

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Petitioner,

v.

TELCOM VENTURES LLC,

Patent Owner.

Case No. IPR2025-01232

U.S Patent No. 9,462,411

DECLARATION OF CHUCK EASTTOM

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1. The Prior Art Grounds Do Not Disclose and Would Not Have Rendered Obvious “refraining from communicating [by the smartphone] using a first air interface absent said value of the physiological data associated with a living organism that was sensed by the smartphone using the smartphone-based sensor satisfying a criterion.” 31

2. The Prior Art Grounds Do Not Disclose and Would Not Have Rendered Obvious “selectively sending information [by the smartphone] to one or more other devices and receiving information [by the smartphone] from the one or more other devices responsive to said value of the physiological data associated with a living organism that was sensed by the smartphone using the smartphone-based sensor.” 37

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Table of Exhibits

Exhibit No.	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	Order Granting Joint Stipulation to Dismiss With Prejudice Counts I, II, V, and VIII of Telcom Ventures' Complaint
2003	Third Amended Docket Control Order
2004	Standing Order for Civil Cases Before Judge Rita F. Lin
2005	Telcom Ventures' Proposed Case Schedule for the Apple Litigation
2006	Declaration of Chuck Easttom
2007	<i>Curriculum Vitae</i> of Chuck Easttom
2008	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/
2009	Liu et al., "Near-Field Communications: A Comprehensive Survey," IEEE (June 2025)
2010	"The Creation of the NFC Forum and its Vision" (2011) https://cs.stanford.edu/people/eroberts/courses/cs181/projects/2010-11/NFCChips/nfcforum.html
2011	McHugh & Yarmey, "Near Field Communication: Introduction and Implication," ERIC (2012)
2012	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 U.S. Patent No. 9,462,411 (the “’411 patent”) in view of the Petition for *Inter Partes* Review (the “Petition”, Paper 1) by Petitioner Apple Inc. (“Petitioner” or “Apple”).

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 trial 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. 2007 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 Mr. Lipoff's definition, set forth below, I am and was as of the priority date of the '411 Patent, at least one of ordinary skill in the art.

III. MATERIALS CONSIDERED

14. I have reviewed the '411 Patent, including the Challenged Claims, prosecution history, and relevant patent family. The '411 Patent was marked as Exhibit 1001, and its prosecution history was marked as Exhibit 1002.

15. I also reviewed the Petition, and each of Exhibits 1001-1042 filed by Petitioner.

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 around the time of the invention of the '411 Patent.

IV. SCOPE OF OPINIONS

18. I set forth my opinions throughout this declaration.

19. I understand that Petitioner argues that:

Ground	Claims	Proposed Ground of Unpatentability
1	Claims 1-4	Obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> ¹ in view of <i>Holloway</i> ² , <i>Jazayeri</i> ³ , and <i>ISO-14443</i> . ⁴
2	Claims 1-4	Obvious under pre-AIA 35 U.S.C. § 103 over <i>Carlson</i> in view of <i>Jazayeri</i> , <i>ISO-14443</i> and <i>Murakami</i> . ⁵

¹ U.S. Patent No. 8,229,852 (“Carlson,” Ex. 1005).

² WIPO International Patent Application Publication No. WO 02/49322 (“Holloway” Ex. 1032).

³ U.S. Patent Application Publication No. 2008/0155268 (“Jazayeri,” Ex. 1007).

⁴ ISO/IEC 14443 (“ISO-14443,” Ex. 1016).

⁵ WIPO International Application Publication No. WO 01/95246 (“Murakami,” Ex. 1009).

20. Both grounds rely on *Carlson* as a primary reference, and Mr. Lipoff suggests that a person of ordinary skill would have been motivated to combine *Carlson* with three different secondary references to meet the language of the claims.

21. I disagree. It is my opinion that the Challenged Claims (claims 1-4) of the '411 Patent would not have been obvious in view of the asserted references, alone or in combination, for the reasons discussed herein.

V. RELATED MATTERS

22. Patent Owner is asserting the '411 Patent against Petitioner in the Northern District of California, styled *Telcom Ventures LLC v. Apple Inc.*, Case No. 5:25-cv-05041 (filed October 4, 2024).

23. I understand that Patent Owner asserted a total of eight patents against Petitioner in that action: U.S. Patent Nos. 9,462,411, 9,832,708, 10,219,199, 10,674,411, 11,770,756, 11,924,743, 11,937,172, and 12,028,793. I understand that Patent Owner has dismissed four of the asserted patents from the litigation, including the '411 Patent.

24. I understand that Petitioner filed IPR petitions against all eight patents originally asserted by Patent Owner. These are:

- IPR2025-01232, regarding U.S. Patent No. 9,462,411 (the Petition)
- 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

25. I also understand Patent Owner asserted the '411 Patent against Samsung Electronics Co., Ltd. ("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).

26. I understand Patent Owner asserted the same eight patents against Samsung in that action. 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 action.

27. I understand that a jury trial for the suit between Patent Owner and Samsung is expected to begin on June 1, 2026. Ex. 2003.

28. I understand that Samsung filed IPR petitions against all eight patents originally asserted by Patent Owner. 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

29. I understand that institution was denied in all eight of the Samsung petitions.

30. I understand Google LLC (“Google”) has filed IPR petitions against seven of the eight patents asserted by Patent Owner in the above litigations. These are:

- IPR2025-01349, regarding U.S. Patent No. 11,924,743
- IPR2025-01389, regarding U.S. Patent No. 11,937,172
- 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

31. As of the signing of this declaration, I have been retained to provide an opinion in all eight 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 Samsung and Google.

VI. LEGAL STANDARDS

32. 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 Venture's counsel of the legal principles relevant to the issues herein and have the following understanding.

33. 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 you 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

34. I understand the first step in determining whether or not 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 (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.

35. I understand that the plain and ordinary meaning of a claim term is the meaning 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

36. 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.

37. I understand that whether there are any relevant differences between the prior art and the claimed invention is to be analyzed from the view 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.

38. 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.

39. 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.

40. 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 must avoid aggregating pieces of prior art through hindsight that would not have been combined absent the inventors' insight.

C. Motivations to Combine

41. I understand that in order to show obviousness based on a single reference or a combination of references, a particular motivation to modify the reference or combine the teachings in the references, and a reasonable expectation of success must be shown.

42. I understand that the art must evidence a motivation to combine or modify the independently known elements to arrive at the claimed invention and an explanation as to how or why the references would be combined to arrive at the

claimed invention to solve the particular problem. I understand that a challenger must show that there was a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does in an obviousness determination. I also understand that it is not enough to prove obviousness merely by a showing that the references were capable of combination without a suggestion of the desirability of the modification.

43. I understand that there is no single way to define the line between true inventiveness on the one hand (which is patentable) and the application of common sense and ordinary skill to solve a problem on the other hand (which is not patentable). For example, market forces or other design incentives may be what produced a change, rather than true inventiveness. I may consider whether the change was merely the predictable result of using prior art elements according to their known functions, or whether it was the result of true inventiveness. I may also consider whether there is some teaching or suggestion in the prior art to make the modification or combination of elements claimed in the patent. I may consider whether there is some teaching or suggestion in the prior art to make the modification or combination of elements claimed in the patent. I may consider whether the innovation applies a known technique that had been used to improve a similar devices or method in a similar way. I may also consider whether the claimed invention would have been obvious to try, meaning that the claimed innovation was

one of a relatively small number of possible approaches to the problem with a reasonable expectation of success by those skilled in the art.

44. I also understand, however, that I must be careful not to determine obviousness using the benefit of hindsight; many true inventions might seem obvious after the fact. I should put myself in the position of a person of ordinary skill in the field at the time the claimed invention was made and I should not consider what is known today or what is learned from the teaching of the patent.

45. Finally, I understand that any obviousness rationale for modifying or combining prior art must include a showing that a person of ordinary skill would have had a reasonable expectation of success. I further understand that whether a proposed modification or combination of the prior art has a reasonable expectation of success is determined at the time the invention was made.

VII. LEVEL OF ORDINARY SKILL IN THE ART

46. I understand that patent claims are to be interpreted from the viewpoint of one of ordinary skill in the relevant art. To determine the level of skill that would be “ordinary,” I understand that a person of skill (“POSITA”) must generally have the capability of understanding the general principles that are applicable to the pertinent art.

47. 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 with 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.

48. I have reviewed Mr. Lipoff's Declaration (Ex. 1003). I understand that Mr. Lipoff contends that a POSITA would have had "a bachelor's degree in computer science, electrical engineering, computer engineering or equivalent from an accredited academic program with a year of work experience with mobile payment systems or wireless communication systems." Ex. 1003 at ¶51. Mr. Lipoff also contends that a POSITA "would have been knowledgeable regarding the field of mobile communication devices using mobile payment systems and wireless communication systems, including short-range communication technologies" and that "[a] POSITA would also have possessed a working knowledge of short-range communication technologies in portable wireless devices." *Id.* I disagree that "a working knowledge of short-range communication technologies" is necessary. Nonetheless, I was at least a person of ordinary skill in the art as of the effective filing dates of the Asserted Patents under Mr. Lipoff's definition. Thus, I met the requirements of a POSITA under either my definition or Mr. Lipoff's definition as of the priority date of the '411 Patent.

VIII. CLAIM CONSTRUCTION

49. I understand that unless claim terms are provided an express construction, the terms must be given their plain and ordinary meaning.

A. “Physiological Parameter”

50. I understand that Petitioner contends that “physiological parameter” requires a construction. *See* Pet., 7-9; Ex. 1003 at ¶¶45-50. Specifically, Mr. Lipoff suggests that a fingerprint does not satisfy sensing a “physiological parameter.” Ex. 1003 at ¶49.⁶ I disagree.

51. First, a construction is not necessary to resolve the proposed grounds. Mr. Lipoff has proposed two sets of grounds under different interpretations of “physiological parameter.” Under the first set of grounds, Mr. Lipoff relies on fingerprint-based biometric authentication to satisfy the “physiological parameter” limitation. Ex. 1003 at ¶50. Under the second set of grounds, Mr. Lipoff relies on “a datapoint representing a snapshot of the parameter in time.” *Id.* In my opinion, the Challenged Claims are not taught or suggested by the prior art under either construction. Because the grounds fail regardless of the physiological parameter that Mr. Lipoff relies on, it is my opinion that a construction is not necessary for the

⁶ Mr. Lipoff also suggests that facial geometry does not satisfy sensing a “physiological parameter,” but facial geometry is not relevant to the Petition or the grounds therein. I focus on the “fingerprint” part of his construction.

purposes of institution. If this case is instituted, I reserve the right to address “physiological parameter.”

IX. TECHNOLOGY BACKGROUND

52. 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”)

53. 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.

54. 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. 2008 at 4. In passive mode, one device generates the radio frequency field while the other responds without a power source. *Id.*

55. A paper by Liu et al. provides a history of NFC, stretching back to the first understanding of the wave theory of light. Ex. 2009 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.

56. 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. 2010 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. 2011 at 1, and even 2015, some sources still referred to NFC as an “emerging technology.” Ex. 2012 at 1.

57. 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.

58. 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. 10,674,411 (“’411 Patent”) (Ex. 1001)

A. Priority Date

59. The ’411 Patent was filed as U.S. Patent Application No. 12/264,711 on November 4, 2008 and issued on October 4, 2016.

60. I understand that Mr. Lipoff does not challenge this priority date for purposes of the Petition. For the purposes of Patent Owner’s Preliminary Response, I have assumed that each of the Challenged Claims is entitled to at least a priority date of November 4, 2008. Ex. 1003 ¶60.

B. ’411 Patent Overview

61. The ’411 Patent describes mobile wireless devices and methods of using a mobile wireless device to engage in one or more communications modes,

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, 1:7-12; 5:65-6:16. The specification recognizes that the devices in the art were rigidly configured to perform a predetermined number of functions. *Id.*, 1:20-37. The '411 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.*, 1:32-35. 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.*, 1:26-29.

62. The '411 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.*, 5:67-6:4. 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.*, 6:5-9. 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.*, 6:13-15. The disclosed

wireless communications devices may be “configured to selectively enable a first communications mode/function” responsive to a value of such a parameter. *Id.*, 6:22-27.

C. The ’411 Patent’s Prosecution History

63. I have reviewed the prosecution history of the ’411 Patent.

64. U.S. Patent Application No. 12/264,711 was filed on November 4, 2008 and issued as U.S. Patent No. 9,462,411 on October 4, 2016.

65. The ’411 Patent issued after a total of nine rejections during prosecution. Ex. 1002 at 73, 126, 195, 239, 294, 329, 381, 419, 452. Applicant amended the claims in response to the first eight rejections, but did not make an amendment and traversed the ninth rejection. Ex. 1002 at 115-123 (amendments in response to the first Office Action); 157-165 (amendments in response to the second Office Action); 220-224 (amendments in response to the third Office Action); 266-269 (amendments in response to the fourth Office Action); 316-320 (amendments in response to fifth Office Action); 346-350 (amendments in response to the sixth Office Action); 407-409 (amendments in response to seventh Office Action); 431-433 (amendments in response to eighth Office Action); 478-485 (remarks in response to ninth Office Action).

66. In traversing the ninth Office Action, Applicant noted that the identified prior art did not disclose “refraining from communicating.” Ex. 1002 at 482.

Applicant also noted that the identified prior art relied upon in the Office Action stated that “mobile phones with Near Field Communication (NFC) transceivers and biometric authentication [sic] with a fingerprint sensor did not exist yet.” Ex. 1002 at 483 (emphasis in the original). Applicant noted that proposed Claim 1 assumes a smartphone with a first air interface and a sensor for physiological data that can sense a value of physiological data. Ex. 1005 at 483. Applicant noted that “[f]or at least these reasons, independent Claims 1 and 26 are patentable.” Ex. 1002 at 484.

67. The Examiner entered an Examiner’s Amendment coinciding with the Notice of Allowability. Ex. 1002 at 496-500. The Examiner’s Amendment introduced the final two limitations of the issued independent claims. (“selectively sending...” and “communicating by the smartphone using a second air interface...”). *Id.* The Examiner credited Applicant’s remarks in its final argument for allowability, filed on April 6, 2016, and the Examiner’s Amendment, with placing the application in position for allowance. Ex. 1002 at 500.

XI. ASSERTED REFERENCES

A. *Carlson* (Ex. 1005)

68. United States Patent No. 8,229,852 to *Carlson* is titled “Secure Mobile Payment System.” *Carlson* is directed to portable wireless devices that are used to conduct contactless payment transactions in a secure manner. *Carlson*, 1:16-20.

69. *Carlson* explains that “[d]ue to the wireless nature of the contactless reader, it is possible that the contactless reader may be used for surreptitious interrogation of the portable wireless device by intercepting the portable wireless device’s communication.” *Carlson*, 1:64-2:1. *Carlson* further explains that “it is conceivable that a contactless reader may be developed or modified to enhance its power and sensitivity and thereby increase its ability to interrogate with and intercept signals from the portable wireless device from a greater distance than specified in standards used for contactless readers.” *Carlson*, 2:1-6.

70. *Carlson* describes “[t]heft of sensitive information, such as an account number, using wireless interrogation or interception of communications from portable wireless device” as a “major concern for consumers and businesses alike.” *Carlson*, 2:7-10. *Carlson* notes that wireless interrogation can “occur at virtually any time and place,” and “[o]nce the victim of the wireless interrogation discovers that they had sensitive information stolen, it is often too late to discover where the theft took place.” *Carlson*, 2:10-16. As a result, “[t]he victim must then deal with the consequences and hassle of correcting the unauthorized access and possible uses of the information.” *Carlson*, 2:16-18.

71. *Carlson* describes other “safeguards for protecting purchase from fraudulent attacks,” including employing encryption technologies to encrypt the payment account number and other data associated with account transactions.

Carlson, 2:19-23. *Carlson* explains that many merchants avoid implementing or upgrading to the latest encryption technology “[d]ue to the cost, time, and risk of potential business interruption (e.g., loss of sales).” *Carlson*, 2:27-35.

72. *Carlson*’s solution describes the use of “pseudo primary account identifiers” or “PPAI.” *Carlson*, 2:62-63. According to *Carlson*, “[p]seudo primary account identifiers may include identifiers that are similar in format to a consumer’s real account identifier.” *Carlson*, 5:30-32. “These account identifiers may include account numbers or any other alphanumeric sequence.” *Carlson*, 2:66-3:1. *Carlson* also describes the pseudo account identifier as “bogus, fake, decoy, substitute, or the like.” *Carlson*, 5:42-43.

73. *Carlson* describes “a method for conducting a transaction that includes receiving a pseudo account identifier that corresponds to a consumer’s account identifier.” *Carlson*, 3:3-6. In some embodiments of *Carlson*, “the pseudo primary account identifier may not be requested at all, but rather is pushed to the portable wireless device at any time, such as when the device is turned on, when the device is idle, periodically, or through any other such criteria.” *Carlson*, 7:4-7, *see also* 12:67-13:3. *Carlson* also explains that “the pseudo primary account identifier may not be requested by the portable wireless device at all” and “[t]he portable wireless device may generate the pseudo primary account identifier.” *Carlson*, 7:15-19.

B. *Holloway* (Ex. 1032)

74. International Patent Application Publication No. WO 02/49322 to *Holloway* is directed to a mobile telephone that “includes a device (15) for checking the identity of a user in connection with various transactions.” *Holloway*, Abstract. *Holloway* describes “fingerprint scanning means, voice or password recognition means (e.g. using a microphone of the telephone), photograph display means (e.g. using a display (12) of the telephone) or retina recognition means.” *Id.*

75. *Holloway* proposes using a “means for checking the identity of a user of the unit” to solve the problem of identity verification. *Holloway*, 2:1-5. *Holloway* explains that “the means for telephonic communication includes a display, a microphone and a keypad and said means for checking identity is arranged to show a photograph of the user on said display, and/or means for recognizing the voice of the user and/or a password spoken by the user when the user speaks into said microphone, and/or incorporates means for identifying a PIN number entered by a user on said keypad.” *Holloway*, 2:14-18.

C. *Jazayeri* (Ex. 1007)

76. United States Patent Application Publication No. 2008/0155268 to *Jazayeri* is directed to “[a]n architecture . . . that controls access to secure data via biometric verification.” *Jazayeri*, Abstract. *Jazayeri* discloses a “memory module that communicates with biometric data to establish a heightened level of security for

controlling access to data stored in the non-volatile memory.” *Id.* “Specifically, biometric data is input and communicated to the security processor, then compared against the existing biometric templates stored in the non-volatile memory. If the data matches, verification is sent to the external processor and the user is granted access to the secure assets.” *Id.*

77. *Jazayeri* requires a security processor. *Jazayeri*, ¶[0006] (“As the security processor controls access to the entire non-volatile memory space and monitors all traffic to and from the non-volatile memory components, the security processor is able to manage access to the secure assets stored in the non-volatile memory.”); *see also Jazayeri*, ¶¶[0024], [0025], [0027], [0028], [0030], Figs. 1, 2. *Jazayeri* explains that “[o]nly the security processor 104 accesses the security software from the nonvolatile memory 102 and performs security functions based on the specific security software being executed.” *Jazayeri*, ¶[0027].

78. Figure 3 of *Jazayeri* illustrates a block diagram of *Jazayeri*’s security processor.

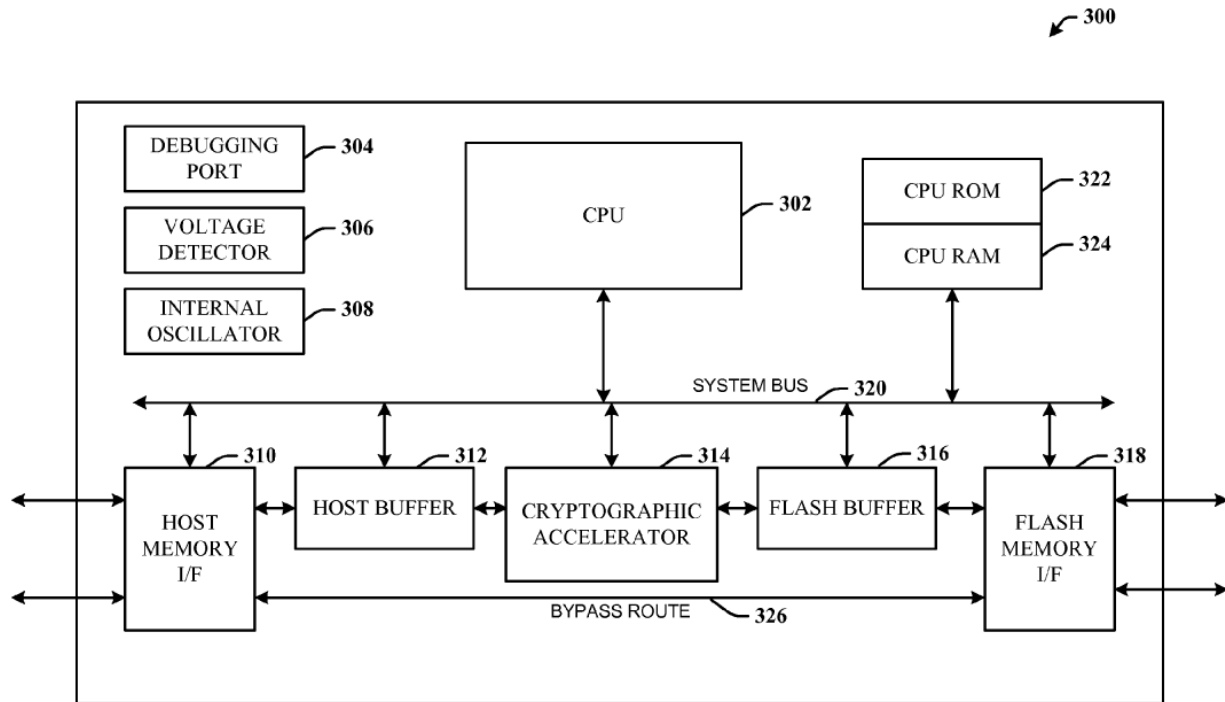


FIG. 3

79. *Jazayeri*, Fig. 3. *Jazayeri*'s security processor comprises sophisticated hardware. *Jazayeri* explains that "[a] cryptographic accelerator 314 . . . performs all the cryptographic algorithms, symmetric and a-symmetric needed by the system." *Jazayeri*, ¶[0033].

D. ISO-14443 (Ex. 1016)

80. I understand the cited first edition of *ISO-14443* has been alleged to have published in 2000 and 2001. The ISO14443 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.

81. *ISO-14443* “is one of a series of International Standards describing the parameters for identification cards as defined in ISO/IEC 7810 and the use of such cards for international interchange.” *ISO-14443*, 4.

E. *Murakami* (Ex. 1009)

82. International Patent Application Publication No. WO 01/95246 to *Murakami* is directed toward “a method and device for biometric authentication using a signal transmitter (20), a signal receiver (22), a memory module, and a processing module.” *Murakami*, Abstract. Specifically, *Murakami* “employ[s] histological and physiological biometric markers that are substantially unique to an individual in order to permit an individual to activate a device, participate in a transaction, or identify him or herself.” *Murakami*, 1:10-13.

XII. THE CHALLENGED CLAIMS OF THE ’411 PATENT WOULD NOT HAVE BEEN OBVIOUS

A. Petitioner’s Grounds 1–2 Fail Because the Challenged Claims Would Not Have Been Obvious Over the Asserted Combination of References.

83. 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.

84. In Ground 1, Mr. Lipoff argues that *Carlson* in view of *Holloway*, *Jazayeri*, and *ISO-14443* would have rendered obvious claims 1-4, including independent claims 1 and 3. I disagree with Mr. Lipoff: the references in Ground 1 neither disclose, nor alone or in combination, would they have rendered obvious the Challenged Claims.

85. In Ground 2, Mr. Lipoff argues that *Carlson* in view of *Jazayeri*, *ISO-14443*, and *Murakami* would have rendered obvious claims 1-4, including independent claims 1 and 3. I again disagree with Mr. Lipoff: the references in Ground 1 neither disclose, nor alone or in combination, would they have rendered obvious the Challenged Claims.

86. With respect to Ground 2, Mr. Lipoff states that “Ground 2 differs from Ground 1 only in the proposed modifications to *Carlson* pertaining to the biometric sensor and authentication process.” Ex. 1003 ¶169. He states that “[i]n Ground 2, in place of *Holloway-Jazayeri*, the proposed combination involved modifying *Carlson* pursuant to *Murakami*’s biometric sensor and authentication process.” *Id.* Mr. Lipoff does not provide element by element mapping for Ground 2. As such, I address Ground 2 in combination with Ground 1 below.

1. ***The Prior Art Grounds Do Not Disclose and Would Not Have Rendered Obvious “refraining from communicating [by the smartphone] using a first air interface absent said value of the physiological data associated with a living organism that was sensed by the smartphone using the smartphone-based sensor satisfying a criterion.”***

87. Claim limitation 1[d] claims “refraining from communicating by the smartphone using the first air interface absent said value of the physiological data associated with a living organism that was sensed by the smartphone using the smartphone-based sensor satisfying a criterion, even though the proximity criterion is detected as being satisfied.” Claim limitation 3[e] similarly claims “refraining from communicating using the first air interface absent said value of the physiological data associated with a living organism that was sensed by the smartphone using the smartphone-based sensor satisfying a criterion, even though the proximity criterion is detected as being satisfied.” Mr. Lipoff alleges that *Carlson-Holloway-Jazayeri-ISO-14443* teaches “that even when the proximity criterion is detected as satisfied, the wireless device will not communicate using NFC unless the value of the physiological data satisfies a criterion.” Ex. 1003 ¶140; *see also id.*, ¶1163 (addressing limitation 3[e]). I disagree.

88. I first note that Mr. Lipoff greatly underestimates the difficulties a POSITA would have in combining Carlson and Jazayeri. Jazayeri depends on a security processor (*Jazayeri*, Fig. 1, Fig. 2, ¶¶[0005], [0006], [0023], [0024], [0025], [0027]) and a cryptographic accelerator (Fig. 3, ¶[0034]). *Jazayeri* Paragraph [0027]

makes it quite clear how important the security processor is, stating “[o]nly the security processor 104 accesses the security software from the non-volatile memory 102 and performs security functions based on the specific security software being executed.” This is a highly specific and technical security technology.

89. Mr. Lipoff has defined a POSITA as one with “a bachelor’s degree in computer science, electrical engineering, computer engineering or equivalent from an accredited academic program with a year of work experience with mobile payment systems or wireless communication systems. A POSITA would also have possessed a working knowledge of short-range communication technologies in portable wireless devices.” Ex. 1003 ¶51. Nothing in Mr. Lipoff’s definition of a POSITA includes knowledge of security processor design or cryptography. A POSITA, as defined by Mr. Lipoff, or myself would not have been able to combine Jazayeri with any other prior art.

90. Even assuming that a POSITA would have been motivated to combine *Carlson* and *Jayazeri*, such a combination would not have rendered obvious claim limitations 1[d] and 3[e].

91. With respect to limitation 1[d], Mr. Lipoff first states that “[b]ecause the *Carlson-Holloway-Jazayeri-ISO-14443* device remains locked and/or prevents access to the virtual card, absent a valid fingerprint, preventing communication of the PPAI [“pseudo primary account identifier”] over NFC, communication is

refrain[ed]. . .” Ex. 1003 ¶141. But preventing communication of the PPAI is not what is claimed. What is claimed is “refraining from communicating by the smartphone using the first air interface.” And nowhere does Mr. Lipoff establish that without unlocking the device using the disclosures of *Jazayeri*, is NFC disabled such that the smartphone refrains from communicating over the first air interface.

92. In discussing limitation 1[d], Mr. Lipoff points to his analysis of Claim Limitation [1.c]. Ex. 1003 ¶141. Claim limitation 1[c] claims in part “selectively communicating by the smartphone using a first air interface.” But in Mr. Lipoff’s discussion of claim limitation 1[c] there is no discussion of whether or not that device will communicate using NFC. Instead, Mr. Lipoff states that “*Carlson-ISO-14443* teaches wirelessly sending the PPAI to a contactless reader within an access device using short-range NFC (first air interface).” Ex. 1003 ¶123. Mr. Lipoff states that “[a] POSITA would have understood that the PPAI is selectively sent to the access device (e.g., POS terminal) including the sensed contactless reader that satisfies the proximity condition.” *Id.* Mr. Lipoff states that the “selective” portion of this limitation is met because “Carlson’s disclosure sends only data related to the transaction (PPAI), and not all of the other data associated with the variety of other tasks the wireless device was capable of implementing.” *Id.* There is no discussion of whether or not the proposed device will selectively communicate using a particular interface, such as NFC, and as such this does not establish that NFC

communication is enabled or disabled. Mr. Lipoff erroneously contends that the selective communication limitation is met by the selection of what content to send.

93. Claim limitation 1[c] further claims in part that the “selectively communicating” be “responsive to a value of the physiological data associated with a living organism that was sensed by the smartphone.” To meet this limitation, Mr. Lipoff modifies the *Carlson-Holloway* device with *Jazayeri*. Ex. 1003 ¶¶127, 130. Mr. Lipoff alleges that “*Jazayeri* provides a detailed description of the authentication process for controlling access to a mobile device by scanning and authenticating a fingerprint.” Ex. 1003 ¶131 (citing *Jazayeri* ¶¶[0028]-[0032], [0041]-[0044]). In Mr. Lipoff’s *Carlson-Holloway-Jazayeri-ISO-14443* device, “the PPAI is only sent (selectively communicat[ed]) after the wireless device is unlocked following biometric authentication using physiological data.” Ex. 1003 ¶136. Again, this does not establish that NFC communication is enabled or disabled, but that the content sent, the PPAI, is restricted.

94. Mr. Lipoff further states in his discussion of claim limitation 1[c] that “*Jazayeri* discloses authenticating a user via biometric data immediately prior to exchanging account information to make a purchase.” Ex. 1003 ¶137 (citing *Jazayeri* ¶¶[0049]-[0052]). This is a discussion of *Jazayeri* Fig. 7. In the method shown at Fig. 7, at step 704 “biometric data is used to authenticate the user prior to transferring account information.” *Jazayeri*, ¶[0050]. Mr. Lipoff relies on this

disclosure to establish that “a POSITA would have had a reasonable expectation of success in modifying *Carlson* consistent with *Jazayeri*’s teaching to incorporate a second biometric authentication *immediately prior to accessing financial information*.” Ex. 1003 ¶139 (emphasis added). But accessing financial information is not the same as communicating over the identified first air interface, NFC. Mr. Lipoff’s discussion of claim limitation 1[c] does not demonstrate that his proposed device disclosed or would have rendered obvious claim limitation 1[d].

95. None of his discussion of claim limitation 1[d] resolves this failure. His discussion in paragraph 141 merely provides details regarding *Jazayeri*’s biometric data comparison process. Ex. 1003 ¶141 (citing *Jazayeri* ¶¶[0030], [0048], Fig. 6). But these disclosures confirm that *Jazayeri* does not contemplate refraining from NFC communication based on the biometric data, but instead discloses that in the event of no match, “the user or application is denied access to the secure assets stored in the non-volatile memory.” *Jazayeri*, ¶[0048]. No-where in *Jazayeri*’s discussion of the method of Figure 6 is there discussion of enabling or disabling an air interface or mode of communication.

96. Mr. Lipoff also cites to *Carlson* 14:8-12, but this fails to support his argument. Ex. 1003 ¶141. This portion of *Carlson* states that “[t]he consumer enters a PIN into his portable wireless device to unlock the device. The consumer then further selects the account he wishes to use to make the purchase by selecting the

virtual card that should be sued to perform the transaction.” *Carlson*, 14:8-12. Selecting a virtual card does not disclose refraining from communicating.

97. Mr. Lipoff’s discussion at paragraph 142 of his report also fails to establish that the proposed device “refrain[s] from communicating by the smartphone.” In fact, Mr. Lipoff states that “the process as taught by *ISO-14443* for detecting a proximity criterion does not rely on any physiological input.” Ex. 1003 ¶142. I agree, *ISO-14443* itself does not contemplate any physiological input. And thus, a device that is practicing *ISO-14443* as proposed by Mr. Lipoff, would “communicat[e]” over NFC. Mr. Lipoff points to nothing in *Carlson* or *Jazayeri* that supports his conclusion that the wireless device will “refrain from communicating via NFC unless and until the virtual card has become accessible. . . .” Ex. 1003 ¶142. Mr. Lipoff continues to conflate accessing specific data, such as a PPAI or a “virtual card” with “refraining from communicating.

98. Mr. Lipoff’s does not and cannot establish that Petitioner’s *Carlson-Holloway-Jazayeri-ISO-14443* device would have rendered obvious “refraining from communicating [by the smartphone] using the first air interface absent said value of the physiological data associated with a living organism” of Claims 1 and 3.

99. With respect to Ground 2, Mr. Lipoff’s discussion of *Murakami*’s disclosure of “preventing ‘unauthorized use’” with its biometric authentication

methods” also fails to disclose and would not have rendered obvious “refraining from communicating.” Ex. 1003 ¶142 (citing *Murakami*, 1:19-26). Similar to *Jazayeri*, *Murakami* concerns itself with the use of biometric authentication to “grant or deny access of a device or [provide] authorization for transaction.” *Murakami*, 16:35-17:3. This does not disclose refraining from communicating. Ground 2 fails for the same reasons set forth above with respect to Ground 1

2. ***The Prior Art Grounds Do Not Disclose and Would Not Have Rendered Obvious “selectively sending information [by the smartphone] to one or more other devices and receiving information [by the smartphone] from the one or more other devices responsive to said value of the physiological data associated with a living organism that was sensed by the smartphone using the smartphone-based sensor.”***

100. Claim limitation 1[e] claims “selectively sending information by the smartphone to one or more other devices and ***receiving information by the smartphone*** from the one or more other devices responsive to said value of the physiological data associated with a living organism that was sensed by the smartphone using the smartphone-based sensor satisfying the criterion.” (emphasis added) Claim limitation 3[f] similarly claims “selectively sending information to one or more other devices and ***receiving information from the one or more other devices*** responsive to said value of the physiological data associated with a living organism that was sensed by the smartphone using the smartphone-based sensor satisfying the criterion.” (emphasis added) Mr. Lipoff states that “*Carlson-*

Holloway-Jazayeri-ISO-14443 teaches Claim 1(e).” Ex. 1003 ¶143; *see also id.*, ¶164 (addressing limitation 3[f]). I disagree.

101. Mr. Lipoff provides two theories for the “selectively sending and receiving information” portions of this claim limitation. In the first, he identifies the sending of a PPAI request and the receipt of a PPAI as the selective sending and receiving of information, and identifies the “remote server computer at the payment processing network” as the “one or more other devices” of this claim limitation. Ex. 1003 ¶144. Mr. Lipoff goes on to state that “[t]he request and receipt of the PPAI by the wireless device is responsive to satisfying the physiological data criterion. *See supra* Claim 1(c) (where communication is only enabled once the wireless device has been unlocked by sensing a fingerprint.)” Ex. 1003 ¶146. He further states that “to the extent a second biometric authentication is required, the request and receipt of the PPAI by the wireless device is further responsive to satisfying the physiological data criterion a second time for the same reasons discussed above. *See supra* Claim 1(c).” Ex. 1003 ¶146. I disagree that Mr. Lipoff’s discussion of claim limitation 1[c] establishes that the prior art of Ground 1 discloses or would have rendered obvious that “the request and receipt of the PPAI” is responsive to satisfying the physiological data criterion.

102. With respect to the first PPAI related embodiment, Mr. Lipoff fails to establish in his discussion of claim limitation 1[c] that a POSITA would have

combined *Carlson* and *Jazayeri* such that the physiological parameter of *Jazayeri* is utilized prior to “communicating” in any form other than sending the received PPAI via NFC to the NFC-enabled reader during a transaction. *See, e.g.*, Ex. 1003 ¶138 (“A POSITA would have had a reasonable expectation of success in modifying *Carlson* consistent with *Jazayeri*’s teachings to incorporate a second biometric authentication immediately prior to accessing financial information.”). But this is not the communication he identifies with respect to claim limitation 1[e], which is between the device and the remote server computer at the payment processing network. Mr. Lipoff has identified two separate exchanges. Mr. Lipoff admits as much in discussion of his second ‘alternative’ mapping, where he states that his first embodiment contemplates “communicat[ing] between the wireless device and the payment processing network during the PPAI authorization process.” Ex. 1003 ¶147.

103. Further, *Carlson* and *Jazayeri* themselves do not disclose and would not have rendered obvious “selectively sending . . . and receiving information. . . responsive to said value of the physiological data.” First, *Carlson* discloses that the request for PPAI need not be communicated at all, and, thus, because it is not necessarily sent in response to said value of the physiological data, the alleged request for a PPAI fails. *Carlson* states that “[i]n alternative implementations, the pseudo primary account identifier may not be requested at all, but rather is pushed to the portable wireless device at any time, such as when the device is turned on,

when the device is idle, periodically, or through any other such criteria.” *Carlson*, 7:4-7. *Carlson* further discloses that “[i]n other alternative embodiments, the pseudo primary account identifier may not be requested but rather may be pushed from the payment processing network to the portable wireless device.” *Carlson*, 12:67-13:3. Indeed, *Carlson* allows for the device to generate its own PPAI, “[i]n an alternative embodiment, the pseudo primary account identifier may not be requested by the portable wireless device at all. The portable wireless device may generate the pseudo primary account identifier.” *Carlson*, 7:15-19.

104. Even if the request for a PPAI is communicated, it is not communicated using NFC in *Carlson*. *Carlson* discloses that “[t]he pseudo account identifier may then be received by the portable wireless device by using the long range communications element.” *Carlson*, 3:64-66. *Carlson* further states that “[i]n embodiments of the invention, the pseudo primary account identifier may be received by the portable wireless device through the use of any suitable communications network. Examples of such networks may include the cellular telephone network, networks provided by wireless e-mail service providers, and the like.” *Carlson*, 5:57-62. *Carlson* Fig. 1, shown below, illustrates that “[t]he payment processing network 110 may be configured to receive a request for a pseudo primary account identifier that corresponds to a primary account identifier over the communications network 116.” *Carlson*, 11:35-38.

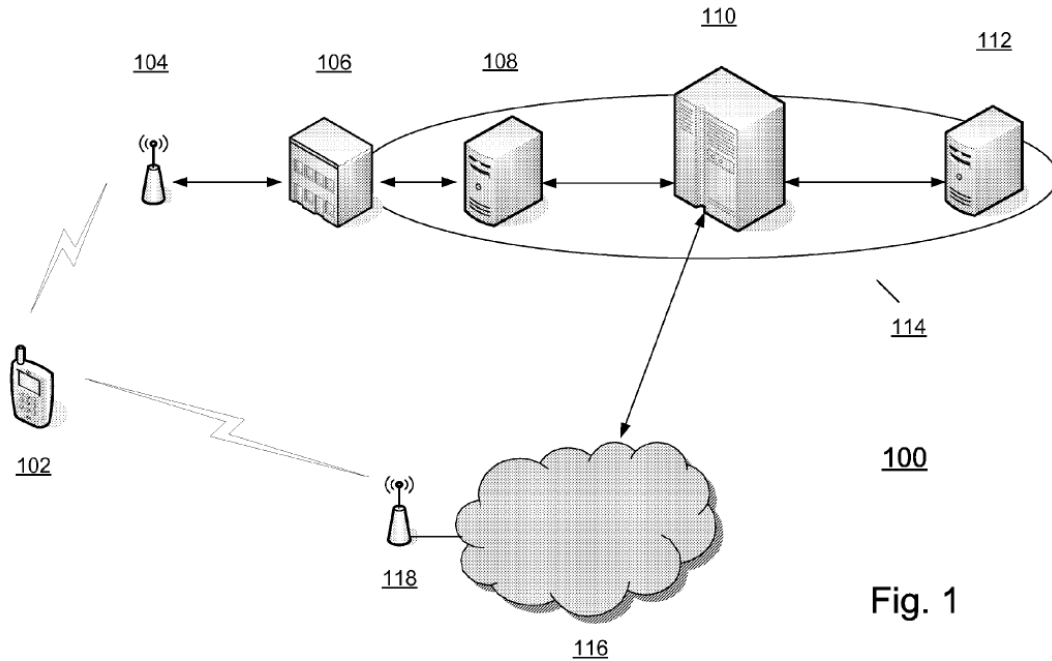


Fig. 1

Carlson, Fig. 1.

105. *Jazayeri* also does not disclose, as Mr. Lipoff states, that “communication is only enabled once the wireless device has been unlocked by sensing a fingerprint.” Ex. 1003 ¶146. As discussed extensively above, *Jazayeri* utilizes a biometric identifier to regulate access to secure data, not to enable or disable modes of communication of sending or receiving data. *E.g.*, *Jazayeri* ¶¶[0030], [0048], Fig. 6. A POSITA would not have been motivated to combine *Carlson* and *Jazayeri* such that NFC communication was enabled or disabled based on the use of *Jazayeri*’s physiological parameters. And Mr. Lipoff fails entirely to allege that a POSITA would have made such a modification to enable or disable the

long range cellular communications used by *Carlson* in certain embodiments to make the request for, and receive, the PPAI. Mr. Lipoff's first mapping fails.

106. Mr. Lipoff provides an "alternative mapping to the information communicated between the wireless device and the payment processing network" stating that "*Carlson-Holloway-Jazayeri-ISO-14443* also teaches Claim 1(e) in the context of communicating via NFC between the wireless device and the access device." Ex. 1003 ¶147. I disagree that Petitioner's proposed system would have rendered obvious this alternative embodiment.

107. Specifically, Mr. Lipoff's proposed embodiment calls for "the wireless device receiving information by the wireless device in the form of a digital receipt from the contactless reader using NFC." Ex. 1003 ¶149. Mr. Lipoff admits that *Carlson* "does not disclose the receipt being received at the wireless device via wireless transmission of data." Ex. 1003 ¶152. He states that "[a] POSITA would have been motivated to modify *Carlson's* device to receive a digital receipt via NFC pursuant to *Jazayeri's* teachings." Ex. 1003 ¶153. I disagree.

108. In *Carlson* there is no disclosure of the wireless device ever receiving data from the reader via NFC. *Carlson* itself states that the requests for approvals from the NFC reader are transmitted to the merchant. *Carlson*, 13:38-43. Such approvals are shown to the user at the transaction, not transmitted to the mobile device. *Carlson*, 9:26-30.

109. *Carlson* in fact teaches away from receiving data on the mobile device, because sending such data to the mobile device would require modification not just of *Carlson*'s device, but of the equipment at the merchant such that the equipment can send such a receipt. *Carlson* is clear that its system is meant to be a "cost effective device and method that integrates easily with **existing payment processing networks**" (2:49-50 (emphasis added)) because "many merchants, for example, resist making necessary upgrades to their procedures and systems." *Id.* at. 2:32-35 . *Carlson* emphasizes that "[f]rom a merchant's perspective, transaction processing using a pseudo primary account identifier is completely transparent. That is to say that a merchant processing a transaction using a pseudo primary account identifier can process the transaction in exactly the same manner as if the transaction was occurring with a real primary account identifier. . . . As such, a merchant can continue to process transactions **with currently installed equipment** and no change is required at the merchant in order to process transactions using pseudo primary account identifiers." *Carlson*, 5:44-56 (emphasis added). The disclosure of *Carlson* is meant to work with existing payment processing networks and merchant equipment, and a POSITA would not have been motivated to combine, and would not have had a reasonable expectation of success in combining *Carlson* with *Jazayeri* such that a receipt was received via NFC by the device in *Carlson*.

110. For the reasons stated above, neither of Mr. Lipoff's alternative embodiments for Ground 1 disclosed nor would they have rendered obvious claim limitations 1[e] and 3[f].

111. With respect to Ground 2, my opinions remain the same. Mr. Lipoff does not provide element by element mapping of this Ground, but the "proposed combination involve[ing] modifying Carlson pursuant to *Murakami*'s biometric sensor and authentication process" (Ex. 1003 ¶169) does not disclose nor would it have rendered obvious claim limitations 1[e] and 3[f].

112. Further, Mr. Lipoff states that "*Jazayeri* is maintained in Ground 2 for the purposes of alternatively mapping an additional biometric authentication step prior to conducting the financial transaction for Claim 1(e)." Ex. 1003 ¶169. I therefore understand that Mr. Lipoff does not maintain *Jazayeri* in Ground 2 for the purpose of disclosing *Carlson*'s device receiving a receipt over NFC from the merchant terminal for Claim limitations 1[e] and 3[f], and the second embodiment discussed above applies only to Ground 1. To the extent Mr. Lipoff claims his second embodiment is maintained, my opinion remains the same. Ground 2 fails.

XIII. SUMMARY AND OTHER REMARKS

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

114. My opinions expressed in this Declaration are based on the information available to me at this time. To the extent that any additional information becomes available, I reserve the right to supplement any 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 6, 2025.



William C. Easttom II (Chuck Easttom)