct elements of the claims:

This would trigger the consumer’s mobile device to enable an authorization/approval process communication mode in which *the mobile device sends a subscriber approval request to a specific approver’s device* (e.g., the owner of the specific card for which the consumer is an authorized user, or a proxy subscriber approval server) (‘performing a first step of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability’), upon which the approver’s device is able to authorize the transaction by returning to the consumer’s mobile device a subscriber approval response.

Ex. 1002, ¶84 (emphasis added).

[A] consumer’s *mobile device requests authorization for a transaction by sending a subscriber approval request* to the approver’s device (‘transmitting by the smartphone first data to a first device’). (See my analysis and discussion above in Section VIII.A.1.ii. [Referring to limitation 1[a]]).

Ex. 1002, ¶85 (emphasis added).

101. A mobile device requesting authorization for a transaction by sending a subscriber approval request cannot be both “performing a first step of said two-step process by enabling a mode to communicate by the smartphone information

requesting an authorization to establish said capability” and “transmitting by the smartphone first data to a first device.” Thus, Dr. Chatterjee’s *Barnett-Waters-White* system does not disclose or render obvious “while the mode is enabled, and as a precursor to performing a second step of said two-step process, transmitting by the smartphone first data to a first device requesting the authorization to establish said capability to perform said at least one financial transaction” of limitation 1[b], and the similar requirements of limitation 9[b]. Thus, in my opinion, *Barnett-Waters-White* does not disclose or render obvious claim limitations 1[b] and 9[b] of the ’172 Patent, and as a result, Ground 1 does not disclose nor would it have rendered obvious independent claims 1 and 9, and all dependent claims. Ground 2, which is directed only to certain dependent claims, does not alter this analysis or conclusion.

3. Barnett-Waters-White Does Not Disclose or Render Obvious the Two-Step Process Required by Claim Limitations 1[a], 1[b], and 1[d].

102. Claim 1 of the ’172 patent recites a method that expressly requires two distinct steps: (1) “performing a ***first step*** of said two-step process by enabling a mode to communicate by the smartphone information requesting an authorization to establish said capability” that is “responsive to sensing at least one parameter by at least one sensor of the smartphone and responsive to determining that the at least one parameter that is sensed satisfies a criterion” (in limitation 1[a]), and “as a precursor to performing a second step of said two-step process, transmitting first

data to a first device requesting the authorization to establish said capability” (in limitation 1[b]); and (2) “performing the *second step* of said two-step process comprising performing a first financial transaction of said at least one financial transaction, responsive to detecting by the smartphone that a proximity condition is satisfied and responsive to sensing the at least one parameter and determining that the at least one parameter sensed satisfies the criterion” (in limitation [1.d]). *See also* Ex. 1002, ¶118 (incorporating the analysis of claim 1 for claim 9). Dr. Chatterjee states that *Barnett-Waters-White* discloses or suggests these limitations. Ex. 1002 ¶¶57 (addressing limitation 1[a]), 85 (addressing limitation 1[b]), 87 (addressing limitation 1[d]), 118 (incorporating the analysis of claim 1 for claim 9). I disagree.

103. Dr. Chatterjee’s *Barnett-Waters-White* system fails to disclose or render these limitations obvious because it does not meaningfully distinguish the claimed “first step” from the “second step,” nor does it comply with the required sequence of operations set forth in the claim (e.g., per claim limitation 1[b], “while the mode is enabled, and *as a precursor to performing a second step of said two-step process*, transmitting by the smartphone first data to a first device requesting the authorization to establish said capability to perform said at least one financial transaction”).

104. Specifically, a POSITA would have understood that the initiation of the transaction in the *Barnett-Waters-White* system occurs before the request to receive

approval to perform the transaction, but Dr. Chatterjee maps the *Barnett-Waters-White* system to the claims in an opposite manner such that approval would occur before any transaction is ever initiated:

As discussed for limitation [1.a], in the *Barnett-Waters-White* combination, ***the consumer initiates a transaction*** (“[performing the ***second step*** of said two-step process comprising performing] a first transaction of said at least one financial transaction”) by bringing their mobile device within proximity of the NFC-enabled POS terminal . . .

Ex. 1002, ¶87 (emphasis added).

[T]he consumer’s mobile phone will ***request/receive approval from a second device to perform the transaction*** (i.e., the ***first step*** of the “two-step process”) . . .

Ex. 1002, ¶87 (emphasis added).

105. There is no dispute that Dr. Chatterjee’s *Barnett-Waters-White* system requires that a transaction be initiated and that purchase information be provided by a POS terminal ***prior to*** the subscriber approval request of *White* being triggered. Ex. 1002, ¶84 (“the POS terminal would return purchase information (e.g., price) to the consumer’s mobile device . . . [which] would trigger the consumer’s mobile device to enable an authorization/approval process communication mode in which the mobile device sends a subscriber approval request to a specific approver’s device”). Dr. Chaterjee’s *Barnett-Waters-White* system is thus inapposite to the requirements of claim 1, which expressly requires that “transmitting by the

smartphone first data to a first device requesting the authorization to establish said capability to perform said at least one financial transaction” is “*a precursor* to performing a second step of said two-step process.” ’172 Patent, cl. 1[b]; *see also* ’172 Patent, cl. 9[b]. That is, in Dr. Chatterjee’s *Barnett-Waters-White* system, the subscriber approval request is only sent *after* the transaction is initiated. Ex. 1002, ¶85.

106. Dr. Chatterjee fails to show the required sequencing and conditionality of the claimed two-step process disclosed in claim limitations 1[a], 1[b], and 1[d]. Thus, in my opinion, *Barnett-Waters-White* does not disclose or render obvious claim limitations 1[a], 1[b], 1[d] and 9[a], 9[b], 9[d] of the ’172 Patent, and as a result, Ground 1 does not disclose nor would it have rendered obvious independent claims 1 and 9, and all dependent claims. Ground 2, which is directed only to certain dependent claims, does not alter this analysis or conclusion.

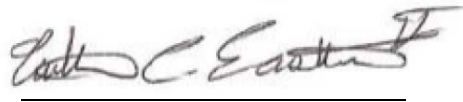
XIII. SUMMARY AND OTHER REMARKS

107. It is my opinion that Petitioner has failed to show that any of the Challenged Claims set forth in Grounds 1 and 2 are unpatentable as obvious as explained above.

108. My opinions expressed in this Declaration are based on the information available to me at this time. To the extent any additional information becomes available, I reserve the right to supplement my opinions contained herein.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on November 14, 2025.

A handwritten signature in dark ink, appearing to read "Chuck Easttom", written over a horizontal line.

Chuck Easttom