

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Samsung Electronics America, Inc.,
Samsung Electronics Co., Ltd.
Petitioners

v.

Cobblestone Wireless, LLC
Patent Owner

Case No. IPR2024-00317

U.S. Patent No. 8,554,196

**DECLARATION OF JAMES A. PROCTOR IN SUPPORT OF
PETITION FOR INTER PARTES REVIEW OF
UNITED STATES PATENT NO. 8,554,196**

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I, JAMES A. PROCTOR, declare as follows:

I. INTRODUCTION

1. I have been retained by Samsung Electronics America, Inc. and Samsung Electronics Co., Ltd. (“Petitioners”) as an independent expert consultant in this proceeding before the United States Patent and Trademark Office (“PTO”) against Cobblestone Wireless, LLC (“Patent Owner”) regarding U.S. Patent No. 8,554,196 (“the ’196 Patent”) (Ex. 1001).¹

2. I have been asked to consider whether certain references disclose or render obvious the features recited in claims 23-27 (“the challenged claims”) of the ’196 Patent. My opinions are set forth below. Based on my experience and expertise, it is my opinion that the prior art renders obvious all limitations of the challenged claims, as I discuss in detail below.

3. I am being compensated at a rate of \$550 per hour for my work in this proceeding. My compensation is in no way contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of this or any other proceeding. I have no other interest in this proceeding.

¹ Where appropriate, I refer to exhibits that I understand are to be attached to the petition for *Inter Partes* Review of the ’196 Patent.

4. All of my opinions stated in this Declaration are based on my own personal knowledge and professional judgment. I am over 18 years of age and, if I am called upon to do so, I would be competent to testify as to the matters set forth in this Declaration. My opinions in this Declaration are substantively identical as those given in my declaration in support of the Petition in *T-Mobile USA, Inc. et al. v. Cobblestone Wireless LLC*, IPR2024-00135.

II. BACKGROUND AND QUALIFICATIONS

5. My background and expertise that qualify me as an expert are described in detail in my *Curriculum Vita* attached as Ex. 1006, which further includes an accurate list of all publications authored by me in the previous 10 years and a list of all cases in which I testified as an expert at trial or by deposition during the previous 4 years. Below I have summarized those qualifications, as well as any other background and expertise relevant to the technical issues in this case:

6. My educational background includes a Bachelor of Science in Electrical Engineering (BSEE) from the University of Florida in 1991 and Master of Science in Electrical Engineering (MSEE) from the Georgia Institute of Technology (“Georgia Tech”) in 1992 focusing on digital signal processing.

7. I have worked as an engineer and entrepreneur in the field of wireless communications for over 25 years and have been involved with various aspects of wireless communications for the duration of my career.

8. From 1986 to 1991, while at the University of Florida, I interned with Harris Corporation in various roles including mechanical design, software development, and digital design. From 1991 to 1992, while at Georgia Tech, I worked at the Georgia Tech Research Institute (GTRI) as a graduate research assistant, performing software development on classified government programs.

9. From 1993 to 1995, while working for Harris Corporation, I designed various cellular communication systems for voice, data, and tracking/location. Many of these systems I designed utilized advanced communications technologies, such as those utilized in the then-developing and future telecommunications (such as IS95, W-CDMA, and aspects of LTE).

10. From 1995 to 1998, I worked at Spectrian in advanced development and technical marketing. At Spectrian, I interfaced with Nortel's and Qualcomm's product management and performed advanced technology development and systems analysis. In this role, I designed IS-95 CDMA and GSM base station power amplifiers and control electronics, and received several patents associated with advanced linearization techniques for the reduction of transmitted distortion. I note that the peak to average ratio of various waveforms was of particular concern in the design of the power amplifiers and associated linearization techniques with the designs I was involved with during my work at Spectrian.

11. From 1998 to 2002, I served as the Director of Strategic and Technical Marketing at Tantivy Communications, a venture capital-funded 3G cellular data and chip set company. At Tantivy, I helped to architect and standardize the I-CDMA Spread Spectrum Systems Air Interface Standard (T1P1.4). I also developed both wireless access terminals and base stations that complied with the standard. The base stations utilized various IP protocols, and interfaced with the wire line network utilizing IP over Ethernet. Additionally, I participated in and provided technical contributions to 3GPP/3GPP2 standardization efforts related to the development of CDMA2000 and 1xEV-DO. This work resulted in me being a named inventor on more than 150 pending or issued U.S. patents or applications.

12. From 2002 to 2007, as co-founder of WiDeFi, Inc., I served in various roles including President, CEO, CTO, and board member. As the CEO, my responsibilities included advanced development of platform technologies. I was a named inventor of wireless technology components, including a frequency translating TDD repeater, a same frequency repeater architecture for TDD/FDD-based systems, and physical layer multi-stream MIMO repeater technology. WiDeFi invented and provided wireless home networking products based on Wi-Fi and cellular technologies. While at WiDeFi, I was a named inventor on over 25 issued U.S. patents or patent applications.

13. From 2007 to 2009, I consulted as a principal engineer for Qualcomm Inc. as part of the acquisition of WiDeFi's technology. While at Qualcomm, I worked with its corporate R&D division and developed consumer 3G and 4G cellular coverage enhancement systems utilizing WiDeFi's baseband interference cancellation technologies. My responsibilities included working with international cellular operators on product requirements, detailed W-CDMA simulations, Long Term Evolution ("LTE") systems analysis, and participation in prototype product realization. I am currently a named inventor on roughly 45 issued U.S. patents or patent applications assigned to Qualcomm.

14. From 2010 to the present, I have served as managing director and co-founder of Proxicom Wireless, LLC, which has developed and continues to develop cloud-based, mobile social networking and mobile payments technology based upon the proximity and location of mobile devices. Proxicom currently holds twelve issued U.S. patents and multiple pending patent applications, of which I am a named inventor. Significant aspects of Proxicom's technology involve a mobile device's use of short range wireless technologies (802.11, near field communications, Bluetooth) in combination with cellular data links (3G/WCDMA or 4G/LTE, for example) to facilitate frictionless interactions via a wireless networked central cloud server.

15. Since 2007, I have also been the principal of Proctor Consulting, LLC. In this role, I have been a consultant relating to wired, wireless, and cellular communication and technologies, start-up companies and intellectual property. I have also been involved with numerous patent infringement, patent validity, and patent analysis assignments for public and private companies in the wired, wireless, and cellular networking industries.

16. Additionally, I have worked and consulted for both cellular infrastructure and device focused companies (Spectrian, Qualcomm, Fastback Networks), and defense contractors (Harris Corporation), where I developed covert-tracking and location technologies involving CDMA and smart-antenna technologies.

17. In various of the above-detailed roles, I have been responsible for the development of business plans, product development plans, product development budgets, and product bill of materials estimations. I have been responsible for numerous product development teams, including schedule and costs of the development process at various stages of my career. For example, at Tantivy Communications, I ran a joint development of I-CDMA cellular base stations in Seoul, Korea that were used in a field trial in that country. Additionally, as founder and CEO of WiDeFi, Inc., I was responsible for similar such activities, as required to raise venture capital funding and reporting to the board of directors.

18. I am currently a named inventor on more than 325 issued U.S. patents, and more than 700 international patent publications in total. A substantial portion of my work has focused on wireless communication systems and products. A number of these patents and patent applications are related to the subject matter of the patents asserted in this matter. For example, the following patents, for which I am a named inventor, are examples of some of my experience relevant to the subject matter of this declaration:

U.S. Patent No.	Title	Priority Date
6,954,448	“Alternate channel for carrying selected message types”	Feb. 23, 2000
7,072,316	“Subscriber-controlled registration technique in a CDMA system”	Apr. 28, 1999
8,259,687	“Dynamic bandwidth allocation for multiple access communications using buffer urgency factor”	Jan. 31, 2001
6,937,562	“Application specific traffic optimization in a wireless link”	Feb. 5, 2001
6,941,152	“Wireless subscriber network registration system for configurable services”	Apr. 24, 2001
9,974,116	“Handoff to base station having enhanced capabilities”	May 31, 2001
7,936,736	“Enforcing policies in wireless communication using exchanged identities”	Sept. 8, 2008
11,443,344	“Efficient and secure communication using wireless service identifiers”	Sept. 8, 2008
9,135,612	“Proximity detection, virtual detection, or location based triggering of the exchange of value and information”	Apr. 17, 2011

19. Based on my professional experience, I believe I am qualified to testify as an expert on matters related to the patent at issue.

20. I am currently consulting, working with and/or advising a number of companies and universities. For example, I currently serve on the external advisory

board to the University of Florida’s Electrical and Computer Engineering department. I also perform expert consulting work, research, and development in the area of wireless communications with Proctor Consulting and Proxicom wireless. Finally, I perform conceptual and product development in the medical device field with Genesis Medical Devices.

III. MATERIALS REVIEWED

21. The opinions contained in this Declaration are based on the documents I reviewed, my professional judgment, as well as my education, experience, and knowledge.

22. In forming my opinions expressed in this Declaration, I also reviewed the following materials and information:

Exhibit	Description
Ex. 1001	U.S. Patent No. 8,554,196 B2 (“the ’196 Patent”)
Ex. 1002	Prosecution History of U.S. Patent No. 8,554,196 B2
Ex. 1004	U.S. Patent No. 9,830,642 B2 (“Chang”)
Ex. 1006	<i>Curriculum Vita</i> of Mr. Proctor
Ex. 1007	Plaintiff’s Preliminary Disclosure of Asserted Claims and Infringement Contentions, Case No. 2:22-cv-00477-RSP, (Mar. 13, 2023)
Ex. 1008	Exhibit D to Plaintiff’s Preliminary Disclosure of Asserted Claims and Infringement Contentions, Case No. 2:22-cv-00477-RSP, (Mar. 13, 2023) (“’196 Claim Chart”)
Ex. 1009	Vinoth Gunasekaran & Fotois C. Harmantzis, <i>Towards a Wi-Fi ecosystem: Technology integration and emerging service models</i> , TELECOMMUNICATIONS POLICY 32, 163-181 (2008)

23. I also reviewed any other materials I refer to in this Declaration in support of my opinions.

24. My opinions contained in this Declaration are based on the documents I reviewed and my knowledge and professional judgment. My opinions have also been guided by my appreciation of how a person of ordinary skill in the art would have understood the state of the art, the prior art, and the claims and the specification of the '196 Patent at the time of the alleged invention.

IV. LEGAL STANDARDS

25. Petitioner's attorneys have explained to me the legal standards that apply in this case. My understanding of those standards is described below. I am not an attorney, and I do not have formal training in the law regarding patents. I have used my understanding of the following legal principles set forth in this section in reaching my opinions.

26. I understand that in this proceeding, Petitioners have the burden of proving that the challenged claims are invalid by a preponderance of the evidence.

A. Obviousness

27. I have been informed that a claim is invalid as obvious under 35 U.S.C. § 103 (pre-AIA) if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time of the invention to a person of ordinary skill in the art. I have been informed that the

following matters are relevant to determining whether the claimed invention would have been obvious: (1) the scope and content of the prior art, (2) the difference or differences between the patent claim and the prior art, (3) the level of ordinary skill in the art at the time the invention of the patent, and (4) any secondary considerations or objective indicia of non-obviousness.

28. I have been informed that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. When a claim simply arranges prior art elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, then such a combination is obvious. When a patent claims a structure already known in the prior art altered by the mere substitution of one element for another known in the field, the combination is likely to be obvious unless the combination yields an unpredictable result.

29. I have been informed that when a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill in the art can implement a predictable variation, such a variation is likely unpatentable. For the same reason, if a technique has been used to improve one device, and one of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her

skill. One question to consider is whether the improvement is more than predictably using prior art elements according to their established functions.

30. I have been informed that it may often be necessary, in a validity analysis, to consider whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. This can be accomplished by looking to interrelated teachings of multiple patents or other publications or pieces of prior art; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by one of ordinary skill in the art.

31. I have been informed that a validity analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim; it is appropriate to take account of the inferences and creative steps that a person of ordinary skill in the art would employ. I have been informed that a person of ordinary skill in the art is a person of ordinary creativity, not an automaton.

32. I have been informed that a claim composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art. I have been informed that it can be important to identify a reason that would have prompted a person of ordinary skill in the art in the relevant field to combine the elements in the way the claimed new invention does. I am told that one way that subject matter can be proved obvious is by noting there existed at

the time of the invention a known problem for which there was an obvious solution encompassed by the patent's claims. I have been informed that any need or problem known in the field of endeavor at the time of the claimed invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.

33. I have been informed that one should not assume that a person of ordinary skill in the art attempting to solve a problem will be led only to those elements of prior art designed to solve the same problem. Instead, I have been informed that since familiar items may have obvious uses beyond their primary purposes, in many cases a person of ordinary skill in the art will be able to fit the teachings of multiple prior art references together like pieces of a puzzle.

34. I have been informed that, when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, persons of ordinary skill in the art have good reason to pursue the known options within their technical grasp. If this leads to the anticipated success, the product was likely not accomplished by innovation but by using ordinary skill and common sense. I have been informed that, in such an instance, the fact that the combination was obvious to try may show that the combination was obvious.

35. I have been informed that, when determining whether a claimed combination would have been obvious, the correct analysis is not whether a person of ordinary skill in the art, writing on a blank slate, would have chosen the particular

combination of elements described in the claim. Instead, I have been informed that the correct analysis considers whether one of ordinary skill, facing the wide range of needs created by developments in the field of endeavor, would have seen a benefit to selecting the combination claimed.

36. I have been informed that, when determining whether a claimed invention is obvious, any “secondary considerations” of non-obviousness identified by the patentee should also be considered. These secondary considerations can include:

- commercial success of the invention, causally related to the invention itself rather than to companion factors, such as advertising or attractive packaging;
- the invention taught away from the technical direction followed by those skilled in the art;
- a long-felt but unsatisfied need for the invention while the needed implementing arts and elements had long been available;
- the invention achieves results unexpected to those skilled in the art;
- copying of the invention by competitors as distinguished from their independent development;
- unsuccessful attempts by those skilled in the art to make the invention;

- acquiescence by the industry to the patent's validity by honoring the patent through taking licenses or not infringing the patent, or both; and
- skepticism, disbelief in or incredulity by those skilled in the art that the patentee's approach worked.

37. I have been informed that, for the above information to impact the obviousness of a patent claim, there must be a nexus between the alleged secondary considerations and the claims. In addition, I have been informed that the burden of introducing evidence of secondary considerations generally is on the Patent Owner. If the Patent Owner or its expert should assert secondary considerations of non-obviousness, I reserve the right to provide a Declaration addressing assertions of non-obviousness due to secondary considerations.

B. Claim Construction

38. I have been informed that claim terms are typically given their plain and ordinary meanings, as would have been understood by a person of ordinary skill in the art at the time of the earliest alleged priority date. I have further been informed that when considering the meaning of any terms in the challenged claims of the '196 Patent, I should apply the plain and ordinary meaning of those terms. I have further been informed that in considering the meaning of the claims, one must consider the language of the claims, the specification, and the prosecution history of record.

39. To the extent the claims and specification do not resolve the meaning of a claim term, the prosecution history should be consulted in construing claim terms. Additionally, claim terms are normally not interpreted in such a way that exclude embodiments disclosed in the specification, except in cases of clear disclaimer in the specification or prosecution history. I have been further informed that claim terms only need to be construed to the extent necessary to resolve the validity inquiry. Accordingly, in order to evaluate potential constructions of the claim terms, I have reviewed the entirety of the '196 Patent, as well as its prosecution history.

V. PERSON OF ORDINARY SKILL IN THE ART AND THE TIME OF THE ALLEGED INVENTION

40. I have been asked to assume that the '196 Patent is entitled to an earliest alleged priority date of August 24, 2011. *See* Ex. 1001, Cover; Ex. 1007 at 4. Based on my knowledge and experience, I was a person of ordinary skill in the art as of August 24, 2011, and can provide opinions regarding the knowledge of a person of ordinary skill in the art as of that time. My opinions herein are, where appropriate, based on my understandings as to a person of ordinary skill in the art at that time.

41. Based on the materials and information I have reviewed, and based on my experience in the technical areas relevant to the '196 Patent, a person of ordinary skill in the art at the time of the alleged invention of the '196 Patent would have had at least a bachelor's degree in electrical engineering, computer engineering,

computer science, physics, or the equivalent, and at least two years of experience in the field. Relevant working experience would include experience with cellular telecommunications and networking, radio-access networking architectures, protocols and signal propagation in wireless networks. More education can supplement practical experience and vice versa. Based on my knowledge and experience, including as discussed above in section II, I was a person of ordinary skill in the art at the time of the alleged invention of the '196 Patent and can provide opinions regarding the knowledge of a person of ordinary skill in the art as of that time. My opinions herein are, where appropriate, based on my understandings as to a person of ordinary skill in the art at that time. I myself had these capabilities at the time of the alleged invention of the '196 Patent.

VI. THE '196 PATENT

A. Description of the '196 Patent's Specification

42. The '196 Patent purports to solve a problem relating to providing wireless communications networks to a variety of devices with phone and data functionality. Ex. 1001, 1:11-17. When a network is required to provide coverage to a variety of devices, poor coverage configurations can result, where the poor coverage conditions provide a “relatively low power beam to both active and inactive devices.” Ex. 1001, 1:11-17. In particular, the '196 Patent discusses sending

“data updates” to different types of electronic devices based on device usage. Ex. 1001, 6:59-64.

43. To try and remedy this problem, the '196 Patent proposes optimizing network usage based on the services being used by the mobile device. Ex. 1001, 1:22-35. For example, a first network configuration could be used for continuous use devices, where continuous use or “substantially continuous service may generally include any type of substantially continuous service including, for example, a voice call, a download, a content streaming, or the like.” Ex. 1001, 3:47-51. A second network configuration could then be used for interval use devices, where interval use services “may include social networking applications, email, Really Simple Syndication (RSS) feeds, map updates, game update, sports score update, or the like.” Ex. 1001, 6:59-62. “Data updates” can be sent to an electronic device for all the interval use services described above. Ex. 1001, 6:51-56, 6:59-64, 10:8-11:29, Fig. 3.

44. A POSITA would have understood the specifically identified types of data described above would constitute data updates, as well as any other data that needs to be synced to a mobile device to ensure that the mobile device is up to date. Ex. 1001, 4:15-22 (“requests by applications requiring intermittent updates may be postponed and/or batched and not sent during coverage by the less capable network. Then, during the first coverage configuration when covered by the more capable

network, the interval use devices requiring intermittent updates may request and/or receive data downloads related to those applications.”), 6:59-64. Examples of data that needs to be pushed to mobile devices can include purchased music, apps, map updates, game updates, and books, all of which would be considered “data updates.” Ex. 1001, 6:59-64, 10:23-35, 11:9-25.

45. The ’196 Patent generally focuses on using different types of beams in a single network to create the multiple network configurations, but also discloses that “the second coverage configuration may also include coverage by a second type of network.” Ex. 1001, 3:51-53. The ’196 Patent also notes that “[i]n general, the first type of network may be a more capable network than the second type of network” where “a more capable network may provide greater uplink and/or downlink rates, may be more stable, may be of a more advanced standard, or the like.” Ex. 1001, 3:54-56, 9:10-13. The ’196 Patent further notes that many different types of networks can be used in the proposed method, including EDGE, 3G, 4G, and WiMax among others. Ex. 1001, 9:10-46.

46. Because one network is generally “more capable” than the other network, the ’196 Patent discloses that the data updates can be deferred during coverage by the less capable network, and then transmitted once the device is covered by the more capable network. Ex. 1001, Fig. 3.

'196 Patent (Ex. 1001), Fig. 3.

300

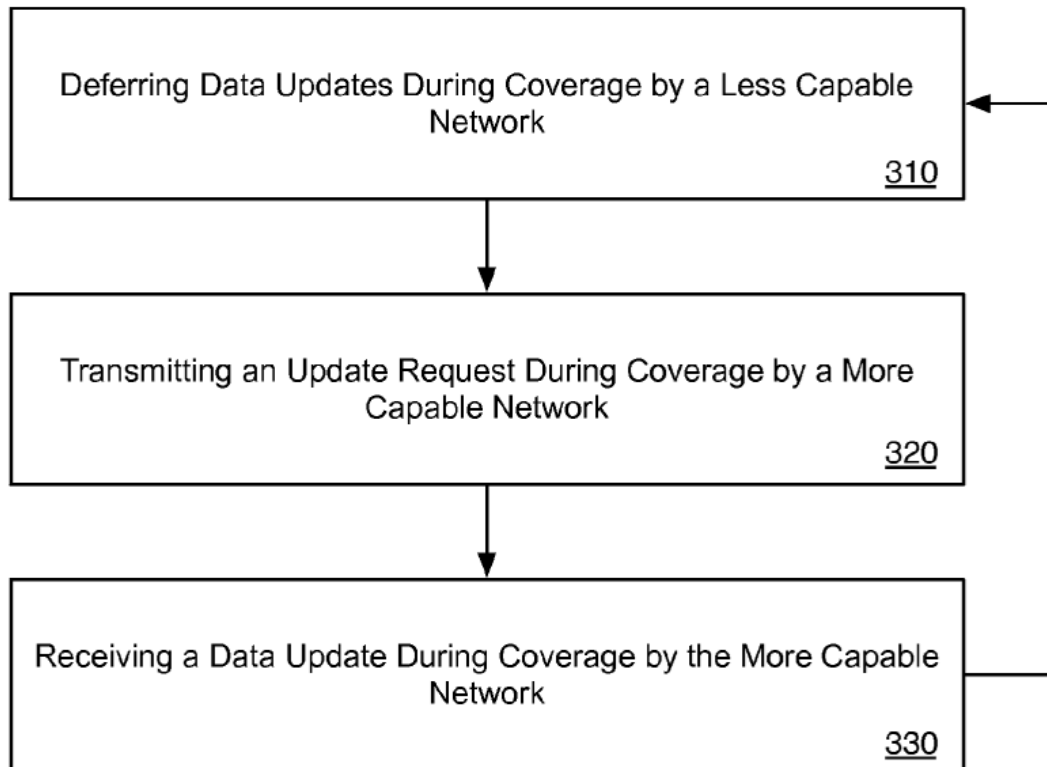


Fig. 3

B. The '196 Patent's Prosecution History

47. In this Section, I summarize parts of the '196 Patent's prosecution history. This summary is not intended to address or summarize the '196 Patent's entire prosecution history; rather, it is intended to summarize the parts that are relevant to my analysis below.

48. The '196 Patent was initially filed as U.S. Patent Application No. 13/321,792 on November 21, 2011. Ex. 1001, 1. The Patentee also filed a Petition to make special under the PCT-Patent Prosecution Highway Program, claiming priority to PCT Application No. PCT/US2011/049003, which was filed on August 24, 2011. Ex. 1002 at 47. The Petition to make special was initially rejected for formalities, but ultimately was granted on March 7, 2012. Ex. 1002 at 69.

49. The '196 Patent received only a single substantive response during prosecution, a non-final rejection dated Nov. 21, 2012. Ex. 1002 at 164-70. The Non-Final Rejection rejected Claims 1-27 of the application under 35 U.S.C. § 103(a) as being unpatentable over Vendryes (U.S. Patent No. 6,546,259) in view of Gale et al. (U.S. Patent App. Pub. No. 2011/0223925). Ex. 1002 at 164-70. The only reference made in the Non-Final Rejection to the claims at issue in the present IPR (claims 23-27) is that “[c]laims 14-27 incorporate the limitations of claims 1-13, and are therefore rejected for the same reasons as claims 1-13.” Ex. 1002 at 169.

50. In response, the Patentee amended independent claims 1, 14, 17, and 20, but did not make any amendments to claims 23-27. Ex. 1002 at 192-93. The amendments made all included adding the limitation “the at least one continuous use device being actively involved in a substantially continuous service with the network” in reference to a second or third coverage configuration transmitting a beam to a continuous use device referenced earlier in each claim. Ex. 1002 at 184-

92. Notably, claims 23-27 do not reference transmitting beams or continuous use devices. Ex. 1002 at 192-93. In deciding not to amend claims 23-27, the Patentee argued that the scope of claim 23 differed from the scope of the amended claims, in that claim 23 referenced “transmitting a data update request in response to coverage by a second network, wherein the second network is a more capable network than the first network” which was not present in any of the other rejected claims. Ex. 1002 at 198. The patentee argued that this difference in scope meant that the Patent Office had not presented any rationale for the rejection of claims 23-27, let alone established a prima facie case of obviousness. Ex. 1002 at 198-200. On June 6, 2013, the Examiner sent a Notice of Allowance without further comment. Ex. 1002 at 207-14. Claims 23-27 of the ’196 Patent did not face any other substantive prosecution.

C. Claim Construction of the ’196 Patent

51. I understand claims are construed according to the standard as set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). I understand that all claim terms should receive their plain and ordinary meaning, in the context of the ’196 Patent specification, under the *Phillips*² standard. This Declaration analyzes the claims consistent with the ordinary and customary meaning as would

² This assertion is not an admission that the Challenged Claims are valid under § 112.

be understood by a POSITA in light of the specification and the prosecution history pertaining to the patent. Where necessary, I will provide context for the plain and ordinary meaning of terms as a POSITA would have understood them.

52. I have followed this approach in my analysis, and for all of the claim terms considered in this Declaration, I have applied the plain and ordinary meaning of those terms. I followed this approach in my analysis. I also understand that the words of the claims should be interpreted as they would have been interpreted by a POSITA at the time the invention was made. For purposes of my analysis here only, I have used the August 24, 2011, priority date of the '196 Patent as the date of the invention.³

53. Claim 23 requires “wherein the second network is a *more capable* network than the first network.” Ex. 1001, cl. 23.⁴ The '196 Patent provides an example that “a more capable network may provide greater uplink and/or downlink rates, may be more stable, may be of a more advanced standard, or the like.” Ex.

³ This assertion is not an admission that the earliest priority date of the '196 Patent is August 24, 2011.

⁴ I understand Petitioners have taken no position with respect to § 112 issues in this proceeding..

1001, 9:10-13. The reference (Chang) discussed below provides similar disclosures regarding network combinations, and I have proceeded with my analysis with this understanding of a “more capable” network.

VII. SUMMARY OF THE PRIOR ART

A. Chang (Ex. 1004)

54. U.S. Patent No. 9,830,642 (“Chang”) is titled “Intelligent Delivery and Acquisition of Digital Assets.” Ex. 1004, Cover. The original assignee of Chang was Apple Inc. Ex. 1004, Cover.

55. I have been informed that I should assume Chang issued on November 28, 2017, from U.S. Patent Application No. 13/171,253, which was filed on June 28, 2011. *Id.* I have also been informed that Chang also claims priority to U.S. Provisional Patent Application No. 61/451,057, which was filed on March 9, 2011. *Id.* I have also been informed that I should assume Chang is prior art under at least 35 U.S.C. § 102(e) (pre-AIA).

56. Chang discloses a method comprising “[i]mproved techniques and systems for delivery and acquisition of digital assets . . . that are available for acquisition and electronic delivery from online stores to electronic devices.” Ex. 1004, Abstract. Chang defines “digital assets” as including “various types of media related items (e.g., musical albums, songs, movies, audio, video, textual content,

books) as well as various application programs (‘applications’) that can be provided for electronic devices.” Ex. 1004, 4:53-58.

57. In particular, Chang discloses a method for facilitating automatic download of digital assets from servers to multiple electronic devices when purchased by a single user account. Ex. 1004, 1:60-67. Chang further discloses that these automatic downloads can be limited to only being sent when particular criteria are met, including being connected to a specified network type, meeting a connectivity threshold, or exceeding a minimum bandwidth. Ex. 1004, 11:53-57, 13:12-16, 13:41-56. If the specified criteria are not met, the method will continue to cycle the automatic download sequence to evaluate the specified criteria until either the criteria are met, or the automatic download is canceled. Ex. 1004, Fig. 6.

58. Chang also provides a specific example of limiting automatic downloads, such that automatic downloads are only sent to the electronic device over a particular type of network, in this case a Wi-Fi network, rather than a cellular network. Ex. 1004, 13:41-56. In this example, a user interface is provided to the electronic device to determine whether automatic downloads can be sent over both cellular and Wi-Fi networks, or instead if automatic downloads can only be sent over Wi-Fi. Ex. 1004, Fig. 9 (below).

Chang (Ex. 1004), Fig. 9 (annotated).



FIG. 9

VIII. GROUND 1: CHANG RENDERS OBVIOUS CLAIMS 23-27 OF THE '196 PATENT

59. Chang renders obvious claims 23-27 of the '196 Patent.

A. Independent Claim 23

1. [23.0] A method for a device to receive data updates comprising:

60. Chang renders obvious “[a] method for a device to receive data updates.” Specifically, Change discloses “[i]mproved techniques and systems for delivery and acquisition of digital assets” where “[t]he techniques and systems are especially suitable and useful for delivering digital assets (e.g., media assets) that

are available for acquisition and electronic delivery from online stores to electronic devices.” Ex. 1004, Abstract. Chang defines “digital assets” as comprising “various types of media related items (e.g., musical albums, songs, movies, audio, video, textual content, books) as well as various *application programs* (“*applications*”) that can be provided for electronic devices (e.g., productivity products, games, computer applications for computing devices).” Ex. 1004, 4:53-58 (*emphasis added*).

61. The proposed method disclosed in Chang allows an electronic device or end user to “automatically download a digital asset when it receives a notification (e.g., a push notification) directly or indirectly via an online store server.” Ex. 1004, 4:32-38. Chang further discloses that an automatic download option is provided to the user “to effectively allow the user to select whether the automatic downloads should take place via a cellular network (which may have a data transfer fee). If the selectable option is set to ‘off’, then automatic download will only occur when the electronic device is connected to a Wi-Fi connection.” Ex. 1004, 13:41-56; *id.* at Fig. 9.

Chang (Ex. 1004), Fig. 9 (annotated).



FIG. 9

62. The '196 Patent describes “data updates” as being sent for interval use devices, where “[i]n general, any service that may not require continuous service to the device may be classified and managed as an interval use device.” Ex. 1001, 6:57-59. Examples of these interval use services “may include social networking applications, email, Really Simple Syndication (RSS) feeds, map updates, game update, sports score update, or the like. In such examples, the interval use device may be able to wait for data updates, feeds, or the like.” Ex. 1001, 6:59-64. The '196 Patent further describes the data updates as being for a single application or multiple

applications. Ex. 1001, 11:4-7. A POSITA would have understood that any data required to be sent or pushed to the mobile device would be considered a “data update” within the context of the ’196 Patent, including the particular types of data discussed above. Ex. 1001, 4:15-22 (“the interval use devices requiring intermittent updates may request and/or receive data downloads related to those applications.”); Ex. 1001, 6:59-64. A POSITA would have further understood that the data requiring transmission to the mobile device to keep the mobile device updated could comprise other types of data as well, including purchased music, apps, and books. Ex. 1001, 6:59-64, 10:23-35, 11:9-25.

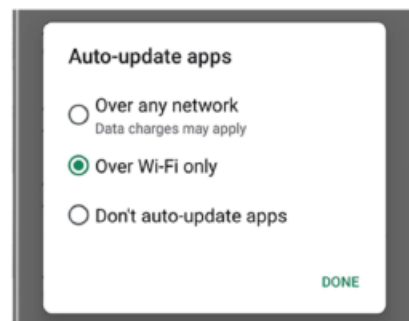
63. In the related district court cases, Patent Owner has identified application updates and software updates as meeting the “data updates” limitation of element [23.0]. Ex. 1008 at 3-7.

Patent Owner’s Infringement Contentions (Ex. 1008) at 4.

Turn On Auto Update in Play Store

Let the Play Store take care of updates automatically so you don't have to worry about it.

1. Open the **Play Store**, and then tap your profile picture.
2. Tap **Settings**, and then tap **Network preferences**.
3. Tap **Auto-update apps**, and then select your desired setting.



64. Chang and the '196 Patent similarly disclose transmitting data related to applications along with relating to applications generally. As evidenced in the '196 Patent specification, the Chang specification, and Patent Owner's infringement contentions, a POSITA would have understood the data updates of the '196 Patent to be the same as the digital assets disclosed in Chang, because both data updates and digital assets comprise data that must be sent to a mobile device. Ex. 1001, 11:4-7; Ex. 1008 at 3-7; Ex. 1004, 1:23-24, 4:53-58.

65. Chang explicitly discloses transmitting "digital assets" where digital assets comprise data related to applications, and a POSITA would have understood the digital assets disclosed in Chang to comprise the data updates disclosed in the '196 Patent. Chang also discloses automatically downloading applications where "a new or revised version of an asset can be effectively automatically downloaded if available at the time the download takes place." Ex. 1004, 14:52-55. The proposed method in Chang also contemplates requiring "determining an appropriate type, version and/or format to be delivered to a particular electronic device." Ex. 1004, 11:35-44 (*emphasis added*). The particular required version of a digital asset can be used to create specific user interfaces tailored to the particular types of applications supported, along with the particular versions of those applications. Ex. 1004, 13:3-18. A POSITA would have also understood that automatically downloading digital assets, such as a book, could be canceled if the type or version of the digital

asset was no longer supported. Ex. 1004, 15:12-22 (“[I]f a particular type (or form) of digital assets (e.g., books) is no longer viable for (or supported by) an electronic device because of a change to the device (e.g., book reading/presenting application has been uninstalled) the digital asset type (e.g., Books) would no longer be automatically downloaded to the device and the configuration window for the device would not show the digital asset type as an option for download as long as the digital asset type is not viable for (or supported by) the device.”).

66. Therefore, Chang contemplates evaluating the current version of an application to be sent or downloaded and sending a “new or revised version” i.e., update if available. This interpretation is in keeping with Patent Owner’s infringement contentions that application updates and software updates meet the “data updates” element of claim [23]. Ex. 1004, 11:35-44, 14:52-60; Ex. 1008 at 3-7.

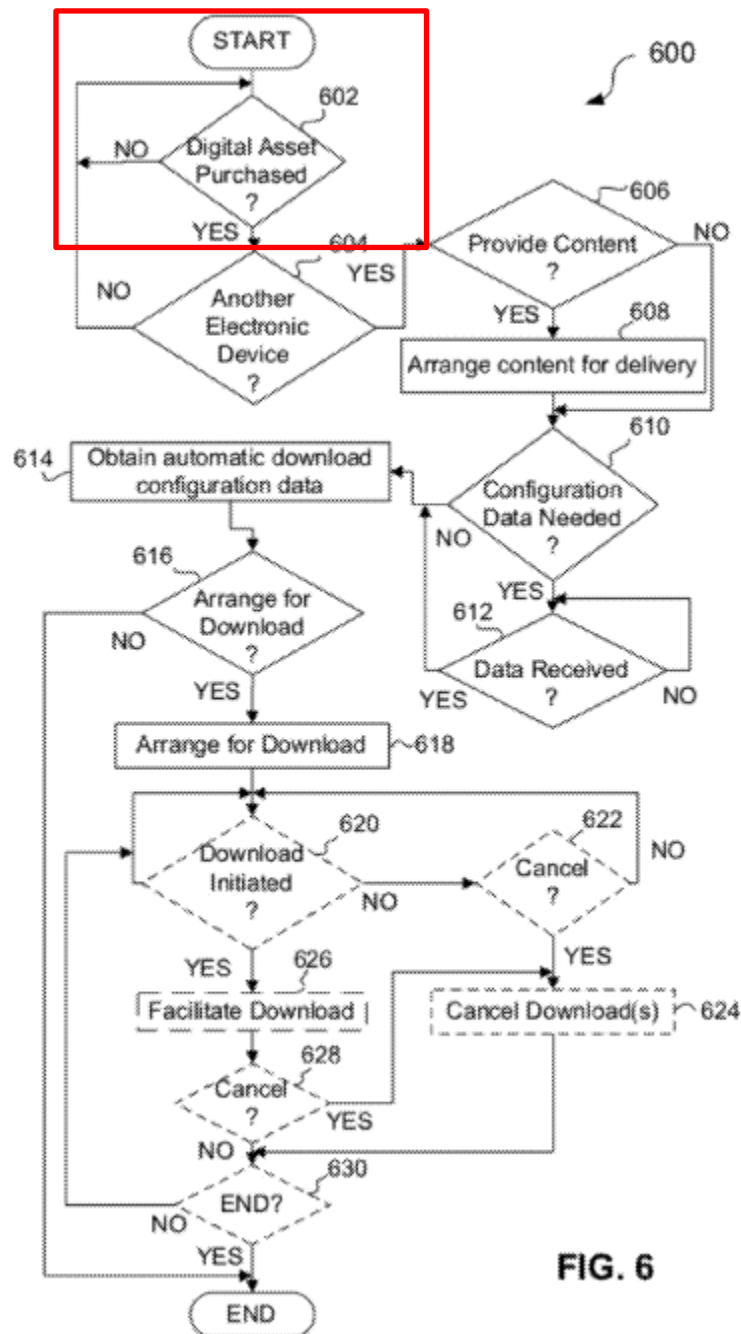
67. Chang further discloses automatically downloading applications in the context of new purchases, as well as automatically downloading previous digital asset purchases for new devices. Ex. 1004, 8:57-64. It would have been obvious to a POSITA that checking the most up-to-date version of a digital asset for automatic download to a new device would be equally applicable to current devices that already have the digital asset as well. In those cases where the digital asset is already present, the appropriate “version to be delivered” would be a “new or revised version” of the digital asset. Ex. 1004, 11:35-44, 14:52-55. It would have been obvious to a POSITA

that delivering the most recent version of a digital asset would be beneficial to the user by ensuring that any new features are available, any identified bugs in the application are be fixed or patched, and any other improvements to the digital asset are implemented. Chang's disclosure of sending "new or revised version[s]" of a digital asset would apply to devices that already contain older versions of the digital asset as well, and nowhere does Chang disclose skipping or canceling an automatic update of a "new or revised version" of a digital asset because an older version is already present on mobile device. Therefore, no changes to Chang would be required to automatically download the most up-to-date version of an application to both current and new devices, and a POSITA would thus expect the automatic download of new or revised versions of digital assets already present on a mobile device to likewise be successfully transmitted. Thus, Chang renders obvious "[a] method for a device to receive data updates."

2. [23.1] cycling over time through an update sequence that includes:

68. Chang renders obvious "cycling over time through an update sequence." Chang discloses that the automatic download method can be cycled over time for a single automatic download or multiple automatic downloads. Specifically, the first step of Chang continuously evaluates whether a digital asset has been purchased, and resultantly whether to initiate the automatic download process. *See* Ex. 1004, Fig. 6 at step 602.

Chang (Ex. 1004), Fig. 6 (annotated).



69. Method 600 of Chang will continuously evaluate whether the initial condition has been met – that a digital asset has been purchased at step 602. *Id.* If a

digital asset has not been purchased, the method 600 will go back to the beginning of the sequence, where it will again evaluate whether a digital asset has been purchased. *Id.* Chang discloses that this method will be repeatedly cycled, and further discloses that the method can be cycled for a given time period. Ex. 1004, 11:60-62 (“Method 600 can, for example, end after the arranged automatic downloads have been completed or canceled, or after a determined amount of time has lapsed.”). Therefore, Chang discloses cycling over time through an update sequence.

70. Second, Chang expressly discloses the ability to defer automatic downloads based on several criteria, including network type, connectivity, and bandwidth. Ex. 1004, 11:53-57, 13:12-16, 13:41-56. By limiting the ability to send automatic downloads based on particular criteria, the disclosed automatic download sequence must be repeatedly cycled over time to evaluate when the predetermined criteria are met. For example, if the instructions require a minimum bandwidth, the server will repeatedly check the available bandwidth to determine when the criteria has been met to send the automatic download. *Id.* In doing so, the server would continue cycling the automatic download sequence until the automatic download sequence is completed or canceled. Ex. 1004, Fig. 6. Chang discloses that the evaluation occurs at least in part at Step 618 of method 600, where “[a]rranging (618) the digital asset for delivery can, for example, include determining an

appropriate type, version and/or format to be delivered to a particular electronic device, sending a push notification to an electronic device, storing the appropriate digital asset in a delivery queue for delivery at an appropriate time (e.g., when one or more network conditions are met), and/or recording automatic download data for a particular user and/or device.” Ex. 1004, 11:35-43.

Chang (Ex. 1004), Fig. 6 (annotated).

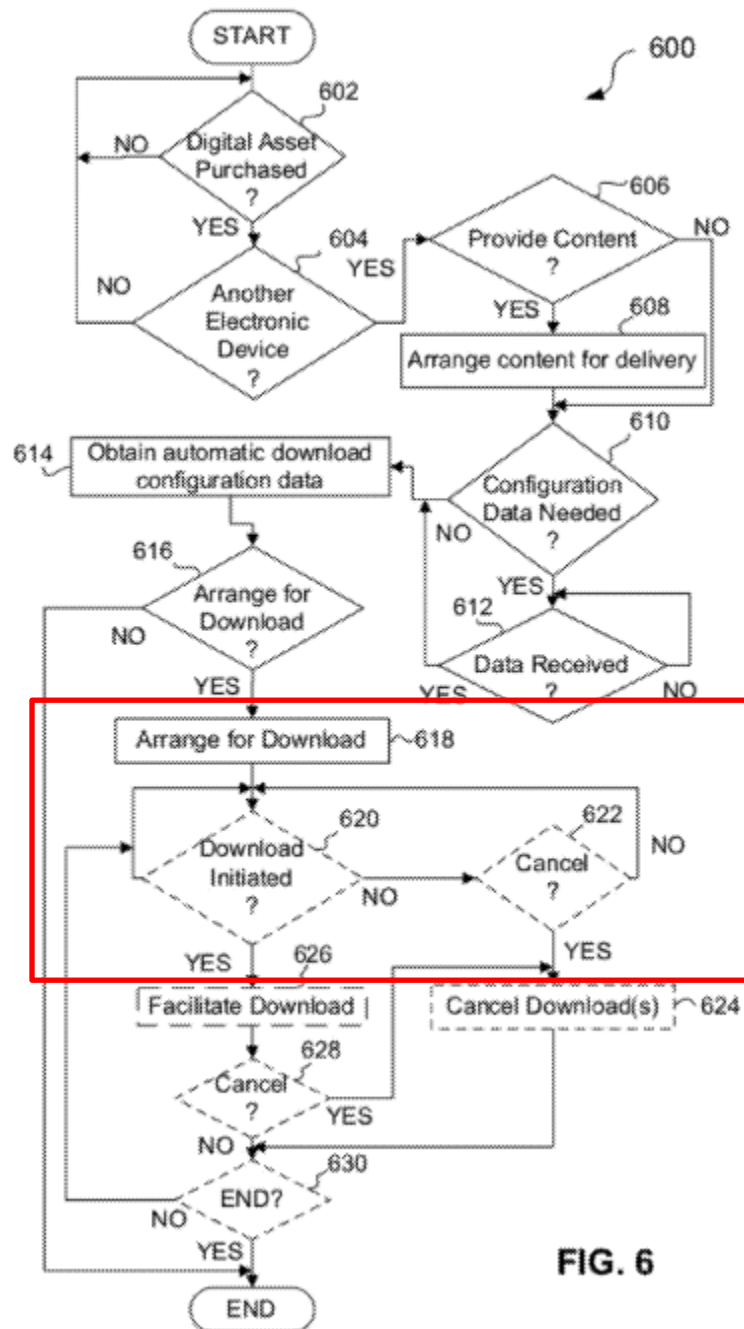


FIG. 6

71. Chang further discloses that the method 600 “can determine (620) whether download is to be initiated or whether the automatic download is to be

cancelled (622) before the download is initiated . . . An automatic download can, for example, be initiated when an electronic device initiates it and/or one or more delivery conditions are met (e.g., network type or bandwidth is appropriate for download).” Ex. 1004, 11:46-57. Chang discloses that method 600, and in particular the identified portion of method 600 above, must be repeatedly evaluated to determine whether the criteria for sending the automatic update are met, or if instead the automatic update is canceled. Ex. 1004, Fig. 6, 11:46-57. A POSITA would understand that an automatic download that occurs when “one or more delivery conditions are met” would normally be performed by regularly checking (cycling) whether the delivery conditions are met. Typically, this is done in software using an “if / then” conditional statement that checks whether certain conditions are met, and if so, the next step is executed. In order for this to be “automatic,” a POSITA would understand that this necessarily means that the “if” portion of the statement would be checked on a regular basis, such as by having a timer that causes the “if” condition—here, whether the delivery conditions are met—to be checked on a regular basis. Thus, a POSITA would understand Chang’s reference to an automatic download process when certain conditions are met to describe “cycling over time through an update sequence.”

72. As a further example, if automatic downloads are limited to Wi-Fi networks only, the method would cycle through a process of checking to see if the

electronic device is connected to Wi-Fi to determine if the necessary updates can be completed, or if instead the update has been canceled. Ex. 1004, 13:41-56, Fig. 6, Fig. 9. Thus, Chang renders obvious “cycling over time through an update sequence.”

3. [23.2] deferring, during coverage by a first network, data updates for the device;

73. Chang renders obvious “deferring, during coverage by a first network, data updates for the device.” Specifically, Chang discloses a proposed method that allows an electronic device or end user to “automatically download a digital asset when it receives a notification (e.g., a push notification) directly or indirectly via an online store server.” Ex. 1004, 4:32-38.

74. Chang further discloses that an automatic download option is provided to the user “to effectively allow the user to select whether the automatic downloads should take place via a cellular network (which may have a data transfer fee). If the selectable option is set to ‘off’, then automatic download will only occur when the electronic device is connected to a Wi-Fi connection.” Ex. 1004, 13:41-56, Fig. 9.

Chang (Ex. 1004), Fig. 9 (annotated).



FIG. 9

75. The automatic download feature disclosed in Chang allows a user to determine whether an electronic device may perform automatic downloads over a cellular network, which can be considered a first network. When the option is turned “off” as shown above in Fig. 9, automatic download of digital assets cannot be performed on the first network and are instead deferred until the user is connected to a Wi-Fi network. As discussed above in § VIII.A.1, the digital assets sent and received in Chang comprise the data updates sent and received in the ’196 Patent.

Thus, Chang renders obvious “deferring, during coverage by a first network, data updates for the device.”

4. [23.3] transmitting a data update request in response to coverage by a second network, wherein the second network is a more capable network than the first network; and

76. Chang renders obvious “transmitting a data update request in response to coverage by a second network, wherein the second network is a more capable network than the first network.” The pertinent disclosure in Chang for element [23.3] is identical to the disclosure above for element [23.2]. *See supra*, § VIII.A.3. Specifically, Chang discloses that an automatic download option is provided to the user “to effectively allow the user to select whether the automatic downloads should take place via a cellular network (which may have a data transfer fee). If the selectable option is set to ‘off’, then automatic download will only occur when the electronic device is connected to a Wi-Fi connection.” Ex. 1004, 13:41-56, Fig. 9.

Chang (Ex. 1004), Fig. 9 (annotated).



FIG. 9

77. The automatic download feature disclosed in Chang can be set to only allow automatic downloads over a Wi-Fi network, which can be considered a second network (with a cellular network being the first network). Ex. 1004, 13:41-56; *id.* at Fig. 9. As discussed above in § VIII.A.1, the digital assets sent and received in Chang comprise the data updates sent and received in the '196 Patent. Chang further discloses that the electronic device can “automatically download a digital asset when it receives a notification (e.g., a push notification) directly or indirectly via an online store server.” Ex. 1004, 4:32-38. “A push notification can instruct a recipient

electronic device to transparently check its delivery queue without requiring explicit user input, feedback or instructions.” Ex. 1004, 14:1-4. A POSITA would understand the abovepush notification is a data update request sent from the server, requesting that the device download the update. A POSITA would also understand that the above-referenced action of checking the delivery queue is also the claimed data update request for downloading the update. Just as the automatic download will not be initiated until the electronic device has coverage by the second network, a POSITA would have understood that the push notification would only be sent when there is appropriate coverage as well. Ex. 1004, 13:41-56, Fig. 9. Thus, Chang discloses “transmitting a data update request in response to coverage by a second network.”

78. Claim element [23.3] further requires that the second network be “a more capable network than the first network.” In defining “more capable,” the ’196 Patent notes that “[i]n general, a more capable network may provide greater uplink and/or downlink rates, may be more stable, may be of a more advanced standard, or the like.” Ex. 1001, 9:10-13. The ’196 Patent further notes that “[i]n general, any combination of network types may be provided” before discussing network combinations including EDGE, 3G, 4G, and WiMax among others. Ex. 1001, 9:10-46.

79. Chang likewise considers network strength and uplink / downlink bandwidth rates in determining which networks to use for downloading digital assets. Ex. 1004, 11:53-57 (“An automatic download can, for example, be initiated when an electronic device initiates it and/or one or more delivery conditions are met (e.g., network type or bandwidth is appropriate for download).”). Chang further discloses that the automatic download configuration generator can evaluate which network type to use (e.g., cellular vs. Wi-Fi) based in part on the connectivity or bandwidth associated with that network type. Ex. 1004, 13:12-16 (“It should be noted that user input and/or preferences 810 as well as other criteria 812 (e.g., network type, connectivity and/or bandwidth) can also be considered by the automatic download configuration generator 800 in generating an automatic download configuration UI.”).

80. It would have been obvious to a POSITA that Chang’s requirement that the automatic download be completed over a Wi-Fi network rather than a cellular network is because the Wi-Fi network is viewed as advantageous or more capable in some way. Ex. 1004, 13:41-56. At the time of the ’196 Patent, it was known to a POSITA that Wi-Fi networks could have greater uplink or downlink rates than available cellular networks. *See* Ex. 1009 at 166. For example, at the time of the ’196 Patent, Wi-Fi networks could support data transmission rates up to 54 MB per second, whereas data transmission rates for 3G cellular networks could not exceed

2 MB per second. Ex. 1009 at 166. Therefore, a POSITA would have understood that Wi-Fi networks could be seen as more capable than available cellular networks in certain conditions. Ex. 1009 at 166. A POSITA would have further understood that, in addition to being seen as more capable than cellular networks for this type of activity, Wi-Fi networks would also have been preferable from a consumer's perspective. At the time of Chang (and subsequently, the '196 patent), most cellular customers (*i.e.*, end users of the mobile devices) did not have unlimited data plans, even though some carriers offered them. Instead, most cellular customers still paid for data on a per-byte basis, which would often include additional charges when customers exceeded data caps. And even customers with unlimited data plans would prefer the ability to defer updates until the device was on Wi-Fi, as unlimited plans at the time of Chang often imposed slower data rates when users exceeded certain limits.

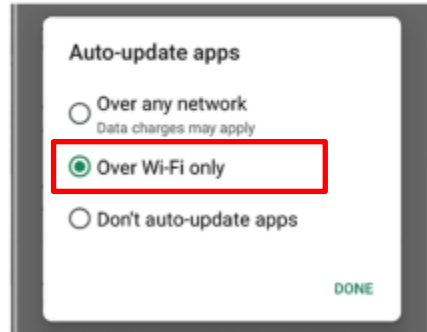
81. It is also notable that Patent Owner agrees that deferring data updates while on a cellular network until a mobile device is on a Wi-Fi network meets the requirements of element [23.3]. *Compare* Patent Owner's Infringement Contentions, Ex. 1008 at 19-30, with Ex. 1004, Fig. 9.

Patent Owner's Infringement Contentions (Ex. 1008), 20 (annotated).

Turn On Auto Update in Play Store

Let the Play Store take care of updates automatically so you don't have to worry about it.

1. Open the **Play Store**, and then tap your profile picture.
2. Tap **Settings**, and then tap **Network preferences**.
3. Tap **Auto-update apps**, and then select your desired setting.



Chang (Ex. 1004), Fig. 9 (annotated).



FIG. 9

82. Because Patent Owner makes identical assertions regarding limiting automatic updating of applications to Wi-Fi only scenarios as being within the scope of claim element [23.3], it is obvious that Chang, through its disclosure of Wi-Fi only automatic downloads, likewise discloses sending updates with a second “more capable” network. Thus, Chang renders obvious transmitting a data update request in response to coverage by a second network, wherein the second network is a more capable network than the first network.

5. [23.4] receiving, during the second coverage configuration, a data update.

83. Chang renders obvious “receiving, during the second coverage configuration, a data update.” Specifically, Chang discloses that the automatic download feature can be set to only allow automatic downloads over a Wi-Fi network, which can be considered a second network (with a cellular network being the first network). Ex. 1004, 13:41-56, Fig. 9. Chang further discloses that the digital asset is received by the electronic device, and then can be post processed “once it is determined (724) that the download has been completed.” Ex. 1004, 12:43-45. As discussed above in § VIII.A.1, the digital assets sent and received in Chang comprise the data updates sent and received in the ’196 Patent.

Chang (Ex. 1004), Fig. 7 (annotated).

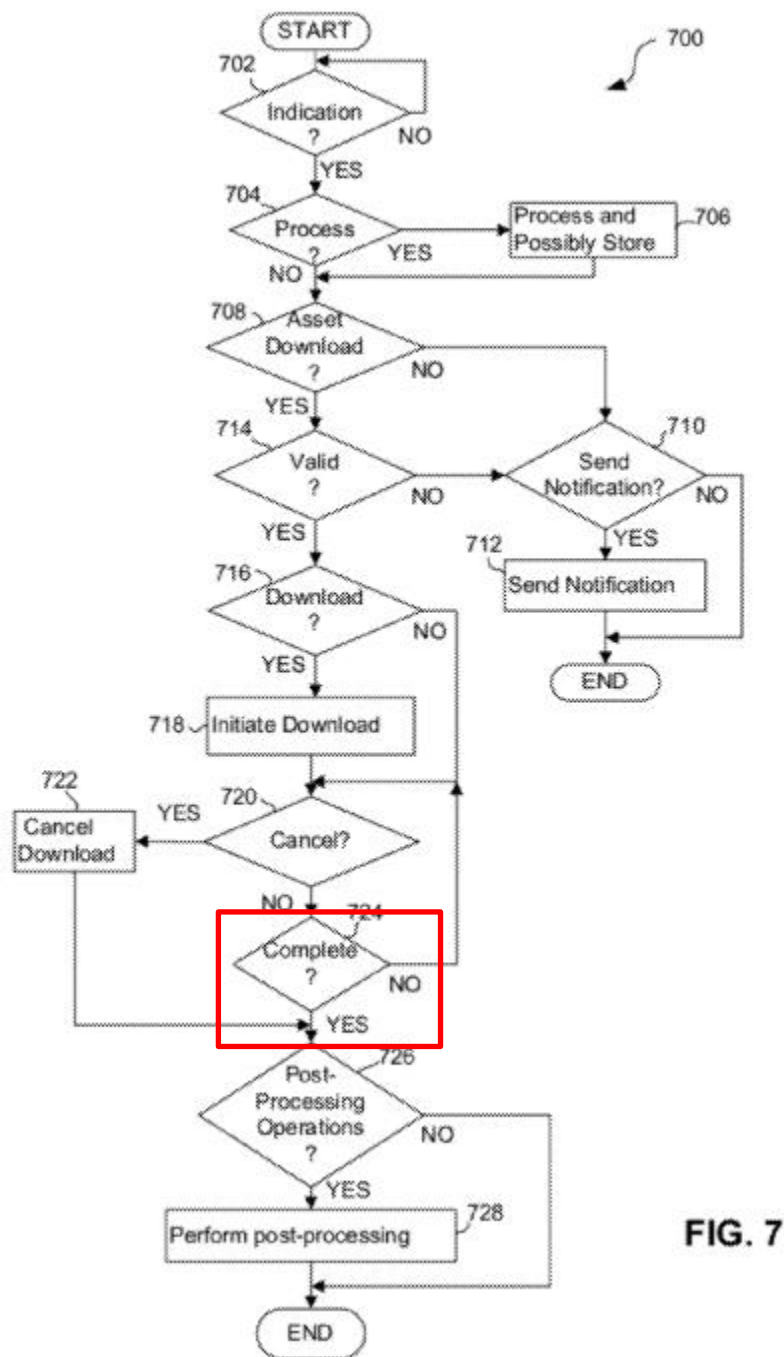


FIG. 7

84. Thus, Chang renders obvious receiving, during the second coverage configuration, a data update.

B. Dependent Claim 24

85. Chang renders obvious “[t]he method of claim 23, wherein the device comprises at least one of a mobile phone, a smartphone, a laptop computer, a netbook device, a tablet device or a personal digital assistant.”

86. Specifically, Chang discloses a method whereby “the online store server 102 can effectively serve as, or provide, a delivery system for delivering digital assets via the network 104 to other devices including, a portable electronic device 106, a portable computer 108, and a desktop computer 110.” Ex. 1004, 5:4-7. Chang further discloses that “a person may own and/or operate several electronic devices with the ability to access online stores, including a desktop computer, a laptop computer, a pad or tablet computer (e.g., iPad™), a smartphone, a media player, a gaming device, a television, and so on.” Ex. 1004, 1:37-41. Chang further discloses that “it will readily be known that an electronic device provided in accordance with one or more embodiments can, for example, be a computing device (e.g., personal computer), *mobile phone* (e.g., cellular phone), *personal digital assistant* (PDA), media player (e.g., music, videos, games, images), media storage device, camera, and/or the like.” Ex. 1004, 15:25-35 (*emphasis added*). Therefore, Chang renders obvious that the electronic device of the disclosed method comprises at least one of a mobile phone, a smartphone, a laptop computer, a netbook device, a tablet device or a personal digital assistant.

C. Dependent Claim 25

87. Chang renders obvious “[t]he method of claim 23, wherein the update sequence further comprises: batching the deferred data updates for the device.”

88. Chang expressly discloses the ability to defer automatic downloads based on several criteria, including network type, connectivity, and bandwidth. Ex. 1004, 11:53-57, 13:12-16, 13:41-56. For each of the disclosures regarding deferred automatic downloads, it would have been obvious to a POSITA that requests for automatic download of multiple applications can be received when the criteria for sending is not met, resulting in the multiple automatic downloads being held back together. Ex. 1004, 13:57-63 (“an online store server can effectively put the digital asset in the queue for delivery for all the electronic devices registered to the user with the appropriate settings for the automatic download selected.”). It would have been obvious to a POSITA that in these scenarios once the criteria or setting for sending is finally met, the multiple deferred automatic downloads would be sent all at once in a single batch to the electronic device.

89. Chang further discloses that evaluating when to deliver the digital asset can “include determining an appropriate type, version and/or format to be delivered to a particular electronic device, sending a push notification to an electronic device, storing the appropriate digital asset in a delivery queue for delivery at an appropriate time (e.g., when one or more network conditions are met).” Ex. 1004, 11:35-42.

Chang further discloses that the delivery queue can contain digital assets that have accumulated over several weeks or months. Ex. 1004, 14:46-55. A POSITA would have understood the “queue” of Chang to be a First-In-First-Out (“FIFO”) data structure whereby several digital assets could be accumulated. It would have been obvious to a POSITA that once the delivery criteria for the accumulated digital assets in the delivery queue are met, they will all be sent at once, starting with the oldest automatic download request and proceeding until the most recent automatic download request has been sent. Ex. 1004, 11:35-42.

90. Chang further discloses that in one embodiment, automatic downloads can be deferred, for example when available download speeds are low. Ex. 1004, 11:53-57 (“An automatic download can, for example, be initiated when an electronic device initiates it and/or one or more delivery conditions are met (e.g., network type or bandwidth is appropriate for download).”). In this embodiment, even when the network is the correct type, the bandwidth at a given time or location might not be favorable, such that the download may be delayed until transmission conditions are better. *Id.* For example, if multiple automatic downloads are requested and placed in the delivery queue while the download speeds are below a predetermined threshold, they will all be held back until the electronic device is accessible via the required network type *at or above* the specified minimum bandwidth. *Id.* It would have been obvious to a POSITA that once those two criteria are met, the undelivered automatic

updates in the delivery queue would be sent to the electronic device all at once in a single batch.

91. Similarly, Chang discloses that an automatic download can be delayed until a user is on a Wi-Fi network. Ex. 1004, 13:41-56. In these scenarios, all received automatic download requests would be held back until the user is on the appropriate Wi-Fi network. It would have been obvious to a POSITA that once the user is on the Wi-Fi network, all automatic downloads that had been deferred would be sent at once.

92. Therefore, Chang discloses multiple criteria for deferring automatic downloads, and it would have been obvious to a POSITA that all deferred automatic downloads would be sent at the same time once the criteria is fulfilled. Thus, Chang renders obvious “[t]he method of claim 23, wherein the update sequence further comprises: batching the deferred data updates for the device.”

D. Dependent Claim 26

93. Chang renders obvious “[t]he method of claim 23, wherein the data update includes at least one of an email update, an Really Simple Syndication (RSS) feed update, a social networking update, a software update, a map update, or a gaming update.”

94. Specifically, Chang discloses that the “digital assets” used in the described method comprise “various types of media related items (e.g., musical

albums, songs, movies, audio, video, textual content, books) as well as various *application programs* (“*applications*”) that can be provided for electronic devices (e.g., productivity products, *games*, *computer applications* for computing devices).” Ex. 1004, 4:53-58 (*emphasis added*). Chang further discloses that digital assets can include games or computing applications for computing devices. *Id.*

95. As noted above in § VIII.A.1, both Chang and the ’196 Patent disclose transmitting data related to applications along with relating to applications generally. See § VIII.A.1. A POSITA would have understood that Chang’s digital assets and the ’196 Patent’s data updates both relate to applications and describe data to be sent to a mobile device. Ex. 1001, 11:4-7; Ex. 1008 at 3-7; Ex. 1004, 1:23-24, 4:53-58. Chang also explicitly discloses checking the required version of an application prior to transmitting the digital asset or application update, so that “a new or revised version of an asset can be effectively automatically downloaded if available at the time the download takes place.” Ex. 1004, 14:52-55. Therefore, Chang discloses evaluating the current version of a digital asset to be transmitted, and if applicable sending a “new or revised version” of the digital asset. A POSITA would have understood this disclosure to comprise updated versions of each digital asset. *Id.*

96. This interpretation is in keeping with Patent Owner’s infringement contentions that software updates and gaming updates meet the “data updates” element of claim [23] (and dependent claim [26]). Ex. 1004, 11:35-44, 14:52-60; Ex.

1008 at 3-7. Chang likewise expressly discloses these same software updates and data updates. Ex. 1008 at 44-48; Ex. 1004, 11:35-44, 14:52-60, 4:53-58 (digital assets can include “various application programs (‘applications’) that can be provided for electronic devices (e.g., productivity products, games, computer applications for computing devices).”).

97. Chang expressly discloses determining the most recent version of an application and replacing an older version that is to be downloaded with the newest version. *See supra* § VIII.A.1; Ex-1004, 11:35-44, 11:52-55. Chang further discloses automatically downloading applications where “a new or revised version of an asset can be effectively automatically downloaded.” Ex. 1004, 14:52-55. Chang also requires the server to verify that the appropriate version of the digital asset is sent. Ex. 1004, 11:35-44. Thus, the sending of applications expressly disclosed in Chang applies to both applications and updated versions of applications. *See supra* § VIII.A.1, Ex. 1001, 11:4-7; Ex. 1008 at 44-48; Ex. 1004, 1:23-24, 4:53-58.

98. It would have been obvious to a POSITA that determining the most up-to-date version of games or computer applications and sending the most recent version would apply not only to newly purchased digital assets, but previously purchased digital assets as well. Therefore, Chang renders obvious “[t]he method of claim 23, wherein the data update includes at least one of an email update, an Really

Simple Syndication (RSS) feed update, a social networking update, a software update, a map update, or a gaming update.”

E. Dependent Claim 27

99. Chang renders obvious “[t]he method of claim 23, wherein the first network and the second network comprise at least one of the following: the first network is a Third Generation Mobile (3G) network and the second network is an Enhanced Data Rates for Global Evolution (EDGE) network, the first network is a Fourth Generation Mobile (4G) network and the second network is an Enhanced Data Rates for Global Evolution (EDGE) network, the first network is a Long Term Evolution (LTE) network and the second network is an Enhanced Data Rates for Global Evolution (EDGE) network, the first network is an Evolution-Data Optimized (EV-DO) network and the second network is a Code Division Multiple Access (CDMA) network, the first network is a Fourth Generation Mobile (4G) network and the second network is a Third Generation Mobile (3G) network, the first network is a data network and the second network is a voice network, or the first network is a data network and the second network is a mixed voice and data network.”

100. On its face, there are significant problems with the language of dependent claim related to the order and dependency of the identified first and

second network pairs [27].⁵ For example, claim [27] depends from independent claim [23], which requires the second network to be “more capable” than the first network. Ex. 1001, cls. 23, 27. The ’196 Patent’s specification also provides a nearly identical list of network pairs as disclosed in dependent claim [27], except the ordered pairs are inverted where the specification lists the more capable network as the first network, while the claim language requires the second network to be the more capable network. *Compare* Ex. 1001, cl. 27 with Ex. 1001, 9:9-46. Nevertheless, since the prior art discloses an example coextensive with an example in Patent Owner’s infringement contentions (e.g., Wi-Fi and cellular networks), the prior art discloses this limitation.

101. Disregarding the identified claim language issues, Chang discloses that an automatic download option is provided to the user “to effectively allow the user to select whether the automatic downloads should take place via a cellular network (which may have a data transfer fee). If the selectable option is set to ‘off’, then automatic download will only occur when the electronic device is connected to a Wi-Fi connection.” Ex. 1004, 13:41-56, Fig. 9.

⁵ I understand Petitioners have taken no position with respect to § 112 issues in this proceeding..

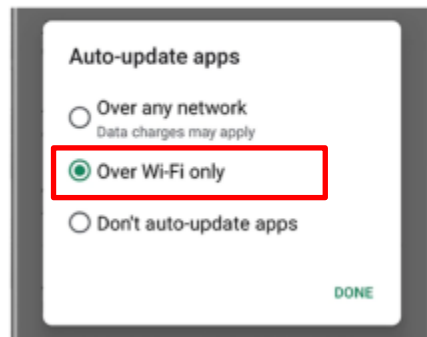
102. As noted above in § VIII.A.4, Patent Owner asserts in its district court infringement contentions that deferring data updates while on a cellular network until a mobile device is on a Wi-Fi network discloses the requirements of claim element [23.3] related to the second network being more capable than the first network. *Compare* Ex. 1008 at 25-30, with Ex. 1004, Fig. 9.

Patent Owner's Infringement Contentions (Ex. 1008) at 26 (annotated).

Turn On Auto Update in Play Store

Let the Play Store take care of updates automatically so you don't have to worry about it.

1. Open the **Play Store**, and then tap your profile picture.
2. Tap **Settings**, and then tap **Network preferences**.
3. Tap **Auto-update apps**, and then select your desired setting.



Chang (Ex. 1004), Fig. 9 (annotated).



FIG. 9

103. In its infringement contentions Patent Owner has asserted that “Each Accused Product first network is a data network and the second network is a mixed voice and data network.” Ex. 1008 at 49. The exact same configuration outlined in Patent Owner’s infringement contentions related to a first network being a cellular network, and second network being a Wi-Fi network is disclosed in Chang. Because Patent Owner makes assertions in its infringement contentions regarding Wi-Fi only downloads include a cellular network being a data network and a Wi-Fi network being a mixed voice and data network, it is obvious that Chang, through its identical disclosure of Wi-Fi only automatic downloads, likewise discloses a first network

being a data network and a second network being a mixed voice and data network.

Thus, Chang renders obvious the elements of dependent claim [27].

IX. ANALYSIS OF CHANG PROVISIONAL

104. Below is a chart showing where in the disclosure of provisional application No. 61/451,057 there is support for Claim 1 in Chang:

Chang Claim 1	Prov. App. 61/451,057
[1a] A method comprising: detecting, by a processor of a server device corresponding to an online store, that a first digital asset has been acquired from the online store by an acquisition device associated with a first user account;	[0039]: By way of example, the auto download detection component 410 can detect that a digital asset has been purchased or is to be purchased via an electronic device associated with a user. In the example, if this is the first purchase made by the user and/or first purchase made via the electronic device, the configuration manager 402 can be activated to generate an initial UI component to be displayed to the electronic device used to purchase the asset and/or a number of other electronic devices that are associated with the user. <i>See also</i> , [0025], [0028]-[0035], [0039]-[0041], Fig. 3, Fig. 4, Fig. 5, Fig. 6.
[1b] arranging, by the processor, delivery of the first digital asset to the acquiring device by the online store;	[0025]: In accordance with one aspect, when a digital asset is acquired from an online store via an electronic device associated with a user, the digital asset can be arranged for delivery to a number of other of electronic devices also associated with the user. It will be appreciated that the digital asset can be delivered and acquired without requiring explicit user input or instruction in accordance with another aspect. By way of example, an electronic device can be configured to automatically download a digital asset when it receives a notification (e.g., a push notification) directly or indirectly via an online store server. <i>See also</i> , [0025], [0028]-[0035], [0039]-[0041], Fig. 3, Fig. 4, Fig. 5, Fig. 6.
[1c] determining, by the processor, that a second electronic device, other than the acquisition device, is associated with the first user account;	[0040]: By way of example, when purchase of a digital asset from an online store via an acquisition device is detected by the automatic download detection component 410, the auto download manager 408 can determine at least partly based on device, user registration data, and auto download configuration data stored in the auto download data storage 406, whether the digital asset and/or another digital asset (e.g., a similar digital asset, an additional bonus asset) is to be automatically downloaded to one or more electronic devices other than the acquisition device registered to the user. If so, a content selection/determination component 414 can determine and/or select the content to be automatically downloaded based on one more criteria (e.g., a device capability, a network parameter). <i>See also</i> , [0025], [0028]-[0035], [0039]-[0041], Fig. 3, Fig. 4, Fig. 5, Fig. 6.
[1d] receiving, by the processor, automatic download options data for the second electronic device indicating user selected media types that should be	[0048]: Subsequently, it can be determined (610) whether automatic download configuration data is needed. Automatic download configuration data can, for example, represent preferences of a user with respect to automatically downloading. The download configuration data can pertain to particular types of digital assets for various devices that have been registered to the user. Although not shown in FIG. 6, it should be noted that authentication of the

automatically downloaded to the second electronic device;	user can also be performed during the configuration process. In any case, if it is determined (610) that configuration data is needed, the method 500 can effectively wait (612) for data to be received. [0049]: If it is determined (616) based on the download configuration data whether the digital asset is to be delivered to at least one electronic device other than the acquisition device, the digital asset is arranged (618) for automatic download to at least one electronic device other than the acquisition device. Arranging (618) the digital asset for delivery can, for example, include determining an appropriate type, version and/or format to be delivered to a particular electronic device, sending a push notification to an electronic device, storing the appropriate digital asset in a delivery queue for delivery at an appropriate time (e.g., when one or more network conditions are met), and/or recording automatic download data for a particular user and/or device. [0056]: To elaborate even further, FIG. 9 depicts an exemplary automatic configuration UI in form of a window 900 suitable for display on various electronic devices. Referring to FIG. 9, automatic download options (or switches) for assets purchased for a fee (or acquired for free) are provided in the window 900. It should be noted that automatic download options of window 900 can be provided based on asset types that may be applicable to a particular electronic device. As such, "Music," "Apps," and "Books" can be presented as selectable options in window 900 to the user. However, it should be noted that if an electronic device, for example, does not have the ability to use "Apps" or "Books," then only a "Music" option may be displayed for that electronic device. Alternatively, more media types (e.g., movies) may be disabled as selectable options if applicable. <i>See also</i>, [0037]-[0039], [0047]-[0050], [0055]-[0058], Fig. 4, Fig. 5, Fig. 6, Fig. 9.
[1e] based on the automatic download options data for the second electronic device, determining, by the processor, that the first digital asset corresponds to a media type that should be automatically downloaded to the second electronic device;	[0049]: If it is determined (616) based on the download configuration data whether the digital asset is to be delivered to at least one electronic device other than the acquisition device, the digital asset is arranged (618) for automatic download to at least one electronic device other than the acquisition device. Arranging (618) the digital asset for delivery can, for example, include determining an appropriate type, version and/or format to be delivered to a particular electronic device, sending a push notification to an electronic device, storing the appropriate digital asset in a delivery queue for delivery at an appropriate time (e.g., when one or more network conditions are met), and/or recording automatic download data for a particular user and/or device. [0056]: To elaborate even further, FIG. 9 depicts an exemplary automatic configuration UI in form of a window 900 suitable for display on various electronic devices. Referring to FIG. 9, automatic download options (or switches) for assets purchased for a fee (or acquired for free) are provided in the window 900. It should be noted that automatic download options of window 900 can be provided based on asset types that may be applicable to a particular electronic device. As such, "Music," "Apps," and "Books" can be presented as selectable options in window 900 to the user. However, it should be noted that if an electronic device, for example, does not have the ability to use "Apps" or "Books," then only a "Music" option may be displayed for that electronic device. Alternatively, more media types (e.g., movies) may be disabled as selectable options if applicable.

	<i>See also</i>, [0037]-[0039], [0047]-[0050], [0055]-[0058], Fig. 4, Fig. 5, Fig. 6, Fig. 9.
[1f] arranging, by the processor, based on the determination, delivery of the first digital asset to the second electronic device by the online store when the first digital asset corresponds to a media type that the automatic download options data indicates should be automatically downloaded to the second electronic device; and	[0049]: If it is determined (616) based on the download configuration data whether the digital asset is to be delivered to at least one electronic device other than the acquisition device, the digital asset is arranged (618) for automatic download to at least one electronic device other than the acquisition device. Arranging (618) the digital asset for delivery can, for example, include determining an appropriate type, version and/or format to be delivered to a particular electronic device, sending a push notification to an electronic device, storing the appropriate digital asset in a delivery queue for delivery at an appropriate time (e.g., when one or more network conditions are met), and/or recording automatic download data for a particular user and/or device. [0056]: To elaborate even further, FIG. 9 depicts an exemplary automatic configuration UI in form of a window 900 suitable for display on various electronic devices. Referring to FIG. 9, automatic download options (or switches) for assets purchased for a fee (or acquired for free) are provided in the window 900. It should be noted that automatic download options of window 900 can be provided based on asset types that may be applicable to a particular electronic device. As such, "Music," "Apps," and "Books" can be presented as selectable options in window 900 to the user. However, it should be noted that if an electronic device, for example, does not have the ability to use "Apps" or "Books," then only a "Music" option may be displayed for that electronic device. Alternatively, more media types (e.g., movies) may be disabled as selectable options if applicable. <i>See also</i>, [0037]-[0039], [0047]-[0050], [0055]-[0058], Fig. 4, Fig. 5, Fig. 6, Fig. 9.
[1g] preventing the second device from downloading the first digital asset when the first digital asset is a media type that the automatic download options data indicates should not be automatically downloaded to the second electronic device.	[0058]: As noted above, automatic download configuration can be presented as one or more selectable options or switches that can be enabled or disabled. The selectable options and switches for allowing automatic download may initially (or as a default option) be turned off so as not to allow automatic download. Fig. 9:

	 <i>See also, [0037]-[0039], [0047]-[0050], [0055]-[0058], Fig. 4, Fig. 5, Fig. 6, Fig. 9.</i>
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105. In addition, the provisional application of Chang is identical to the specification of Chang relied upon as prior art, therefore the portions of Chang I identify in Section VIII were in the provisional application.

X. CONCLUSION

106. I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare 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 the Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this proceeding.

Executed on December 18, 2023 by:

A handwritten signature in black ink, appearing to read "James A. Proctor", written over a horizontal line.

James A. Proctor

XI. CLAIM LISTING

Cl. No.	Elem.	Claim Language
23	[23.0]	A method for a device to receive data updates comprising:
	[23.1]	cycling over time through an update sequence that includes:
	[23.2]	deferring, during coverage by a first network, data updates for the device;
	[23.3]	transmitting a data update request in response to coverage by a second network, wherein the second network is a more capable network than the first network; and
	[23.4]	receiving, during the second coverage configuration, a data update.
24	[24]	The method of claim 23, wherein the device comprises at least one of a mobile phone, a smartphone, a laptop computer, a netbook device, a tablet device or a personal digital assistant.
25	[25]	The method of claim 23, wherein the update sequence further comprises: batching the deferred data updates for the device.
26	[26]	The method of claim 23, wherein the data update includes at least one of an email update, an Really Simple Syndication (RSS) feed update, a social networking update, a software update, a map update, or a gaming update.
27	[27]	The method of claim 23, wherein the first network and the second network comprise at least one of the following: the first network is a Third Generation Mobile (3G) network and the second network is an Enhanced Data Rates for Global Evolution (EDGE) network, the first network is a Fourth Generation Mobile (4G) network and the second network is an Enhanced Data Rates for Global Evolution (EDGE) network, the first network is a Long Term Evolution (LTE) network and the second network is an Enhanced Data Rates for Global Evolution (EDGE) network, the first network is an Evolution-Data Optimized (EV-DO) network and the second network is a Code Division Multiple Access (CDMA) network, the first network is a Fourth Generation Mobile (4G) network and the second network is a Third Generation Mobile (3G) network, the first network is a data network and the second network is a voice network, or the first network is a data network and the second network is a mixed voice and data network.

James A. Proctor Jr.

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EDUCATION

Georgia Institute of Technology, Atlanta, Georgia M.S. Electrical Engineering
Graduated: September 1992
Interests: Digital Signal Processing, Communications, Optics

The University of Florida, Gainesville, Florida B.S. Electrical Engineering
Graduated: May 1991
Minor Studies: Business
Honors & Activities: PI ETA SIGMA Honor Society
ALPHA LAMBDA DELTA Freshman Honor Society
ETA KAPPA NU National Electrical Engineering Fraternity

Skills & Achievements

- Successfully led Qualcomm / WiDeFi integration efforts resulting in a new product effort within Qualcomm related to the 3G/4G Market
- Co-founded WiDeFi and successfully raised >\$14M of venture funding
- Generated intellectual property and product strategy leading to the acquisition of two companies (WiDeFi, and Tantivy Communications), contributing to > \$100M of revenue
- Performed extensive customer and industry business development to provide support for innovative product definition, requirement definition, and customer support for business plan and forecasts (Qualcomm, WiDeFi, and Tantivy Communications)
- Led and coached many R&D teams to refine and de-risk innovative wireless concepts
- Led cross functional product teams to deliver high volume ready prototypes
- Ability to balance market, programmatic, and technical concerns and refine clear strategy and actionable plans
- Generated >320 issued US Patents Currently and >700 international patent publications
- Have spoken at numerous public events: industry, venture, and technical
- Strong communication and technical skills

Work Experience

Proctor Consulting, LLC **December 2008 - Present**

- Early stage market and technology strategy
 - o Interim CTO/Team Member, business development/validation
 - o Roadmap / IP development
 - o Advisory Board Member
- Technical / Market Consultant
 - o Fastback Networks, Audigence, Peregrine Semiconductor
- Intellectual property portfolio analysis within the communications market space
 - o Market / Product Applicability, Claims Chart Development and Analysis, Valuation
 - o Expert Witness Consulting in Wireless Communications (WiFi, 2G-GSM, 3G-C2K/WCDMA, 4G/LTE and associated networks)

Proximcom Wireless. Co-Founder, Managing Director **November 2011 – Present**

- Proximity based mobile technology utilizing a centralized trusted third party
- Development of foundational Intellectual Property (12+ US Patents)
- Enabling technology applicable to a variety of proximity based applications including highly secure: Mobile Payments, Electronic Coupons and Loyalty, Rating and Reviews, Social Commerce

Qualcomm Inc., Principal Engineer (Consulting)**October 2007 - October 2009**

- Technical and Business development leadership of a consumer level 3G wireless repeater product concept based upon WiDeFi's technology during the integration
- Provided technical leadership in architecture development
 - o Defined initial architecture approach for the wireless repeater concept based upon WiDeFi's technology
 - o Worked with technical team to refine approach and achieve "key proof points"
- Performed Business Development with International Wireless Operators
 - o Worked closely with business development from ESG and QCT divisions
 - o Developed bottoms up forecast with the top international wireless operators for consumer repeater products.
 - o Refined product features to meet carrier's requirements
- Market Analysis to estimate Market Size and Competitive Landscape
- Named inventor on 44+ Issued or pending patents for Qualcomm on wireless repeater concepts

WiDeFi, Inc., EVP/CTO, and Co-Founder, Director**August 2005 - October 2007**

- Focused on aligning WiDeFi's technology and product roadmaps to customer and market drivers
 - o Strategic and Technical Marketing, Product Definition
 - o Market Analysis to estimate Market Size and Competitive Landscape
 - o Collaborated with customers and internal team to define and pursue product/customer opportunities (Retail Wi-Fi, Mesh Repeater, VoiP over Wi-Fi Repeater, Cellular Repeaters, Wi-Max Repeaters, In-Building Distribution Systems)
 - o Customer Development from initial contact, joint testing, first purchase order, to new product introduction
 - o Contributed to and managed WiDeFi's IP portfolio
 - o Pursued fund raising from corporate and venture capital communities

WiDeFi, Inc., President, CEO, and Co-Founder, Director**July 2002 - August 2005**

- Led WiDeFi from inception to the recruitment of an expansion-stage CEO.
- Principal duties:
 - o Direct Fundraising of initial seed and Series A Venture Capital
 - o General Management (Finance, Business Administration, Legal/Contracts and Organizational Development/Recruiting)
 - o Coordination of Board of Directors and Investors
 - o Sales (WiDeFi was Cash Flow positive prior to venture investment)

Tantivy Communications**April 1998 - June 2002****Director of Strategic and Technical Marketing**

- Business Development/Technical Due Diligence
- Represented Tantivy in a wide range of Wireless Broad Band Industry Conferences
- Intellectual Property Management and Strategy
 - o Represented Tantivy's Patents and their value to External Companies
 - o Performed Validity, Infringement, and Value Analysis of Tantivy Patents for non-Tantivy products
- Industry Standards Representation for 3G Technologies
 - o TIA/3GPP2, Over 15 Technical Contributions/Papers
 - o T1P1 (3GPP Member)
- Project Management of an International Technology Transfer Team (S Korea)
- Performed System Architecture and Analysis

Spectrian, Advanced Development and Technical Marketing**1995 - April 1998**

- Interfaced with NORTEL/Qualcomm's Product Management
- Performed Advanced Technology Development/Systems Analysis

**Harris Corp. GCSD,
Senior Engineer Signal Processing Section, Modems Group**

September 1992 - 1995

Georgia Tech Research Institute, CSITL

June 1991 - August 1992

Harris Corp.. ISD, Electro-optics, Co-op

May 1990 - August 1990

- Acousto-optic signal processing

Standards Development

- Participated in architecting "Internet CDMA" (I-CDMA)
- Jointly led establishment of the Committee T1, working group T1P1.4 "WWINA" standardization effort, which stands for "Wireless Wideband Internet Access"
 - o T1 Approved this system as the T1.723-2002 standard
- ATIS approved as **ATIS0700723-2002 I-CDMA Spread Spectrum Systems Air Interface Standard**
- Participated in 3GPP2 Standards Developments (including 15+ technical contributions)

Intellectual Property

- More than 320 Issued U.S. Patents
- More than 700 Issued or Pending International Patent Applications (WIPO)
- Patents Cited at the USPTO more than 6000 times
- 55+ Patents Assigned to Intel
- 45+ Patents Assigned to Qualcomm
- 16+ Patents designated as "Standards Essential" for UMTS (WCDMA)
- 6+ Patents designated as "Standards Essential" for LTE

Testifying Expert Experience

SPH Am., LLC v. Acer, Inc., 09CV02535-CAB MDD, 2012 WL 1344515 (S.D. Cal. Apr. 18, 2012).

Testifying Expert offering opinions on validity for the defense. The technology related to WCDMA modulation techniques. Resulted in settlement prior to trial.

WI-LAN USA, INC. and WI-LAN INC. v. ELEFONAKTIEBOLAGET LM ERICSSON and ERICSSON INC., Case No. 1:12-23569-Civ (S.D. FL)

Testifying expert offering opinions on infringement for the defense. The technology involved LTE "contention free" handover (CFRA), and Media Access Control (MAC) layer messaging for Quality of Service (QOS). Resulted in a summary judgement finding of non-infringement for the defense, and settlement after appeal.

U.S. ETHERNET INNOVATIONS, LLC. V. STMICROELECTRONICS, INC., Civil Action No. 6:12-cv-4181-MHS-JDL

Testifying expert offering opinions on both validity and infringement for the defense. The technology related to Ethernet devices. Resulted in settlement prior to trial.

UNWIRED PLANET. V. SQUARE, INC.,

Case No. 3:13-CV-00579-RCJ-WGC, DISTRICT OF NEVADA,
Case CBM2014-00156, Case IPR2014-01164, Case IPR2014-01165, UNITED STATES PATENT TRIAL AND APPEAL BOARD,

Provided testimony related to claim construction, and validity for the defense. The technology was related to location based services (LBS). The case resulted in a finding by the Patent Trial and Appeal Board of unpatentability of all asserted claims.

PRISM TECHNOLOGIES LLC. V. T-MOBILE USA, INC., Case No. 12-CV-124

Testifying expert at trial, and deposition offering opinions on both validity and infringement for the defense. The technology was related to SIM/USIM/ISIM based authentication in UMTS, LTE, and IMS networks. The case resulted in a jury verdict of non-infringement.

FASTVDO LLC. V. AT&T Mobility LLC, AT&T Services, Inc., and Apple Inc.,
Case No. 3:16-cv-00385-H-WVG

Engaged by Apple as the testifying expert offering opinions on infringement for the defense. The technology was related to Forward Error Correction (FEC) and voice codecs in GSM and WCDMA standards, including detailed FEC performance simulations. The case was concluded based upon an IPR outcome finding unpatentable subject matter by the PTAB.

BLACKBERRY LIMITED V. BLU PRODUCTS, INC.,
Case No.: 16-23535-CIV-MORENO

Engaged by Blackberry as the testifying expert offering opinions on infringement for the plaintiff. The technology involved WCDMA and battery saving techniques in Radio Resource Control (RRC) states. The case was settled between the parties prior to trial.

CELLULAR COMMUNICATIONS EQUIPMENT LLC V. AT&T Inc., and Apple Inc.
Case No.: 2:15-cv-00576-RWS-RSP

Engaged engaged by Apple as the testifying expert offering opinions on validity and benefits of the alleged inventions for the defense. The technology involved Media Access Control (MAC) messaging for LTE (Power Headroom Reporting) and LTE Advanced (CSI reporting for Carrier Aggregation). The case resulted in summary judgement for the defense.

GENERAL ACCESS SOLUTIONS, LTD. v. Sprint Corporation et al.
Civil Action No. 2:16-cv- 00465 (E.D. Tex.) and PTAB Proceedings (IPR2017-01885 (Patent 7,173,916 B2) IPR2017-01887 (Patent 6,891,810 B2) IPR2017-01889 (Patent 7,230,931 B2),

Engaged by Sprint to provide expert testimony relating to claim construction, and validity for the defense before the Patent Trial and Appeal Board (PTAB) relating to an Inter Partes Review petition, providing multiple expert declarations, and deposition testimony. The technology related to Adaptive Modulation and Coding (AMC) in a wireless system; Adaptive Beamforming, Sectorization, and Multi-Input Multi-Output (MIMO). All trials were instituted by the PTAB Board, with a finding of all petitioned claims unpatentable for two of the three patents.

TC TECHNOLOGY LLC. V., Sprint Corporation and Sprint Spectrum, L.P
Case 1:16-cv-00153-RGA

Engaged by Sprint to provide expert testimony relating to validity and infringement by the defense, in the district of Delaware. The technology related to OFDMA and SC-FDMA use in the LTE uplink, for multiplexing transmissions from different UEs utilizing mutually exclusive OFDM subcarriers. The matter was resolved.

Mobility Workx, LLC v T-Mobile US, Inc.
Civil Action No. 4:17-cv-00567-ALM

Retained by the defendant, and provided declarations and deposition for claim construction, engaged for both invalidity and non-infringement analysis and testimony. This matter relates to LTE handover, and Mobile IP. The case was settled between the parties prior to trial.

Mobility Workx, LLC v Cellco Partnership d/b/a Verizon Wireless

Case No. 4:17-cv-872-ALM

Retained by the defendant, engaged for both invalidity and non-infringement analysis and testimony. This matter relates to LTE handover, and Mobile IP. The case further related to 3GPP compliance testing techniques. This matter was resolved during trial preparation.

Uniloc USA, Inc., et al. v. Apple Inc.

No. 18-cv-158 and 18-cv-161, engaged by Apple as a technical and testifying expert. This matter relates to Quality of Service aspect of 3G UMTS (WCDMA), and the request and allocation of uplink resources in LTE. The matter was stayed, pending result of PTAB IPR Trial.

Wi-LAN v. LG.

Case No. Case No.: 3:18-cv-01577-H-BGS

Engaged by LG as a technical and testifying expert. The technology involved LTE “contention free” handover (CFRA), Media Access Control (MAC) layer messaging for bandwidth management and Quality of Service (QOS). This matter was resolved.

Fractus, S.A. v. Sprint Communications Company, L.P. et al.

Civil Action No. 2:18-cv-00135 (E.D. Tex.), Engaged by Sprint and Verizon Wireless as a technical and testifying expert for invalidity. The technology involved design aspects of antenna element placement in multiband antenna arrays for use at cellular base stations. This matter was resolved.

Wilson Electronics, LLC v. Cellphone-Mate, Inc. dba SureCall.

Case No. 2:17-cv- 00305-DB (District of Utah)

Retained by the Wilson Electronics, and engaged for both invalidity and non-infringement analysis and testimony in both district court and in ITU proceedings. This matter relates to cellular multi-band wireless signal boosters / repeaters. This matter was resolved.

Sol IP, LLC v Joint Defense Group (AT&T, Ericsson, Nokia, Sprint, Verizon)

Civil Action No. 2:18-cv-00526 (E.D. Tex.)

Retained by each of the defendants, and engaged to provide testimony relating to infringement of the asserted claims for 8 of the asserted patents. The subject matter related to random access, paging, resource allocation, and carrier aggregation in LTE. The matter was resolved.

Polaris PowerLED Technologies, LLC v. TCL Corporation, et al., C.D. California Civil Action No.: 8:20-cv-00127-JVS-DFMBGL Ref. No.: 16725-7 and 16725-8

Engaged by TCL and Hisense to provide expert testimony in district court and to provide a declaration as an expert in an Inter Party Review (IPR) proceeding before the U.S Patent Trial and Appeals Board. The subject matter related to power supply circuitry for use in backlight displays and U.S. Pat. No 11,011,752. The IPR was instituted, and the proceedings were terminated following settlement.

SmartSky Networks v. Wireless Systems Solutions, LLC; DAG Wireless Solutions, et al., M.D. North Carolina (Case No. 1:20-cv-00834-NCT-LPA), and related arbitration proceedings

Engaged by SmartSky to provide expert testimony related to a trade secret dispute in district court, and an arbitration proceeding. The technology related to air to ground internet service for aircraft using a proprietary LTE derived system including airborne radios and ground stations allowing for increased range and velocity beyond that which can be provided by standards based LTE systems. The system includes advanced UE and eNodeB architectures, and modified LTE protocols. I provided expert reports and declarations in both district court and arbitration. I further provided live testimony before an arbitration panel. The arbitration panel found in favor of SmartSky, achieving a successful injunction against WSS/DAG.

Dali Wireless v. JMA Wireless, Civil Action 1:99-mc-09999

Engaged by JMA Wireless to provide several declarations as an expert in an Inter Party Review (IPR) proceeding before the U.S Patent Trial and Appeals Board, and further testimony relating to the district court cases. The subject matter related to in-building wireless signal distribution systems utilizing digital network (CPRI / IP packetized) interfaces and as well as LTE eNodeB architectures. This matter was resolved pending expert discovery.

Dali Wireless v. Corning Optical Communications LLC, No. 3:20-cv-06469 (N.D. Cal.) and Dali Wireless, Inc. v. Corning Incorporated et al., No. 6:20-cv-00827 (W.D. Tex.)

Engaged by Corning to provide several declarations as an expert in an Inter Party Review (IPR) proceeding before the U.S Patent Trial and Appeals Board and further testimony relating to the district court cases. The subject matter related to distributed antenna systems for in-building wireless signal distribution as well as intercell frequency reuse and interference management techniques. This matter was resolved pending expert discovery.

Flexiworld Technologies, Inc. v. Amazon.com, Inc., et al., Case No. 6:20-cv-00553-ADA (W.D. Texas), and Case No. 2:21-cv-01055-DGE (W.D. Washington, Tacoma)

Engaged by Amazon to provide testimony for district court matter in the Western District of Texas. The matter related to approaches for mobile devices to utilize Bluetooth to interface with smart speakers and servers, allowing for the request of content to be played by an output device (speaker) based upon specific requests, including in some cases voice requests. This matter was transferred to Western District of Washington, Tacoma Division and remains pending.

WSOU Investments, LLC d/b/a Brazos Licensing and Development v. Huawei Technologies Co., Ltd. et al., 6:20-cv-00544 (W.D. Tex.)

Engaged by Huawei to provide expert testimony in district court. The matter related to LTE protocols and signaling, Hybrid ARQ, and scheduling of retransmissions relative to new transmissions from a UE to an eNodeB. I provided a claim construction declaration, prior to the matter being resolved.

Ericsson, Inc. IPR petition of 7,532,865, (TOT Power Control, S.L. Patent Owner)

Engaged by Ericsson, Inc. to provide a declaration as an expert in an Inter Party Review (IPR) proceeding before the U.S Patent Trial and Appeals Board, relating to US. Pat. No. 7,532,865. The matter involved "outer loop" power control techniques in WCDMA systems or other mobile devices.

Sierra Wireless et al. IPR petition of 7,215,653 (Sisvel, Patent Owner).

Engaged by Sierra Wireless to provide a declaration as an expert in an Inter Party Review (IPR) proceeding before the U.S. Patent Trial and Appeals Board, relating to US. Pat. No. 7,215,653. This matter involved the control of uplink data rates and power control in a CDMA system called 1xEV-DO developed within the 3GPP2 standards, in which I personally participated. The IPR was instituted by the PTAB, and all claims were found unpatentable.

KAIFI LLC v. T-Mobile US, Inc. et al., Case No. 2:20-cv-281-JRG (E.D. Tex.)

Engaged by T-Mobile to provide expert testimony for both (in)validity and (non)infringement for a district court matter in the Eastern District of Texas. The matter involved a mobile device's roaming between an outdoor cellular / LTE networks and an indoor Wi-Fi network. It further included approaches for the LTE core network to perform the selection of transmission paths of VoLTE and VoWiFi signals involving the LTE core (EPC), including the ePDG, and IMS networks. This matter settled.

KAIFI LLC v. Verizon Wireless, et al., Civil Action No. 2:20-cv-00280-JRG (E.D. Tex.)

Engaged by Verizon to provide expert testimony relating to (in)validity for a district court matter in the Eastern District of Texas. The matter involved a mobile device's roaming between an outdoor cellular / LTE networks and an indoor Wi-Fi network. It further included approaches for the LTE core network to perform the selection of transmission paths of VoLTE and VoWiFi signals involving the LTE core (EPC), including the ePDG, and IMS networks. This matter settled.

NEO Wireless, LLC v. DELL Technologies Inc. and DELL Inc., Case No. 6:21-cv-024-ADA (W.D. Tex.)

Engaged by Dell to provide expert testimony relating to claim construction, (in)validity and (non)infringement in the Western District of Texas, Waco Division. The matter involved LTE and 5G devices and standards aspects including signaling aspect associated with: OFDM/OFDMA, resource scheduling and frame structures, random access and ranging, transmit diversity and beamforming signaling. This matter was settled by the parties.

American Patents v. Xerox., Case No. 6:21- cv-636-ADA, (W.D. Tex.)

Engaged by Xerox to provide expert testimony relating to claim construction, (in)validity and (non)infringement in the Western District of Texas, Waco Division. The matter involved IEEE802.11 (WiFi) based systems relating to a number of patents, including Time and frequency synchronization in multi-input, multi-output (MIMO) systems, the assessment and management of interference in 802.11 systems. This matter was resolved.

TurboCode, v. Dell Technologies Inc. and Dell Inc., Case No. Civil Action No. 6:21-cv-359 (W.D. of Tex.)

Engaged by Dell to provide expert testimony relating to claim construction, (in)validity and (non)infringement in the Western District of Texas, Waco Division. The matter involved 3G / WCDMA use and implementations of Turbo Coding in wireless transmission and reception. This matter was settled by the parties.

XR Communications d/b/a Vivato Technologies v. Microsoft Corporation, Case No: 6:21-cv-695 (WDTX)

Engaged by Microsoft to provide expert testimony relating to claim construction, (in)validity and (non)infringement in the Western District of Texas. The matter involved the use of transmit beamforming, channel estimation and diversity techniques in IEEE802.11n, 802.11AC, and 802.11AX systems (WiFi). This matter was settled by the parties.

Finesse Wireless, LLC v. AT&T Mobility LLC; Cellco Partnership d/b/a Verizon Wireless; Nokia of America Corporation; Ericsson Inc., Case No. 2:21-CV-00063-JRG (E.D. TX).

Engaged by Nokia to provide expert testimony relating to claim construction, (in)validity and (non)infringement in the Eastern District of Texas. The matter involved aspects of LTE and 5G infrastructure relating to the cancelation of radio frequency intermodulation distortion produced in a transmitter from the receiver of the same base station, and involving both passive intermodulation (PIM) and active intermodulation from Power amplifiers (PA). This matter remains pending.

GODO KAISHA IP BRIDGE v Ericsson and Nokia Case No. 2:21-CV-213-JRG, Case No. 2:21-CV-215-JRG (E.D. TX).

Engaged by Nokia and Ericsson to provide expert testimony relating to claim construction, (in)validity and (non)infringement in the Eastern District of Texas. The matter involved aspects of LTE and 5G infrastructure relating to the channel state information (CSI/CQI) configuration and triggering for periodic and aperiodic, wideband and sub-band reports from LTE/NR UEs. This matter was settled prior to trial.

Microsoft Corporation, IPR petition of '414, '763, '988, '890 (Lemco Corporation, Patent Owner).

Engaged by Microsoft Corporation to provide several declarations as an expert in Inter Party Review (IPR) proceedings before the U.S. Patent Trial and Appeals Board, relating to US. Pat. Nos. 7,653,414, 7,548,763, 7,855,988, and 9,191,980. These matters involved distributed cellular network infrastructure architectures. The patents relate to software implementations of cellular network infrastructure, including a distributed mobile architecture server and a distributed mobile architecture gateway. This matter remains pending.

Ozmo v. Dell, Case No: 6:22-cv-00642-ADA (WDTX)

Engaged by Dell to testimony related to claim construction, (in)validity and (non)infringement relating to U.S Pat. Nos. 8,599,814; 9,264,991; 10,873,906; 11,012,934; 11,122,504; and 11,252,659 and share common provisional applications. The subject matter of the patents relate to seamlessly integrating short-range wireless personal area networks ("WPANs") into longer-range wireless local area networks ("WLANs").

XR Communications d/b/a Vivato Technologies v. ASUSTek Computer Inc., Computer Inc.

Case No: 6:21-cv-00622-ADA (WDTX)

Engaged by ASUSTek to provide expert testimony relating to claim construction, (in)validity and (non)infringement in the Western District of Texas. The matter involved the use of transmit beamforming, channel estimation and diversity techniques in IEEE802.11n, 802.11AC, and 802.11AX systems (WiFi). This matter remains pending.

List of Issued U.S. Patents

United States Pat. No.	Title
5,550,549	Transponder system and method
5,687,196	Range and bearing tracking system with multipath rejection
5,898,338	Adaptive digital predistortion linearization and feed-forward correction of RF power amplifier
5,929,704	Control of RF error extraction using auto-calibrating RF correlator
5,949,283	Adaptive digital predistortion linearization and feed-forward correction of RF power amplifier
5,960,047	System and method for transmitting information signals
6,078,216	Aliased wide band performance monitor for adjusting predistortion and vector modulator control parameters of RF amplifier
6,100,843	Adaptive antenna for use in same frequency networks
6,212,220	Method and apparatus for creating non-interfering signals using non-orthogonal techniques
6,222,832	Fast Acquisition of traffic channels for a highly variable data rate reverse link of a CDMA wireless communication system
6,239,756	Antenna array with housing
6,301,291	Pilot symbol assisted modulation and demodulation in wireless communication systems
6,304,215	Method of use for an adaptive antenna in same frequency networks
6,362,790	Antenna array structure stacked over printed wiring board with beamforming components
6,388,999	Dynamic bandwidth allocation for multiple access communications using buffer urgency factor
6,396,456	Stacked dipole antenna for use in wireless communications systems
6,400,317	Method and apparatus for antenna control in a communications network
6,404,386	Adaptive antenna for use in same frequency networks
6,421,336	Variable rate orthogonally coded reverse link structure
6,448,938	Method and apparatus for frequency selective beam forming
6,452,913	Fast acquisition of traffic channels for a highly variable data rate reverse link of a CDMA wireless communication system
6,456,835	Arbitration method for high power transmissions in a code division multiple access system
6,473,036	Method and apparatus for adapting antenna array to reduce adaptation time while increasing array performance
6,515,635	Adaptive antenna for use in wireless communication systems
6,518,920	Adaptive antenna for use in same frequency networks
6,542,481	Dynamic bandwidth allocation for multiple access communication using session queues
6,545,990	Method and apparatus for a spectrally compliant cellular communication system
6,545,994	Access probe acknowledgment including collision detection to avoid oversetting initial power level
6,563,809	Subscriber-controlled registration technique in a CDMA system
6,600,456	Adaptive antenna for use in wireless communication systems
6,614,776	Forward error correction scheme for high rate data exchange in a wireless system
6,678,260	System and method for maintaining wireless channels over a reverse link of a CDMA wireless communication system
6,707,804	Fast acquisition of traffic channels for a highly variable data rate reverse link of a CDMA wireless communication system
6,785,323	Variable rate coding for forward link
6,788,268	Method and apparatus for frequency selective beam forming
6,792,290	Method and apparatus for performing directional re-scan of an adaptive antenna
6,801,564	Reverse link correlation filter in wireless communication systems
6,804,223	Reverse link pilot integrated with block codes
6,873,293	Adaptive receive and omnidirectional transmit antenna array
6,888,504	Aperiodic array antenna
6,888,807	Applying session services based on packet flows
6,894,653	Low cost multiple pattern antenna for use with multiple receiver systems
6,904,079	Access channel structure for wireless communication system
6,911,879	Electronic phase shifter with enhanced phase shift performance
6,917,581	Use of orthogonal or near orthogonal codes in reverse link

6,917,642	Method for using a non-orthogonal pilot signal with data channel interference cancellation
6,925,070	Time-slotted data packets with a preamble
6,928,064	Fast acquisition of traffic channels for a highly variable data rate reverse link of a CDMA wireless communication system
6,933,887	Method and apparatus for adapting antenna array using received predetermined signal
6,937,562	Application specific traffic optimization in a wireless link
6,940,842	System and method for maintaining wireless channels over a reverse link of a CDMA wireless communication system
6,941,152	Wireless subscriber network registration system for configurable services
6,954,448	Alternate channel for carrying selected message types
6,956,840	Power control protocol for highly variable data rate reverse link of a wireless communication system
6,973,140	Maximizing data rate by adjusting codes and code rates in CDMA system
6,989,797	Adaptive antenna for use in wireless communication systems
6,992,546	Electronic phase shifter with enhanced phase shift performance
7,002,902	Method and system for economical beam forming in a radio communication system
7,006,428	Method for allowing multi-user orthogonal and non-orthogonal interoperability of code channels
7,006,483	Qualifying available reverse link coding rates from access channel power setting
7,009,559	Method and apparatus for adapting antenna array using received predetermined signal
7,015,773	Electronic phase shifter with enhanced phase shift performance
7,034,759	Adaptive receive and omnidirectional transmit antenna array
7,072,316	Subscriber-controlled registration technique in a CDMA system
7,079,523	Maintenance link using active/standby request channels
7,092,430	Method for using a non-orthogonal pilot signal with data channel interference cancellation
7,113,786	Antenna adaptation to manage the active set to manipulate soft hand-off regions
7,145,964	Maximizing data rate by adjusting codes and code rates in CDMA system
7,176,844	Aperiodic array antenna
7,184,417	Power control protocol for highly variable data rate reverse link of a wireless communication system
7,187,904	Frequency translating repeater with low cost high performance local oscillator architecture
7,200,134	Wireless area network using frequency translation and retransmission based on modified protocol messages for enhancing network coverage
7,215,297	Adaptive antenna for use in wireless communication systems
7,218,623	Coded reverse link messages for closed-loop power control of forward link control messages
7,221,664	Transmittal of heartbeat signal at a lower level than heartbeat request
7,224,685	Method of detection of signals using an adaptive antenna in a peer-to-peer network
7,227,907	Antenna adaptation comparison method for high mobility
7,230,935	Physical layer repeater with selective use of higher layer functions based on network operating conditions
7,233,627	Method for searching pilot signals to synchronize a CDMA receiver with an associated transmitter
7,233,771	Non-frequency translating repeater with downlink detection for uplink and downlink synchronization
7,253,783	Low cost multiple pattern antenna for use with multiple receiver systems
7,272,169	Reverse link correlation filter in wireless communication systems
7,289,827	Method and apparatus for performing directional re-scan of an adaptive antenna
7,308,285	Antenna adaptation in a time division duplexing system
7,366,154	Forward error correction scheme for high rate data exchange in a wireless system
7,394,791	Multi-detection of heartbeat to reduce error probability
7,425,928	Method and apparatus for frequency selective beam forming
7,426,241	Variable rate coding for forward link
7,428,263	Method for using a non-orthogonal pilot signal with data channel interference cancellation
7,433,340	Staggering forward and reverse wireless channel allocation timing
7,447,187	Reverse link pilot integrated with block codes
7,463,200	Directional antenna configuration for TDD repeater

7,463,201	Aperiodic array antenna
7,480,280	Fast acquisition of traffic channels for a highly variable data rate reverse link of a CDMA wireless communication system
7,483,473	Access channel structure for wireless communication system
7,496,072	System and method for controlling signal strength over a reverse link of a CDMA wireless communication system
7,502,351	Alternate channel for carrying selected message types
7,502,424	Maximizing data rate by adjusting codes and code rates
7,528,789	Adaptive antenna for use in wireless communication systems
7,529,264	Use of orthogonal or near orthogonal codes in reverse link
7,551,663	Use of correlation combination to achieve channel detection
7,580,674	Intelligent interface for controlling an adaptive antenna array
7,586,880	Method of detection of signals using an adaptive antenna in a peer-to-peer network
7,592,969	Multiple-antenna device having an isolation element
7,593,380	Variable rate forward error correction for enabling high performance communication
7,602,749	Fast acquisition of traffic channels for a highly variable data rate reverse link of a CDMA wireless communication system
7,613,227	Reverse link correlation filter in wireless communication systems
7,701,903	Power control protocol for highly variable data rate reverse link of a wireless communication system
7,733,285	Integrated, closely spaced, high isolation, printed dipoles
7,746,830	System and method for maintaining wireless channels over a reverse link of a CDMA wireless communication system
7,773,566	System and method for maintaining timing of synchronization messages over a reverse link of a CDMA wireless communication system
7,787,408	Wireless repeater with master/slave configuration
7,826,437	Variable rate coding for enabling high performance communication
7,889,702	Time-slotted data packets with a preamble
7,893,889	Multiple-antenna device having an isolation element
7,907,513	Superimposed composite channel filter
7,907,891	Physical layer repeater utilizing real time measurement metrics and adaptive antenna array to promote signal integrity and amplification
7,911,985	Automatic gain control and filtering techniques for use in on-channel repeater
7,911,993	Method and apparatus for allowing soft handoff of a CDMA reverse link utilizing an orthogonal channel structure
7,916,772	Method for searching pilot signals to synchronize a CDMA receiver with an associated transmitter
7,936,728	System and method for maintaining timing of synchronization messages over a reverse link of a CDMA wireless communication system
7,936,736	Enforcing policies in wireless communication using exchanged identities
7,944,845	Application specific traffic optimization in a wireless link
7,990,904	Wireless network repeater
8,023,885	Non-frequency translating repeater with downlink detection for uplink and downlink synchronization
8,027,642	Transmission canceller for wireless local area network
8,045,536	Forward error correction scheme for high rate data exchange in a wireless system
8,059,727	Physical layer repeater configuration for increasing MIMO performance
8,060,009	Wireless local area network repeater with automatic gain control for extending network coverage
8,068,474	Variable rate coding for enabling high performance communication
8,072,944	Staggering forward and reverse wireless channel allocation timing
8,072,958	Reverse link pilot integrated with block codes
8,078,100	Physical layer repeater with discrete time filter for all-digital detection and delay generation
8,089,913	Physical layer repeater with selective use of higher layer functions based on network operating conditions
8,090,359	Exchanging identifiers between wireless communication to determine further information to be exchanged or further services to be provided
8,090,616	Visual identification information used as confirmation in a wireless communication
8,095,067	Frequency translating repeater with low cost high performance local oscillator architecture
8,111,645	Wireless local area network repeater with detection

8,116,239	Use of a filterbank in an adaptive on-channel repeater utilizing adaptive antenna arrays
8,116,749	Protocol for anonymous wireless communication
8,121,535	Configuration of a repeater
8,122,134	Reducing loop effects in a wireless local area network repeater
8,134,980	Transmittal of heartbeat signal at a lower level than heartbeat request
8,139,546	System and method for maintaining wireless channels over a reverse link of a CDMA wireless communication system
8,155,096	Antenna control system and method
8,175,120	Minimal maintenance link to support synchronization
8,194,783	Variable rate coding for a forward and reverse link
8,204,140	Subscriber unit and method for variable forward error correction (FEC) decoding
8,238,912	Non-intrusive detection of enhanced capabilities at existing cellsites in a wireless data communication system
8,259,687	Dynamic bandwidth allocation for multiple access communications using buffer urgency factor
8,259,744	Use of orthogonal or near orthogonal codes in reverse link
8,265,630	Antenna adaptation to manage the active set to manipulate soft hand-off regions
8,274,954	Alternate channel for carrying selected message types
8,285,201	Wideband echo cancellation in a repeater
8,315,294	Method for searching pilot signals to synchronize a CDMA receiver with an associated transmitter
8,321,542	Wireless channel allocation in a base station processor
8,358,969	Feedback delay control in an echo cancellation repeater
8,363,590	Physical layer repeater with roaming support based on multiple identifiers
8,369,277	Signaling for wireless communications
8,369,842	Exchanging identifiers between wireless communication to determine further information to be exchanged or further services to be provided
8,370,955	Enforcing policies in wireless communication using exchanged identities
8,374,592	Exchanging identifiers between wireless communication to determine further information to be exchanged or further services to be provided
8,385,305	Hybrid band intelligent backhaul radio
8,385,818	Delay control to improve frequency domain channel estimation in an echo cancellation repeater
8,385,896	Exchanging identifiers between wireless communication to determine further information to be exchanged or further services to be provided
8,385,913	Using a first wireless link to exchange identification information used to communicate over a second wireless link
8,422,540	Intelligent backhaul radio with zero division duplexing
8,437,329	Variable rate coding for enabling high performance communication
8,437,330	Antenna control system and method
8,463,255	Method and apparatus for a spectrally compliant cellular communication system
8,467,353	Time-slotted data packets with a preamble
8,467,363	Intelligent backhaul radio and antenna system
8,477,665	Method in a wireless repeater employing an antenna array for interference reduction
8,498,234	Wireless local area network repeater
8,502,733	Transmit co-channel spectrum sharing
8,503,926	IQ imbalance compensation in interference cancellation repeater using a zero-IF radio architecture
8,509,268	Minimal maintenance link to support synchronization
8,509,835	Reverse link initial power setting using effective radiated power message to compute path loss
8,521,862	Wireless channel allocation in a base station processor
8,526,401	Power control protocol for highly variable data rate reverse link of wireless communication system
8,537,656	Method for compensating for multi-path of a CDMA reverse link utilizing an orthogonal channel structure
8,542,623	Use of RF reference in a digital baseband interference cancellation repeater
8,553,610	Interference cancellation repeater incorporating a non-linear element
8,559,379	Method and apparatus for mitigating oscillation between repeaters
8,576,805	Subscriber-controlled registration technique in a CDMA system

8,582,552	Maintaining a maintenance channel in a reverse link of a wireless communications system
8,599,906	Closed form calculation of temporal equalizer weights used in a repeater transmitter leakage cancellation system
8,605,702	Maintaining a maintenance channel in a reverse link of a wireless communications system
8,619,837	Use of adaptive antenna array in conjunction with an on-channel repeater to improve signal quality
8,630,211	Hybrid radio architecture for repeaters using RF cancellation reference
8,638,839	Intelligent backhaul radio with co-band zero division duplexing
8,638,877	Methods, apparatuses and systems for selective transmission of traffic data using orthogonal sequences
8,649,418	Enhancement of the channel propagation matrix order and rank for a wireless channel
8,676,131	Method and apparatus for allowing soft handoff of a CDMA reverse link utilizing an orthogonal channel structure
8,687,606	Alternate channel for carrying selected message types
8,709,092	Periprosthetic fracture management enhancements
8,737,343	Coded reverse link messages for closed-loop power control of forward link control messages
8,755,360	Method and apparatus for a spectrally compliant cellular communication system
8,755,473	Method and apparatus for detecting rapid changes in signaling path environment
8,774,079	Repeater techniques for multiple input multiple output utilizing beam formers
8,787,248	Method in a wireless repeater employing an antenna array including vertical and horizontal feeds for interference reduction
8,790,321	Apparatus, system, and method for harvesting improved bone graft material with reamer-irrigator-aspirator (RIA) device
8,792,458	System and method for maintaining wireless channels over a reverse link of a CDMA wireless communication system
8,811,367	Qualifying available reverse link coding rates from access channel power setting
8,824,442	Intelligent backhaul radio with adaptive channel bandwidth control
8,830,977	Reverse link pilot integrated with block codes
8,842,642	Transmitting acknowledgement messages using a staggered uplink time slot
8,849,186	Repeater communication using inserted low power sequences
8,849,698	Exchanging identifiers between wireless communication to determine further information to be exchanged or further services to be provided
8,861,429	Selective carrier amplification in a wireless repeater
8,885,688	Control message management in physical layer repeater
8,897,340	Enhancement of the channel propagation matrix order and rank for a wireless channel
8,908,654	Dynamic bandwidth allocation for multiple access communications using buffer urgency factor
8,937,874	Adjusting repeater gains based upon received downlink power level
8,942,216	Hybrid band intelligent backhaul radio
8,948,235	Intelligent backhaul radio with co-band zero division duplexing utilizing transmitter to receiver antenna isolation adaptation
8,958,457	Channel structure for a wireless communication system
8,964,909	Maximizing data rate by adjusting codes and code rates
8,989,762	Advanced backhaul services
9,014,118	Signaling for wireless communications
9,019,930	Coded reverse link messages for closed-loop power control of forward link control messages
9,020,009	Inserted pilot construction for an echo cancellation repeater
9,020,621	Network based media enhancement function based on an identifier
9,038,129	Enforcing policies in wireless communication using exchanged identities
9,042,400	Multi-detection of heartbeat to reduce error probability
9,135,612	Proximity detection, virtual detection, or location based triggering of the exchange of value and information
9,161,164	Exchanging identifiers between wireless communication to determine further information to be exchanged or further services to be provided
9,179,240	Transmit co-channel spectrum sharing
9,185,604	Qualifying available reverse link coding rates from access channel power setting
9,210,616	Application specific traffic optimization in a wireless link
9,225,395	Antenna control system and method
9,226,295	Hybrid band radio with data direction determined by a link performance metric

9,237,209	Time-slotted data packets with a preamble
9,247,510	Use of correlation combination to achieve channel detection
9,252,857	Embedded control signaling for wireless systems
9,294,222	Variable rate coding for forward and reverse link
9,301,274	Minimal maintenance link to support synchronization
9,306,658	Method and apparatus for a spectrally compliant cellular communication system
9,306,703	Variable rate coding for enabling high performance communication
9,307,532	Signaling for wireless communications
9,325,398	Method for installing a backhaul radio with an antenna array
9,325,477	Alternate channel for carrying selected message types
9,345,523	Periprosthetic fracture management enhancements
9,363,759	Power control protocol for highly variable data rate reverse link of a wireless communication system
9,369,235	Maximizing data rate by adjusting codes and code rates
9,374,822	Method for installing a hybrid band radio
9,397,808	Reverse link pilot integrated with block codes
9,398,120	Time-slotted data packets with a preamble
9,456,376	Subscriber-controlled registration technique in a CDMA system
9,456,428	Method and apparatus for allowing soft handoff of a CDMA reverse link utilizing an orthogonal channel structure
9,460,433	Proximity detection, virtual detection, or location based triggering of the exchange of value and information
9,490,918	Zero division duplexing MIMO backhaul radio with adaptable RF and/or baseband cancellation
9,496,915	Use of orthogonal or near orthogonal codes in reverse link
9,497,761	Qualifying available reverse link coding rates from access channel power setting
9,522,066	Periprosthetic fracture management enhancements
9,525,923	Multi-detection of heartbeat to reduce error probability
9,554,061	Smart hub
9,555,169	Apparatus for harvesting improved bone graft material utilizing an implantable biodegradable filter
9,572,163	Hybrid band radio with adaptive antenna arrays
9,577,733	Method for installing a backhaul link with multiple antenna patterns
9,655,062	System and method for coordination of wireless maintenance channel power control
9,661,583	Reverse link initial power setting using effective radiated power message to compute path loss
9,686,713	Application specific traffic optimization in a wireless link
9,686,790	Signaling for wireless communications
9,713,019	Self organizing backhaul radio
9,713,157	Method for installing a backhaul link with alignment signals
9,775,115	Antenna control system and method
9,780,930	Communicating reference and data information in a wireless network
9,781,626	Wireless channel allocation in a base station processor
9,807,714	Minimal maintenance link to support synchronization
9,832,664	Receiving and transmitting reverse link signals from subscriber units
9,867,101	Method and apparatus for allowing soft handoff of a CDMA reverse link utilizing an orthogonal channel structure
9,872,196	Subscriber-controlled registration technique in a CDMA system
9,876,530	Advanced backhaul services
9,913,271	Qualifying available reverse link coding rates from access channel power setting
9,913,722	Periprosthetic fracture management enhancements
9,924,468	Antenna control system and method
9,936,500	Transmitting acknowledgement messages using a staggered uplink time slot
9,954,635	Variable rate coding for enabling high performance communication
9,974,116	Handoff to base station having enhanced capabilities

10,057,700	Smart hub
10,063,363	Zero division duplexing MIMO radio with adaptable RF and/or baseband cancellation
10,064,144	Use of correlation combination to achieve channel detection
10,129,888	Method for installing a fixed wireless access link with alignment signals
10,153,885	Alternate channel for carrying selected message types
10,204,357	Proximity detection, virtual detection, or location based triggering of the exchange of value and information
10,211,940	Use of orthogonal or near orthogonal codes in reverse link
10,237,760	Self organizing backhaul radio
10,284,253	Advanced backhaul services
10,286,123	Removable biocompatible substrate filter for a reaming and collection device
10,299,218	System and method for coordination of wireless maintenance channel power control
10,306,635	Hybrid band radio with multiple antenna arrays
10,356,782	Embedded control signaling for self-organizing wireless backhaul radio and systems
10,357,370	Periprosthetic fracture management enhancements
10,390,311	Maintaining a maintenance channel in a reverse link of a wireless communications system
10,638,468	Qualifying available reverse link coding rates from access channel power setting
10,687,161	Smart hub
10,687,950	Periprosthetic shoulder fracture repair
10,700,733	Advanced backhaul services
10,708,918	Electronic alignment using signature emissions for backhaul radios
10,735,979	Self organizing backhaul radio
10,736,110	Method for installing a fixed wireless access link with alignment signals
10,762,532	Proximity detection, virtual detection, or location based triggering of the exchange of value and information
10,805,887	Maintaining a maintenance channel in a reverse link of a wireless communications system
10,821,030	Apparatus and method for a temperature released adhesive structure for use with bandages
10,874,520	Combination intra-medullary and extra-medullary fracture stabilization with aligning arm
10,932,267	Hybrid band radio with multiple antenna arrays
10,966,201	Embedded control signaling for self-organizing wireless backhaul radio and systems
11,000,380	Combination intra-medullary and extra medullary fracture stabilization with aligning arm
11,013,605	Combination intra-medullary and extra medullary fracture stabilization with aligning arm
11,074,615	Efficient and secure communication using wireless service identifiers
11,219,527	Combination intra-medullary and extra-medullary fracture stabilization with aligning arm
11,238,499	Proximity detection, virtual detection, or location based triggering of the exchange of value and information
11,260,164	Negative pressure wound therapy dressing and related apparatus
11,303,322	Advanced backhaul services
11,310,614	Smart Hub
11,334,918	Exchanging identifiers between wireless communication to determine further information to be exchanged or further services to be provided
11,343,060	Zero division duplexing MIMO radio with adaptable RF and/or baseband cancellation
11,343,684	Self organizing backhaul radio
11,437,740	Removable biocompatible substrate filter for a reaming and collection device
11,443,344	Efficient and secure communication using wireless service identifiers
11,6333,217	Reduction and fixation apparatus for calcaneal fracture
11,684,518	Apparatus and method for a temperature released adhesive structure for use with bandages
11,687,971	Efficient and secure communication using wireless service identifiers
11,723,776	Periprosthetic shoulder fracture repair
D532780	Wireless repeater housing