

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. and
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner

v.

DAEDALUS PRIME LLC,
Patent Owner.

**DECLARATION OF DR. BENJAMIN B. BEDERSON IN SUPPORT OF
PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 9,432,840**

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LIST OF EXHIBITS¹

Ex-1001	U.S. Patent No. 9,432,840 to Traynor (“the ’840 Patent”)
Ex-1002	Declaration of Dr. Benjamin Bederson
Ex-1003	Curriculum Vitae of Dr. Benjamin Bederson
Ex-1004	Prosecution History of the ’840 Patent (Application No. 14/583,277)
Ex-1005	INTENTIONALLY LEFT BLANK
Ex-1006	INTENTIONALLY LEFT BLANK
Ex-1007	INTENTIONALLY LEFT BLANK
Ex-1008	U.S. Patent Publication No. 2010/0056181 to Rippon (“Rippon”)
Ex-1009	U.S. Patent No. 8,762,756 to Moy (“Moy”)
Ex-1010	U.S. Patent Publication No. 2009/0168676 to Olson (“Olson”)
Ex-1011	U.S. Patent Publication No. 2008/0305786 to Arumi (“Arumi”)
Ex-1012	INTENTIONALLY LEFT BLANK
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Ex-1016	INTENTIONALLY LEFT BLANK
Ex-1017	INTENTIONALLY LEFT BLANK
Ex-1018	INTENTIONALLY LEFT BLANK
Ex-1019	INTENTIONALLY LEFT BLANK
Ex-1020	Claim Comparison Table for the ’840 Patent

¹ Four-digit pin citations that begin with 0 are to the branded numbers added by Samsung in the bottom right corner of the exhibits. All other pin citations are to original page, column, paragraph, or line numbers.

Ex-1021	U.S. District Courts – Combined Civil and Criminal Federal Court Management Statistics (June 30, 2022), available at: https://www.uscourts.gov/statistics-reports/federal-court-management-statistics-june-2022
Ex-1022	Benjamin B. Bederson. 1995. Audio augmented reality: a prototype automated tour guide. In Conference Companion on Human Factors in Computing Systems (CHI '95), I. Katz, R. Mack, and L. Marks (Eds.). ACM, New York, NY, USA, 210-211. DOI: http://dx.doi.org/10.1145/223355.223526 .
Ex-1023	Bederson, B.B., Clamage, A., Plaisant, C. (2008) Enhancing In-Car Navigation Systems with Personal Experience, in Transportation Research Record (TRR), The National Academies, 2064 (2008) 33-42.
Ex-1024	Benjamin B. Bederson and James D. Hollan, Pad++: A Zooming Graphical Interface for Exploring Alternate Interface Physics, USIT '94 Proceedings of the 7th Annual ACM Symposium on User Interface Software and Technology 17 (1994), DOI: http://dx.doi.org/10.1145/192426.192435 .
Ex-1025	U.S. Patent No. 8,261,211
Ex-1026	“How to Save Power in Battery Applications Using the Power-Down Mode in an ADC,” Mercedes Casamayor, Analog Dialogue 37-9, September 2003, http://www.analog.com/analogdialogue
Ex-1027	“User acceptance of mobile services, value, ease of use, trust and ease of adoption,” VTT Publications, June 22, 2005.

1. I, Benjamin B. Bederson, declare as follows:

I. INTRODUCTION

2. I have been retained by Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Samsung” or “Petitioner”) as an independent expert consultant in this *inter partes* review (“IPR”) proceeding before the United States Patent and Trademark Office (“PTO”).

3. I have been asked by Samsung Counsel (“Counsel”) to consider whether certain references teach or suggest the features recited in Claims 1-2, 4-7, 9-12, and 14-15 of U.S. Patent No. 9,432,840 (“the ’840 Patent”) (Ex-1001). My opinions and the bases for my opinions are set forth below.

4. I am being compensated at my ordinary and customary consulting rate for my work, which is \$600 per hour. 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 financial interest in this proceeding.

II. BACKGROUND AND QUALIFICATIONS

5. All of my opinions stated in this declaration are based on my own personal knowledge and professional judgment. In forming my opinions, I have relied on my knowledge and experience in designing, developing, researching, and teaching the technology referenced in this declaration.

6. 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 herein. I understand that a copy of my current curriculum vitae, which details my education and professional and academic experience, is being submitted as Ex-1003. The following provides a brief overview of some of my experience that is relevant to the matters set forth in this declaration.

7. I am currently Professor Emeritus of Computer Science at the University of Maryland (“UMD”). From 2014 to 2018, I was the Associate Provost of Learning Initiatives and Executive Director of the Teaching and Learning Transformation Center at the UMD. I am a member and previous director of the Human-Computer Interaction Lab (“HCIL”), the oldest and one of the best known Human-Computer Interaction (“HCI”) research groups in the country. I was also co-founder and Chief Scientist of Zumobi, Inc. from 2006 to 2014, a Seattle-based startup that is a publisher of content applications and advertising platforms for smartphones. I am also co-founder and co-director of the International Children’s Digital Library (“ICDL”), a web site launched in 2002 that provides the world’s largest collection of freely available online children’s books from around the world with an interface aimed to make it easy for children and adults to search and read children’s books online. I am also co-founder and prior Chief Technology Officer of Hazel Analytics, a data analytics company to improve food safety and better

public health whose product sends alerts in warranted circumstances. In addition, I have for more than 25 years consulted for numerous companies in the area of user interfaces, including EPAM, Hillcrest Labs, Lockheed Martin, Logitech, Microsoft, NASA Goddard Space Flight Center, the Palo Alto Research Center, and Sony.

8. The devices and methods claimed in the '840 Patent generally relate to human-computer interaction with mobile electronic devices. For more than 30 years, I have studied, designed, and worked in the field of computer science and HCI. My experience includes 30 years of teaching and research, with research interests in HCI and the software and technology underlying today's interactive computing systems.

9. At UMD, I am focused primarily on the area of HCI, a field that relates to the development and understanding of computing systems to serve users' needs. Researchers and practitioners in this field are focused on making universally usable, useful, efficient, and appealing systems to support people in their wide range of activities. My approach is to balance the development of innovative technology that serves people's practical needs. Example systems following this approach that I have built include Cortex-I (1992 embedded computer vision system that sensed licensed plates with custom motor, camera and controller), Audio Augmented Reality (1995 embedded system for sensing a user's location and playing audio suited to that location), Fisheye Menus (2000 software for sensing movement within

and selection of linear list of items in a menu), PhotoMesa (2001 software for end users to browse personal photos), DateLens (2002 software for end users to use their mobile devices to efficiently access their calendar information), SlideBar (2005 linear sensor to control scrolling), LaunchTile (2005 “home screen” software for mobile devices to allow users to navigate apps in a zoomable environment), SpaceTree (2001 software for end users to efficiently browse very large hierarchies), ICDL (as described above), and StoryKit (a 2009 iPhone app for children to create stories).

10. LaunchTile led to my co-founding of Zumobi Inc. in 2006, where I was responsible for investigating new software platforms and developing new user interface designs that provided efficient and engaging interfaces to permit end users to access a wide range of content on mobile platforms (including the iPhone and Android-based devices). For example, I designed and implemented software called “Ziibii,” a “river” of news for iPhone that used a capacitive sensor for controlling linear movement through news, software called “ZoomCanvas,” a zoomable user interface for several iPhone apps, and iPhone apps including “Inside Xbox” for Microsoft and Snow Report for REI. I also worked on proximity-based user interfaces as described in U.S. Patent No. 8,261,211 where I am named inventor.

11. In 1995, I built an “audio augmented reality” system for use in an art museum that identified and announced which piece of art a person was standing in

front of. Ex-1022, 210-211. This worked by installing infrared (IR) transmitters in the ceiling above each piece of art which was identified by an infrared (IR) receiver controlled by a microcontroller. As depicted in Figure 1 below, a person wearing the receiver walked around, the microcontroller they were carrying would identify the code from the transmitter they were standing under.

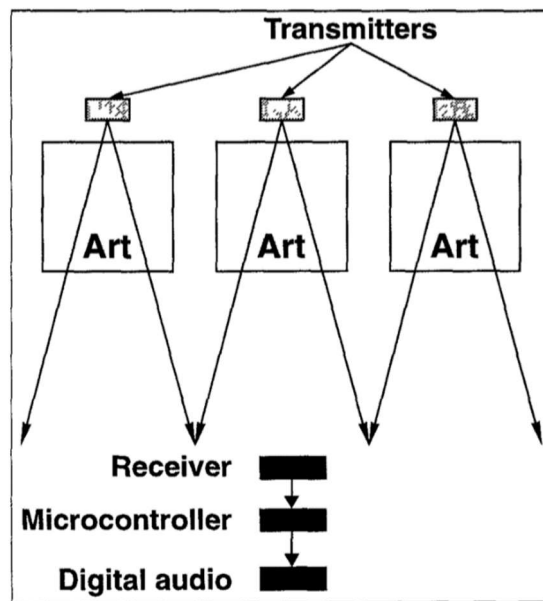


Figure 1: Schematic of automated tour guide prototype.

12. Another example of my work involved the tracking of a person's transportation routes and using that tracking to improving the human experience of in-car navigation systems. Ex-1023, 33-42. In particular, by analyzing the data associated with many routes over time, we provided improved ways of helping people track, share, and use their driving route history. As shown in Figure 4 below, the interface allowed a user to track, filter, and compare different driving routes.

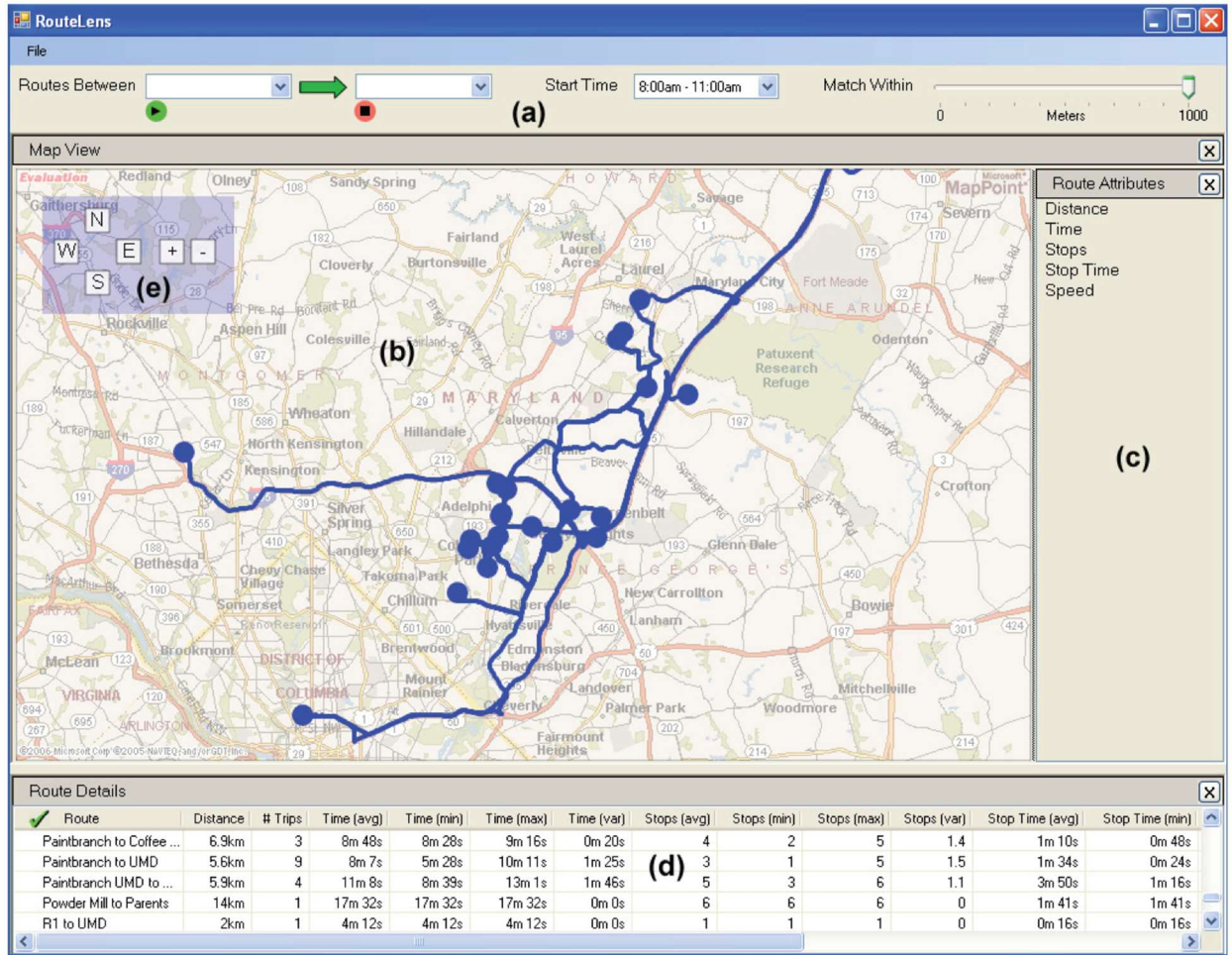


FIGURE 4 Desktop interface consists of components to (a) select routes, (b) browse data, (c) compare routes, (d) view detailed statistics, and (e) zoom and pan.

13. Starting in the mid-1990s and going through the 2000s, I worked on a range of “zoomable user interfaces” (ZUIs) that supported users in navigating large information spaces by zooming in and out of the information on the screen. These included both 2D and 3D environments. As an example of the 3D environments I developed, I gave a talk in 1993 to the University of Chicago Computer Science Department describing “PA3D: A Multiscale Hierarchical Sketchpad.” I built several different ZUI systems over the years, including Pad++, Jazz and Piccolo. In

those systems, I used a range of solutions to allow users to control zooming through the information space. The most common approach for systems with 3 button mice was to use the middle button for zooming in and the right button for zooming out. The user would hold the button down, and the system would smoothly animate zooming in or out – so that the user controlled how much the system zoomed based on the duration that the button was pressed. *See Ex-1024.* I also used a commercial off the shelf touch screen for input to a zoomable image browser we built using Pad++, in or about 1998. The touch screen generated standard mouse signals, and I did not have to modify the zoomable image browser or Pad++ at all in order for it to operate with the touch screen. One project I worked on determined the trajectory of a pointer (such as a finger) as it approached a touch screen and modified the user interface on the touch screen in response to that approach. *See Ex-1025.*

14. At the ICDL, I have since 2002 been the technical director responsible for the design and implementation of the web site, www.childrenslibrary.org (originally at www.icdlbooks.org). In particular, I have been closely involved in designing the user interface as well as the software architecture for the web site since its inception in 2002.

15. Beginning in the mid-1990s, I have been responsible for the design and implementation of numerous other web sites in addition to the ICDL. For example, I designed and built my own professional web site when I was an Assistant Professor

of Computer Science at the University of New Mexico in 1995 and have continued to design, write the code for, and update both that site (which I moved to the UMD in 1998, currently at <http://www.cs.umd.edu/~bederson/>) as well as numerous project web sites, such as Pad++, <http://www.cs.umd.edu/hcil/pad++/>. I received the Janet Fabri Memorial Award for Outstanding Doctoral Dissertation for my Ph.D. work in robotics and computer vision. I have combined my hardware and software skills throughout my career in HCI research, building various interactive electrical and mechanical systems that couple with software to provide an innovative user experience.

16. My work has been published extensively in more than 160 technical publications, and I have given about 100 invited talks, including 9 keynote lectures. I have won a number of awards including the Brian Shackel Award for “outstanding contribution with international impact in the field of HCI” in 2007, and the Social Impact Award in 2010 from the Association for Computing Machinery’s (“ACM”) Special Interest Group on Computer Human Interaction (“SIGCHI”). ACM is the primary international professional community of computer scientists, and SIGCHI is the primary international professional HCI community. I have been honored by both professional organizations. I am an “ACM Distinguished Scientist,” which “recognizes those ACM members with at least 15 years of professional experience and 5 years of continuous Professional Membership who have achieved significant

accomplishments or have made a significant impact on the computing field.” I am a member of the “CHI Academy,” which is described as follows: “The CHI Academy is an honorary group of individuals who have made substantial contributions to the field of HCI. These are the principal leaders of the field, whose efforts have shaped the disciplines and/or industry, and led the research and/or innovation in human-computer interaction.” The criteria for election to the CHI Academy are: (1) cumulative contributions to the field; (2) impact on the field through development of new research directions and/or innovations; and (3) influence on the work of others. I have received two “Test of Time” awards from IEEE InfoVis for my 2001 and 2002 work on visualizing hierarchies, including those containing digital photos.²

17. I have appeared on radio shows numerous times to discuss issues relating to user interface design and people’s use and frustration with common technologies, web sites, and mobile devices. My work has been discussed and I have been quoted by mainstream media around the world over 120 times, including by the New York Times, the Wall Street Journal, the Washington Post, Newsweek, the Seattle Post Intelligencer, the Independent, Le Monde, NPR’s All Things Considered, New Scientist Magazine, and MIT’s Technology Review.

² <https://ieevis.org/year/2021/info/awards/test-of-time-awards>;
<https://ieevis.org/year/2022/info/awards/test-of-time-awards>

18. I have designed, programmed, and publicly deployed dozens of user-facing software products that have cumulatively had millions of users. My work is cited by several major companies, including Amazon, Apple, Facebook, Google, and Microsoft. I am a named inventor on 14 U.S. patents and 20 U.S. patent applications. The patents are generally directed to user interfaces and experience.

19. I received a B.S. degree in Computer Science with a minor in Electrical Engineering in 1986 from the Rensselaer Polytechnic Institute. I received M.S. and Ph.D. degrees in Computer Science in 1989 and 1992, both from New York University.

III. INFORMATION CONSIDERED

20. In preparation for this declaration, I have considered the materials discussed in this declaration, including, for example, the '840 Patent, the references cited by the '840 Patent, the prosecution history of the '840 Patent, various background articles and books referenced in this declaration, and the prior art references identified in this declaration. In addition, my opinions are further based on my education, training, experience, and knowledge in the relevant field.

IV. RELEVANT LEGAL STANDARDS

21. I am not an attorney and offer no legal opinions. For the purposes of this Declaration, I have been informed about certain aspects of the law that are relevant to my analysis, as summarized below.

A. Claim Interpretation

22. I have been informed and understand that claim construction is a matter of law and that the final claim constructions for this proceeding will be determined by the Patent Trial and Appeal Board.

23. To resolve the particular grounds presented in the Petition, I do not believe any term requires explicit construction. I ascribe the plain meaning to each claim term, as that plain meaning would have been understood by a POSITA in light of the specification.

B. Perspective of One of Ordinary Skill in the Art

24. I have been informed and understand that a patent is to be understood from the perspective of a hypothetical “person of ordinary skill in the art” (“POSITA”). Such an individual is considered to possess normal skills and knowledge in a particular technical field (as opposed to being a genius). I understand that in considering what the claims of a patent require, what was known prior to that patent, what a prior art reference discloses, and whether an invention is obvious or not, one must use the perspective of such a person of ordinary skill in the art.

C. Obviousness

25. I have been informed and understand that a patent claim is obvious under 35 U.S.C. § 103, and therefore invalid, if the claimed subject matter, as a whole, would have been obvious to a person of ordinary skill in the art as of the

priority date of the patent based on one or more prior art references and/or the knowledge of one of ordinary skill in the art.

26. I understand that an obviousness analysis must consider (1) the scope and content of the prior art, (2) the differences between the claims and the prior art, (3) the level of ordinary skill in the pertinent art, and (4) secondary considerations, if any, of non-obviousness (such as unexpected results, commercial success, long-felt but unmet need, failure of others, copying by others, and skepticism of experts).

27. I understand that a single prior art reference can render a patent claim obvious under 35 U.S.C. § 103 if any differences between that reference and the claims would have been obvious to a person of ordinary skill in the art. Alternatively, I understand that a prior art reference may be combined with other references to disclose each element of the invention under 35 U.S.C. § 103. Thus the teachings of two or more references may be combined in the same way as disclosed in the claims, if such a combination would have been obvious to one having ordinary skill in the art. I understand that I understand that a reference may also be combined with the knowledge of a person of ordinary skill in the art, and that this knowledge may be used to combine multiple references. I further understand that a person of ordinary skill in the art is presumed to know the relevant prior art. I understand that the obviousness analysis may take into account the inferences and creative steps that a person of ordinary skill in the art would employ.

28. In determining whether a prior art reference would have been combined with other prior art or other information known to a person of ordinary skill in the art, I understand that the following principles may be considered:

- a. whether the references to be combined involve non-analogous art;
- b. whether the references to be combined are in different fields of endeavor than the alleged invention in the Patent;
- c. whether the references to be combined are reasonably pertinent to the problems to which the inventions of the Patent are directed;
- d. whether the combination is of familiar elements according to known methods that yields predictable results;
- e. whether a combination involves the substitution of one known element for another that yields predictable results;
- f. whether the combination involves the use of a known technique to improve similar items or methods in the same way that yields predictable results;
- g. whether the combination involves the application of a known technique to a prior art reference that is ready for improvement, to yield predictable results;
- h. whether the combination is “obvious to try”;
- i. whether the combination involves the known work in one field of

endeavor prompting variations of it for use in either the same field or a different one based on design incentives or other market forces, where the variations are predictable to a person of ordinary skill in the art;

- j. whether there is some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill in the art to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention;
- k. whether the combination requires modifications that render the prior art unsatisfactory for its intended use;
- l. whether the combination requires modifications that change the principle of operation of the reference;
- m. whether the combination is reasonably expected to be a success; and
- n. whether the combination possesses the requisite degree of predictability at the time the invention was made.

29. I understand that in determining whether a combination of prior art references renders a claim obvious, it is helpful to consider whether there is some teaching, suggestion, or motivation to combine the references and a reasonable expectation of success in doing so. I understand, however, that a teaching, suggestion, or motivation to combine is not required.

V. LEVEL OF ORDINARY SKILL IN THE ART

30. I am familiar with the level of ordinary skill in the art with respect to the '840 Patent around its filing date. Based on my experience working, teaching, and conducting research in the relevant field, and based on my review of the '840 Patent specification, claims, file history, and prior art, I believe one of ordinary skill in the art around the time of the alleged invention of the '840 Patent would have had a bachelor's degree in computer science, electrical engineering, or a related field, and at least three years of experience in the research, design, development, or testing of human-computer interaction, mobile location services, and/or mobile network technologies, or the equivalent, with additional education substituting for experience and vice versa.

31. In determining the level of ordinary skill in the art, I considered, for example, the type of problems encountered in the art, prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field.

32. I met the definition of a POSITA in 2011. I also had greater knowledge and experience than a POSITA. I worked with POSITAs in 2011, and I am able to render opinions from the perspective of a POSITA based on my knowledge and experience. My opinions concerning the '840 Patent claims and the prior art are from the perspective of a person of ordinary skill in the art, as set forth above.

VI. SUMMARY OF MY OPINIONS

33. I have been asked to consider whether the claims of the '840 Patent are obvious over certain prior art references. As explained below in detail in this declaration, it is my opinion that:

1: Claims 1-2, 4-7, 9-12, and 14-15 are obvious over Rippon (Ex-1008) in view of the knowledge of one of ordinary skill in the art;

2: Claims 1-2, 4-7, 9-12, and 14-15 are obvious over the combination of Rippon (Ex-1008) and Moy (Ex-1009) in view of the knowledge of one of ordinary skill in the art;

3: Claims 1-2, 4-7, 9-12, and 14-15 are obvious over the combination of Rippon (Ex-1008) and Olson (Ex-1010) in view of the knowledge of one of ordinary skill in the art;

4: Claims 1-2, 4-7, 9-12, and 14-15 are obvious over the combination of Arumi (Ex-1011) and Moy (Ex-1009) in view of the knowledge of one of ordinary skill in the art;

5: Claims 1-2, 4-7, 9-12, and 14-15 are obvious over the combination of Arumi (Ex-1011) and Olson (Ex-1010) in view of the knowledge of one of ordinary skill in the art.

VII. TECHNOLOGICAL BACKGROUND

34. As of the priority date, “[w]ireless communication systems [we]re well known and in widespread use.” Ex-1011, 1:13-20. “Cellular communication networks typically include a plurality of base stations geographically located to serve corresponding regions or cells.” Ex-1011, 1:13-20. “Mobile stations such as cell phones, personal digital assistants and laptop computers communicate using radio frequency signals through the base stations to a cellular network, which facilitates communications with other devices.” Ex-1011, 1:13-20.

35. Moreover, “[p]eople are utilizing portable electronic devices for an increasing number and variety of tasks;” “[i]t is not uncommon for a user to have a personal media player, notebook computer, cell phone, and electronic book reader, among other such devices” and/or for “a tablet computer or portable gaming platform [to] perform most, if not all, of the tasks performed by the devices above.” Ex-1009, 1:7-18. “Further, the demands on [such] devices increase as the devices offer enhanced functionality.” Ex-1009, 1:7-18. “Thus, the amount of resource and power consumption required by these devices tends to increase, along with the need for the devices to have sufficient power for a user to utilize the devices as necessary.” Ex-1009, 1:7-18.

36. “There are other wireless communication technologies that are available such as IEEE 802.11 wireless fidelity (Wi-Fi) communications.” Ex-1011,

1:21-32. “Wi-Fi communications typically have higher bandwidth capability than IP connectivity available through cellular networks.” Ex-1011, 1:21-32. “Additionally, Wi-Fi communications are typically available at a lower cost.” Ex-1011, 1:21-32. “Wi-Fi communication capability, however, is typically limited to within a closer range of a Wi-Fi access point or source of Wi-Fi communications.” Ex-1011, 1:21-32. “Typical ranges are from about fifty to several hundred meters. Wi-Fi access points can be located inside of buildings that are privately owned or in public buildings, for example.” Ex-1011, 1:21-32.

37. Indeed, “[v]arious types of wireless technologies have been developed for communication of voice, data and a combination of voice and data.” Ex-1010, ¶2. “Many wireless devices are being manufactured to enable operability in more than one type of technology;” “[f]or example, portable electronic devices, such as cellular telephones and personal digital assistants, can include interfaces that enable operation using cellular technologies, wireless local area network (WLAN) technologies, and/or Bluetooth technologies to name a few.” Ex-1010, ¶2. “As a further example, many enterprise networks support voice over internet protocol (VoIP) that can run over one or more wireless network;” “[f]or instance, WiFi voice networks currently support VoIP and, with little integration, with a wider area voice network, such as cellular networks.” Ex-1010, ¶3.

38. “Some mobile stations have the capability of communicating using a cellular network, Wi-Fi communications or both.” Ex-1011, 1:33-46; Ex-1010, ¶3 (“Dual mode phones, which have both an 802.11 interface and a cellular interface, are emerging in the marketplace.”). For “multi-mode wireless communication devices (i.e., a wireless phone supporting one or more wireless communication technologies),” prior art methods of “achiev[ing] mobility between wireless communication technologies (e.g., switching from Wi-Fi wireless network to WiMAX wireless network without losing connectivity)” generally involved either “hav[ing] all wireless communication technologies (e.g., Wi-Fi, Bluetooth, IEEE 802.11) supported in the multi-mode wireless communication device active simultaneously” or “requir[ing] a user to manually change a wireless network connection profile (e.g., a set of rules for activating and deactivating a wireless network (e.g., Wi-Fi wireless LAN) or settings (e.g., a configuration of a wireless communication device)) to activate or deactivate wireless networks as needed.” Ex-1008, ¶¶4-6; *see also* Ex-1011, 1:47-55.

39. “Th[e] first approach allows the wireless communication device to automatically switch between wireless communication technologies.” Ex-1008, ¶¶4-6. “The problem with the first approach is that battery life of the wireless communication device is significantly reduced, as each wireless communication technology transceiver must remain active and searching for signals.” Ex-1008, ¶¶4-

6. Indeed, “multiple wireless interfaces operating concurrently in such phones tend to reduce battery life due to the amount of power consumption.” Ex-1010, ¶3. “Another problem with the first approach is that wireless communication technology transceivers that are enabled but not securely connected can become an attack (e.g., hacking or eavesdropping) target.” Ex-1008, ¶¶4-6. “Furthermore, certain wireless communication technology transceivers for wireless communication technologies such as cellular (CDMA, GSM, Etc.) or IEEE 802.11 (a set of standards for wireless local area network developed by IEEE LAN/MAN Standards Committee) spends more energy (drawing more power) when the wireless communication technology transceiver is scanning for an available signal from a service provider (e.g., Verizon®, AT&T®, Sprint®) than wireless communication technology transceiver spends when it has an established connection with a service provider.” Ex-1008, ¶¶4-6.

40. The second approach, however, “reduces productivity and precludes seamless mobility.” Ex-1008, ¶¶4-6. For example, “an individual having such a device may switch on the Wi-Fi capability of the device once the individual arrives at the office where there is a Wi-Fi access point.” Ex-1011, 1:47-55. “There is a disadvantage associated with manual activation in that it can be inconvenient for the user.” Ex-1011, 1:47-55. “Additionally, the user may inadvertently leave on a Wi-

Fi network card, which has the battery draining disadvantage mentioned above.” Ex-1011, 1:47-55.

41. “Some known mobile stations have a connection manager that switches between Wi-Fi and cellular-based (e.g., WAN IP connectivity) communications based on the availability of each network and other criteria such as application needs, etc.” Ex-1011, 1:33-46. “With such devices, the connection manager software relies upon the Wi-Fi network card of the mobile station to provide an indication whether a Wi-Fi communication network is currently available.” Ex-1011, 1:33-46. “Leaving a Wi-Fi network card switched on for this purpose undesirably utilizes battery power because the network card must be switched on even while it is not being used.” Ex-1011, 1:33-46.

42. “In many instances a user will utilize certain functionality during certain times of day, such as ... WiFi while at home.” Ex-1009, 1:19-29. “If the user wants to conserve power on the device, the user might turn this functionality off when it is not needed.” Ex-1009, 1:19-29. “In many cases, however, the user will forget to turn the functionality off, which can lead to an unnecessary drain on power, as well as on aspects such as processing capacity and bandwidth.” Ex-1009, 1:19-29. “Further, even when the user remembers to turn the functionality off, the user might not enjoy having to continually turn certain functionality on and off each day.” Ex-1009, 1:19-29.

43. Therefore, at the time of the alleged invention it would have been considered highly desirable to provide power conservation in a multi-mode wireless communication device. *See, e.g.*, Ex-1008, ¶¶4-6.

44. Indeed, I have used a wide range of mobile phones since the 1990s. All of these phones were battery operated and had features to conserve battery power. In fact, battery life was considered to be a “critical concern” when designing systems and applications for mobile devices. Ex-1026, 1; Ex-1027, 74, 88. “According to a user survey by Gartner in France, Germany, Italy, Spain, Sweden and United Kingdom, battery life, size, weight and price were the most important considerations for people buying mobile phones.” Ex-1027, 74.

45. Accordingly, it would have been considered advantageous to provide automatic management of radio capabilities for a mobile station such it was not required for a radio to be permanently switched on and/or such that manual activation of the radio capability was not required. *See, e.g.*, Ex-1011, 1:56-59.

VIII. THE '840 PATENT

A. Overview of the '840 Patent

46. The '840 Patent purports to disclose a device (e.g., mobile platform) with a plurality of radios and logic to activate and deactivate the radios in response to a change in location. Ex-1001, Abstract. Specifically, the '840 Patent describes a device comprising a plurality of radios wherein each radio supports a different

wireless technology (e.g., cellular, Wi-Fi, and Bluetooth). *Id.*, 2:18-25. The '840 Patent discloses logic that detects “changes in location for the mobile platform” based on location and other information, including connection loss information, that is supplied by the plurality of radios. *Id.*, Abstract, 2:12-14. The logic also activates and/or deactivates, for example, the Wi-Fi radio in response to changes in the location of the mobile platform. *Id.*, Abstract, 2:12-17. The '840 Patent further describes “location profile[s],” with entry and exit criteria, and rules to activate and/or deactivate the plurality of radios if the criteria are satisfied. *Id.*, Abstract, 5:9-39. By selectively activating and/or deactivating the plurality of radios, rather than having them run continuously, the device is able reduce its power consumption and extend its battery life. *Id.*, 3:24-30.

B. Challenged Claims

47. The claims at issue are Claims 1-2, 4-7, 9-12, and 14-15 of the '840 Patent.

C. Prosecution History of the '840 Patent

48. The '840 Patent was filed on December 26, 2014, as a continuation of Application No. 13/173,586 (filed on June 30, 2011), which issued as U.S. Patent No. 9,380,452 (“the '452 Patent”). During prosecution, the claims were rejected for obviousness-type double patenting, which the applicant overcame by filing a terminal disclaimer based on the '452 Patent. *See generally* Ex-1004.

49. The prior art relied on in the Petition was not before the PTO during prosecution of the '840 Patent or during the prosecution of its parent '452 Patent. Accordingly, the Petition presents new arguments that were not considered during prosecution.

D. Priority Date

50. I understand that for the purposes of this proceeding, Petitioner assumes that the '840 Patent is entitled to its earliest alleged priority date, June 30, 2011.

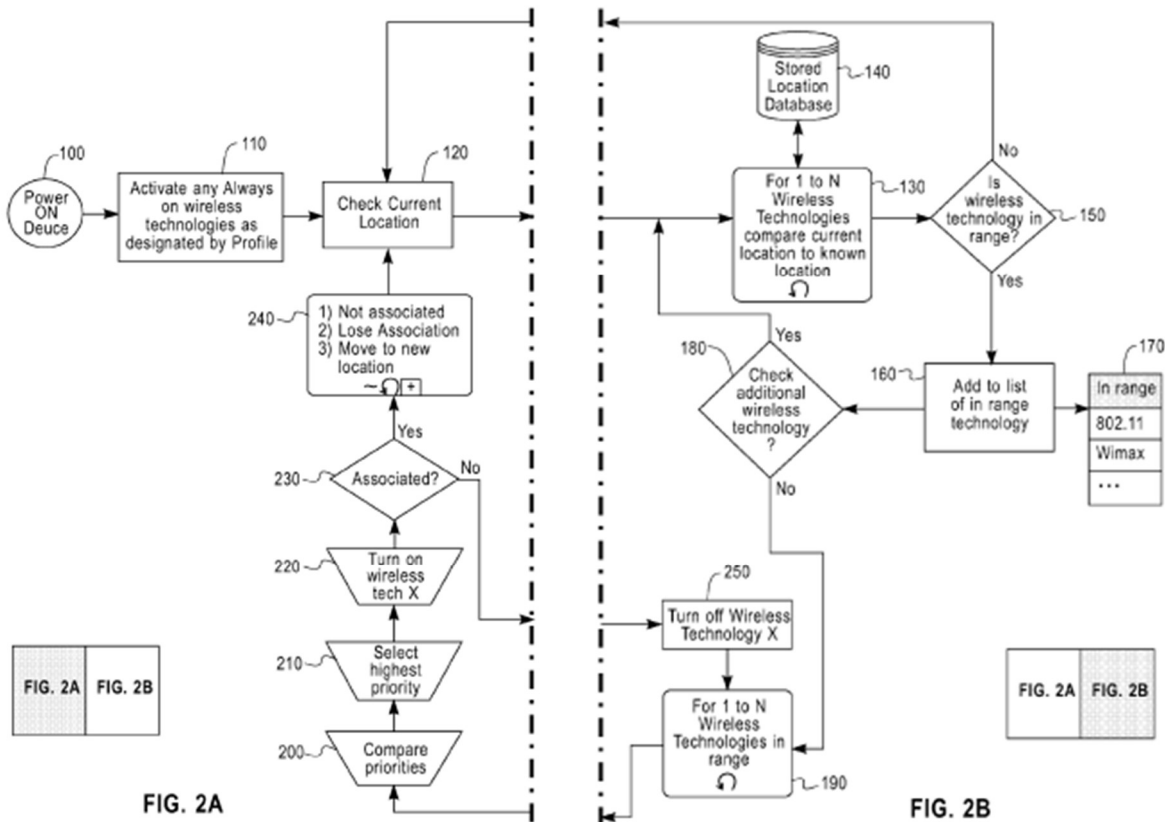
IX. THE PRIOR ART

A. Rippon

51. Rippon was published March 4, 2010. Ex-1008, Cover.

52. I understand that Rippon is prior art under at least §102(b).

53. Rippon discloses a device comprising “one or more wireless communication technology transceivers for one or more wireless communication technologies,” along with “a location-based service system” that is capable of ascertaining the device’s “current location.” Ex-1008, ¶¶8-9, 24; *see also id.*, Abstract. Rippon discloses with Figure 2A/2B, Step 130, that the device’s “current location...is compared to known locations,” which are “locations where one or more wireless communication technologies” in the device “are available to provide a...network connection.” *Id.*, ¶25. These “known locations” are stored in the location database at storage device 140. *Id.*



54. More specifically, Rippon’s location-based service system can “mark a location where the wireless network of the particular wireless communication technology is available.” *Id.*, ¶33. Specifically, “the particular wireless communication technology” for “an available service area” is constructed “[b]ased on physical range characteristics of the particular wireless network” (e.g., “Wi-Fi wireless network has a range of 32 m (120 ft) to 95 m (300 ft)” and “IEEE 802.11 wireless network has a range of 300 ft to 600 ft”). *Id.* Once the multi-mode wireless communication device “enters the available service areas,” “a wireless communication technology transceiver of the particular wireless communication

technology is activated in order to connect to the wireless network.” *Id.* When the device “loses contact with the currently connected wireless network or leaves the available service area, the wireless communication technology transceiver is programmed to become deactivated.” *Id.* A set of rules, called “a wireless network connection profile,” controls “activation and deactivation” “of wireless communication technologies” (“e.g., when and where”). *Id.*, ¶35.

55. The device may “lose connectivity with the currently[-]connected wireless network due to a persistent nature of the...transceiver,” for example, if the user moves to a new location. *Id.*, ¶¶28, 30. In response to such a loss of connection, Rippon’s location-based service may be “re-activated automatically,” e.g., its GPS-based transceiver “is activated to detect the new location” of the device. *Id.* This new location is “provided to the location database to find out a newly available wireless communication technology at the new location.” *Id.*, ¶30.

56. Moreover, Rippon discloses a “wireless network connection profile[]” for “a home WiFi network” that “records a location of WiFi network at home” and another for “an office WiFi network” that records an office Wi-Fi location. *Id.*, ¶33. The device’s Wi-Fi transceiver, for example, is only activated when it “comes in range...of a location of the home WiFi network or a location of the office WiFi network.” *Id.* When the device “leaves in range of the location” (whether the home or office network), “the WiFi transceiver is deactivated.” *Id.*

B. Arumi

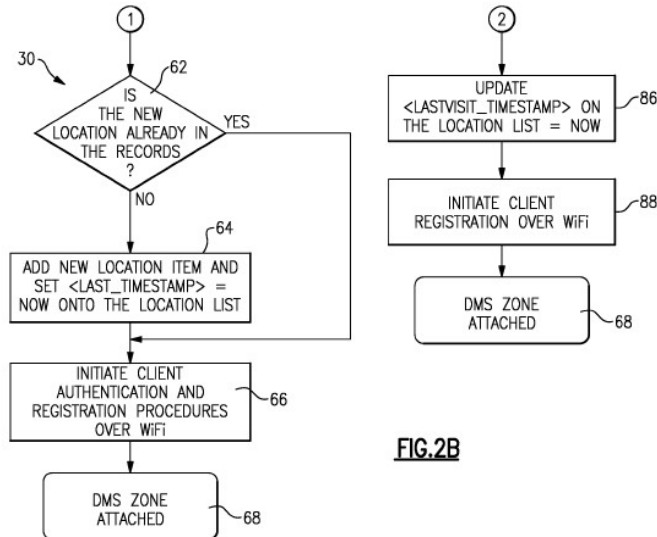
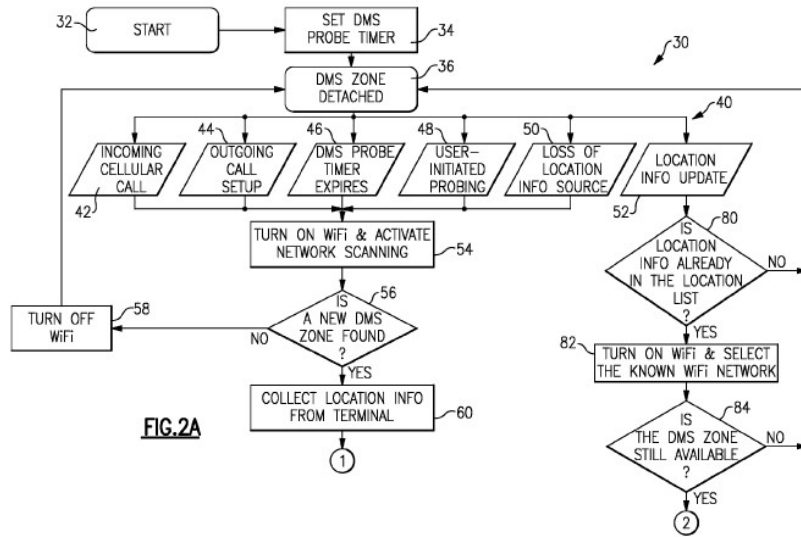
57. Arumi was published December 11, 2008. Ex-1011, Cover.

58. I understand that Arumi is prior art under at least §102(b).

59. Arumi discloses “managing Wi-Fi capability for a mobile station” via “turning off a Wi-Fi communications portion” “when...Wi-Fi communications” “is not being used” in order to conserve the device’s battery life. Ex-1011, ¶¶7, 18, 20, Figure 1. Moreover, Arumi discloses controlling the activation of Wi-Fi capability in response “to at least one of a plurality of...triggering events.” *Id.*, ¶15. These “triggering events...instigate a Wi-Fi probing mode used for determining whether the Wi-Fi capability should remain active.” *Id.*

60. Arumi’s “mobile station” comprises “Wi-Fi communication capability” (e.g., “a Wi-Fi network card”) and “communication capability such as cellular phone communications over a wireless network (e.g., UMTS, GSM or CDMA communications).” *Id.*, ¶¶17, 19. Indeed, the mobile station is capable “of operating in more than one mode for communicating” (i.e., both “Wi-Fi communications” and “another type of communications”) and is thus “considered a dual mode service (DMS) mobile station.” *Id.*

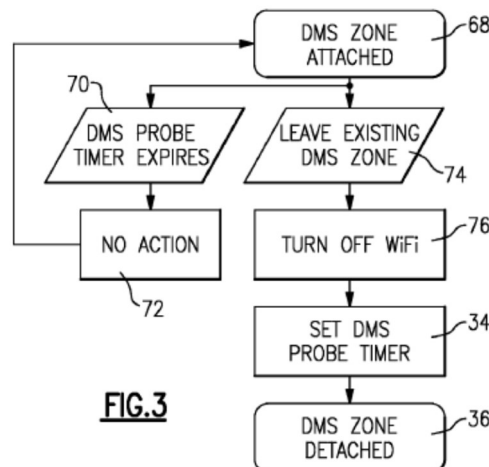
61. Figure 2A/2B depicts the exemplary process, starting at 32 in Figure 2A. “Whenever the Wi-Fi capabilities are turned off, they remain off until [a] triggering event[] occurs.” *Id.*, ¶21, Figures 2A-2B.



62. Triggering events may include, for example, “the loss of a location information source at 50,” which “addresses a situation where the mobile station may control Wi-Fi capability based on known location information.” *Id.*, ¶¶21, 25. Thus, triggering event 50 “recognizes that if a mobile station loses contact” with a location information source, for example, if it “loses sight of GPS satellites, it may be beneficial to probe for Wi-Fi access at that time.” *Id.* Triggering events may also

include “a location information update at 52,” which may, for example, “be the result of user movement between different locations.” *Id.*, ¶¶21, 30. When any triggering event occurs, the device’s Wi-Fi capability turns on and “a Wi-Fi probing mode begins at 54” (i.e., a triggering event “allows for selectively turning on the Wi-Fi communication capability only when it is potentially useful or needed”). *Id.*, ¶26. Thus, loss of location source triggering event “allows for potentially establishing a Wi-Fi connection, which can be used to obtain location information.” *Id.*, ¶25.

63. For all triggering events, “once the Wi-Fi capabilities are active,” they remain active “until the user disconnects from the Wi-Fi access point manually or leaves the area of coverage of that DMS zone.” *Id.*, ¶29, Figure 3. Thus, if the device “leaves the existing DMS zone” (at 74), its Wi-Fi capabilities “are automatically turned off” at 76. *Id.*



C. Moy

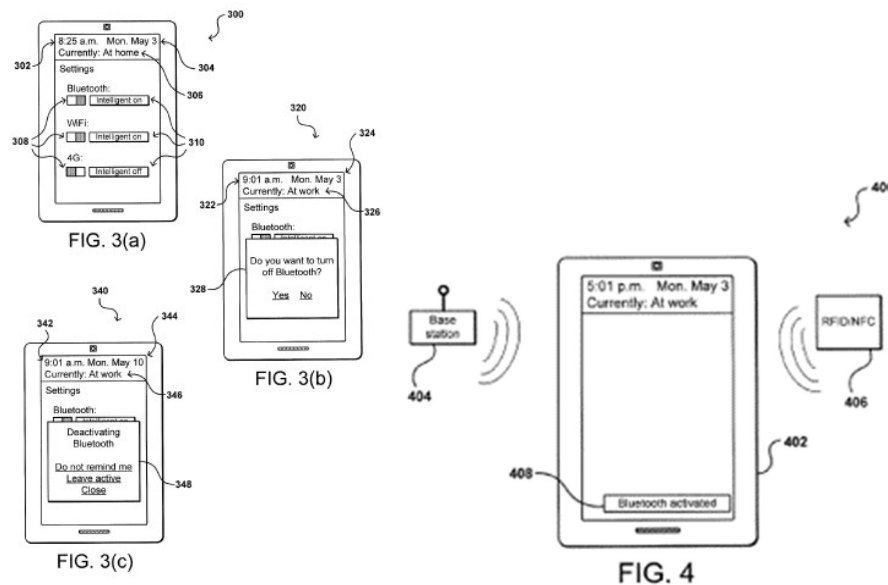
64. Moy was filed on June 27, 2011. Ex-1009, Cover.

65. I understand that Moy is prior art under at least §102(e).

66. Moy discloses a device that “can monitor when a user activates or deactivates certain functionality,” such as, for example, “activating Bluetooth functionality to synchronize with an automobile communication system while driving to work” or activating “WiFi functionality to access Web-based content while at home.” Ex-1009, 2:25-29. The user may also “deactivate this functionality when leaving the respective environment.” *Id.* For example, a user may “want to turn off a 4G cellular connection when the user is in a meeting,” “on a plane,” or “in a movie theater,” and instead “only utilize WiFi when at home or at a particular coffee shop.” *Id.*, 5:17-20. In this example, the user may “turn on Bluetooth when the user leaves for work in the morning on a weekday” and, in response to the switched setting, the device may attempt to ascertain “any relevant contextual or environmental data, such as...a geographic location 306 where the device was when the setting was changed.” *Id.*, 5:23-30.

67. Moy further discloses “various other environmental information” that can be used by the system to determine whether to activate or deactivate functionality. For example, a user may occasionally sit in the car before entering the workplace to finish making personal calls and therefore “not want the device to turn

off Bluetooth simply when the user pulls into the parking lot at work at the normal time.” *Id.*, 6:29-35. To that end, Moy discloses with Figures 3 and 4 that “the device can look for additional information” indicating “more accurately when the user would like to perform the action” such as, in this example, when “the user has gotten out of [his] car and entered a building at work.” *Id.*, 6:35-39, Figures 3-4. In this example, “[u]pon entering the building, passing through security, or at another appropriate location,” “device 402” may “come within range of a certain device, such as a WiFi base station 404 or location tag 406, such as an RFID or NFC tag.” *Id.*, 6:40-44, 6:63-65 (“As another example, a computing device might be able to determine from calendar, GPS, or other such data that a user is at an airport.”).



D. Olson

68. Olson was published July 2, 2009. Ex-1010, Cover.

69. I understand that Olson is prior art under at least §102(b).

70. Olson discloses a system that is “programmed to control activation of” the “WiFi interface” “in response to stimulus” indicating that “the mobile unit is within a proximity range of one or more trusted or preferred wireless networks.” Ex-1010, ¶33. This proximity range does not need “to enable communication” between them but can instead “be a looser proximity range, such that there is an increased likelihood that communication...may be enabled.” *Id.* Indeed, the criteria that is used “to trigger activation of the WiFi interface” may be tailored “to a desired level geographic or regional specificity.” *Id.*, ¶40.

71. Olson further discloses “network location data” that may “include predefined location criteria that is associated with a geographical region or zone that includes one or more preferred wireless network” and/or may be “programmed based on a known set of such data” that has been supplied by the carrier(s) providing services for a particular zone or region, for example, “from a comparison of a cellular coverage maps with the location of the access points in the wireless enterprise network.” *Id.*, ¶¶34-35. A “compare function” can determine “whether the location determined by the location calculator...substantially matches at least one of the pre-programmed location-indicating data in the network location data” and/or ascertain “a match based on a comparison of the extracted parameter(s) relative to the pre-programmed data in the network location data.” *Id.*, ¶38. A “match...occurs when

the mobile unit resides within a predetermined region, such as may be defined to contain one or more known wireless networks.” *Id.*

72. Table 1 shows a potential “set of location identifying data” that may “be stored in the network location data.” *Id.*, ¶42. Specifically, Table 1 depicts “cellular location information for a given building” that comprises “access points AP1, AP2, AP3, AP4 and AP5 in a multi-building enterprise.” *Id.*, ¶43.

TABLE 1			
ACCESS POINT	CELL ID	LAC	SECTOR ID
AP1	CID_2, CID_4	LL5	SS2
AP2	CID_2, CID_4, CID_5	LL5	SS3
AP3	CID_2, CID_4	LL5	SS2
AP4	CID_2, CID_3, CID_5	LL5	SS3
AP5	CID_2, CID_4,	LL5	SS1

73. However, “network location data...can be extended to accommodate different sizes and configurations of wireless networks and enterprises, which may include any number of wireless networks.” *Id.*, ¶39.

74. For example, as shown in Figures 4-6, when “mobile unit 216” “has entered the building 202 through the entry 212,” the mobile unit may still “receive cellular network parameters in signals 222 and 224 from the base stations 218 and 220” and, further, the wireless network “can handoff the mobile unit 216 to connection to any of the access points AP1, AP2, AP3, AP4 and AP5 as the mobile unit moves within the building 202.” *Id.*, ¶48, Figures 4-6.

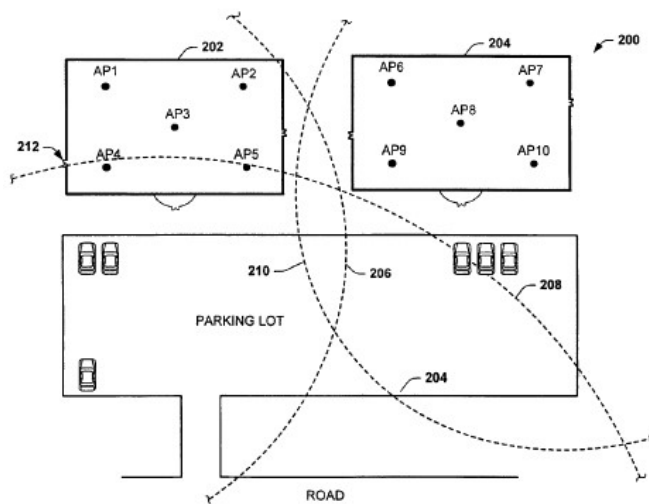


FIG. 4

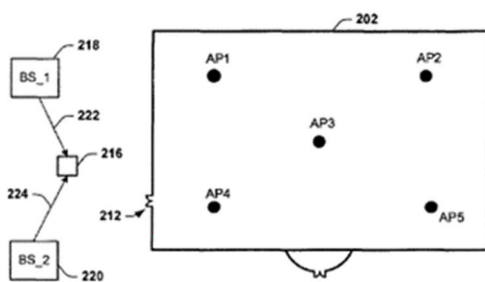


FIG. 5

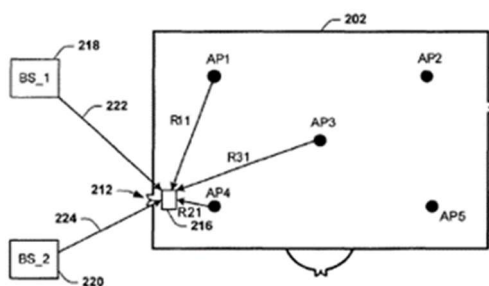


FIG. 6

X. SPECIFIC BASES OF MY INVALIDITY OPINIONS

A. Ground 1: Claims 1-2, 4-7, 9-12, and 14-15 are obvious over Rippon.

1. Independent Claims 1, 6, and 11

a. Element 6[pre]: A mobile platform comprising:

Element 1[a] / 11[a][i]: ...for a mobile platform...

Element 11[pre]: An apparatus comprising:

75. Rippon discloses Elements 6[pre] (to the extent 6[pre] is limiting), 1[a]/11[a][i], and 11[pre] (to the extent 11[pre] is limiting).

76. Specifically, Rippon discloses a mobile platform.

77. Rippon discloses “a multi-mode wireless communication device.” Ex-1008, Abstract, ¶2. Rippon’s device may be, “[f]or example, a cellular phone” or a “wireless phone supporting one or more wireless communication technologies.” Ex-1008, ¶¶24, 31. Rippon’s “typical” device will have “a combination of hardware and software” and may be a “general purpose computer system” or “a computer program product.” Ex-1008, ¶43; *see also id.*, Figure 1.

78. Similar to Rippon’s disclosures, the ’840 Patent describes a “mobile platform,” which may comprise a “mobile Internet device (MID), PDA, wireless smartphone...and so forth.” Ex-1001, 2:4-17. The ’840 Patent also describes its mobile platform as supporting various networks such as “GSM,” “Wi-Fi,” and “Bluetooth.” *Id.*, 2:18-32.

79. Accordingly, Rippon discloses a mobile platform.

b. Element 6[a]: a plurality of radios; and

Element 1[a] / 11[a][i]: ...having a plurality of radios...

80. Rippon discloses Elements 6[a] and 1[a]/11[a][i].

81. Specifically, Rippon discloses a plurality of radios.

82. Rippon discloses a multi-mode wireless communication device that includes “one or more wireless communication technology transceivers for one or more wireless communication technologies,” along with “a location-based service system” that is capable of ascertaining the device’s “current location.” Ex-1008, ¶¶8-9, 24; *see also id.*, Abstract, Claim 1 (“the multi-mode wireless communication device having three or more wireless communication technology transceivers”). Specifically, Rippon discloses that its multi-mode wireless communication device, may be “a wireless phone supporting one or more wireless communication technologies and having at least one location-based service system.” *Id.*, ¶24, Figures 2A-2B. These wireless communication technologies may include “one or more of: CDMA..., GSM..., Wi-Fi..., Bluetooth, EDGE..., and LTE.” *Id.* The “location-based service system” may be “a GPS or GPS-based transceiver located on or embedded within the multi-mode wireless communication device.” *Id.*

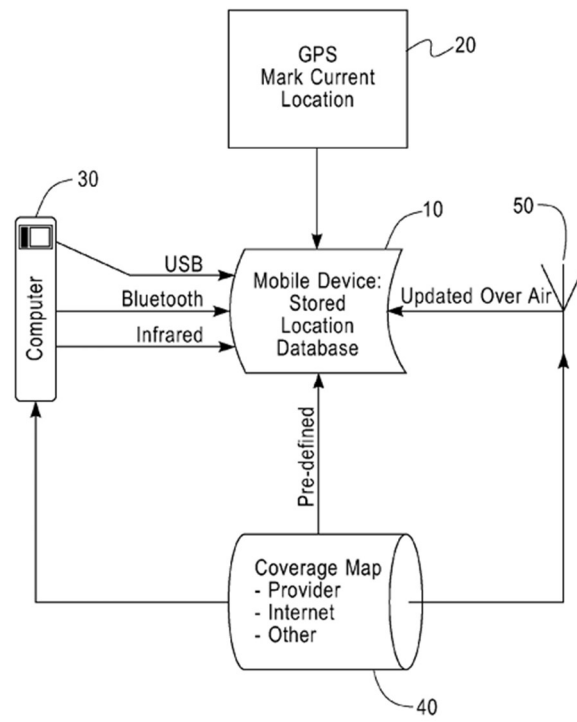
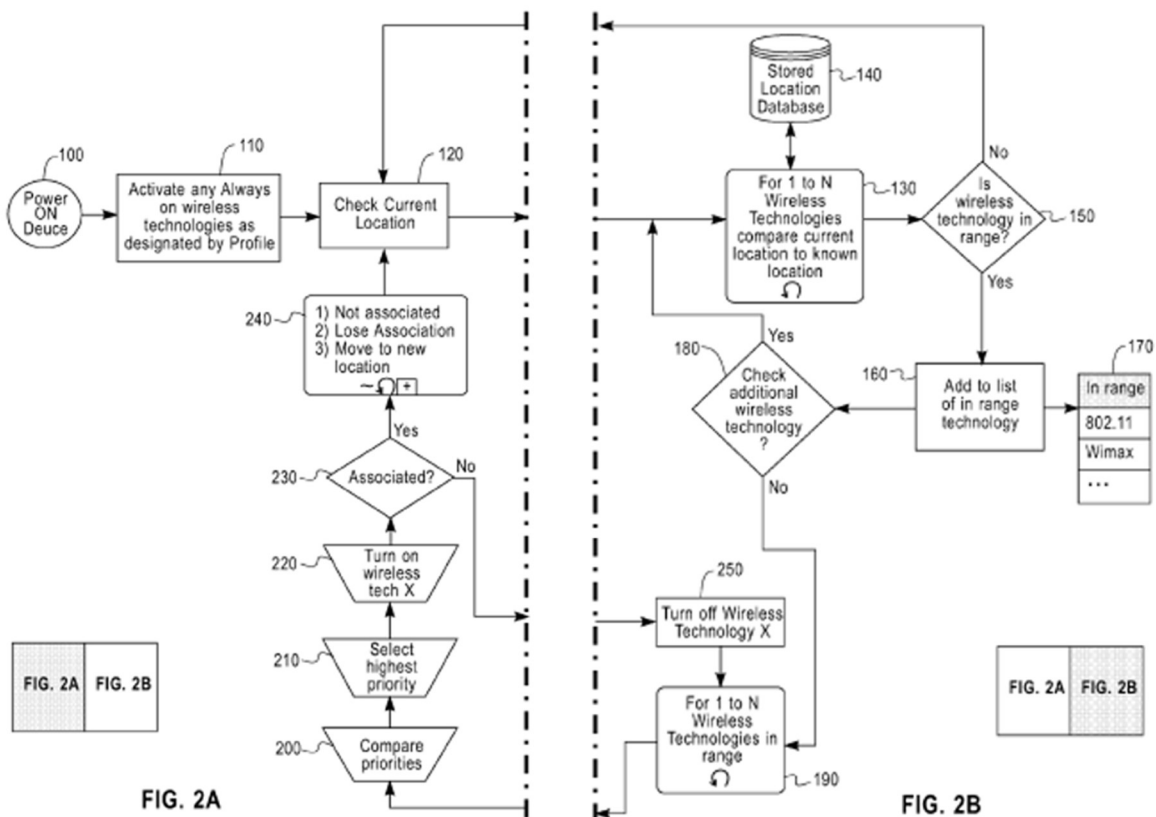


FIG. 1



83. Moreover, Rippon’s transceivers (i.e., the claimed “plurality of radios”) can operate independently of one another. Rippon discloses that its device can “leverag[e] a Global Positioning System (GPS) or other types of location-based service systems to activate and deactivate certain wireless transceivers within a multi-mode wireless communication device as needed.” *Id.*, ¶7.

84. Moreover, Rippon discloses that its transceivers send and receive information, such as “a coverage map” via “wireless communication, satellite communication,” or “under the water communication.” *Id.*, ¶¶37, 41.

85. Similar to Rippon's disclosures, the '840 Patent describes a plurality of radios "that could provide off-platform wireless communication functionality for a wide variety of purposes" such as "W-CDMA (UMTS), CDMA2000 (IS-856/IS-2000)," "Global System for Mobile Communications/GSM," "Wi-Fi," and "Bluetooth." Ex-1001, 2:45-63, 2:18-32. Indeed, the '840 Patent specifically describes a "cellular...radio" and a "Wi-Fi radio." *Id.*

86. Accordingly, Rippon discloses a plurality of radios.

- c. **Element 6[b][i]/ 1[a] / 11[a][i]: logic to, detect a change in location for [the/a] mobile platform [having a plurality of radios], wherein each of the plurality of radios supports a different wireless technology, and the change in location is based on information received from one or more active radios of the plurality of radios on the mobile platform including a connection loss, and**

Element 1[pre]: A non-transitory computer readable storage medium comprising a set of instructions which, when executed by one or more processors, cause a system to:

87. Rippon discloses Elements 6[b][i]/1[a]/11[a][i] and 1[pre] (to the extent 1[pre] is limiting).

88. Specifically, Rippon discloses wherein each of the plurality of radios supports a different wireless technology.

89. Rippon discloses a multi-mode wireless communication device that includes "one or more wireless communication technology transceivers for one or

more wireless communication technologies,” along with “a location-based service system” that is capable of ascertaining the device’s “current location.” Ex-1008, ¶¶8-9, 24; *see also id.*, Abstract, Claim 1 (“the multi-mode wireless communication device having three or more wireless communication technology transceivers”). Specifically, Rippon discloses that its multi-mode wireless communication device, may be “a wireless phone supporting one or more wireless communication technologies and having at least one location-based service system.” *Id.*, ¶24, Figures 2A-2B. These wireless communication technologies may include “one or more of: CDMA..., GSM..., Wi-Fi..., Bluetooth, EDGE..., and LTE.” *Id.* The “location-based service system” may be “a GPS or GPS-based transceiver located on or embedded within the multi-mode wireless communication device.” *Id.*, ¶24.

90. Accordingly, Rippon discloses wherein each of the plurality of radios supports a different wireless technology.

91. Additionally, Rippon discloses logic.

92. For example, Rippon discloses that its device may be realized in “software” such as a “computer readable program code” or “computer program that, when being loaded and executed, controls the computer system such that it carries out the methods described.” *Id.*, ¶¶43, 45.

93. Accordingly, Rippon discloses logic.

94. Further, Rippon discloses logic to detect a change in location for the mobile platform, and the change in location is based on information received from one or more active radios of the plurality of radios on the mobile platform including a connection loss.

95. Rippon's device includes "a location-based service system" that is capable of ascertaining the device's "current location." *Id.*, ¶¶8-9, 24-25, Figures 2A-2B; *see also id.*, Abstract. The "location-based service system" comprises a "logical component" used "to obtain a specific physical location information (e.g., a longitude/latitude location)" of the device. *Id.*, ¶38.

96. Moreover, Rippon's location-based service system can "mark a location where the wireless network of the particular wireless communication technology is available" (i.e., "the particular wireless communication technology" for "an available service area" is constructed "[b]ased on physical range characteristics of the particular wireless network" (e.g., "Wi-Fi wireless network has a range of 32 m (120 ft) to 95 m (300 ft)" and "IEEE 802.11 wireless network has a range of 300 ft to 600 ft")). *Id.*, ¶33. Thus, Rippon's device may recognize when it "enters the available service areas." *Id.* Rippon further discloses detecting a change in location based on information received from an active radio with its disclosure that it "checks its current location based on information from a location-based service system such as a GPS." *Id.*, ¶35.

97. Accordingly, Rippon discloses logic to detect a change in location for the mobile platform, and the change in location is based on information received from one or more active radios of the plurality of radios.

98. Moreover, Rippon discloses that its device may recognize when it “loses contact with the currently connected wireless network or leaves the available service area.” *Id.*, ¶33. Indeed, Rippon explains that its device may “lose connectivity with the currently[-]connected wireless network due to a persistent nature of the...transceiver,” for example, if the user moves to a new location. *Id.*, ¶¶28, 30.

99. Accordingly, Rippon discloses logic to detect a change in location for the mobile platform, and the change in location is based on information received from one or more active radios of the plurality of radios, including a connection loss.

100. Furthermore, Rippon discloses that, in response to such a loss of connection, Rippon’s location-based service may be “re-activated automatically,” for example, its GPS-based transceiver “is activated to detect the new location” of the device. *Id.*, ¶¶28, 30. Indeed, the device may reactivate its “location-based service system” when the device “loses connectivity with the currently connected wireless network” or even when “signal strength between the currently connected wireless network and the multi-mode wireless communication device becomes lower than a pre-determined threshold.” *Id.*, ¶32.

101. Thus, Rippon provides further disclosure regarding logic to detect a change in location for the mobile platform, and the change in location is based on information received from one or more active radios.

102. Similar to Rippon's disclosure, the '840 Patent specification describes detecting a change in location "based on absolute (e.g., GPS, 2G/3G triangulation) location information, relative (e.g., proximity to Wi-Fi access point/paired Bluetooth device) location information, or any combination thereof." Ex-1001, 5:9-29. Moreover, the '840 Patent also describes that, in response to a connection loss (e.g. "determining that the Wi-Fi connection has been lost"), the device may "activate one or more inactive radios (e.g., GPS radio) in order to obtain...location information." *Id.*, 3:63-4:12.

103. Accordingly, Rippon discloses logic to detect a change in location for the mobile platform, and the change in location is based on information received from one or more active radios of the plurality of radios.

d. Element 6[b][ii] / 1[b] / 11[a][ii]: activate a Wi-Fi radio in response to the change in location,

104. Rippon discloses Element 6[b][ii]/1[b]/11[a][ii].

105. Specifically, Rippon discloses logic to activate a Wi-Fi radio in response to the change in location.

106. Rippon's device includes "a location-based service system" that is capable of ascertaining the device's "current location." Ex-1008, ¶¶8-9, 24-25,

Figures 2A-2B; *see also id.*, Abstract. Indeed, Rippon discloses that it “checks its current location based on information from a location-based service system such as GPS.” *Id.*, ¶35. Moreover, Rippon’s location-based service system can “mark a location where the wireless network of the particular wireless communication technology is available.” *Id.*, ¶33. Specifically, “the particular wireless communication technology” for “an available service area” is constructed “[b]ased on physical range characteristics of the particular wireless network” (e.g., “Wi-Fi wireless network has a range of 32 m (120 ft) to 95 m (300 ft)” and “IEEE 802.11 wireless network has a range of 300 ft to 600 ft”). *Id.* Once the multi-mode wireless communication device “enters the available service areas” (i.e., upon the claimed “change in location”), “a wireless communication technology transceiver of the particular wireless communication technology is activated in order to connect to the wireless network” (i.e., the claimed “activate a Wi-Fi radio”). *Id.* Thus, for instance, the device’s “Wi-Fi transceiver” is activated when it “comes in range (Wi-Fi wireless network has a range of 32 m (120 ft) to 95 m (300 ft)) of a location of the home WiFi network or a location of the office WiFi network” (i.e., upon the claimed “change in location”). *Id.*, ¶33. Indeed, Rippon further discloses that “[t]he wireless network connection profiles have a set of predefined selection criteria (e.g., priority or preference information), which the multi-mode wireless communication device

uses to manage activation or deactivation of wireless communication technologies.”
Id., ¶35.

107. Therefore, Rippon discloses logic to activate a Wi-Fi radio in response to the change in location (i.e., in response to entering a known location).

108. Moreover, Rippon discloses logic to activate a Wi-Fi radio in response to the device entering a new, unknown location. Rippon discloses that its device, “while visiting a new location,” can “activat[e] each wireless communication technology transceiver temporarily” (e.g., its “Wi-Fi transceiver”) in order to detect “a new available wireless network.” *Id.*, ¶¶33, 38.

109. Therefore, Rippon discloses logic to activate a Wi-Fi radio in response to the change in location (i.e., in response to entering a new location).

110. Similar to Rippon’s disclosures, the ’840 Patent discloses that when a user enters a known location, “radio settings 40 could call for...a Wi-Fi radio of the mobile platform 30 to be activated.” Ex-1001, 3:21-36. “[L]ocation changes may be detected based on absolute (e.g., GPS, 2G/3G triangulation) location information, relative (e.g., proximity to Wi-Fi access point/paired Bluetooth device) location information, or any combination thereof. Other radio provided information such as current speed (e.g., GPS based) could also be used to supplement the illustrated decision making process.” *Id.*, 5:11-14.

111. Accordingly, Rippon discloses activation of a Wi-Fi radio in response to the change in location.

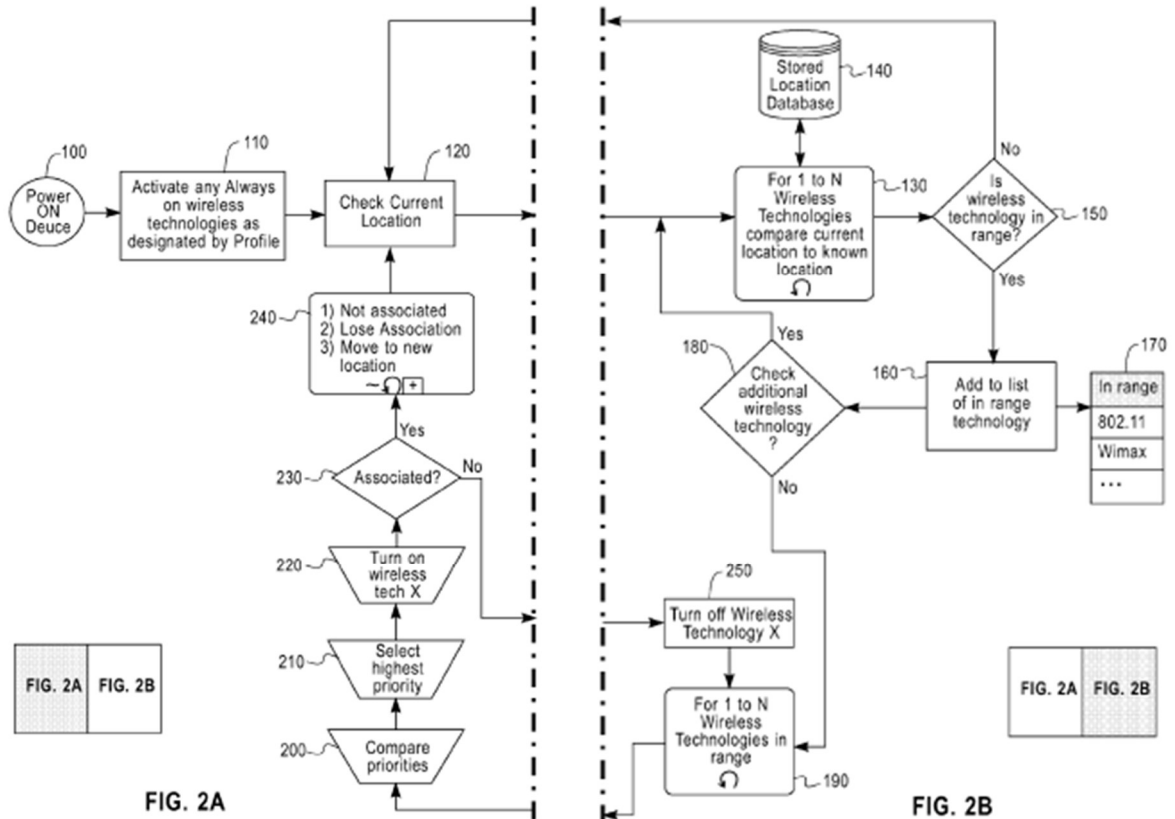
- e. **Element 6[c] / 1[c] / 11[b]: wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.**

112. Rippon discloses Element 6[c]/1[c]/11[b].

113. Specifically, Rippon discloses wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.

114. Rippon discloses with Figure 2A/2B, Step 130, that “for 1 to N wireless communication technologies,” the device’s “current location...is compared to known locations,” which are “locations where one or more wireless communication technologies” in the device “are available to provide a wireless network connection for the user.” Ex-1008, ¶25. These “known locations” are stored in the location database at storage device 140. *Id.* Rippon discloses creating a “profile” “for each location where the...device can be connected to a wireless network.” *Id.*, ¶34. For example, the device may create “two wireless network connection profiles: [o]ne

wireless network connection profile for a home WiFi network” and another “connection profile for an office WiFi network,” where the “profiles record locations.” *Id.*, ¶33.



115. Therefore, Rippon discloses a first profile is associated with a first location and a second profile is associated with a second location.

116. More specifically, Rippon’s location-based service system can “mark a location where the wireless network of the particular wireless communication technology is available.” *Id.*, ¶33. Specifically, “the particular wireless communication technology” for “an available service area” is constructed “[b]ased

on physical range characteristics of the particular wireless network” (e.g., “Wi-Fi wireless network has a range of 32 m (120 ft) to 95 m (300 ft)” and “IEEE 802.11 wireless network has a range of 300 ft to 600 ft”). *Id.* Additionally, the device can recognize when it “enters the available service area[]” and when it “leaves the available service area.” *Id.*, ¶20.

117. Accordingly, Rippon discloses wherein the first profile and the second profile each include location entry criteria and location exit criteria.

118. Further, Rippon discloses wherein the first profile and the second profile each include radio settings including activation and deactivation information for the plurality of radios.

119. Indeed, Rippon discloses creating a “profile” “for each location where the...device can be connected to a wireless network.” *Id.*, ¶34. In other words, Rippon discloses that its system “associates a location with a wireless network connection profile of the...device,” where “a new wireless network connection profile is created for [each] new location.” *Id.*, ¶¶38-41. The “***profile of a certain location stores*** available wireless communication technologies at the location, available service providers at the location,” and “***a set of rules for controlling activation and deactivation of wireless communication technologies*** (e.g., when and where a wireless communication technology is activated or deactivated).” *Id.*, ¶¶34-35 (emphasis added); *see also, e.g., id.*, ¶35 (“The...profiles [are] use[d] to

manage activation or deactivation of wireless communication technologies” (i.e., “transceivers associated with the one or more wireless communication technologies”) “based on what is currently available from one or more wireless communication technologies, provided by one or more service providers”), ¶35 (“For example, [the] profiles associated with the one or more wireless communication technologies may indicate that for this particular location, 2 or more wireless communication technologies should be activated.”).

120. Accordingly, Rippon discloses wherein the first profile and the second profile each include radio settings including activation and deactivation information for the plurality of radios.

121. More specifically, Rippon discloses that its device “iteratively checks its current location based on information from a location-based service system.” *Id.*, ¶35. “Upon providing a current location of the multi-mode wireless communication device, a wireless network connection profile associated with the current location is retrieved.” *Id.*, ¶34. It is then “determined what wireless communication technologies are affected or enabled by a current location of the multi-mode wireless communication device” such that “transceivers that...are no longer valid at the current location...are turned off” while transceivers associated with “available...technologies” are “activated.” *Id.*, ¶35; *see also id.*, ¶35 (“The...profiles have a set of predefined selection criteria (e.g., priority or

preference information), which the...device uses to manage activation or deactivation of wireless communication technologies based on what is currently available from one or more wireless communication technologies.”). Thus, for example, when the device enters a location associated with an “available service area[,]” a “transceiver of the particular wireless communication technology is activated in order to connect to the wireless network” and when the device “leaves the [location,] the...transceiver is programmed to become deactivated.” *Id.*, ¶33.

122. Thus, Rippon provides further disclosure regarding a first profile associated with a first location and a second profile associated with a second location, the first profile and the second profile each including location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.

123. As an example, Rippon discloses that “a cellular phone that includes GPS and WiFi connectivity” may create “two wireless network connection profiles” which “record locations...that are provided by the GPS within the cellular phone”: one profile for “a home WiFi network” that “records a location of WiFi network at home” and another profile for “an office WiFi network” that records an office WiFi location. *Id.*, ¶33. The device’s Wi-Fi transceiver, for example, is only activated when it “comes in range...of a location of the home WiFi network or a location of

the office WiFi network.” *Id.* When the device “leaves in range of the location” (whether the home or office network), “the WiFi transceiver is deactivated.” *Id.*

124. Similar to Rippon’s disclosures, the ’840 Patent discloses the creation of location profiles including “a home profile” and “a work profile.” Ex-1001, 4:31-45. These location profiles may be determined “based on a range of GPS coordinates.” *Id.*, 3:21-36. The ’840 Patent also describes that the profiles “may include radio settings...that indicate which radios should be activated/deactivated” at the location. *Id.*

125. Accordingly, Rippon discloses wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.

2. Dependent Claims 2, 7, 12: “wherein the change in location is a change in relative location with respect to an access point”

126. Rippon discloses dependent Claims 2, 7, and 12.

127. Specifically, Rippon discloses wherein the change in location is a change in relative location with respect to an access point.

128. Rippon discloses that its location-based service system can “mark a location where the wireless network of the particular wireless communication

technology is available.” *Id.*, ¶33. Specifically, “the particular wireless communication technology” for “an available service area” is constructed “[b]ased on physical range characteristics of the particular wireless network” (e.g., “Wi-Fi wireless network has a range of 32 m (120 ft) to 95 m (300 ft)” and “IEEE 802.11 wireless network has a range of 300 ft to 600 ft”). *Id.* Thus, for example, the device’s Wi-Fi transceiver “is only activated when the cell phone comes in range (Wi-Fi wireless network has a range of 32 m (120 ft) to 95 m (300 ft)) of a location of the home WiFi network or a location of the office WiFi network.” *Id.* Indeed, Rippon discloses that it “checks its current location based on information from a location-based service system such as GPS.” *Id.*, ¶35.

129. Accordingly, Rippon discloses wherein the change in location is a change in relative location with respect to an access point.

130. Indeed, Rippon discloses that its transceiver activation settings may also account for “signal strength.” *Id.*, ¶30. Accordingly, “a signal strength detector within the...device...senses signal strength between the...device and a...wireless network,” “and if the signal strength...becomes lower than a pre-determined threshold,” the “location-based service system” is “activate[d]” to “detect[] a current location of the...device.” *Id.*, ¶31; *see also id.*, ¶32. “Then, it is checked whether there are one or more available wireless communication technologies at the current location through communicating with the location database.” *Id.*, ¶31; *see also id.*,

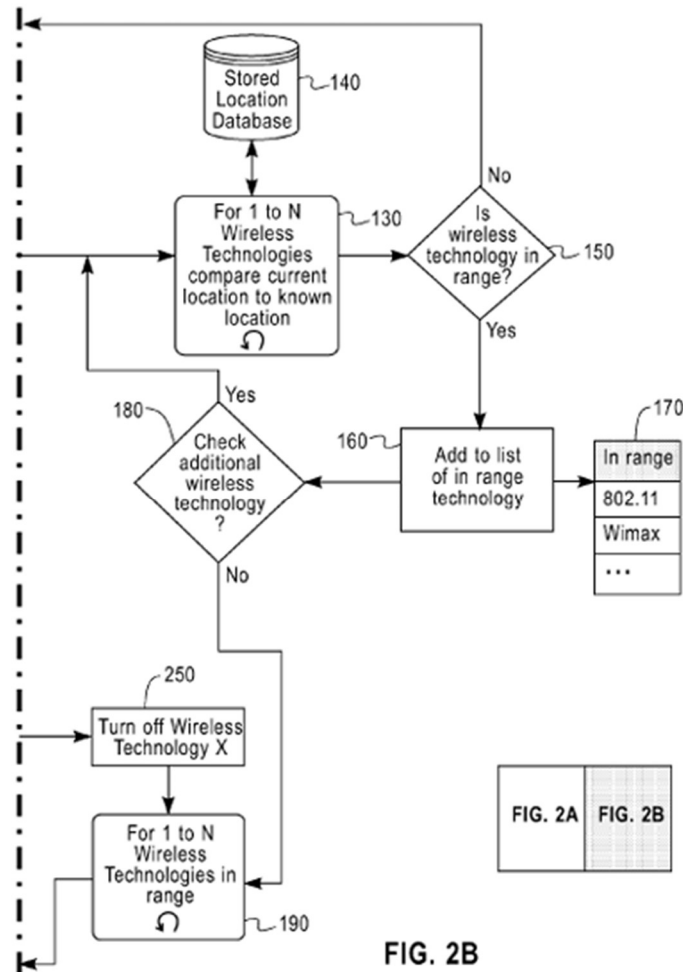
¶32. Next, “each available wireless communication technology transceiver of each available wireless communication technology is temporarily activated to measure signal strength between the multi-mode wireless communication device and each wireless network based on each available wireless communication technology.” *Id.*, ¶31; *see also id.*, ¶32. Finally, “a wireless communication technology transceiver associated with a wireless network having the strongest signal strength is...selected to be activated” and “other wireless communication technology transceivers that were not selected are deactivated, unless the wireless network connection profile at the current location does not require multiple simultaneous activations of wireless communication technology transceivers.” *Id.*, ¶31; *see also id.*, ¶32.

131. Thus, Rippon provides further disclosure regarding the change in location being a change in relative location with respect to an access point.

132. Furthermore, Rippon discloses that “while the multi-mode wireless communication device is connected with an IEEE 802.11 wireless network,” the device “calculates a period or frequency that the location-based service system can be turned off based on a moving speed of” the device “and a physical range characteristic (e.g., IEEE 802.11 wireless network range is 600 ft) of the IEEE 802.11.” *Id.*, ¶28. The location-based service system is then “turned off during that period or based the frequency, by assuming” that the device “is within the physical

range (e.g., 600 ft) of the connected wireless network (e.g., IEEE 802.11) during the period.” *Id.*

133. Accordingly, Rippon provides further disclosure regarding the change in location being a change in relative location with respect to an access point.



134. Moreover, Rippon discloses embodiments wherein a device’s location is understood by the presence or absence of nearby access points. In these embodiments, the device’s service provider communicates a “set of locations where

the...wireless communication transceiver can not be activated” because of a “lack of base stations.” *Id.*, ¶36. When in these zones, the device continues to search for its location to “detect a known location where a wireless communication technology...is available.” *Id.* Thus, the device is either in a location with proximate base stations, or access points, or in a location without them.

135. Thus, Rippon provides further disclosure regarding the change in location being a change in relative location with respect to an access point.

136. Similar to Rippon’s disclosures, the ’840 Patent discloses that in “determining whether a change in location has occurred,” the device may use “absolute...location information,” “relative...location information,” and “[o]ther radio provided information such as current speed (e.g., GPS based)...to supplement the...decision making process.” Ex-1001, 5:9-29.

137. Accordingly, Rippon discloses the change in location being a change in relative location with respect to an access point.

3. Dependent Claims 4, 9, 14: “wherein the access point is a Wi-Fi access point”

138. Rippon further discloses dependent Claims 4, 9, and 14.

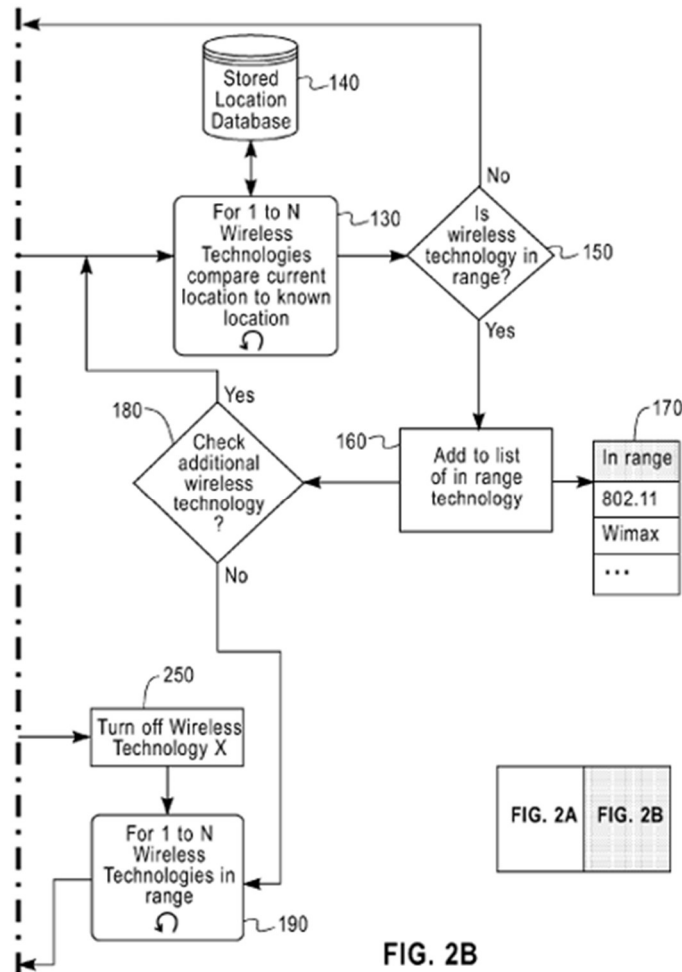
139. Specifically, Rippon discloses wherein the access point is a Wi-Fi access point.

140. Rippon discloses that “while the multi-mode wireless communication device is connected with an IEEE 802.11 wireless network,” the device “calculates

a period or frequency that the location-based service system can be turned off based on a moving speed of” the device “and a physical range characteristic (e.g., IEEE 802.11 wireless network range is 600 ft) of the IEEE 802.11.” Ex-1008, ¶28. The location-based service system is then “turned off during that period or based the frequency, by assuming” that the device “is within the physical range (e.g., 600 ft) of the connected wireless network (e.g., IEEE 802.11) during the period.” *Id.*

141. Indeed, Rippon discloses that the device’s Wi-Fi transceiver “is only activated when the cell phone comes in range (Wi-Fi wireless network has a range of...120...to...300 ft...) of a location of the home WiFi network or a location of the office WiFi network.” *Id.*, ¶33; *see also id.*, ¶33 (disclosing constructing “an available service area” for a “Wi-Fi wireless network” “[b]ased on [its] physical range characteristics” (i.e., “Wi-Fi wireless network has a range of...120...to...300 ft”)).

142. Accordingly, Rippon discloses wherein the access point is a Wi-Fi access point.



143. Rippon further discloses constructing “an available service area” (“e.g where wireless network connections can be made”) for a “Wi-Fi wireless network” “[b]ased on [its] physical range characteristics.” *Id.*, ¶33. These physical range characteristics correspond to the physical distance from the access point at which connections can be made (i.e., “Wi-Fi wireless network has a range of 32 m (120 ft) to 95 m (300 ft)”). *Id.* Then, when the device “enters the available service area[,],” a “transceiver...is activated.” *Id.* For example, the device’s Wi-Fi transceiver “is

only activated when the cell phone comes in range (Wi-Fi wireless network has a range of 32 m (120 ft) to 95 m (300 ft)) of a location of the home WiFi network or a location of the office WiFi network.” *Id.*

144. Accordingly, Rippon discloses wherein the access point is a Wi-Fi access point.

4. Dependent Claims 5, 10, 15: “wherein the change in relative location is based on a proximity to the access point”

145. Rippon further discloses dependent Claims 5, 10, and 15.

146. Specifically, Rippon discloses wherein the change in relative location is based on a proximity to the access point.

147. Rippon discloses that its location-based service system can “mark a location where the wireless network of the particular wireless communication technology is available.” Ex-1008, ¶33. Specifically, “the particular wireless communication technology” for “an available service area” is constructed “[b]ased on physical range characteristics of the particular wireless network” (e.g., “Wi-Fi wireless network has a range of 32 m (120 ft) to 95 m (300 ft)” and “IEEE 802.11 wireless network has a range of 300 ft to 600 ft”). *Id.* Thus, for example, the device’s Wi-Fi transceiver “is only activated when the cell phone comes in range (Wi-Fi wireless network has a range of 32 m (120 ft) to 95 m (300 ft)) of a location of the home WiFi network or a location of the office WiFi network.” *Id.* Indeed,

Rippon discloses that it “checks its current location based on information from a location-based service system such as GPS.” *Id.*, ¶35.

148. Accordingly, Rippon discloses wherein the change in relative location is based on a proximity to the access point.

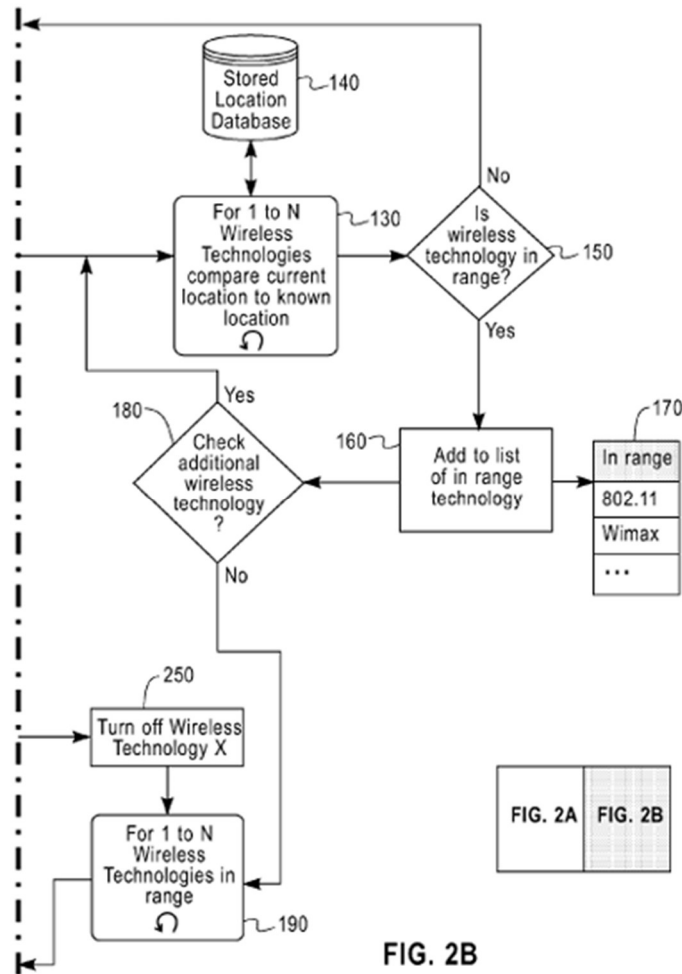
149. Indeed, Rippon discloses that its transceiver activation settings may also account for “signal strength.” *Id.*, ¶30. Accordingly, “a signal strength detector within the...device...senses signal strength between the...device and a...wireless network,” “and if the signal strength...becomes lower than a pre-determined threshold,” the “location-based service system” is “activate[d]” to “detect[] a current location of the...device.” *Id.*, ¶31; *see also id.*, ¶32. “Then, it is checked whether there are one or more available wireless communication technologies at the current location through communicating with the location database.” *Id.*, ¶31; *see also id.*, ¶32. Next, “each available wireless communication technology transceiver of each available wireless communication technology is temporarily activated to measure signal strength between the multi-mode wireless communication device and each wireless network based on each available wireless communication technology.” *Id.*, ¶31; *see also id.*, ¶32. Finally, “a wireless communication technology transceiver associated with a wireless network having the strongest signal strength is...selected to be activated” and “other wireless communication technology transceivers that were not selected are deactivated, unless the wireless network connection profile at

the current location does not require multiple simultaneous activations of wireless communication technology transceivers.” *Id.*, ¶31; *see also id.*, ¶32.

150. Thus, Rippon provides further disclosure regarding the change in relative location being based on a proximity to the access point.

151. Furthermore, Rippon discloses that “while the multi-mode wireless communication device is connected with an IEEE 802.11 wireless network,” the device “calculates a period or frequency that the location-based service system can be turned off based on a moving speed of” the device “and a physical range characteristic (e.g., IEEE 802.11 wireless network range is 600 ft) of the IEEE 802.11.” *Id.*, ¶28. The location-based service system is then “turned off during that period or based the frequency, by assuming” that the device “is within the physical range (e.g., 600 ft) of the connected wireless network (e.g., IEEE 802.11) during the period.” *Id.*

152. Accordingly, Rippon provides further disclosure regarding the change in relative location being based on a proximity to the access point.



153. Moreover, Rippon discloses embodiments wherein a device's location is understood by the presence or absence of nearby access points. In these embodiments, the device's service provider communicates a "set of locations where the...wireless communication transceiver can not be activated" because of a "lack of base stations." *Id.*, ¶36. When in these zones, the device continues to search for its location to "detect a known location where a wireless communication

technology...is available.” *Id.* Thus, the device is either in a location with proximate base stations, or access points, or in a location without them.

154. Thus, Rippon provides further disclosure regarding the change in relative location being based on a proximity to the access point.

155. Similar to Rippon’s disclosures, the ’840 Patent discloses that in “determining whether a change in location has occurred,” the device may use “absolute...location information,” “relative...location information,” and “[o]ther radio provided information such as current speed (e.g., GPS based)...to supplement the...decision making process.” Ex-1001, 5:9-29.

156. Accordingly, Rippon discloses the change in relative location being based on a proximity to the access point.

B. Ground 2: Claims 1-2, 4-7, 9-12, and 14-15 are obvious over Rippon in view of Moy.

1. A POSITA would have been motivated to combine Rippon with Moy’s teachings and would have had a reasonable expectation of success in doing so.

157. A POSITA would have been motivated to combine the teachings of Moy with Rippon and would have had a reasonable expectation of success in doing so, especially as each relates to the same technologies. *See* Section VII. In fact, both relate to location-based methods for reducing power consumption in wireless communication devices. Ex-1008, Abstract; Ex-1009, Abstract. And both describe activating and deactivating network radio functionality based on known, stored

locations and profiles. Ex-1008, ¶¶25, 33; Ex-1009, 2:25-31, 5:16-20, 6:35-44. Although Rippon discloses using known locations and profiles to activate/deactivate network radio functionality in order to reduce power consumption, Moy provides further details describing a first profile associated with a first location and a second profile associated with a second location, each including location entry and exit criteria and radio settings including activation and deactivation information for the plurality of radios. Ex-1009, 2:25-31, 5:16-20, 6:35-44.

158. A POSITA would have been motivated to apply Moy's additional teachings regarding location profiles to Rippon to enhance the power-conserving capabilities of the device. *See* Section VII. Indeed, Rippon's stated goal is to "provide power conservation" (Ex-1008, ¶6), and Rippon recognized the power-conserving benefits of creating "profiles" using "known locations" and deactivating radios not in use (*id.*, ¶¶34-35, 38-41). Moy discloses a similar goal and method, describing "turn[ing] functionality off when it is not needed" in order to "conserve power on the device" (Ex-1009, 1:19-29), and Moy discloses using profiles, each including location entry/exit criteria and radio settings including activation/deactivation information for the plurality of radios, to further that goal (*id.*, 2:10-13, 2:25-31, 5:16-20, 6:35-44). Based on the teachings of Moy, a POSITA would have recognized that including profiles with explicit location entry/exit criteria and radio settings including activation/deactivation information for the

plurality of radios in Rippon's disclosed system would have enhanced Rippon's power-conserving benefits. *See* Section VII. In particular, a POSITA would have recognized that applying Moy's teaching of profiles with explicit location entry/exit criteria and radio activation/deactivation information to Rippon's system would provide further opportunities for the deactivation of radios when not in use and further opportunities to limit the activation of radios to only when appropriate for the user, both furthering Rippon's power-conservation goals. For example, a POSITA would have recognized that applying Moy's teachings regarding profiles with explicit location entry/exit criteria and activation/deactivation settings to Rippon's system would allow Rippon's device to immediately recognize appropriate radio settings upon arrival to and departure from a location, and thus maximize the amount of time that unnecessary radios are deactivated (and, as a result, the power-conserving capabilities of the device).

159. Moreover, implementing Moy's power-conserving mechanisms into Rippon's device would have been a straightforward engineering task for a POSITA as both Moy and Rippon disclose standard mobile computing devices. Indeed, both Rippon and Moy disclose general purpose computing devices that work in the same general way and that a POSITA would have understood were capable of using the same and/or similar programming languages and/or operating systems. *See* Section VII. Accordingly, a POSITA would have had a reasonable expectation of success

in implementing the approaches described in Moy into Rippon's system as the implementation would have been a matter of straightforward engineering and thus would have yielded predictable results. *See* Section VII. For example, both Rippon and Moy disclose the use of standard radio systems; controlling such radio systems via software in order to conserve power, as described in Moy, on a general purpose computing device (as described in both Rippon and Moy) was well within the skills of a POSITA.

1. Independent Claims 1, 6, and 11

- a. Element 6[pre]: A mobile platform comprising**
Element 1[a] / 11[a][i]: ...for a mobile platform...
Element 11[pre]: An apparatus comprising:

160. *See* Section X.A.1.a.

- b. Element 6[a]: a plurality of radios; and**
Element 1[a]/11[a][i]: ...having a plurality of radios...

161. *See* Section X.A.1.b.

- c. **Element 6[b][i]/ 1[a] / 11[a][i]: logic to, detect a change in location for [the/a] mobile platform [having a plurality of radios], wherein each of the plurality of radios supports a different wireless technology, and the change in location is based on information received from one or more active radios of the plurality of radios on the mobile platform including a connection loss, and**

Element 1[pre]: A non-transitory computer readable storage medium comprising a set of instructions which, when executed by one or more processors, cause a system to:

162. *See* Section X.A.1.c.

- d. **Element 6[b][ii] / 1[b] / 11[a][ii]: activate a Wi-Fi radio in response to the change in location,**

163. *See* Section X.A.1.d.

- e. **Element 6[c] / 1[c] / 11[b]: wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.**

164. Rippon in view of Moy discloses Element 6[c]/1[c]/11[b].

165. Moy discloses wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.

166. A POSITA would have been motivated to apply Moy's teachings regarding profiles with location entry/exit criteria and radio activation/deactivation information to Rippon's disclosed system, and would have had a reasonable expectation of success in doing so, for the reasons discussed in Section X.B.1.

167. Moy discloses that its device may store "settings" comprising "functional state[s] of one or more components of the device" such that the device can automatically "activate, deactivate, or change an operational mode of a function or element" (e.g., "Bluetooth connectivity, WiFi connectivity, and 4G wireless connectivity") in response to learned user behavior, such as a change in location. Ex-1009, 2:25-29, 5:3-13, 5:17-20, 6:9-13, 7:21-26.

168. Accordingly, Moy discloses profiles including radio settings including activation and deactivation information for the plurality of radios.

169. More specifically, Moy discloses that its device that "can monitor when a user activates or deactivates certain functionality," such as, for example, "activating Bluetooth functionality to synchronize with an automobile communication system while driving to work" or activating "WiFi functionality to access Web-based content while at home." *Id.*, 2:25-29. The user may also "deactivate this functionality when leaving the respective environment." *Id.* For example, a user may "want to turn off a 4G cellular connection when the user is in a meeting," "on a plane," or "in a movie theater," and instead "only utilize WiFi when

at home or at a particular coffee shop.” *Id.*, 5:17-20. In this example, the user may “turn on Bluetooth when the user leaves for work in the morning on a weekday” and, in response to the switched setting, the device may attempt to ascertain “any relevant contextual or environmental data, such as...a geographic location 306 where the device was when the setting was changed.” *Id.*, 5:23-30. Thus, as a result of these disclosed settings, “the user will no longer have to manually activate and deactivate Bluetooth or other such functionality each weekday, but can obtain the power savings of having the functionality deactivated when not needed.” *Id.*, 6:54-57.

170. Accordingly, Moy discloses wherein a first profile is associated with a first location and a second profile is associated with a second location, and it provides further disclosure regarding the profiles each including radio settings including activation and deactivation information for the plurality of radios.

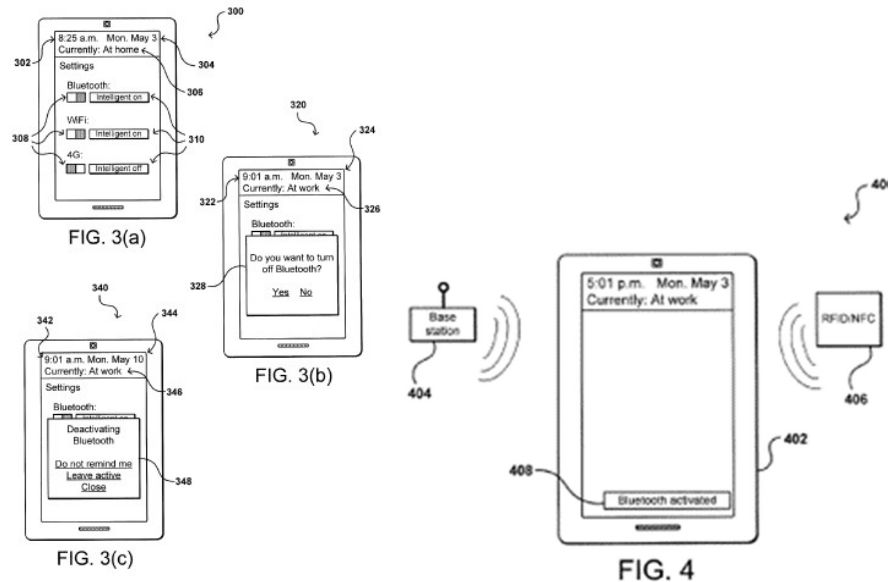
171. Additionally, Moy discloses that its device may recognize various locations and associated profiles. Indeed, the device can recognize when it is located at various locations, such as “at home,” “at a particular coffee shop,” “in a movie theater,” in “a building at work,” or “on the subway.” *Id.*, 3:2, 5:19-20, 6:39. As an “example, a computing device might be able to determine from calendar, GPS, or other such data that a user is at an airport.” *Id.*, 6:63-65. After identifying a location and associated profile, the device can manage what functionalities are appropriate at that location and “automatically turn off certain functionality, such as 4G

connectivity, that the user will not be able to use while on the plane,” for example. *Id.*, 6:67-7:2.

172. Accordingly, Moy provides further disclosure regarding a first profile is associated with a first location and a second profile is associated with a second location, the profiles each including radio settings including activation and deactivation information for the plurality of radios.

173. Moy further discloses “various other environmental information” that can be used by the system to determine whether to activate or deactivate functionality. For example, a user may occasionally sit in the car before entering the workplace to finish making personal calls and therefore “not want the device to turn off Bluetooth simply when the user pulls into the parking lot at work at the normal time.” *Id.*, 6:29-35. To that end, Moy discloses with Figures 3 and 4 that “the device can look for additional information” indicating “more accurately when the user would like to perform the action” such as, in this example, when “the user has gotten out of [his] car and entered a building at work.” *Id.*, 6:35-39, Figures 3-4. In this example, “[u]pon entering the building, passing through security, or at another appropriate location,” device 402 may “come within range of a certain device, such as a WiFi base station 404 or location tag 406, such as an RFID or NFC tag.” *Id.*, 6:40-44.

174. Accordingly, Moy discloses the profiles each including location entry criteria and location exit criteria, and it provides further disclosure regarding a first profile associated with a first location and a second profile associated with a second location.



175. Similar to Moy's disclosures, the '840 Patent discloses the creation of location profiles including "a home profile," "a car profile," and "a work profile." Ex-1001, 4:31-45. These location profiles may be determined "based on a range of GPS coordinates." *Id.*, 3:21-36. The '840 Patent also describes that the profiles "may include radio settings...that indicate which radios should be activated/deactivated" at the location. *Id.*

176. Accordingly, Rippon in view of Moy discloses wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry

criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.

2. Dependent Claims 2, 7, 12: “wherein the change in location is a change in relative location with respect to an access point”

177. *See* Section X.A.2.

3. Dependent Claims 4, 9, 14: “wherein the access point is a Wi-Fi access point”

178. *See* Section X.A.3.

4. Dependent Claims 5, 10, 15: “wherein the change in relative location is based on a proximity to the access point”

179. *See* Section X.A.4.

C. Ground 3: Claims 1-2, 4-7, 9-12, and 14-15 are obvious over Rippon in view of Olson.

1. A POSITA would have been motivated to combine Rippon with Olson’s teachings and would have had a reasonable expectation of success in doing so.

180. A POSITA would have been motivated to combine the teachings of Olson with Rippon and would have had a reasonable expectation of success in doing so, especially as each relates to the same technologies. *See* Section VII. In fact, both relate to location-based methods for reducing power consumption in wireless communication devices. Ex-1008, Abstract; Ex-1010, ¶7. And both describe activating and deactivating network radio functionality based on known, stored locations and profiles. Ex-1008, ¶¶25, 33; Ex-1010, ¶7. Although Rippon discloses

using known locations and profiles to activate/deactivate network radio functionality in order to reduce power consumption, Olson provides further details describing a first profile associated with a first location and a second profile associated with a second location, each including location entry and exit criteria and radio settings including activation and deactivation information for the plurality of radios. Ex-1010, ¶¶34, 48.

181. A POSITA would have been motivated to apply Olson’s additional teachings regarding location profiles to Rippon to enhance the power-conserving capabilities of the device. *See* Section VII. Indeed, Rippon’s stated goal is to “provide power conservation” (Ex-1008, ¶6), and Rippon recognized the power-conserving benefits of creating “profiles” using “known locations” and deactivating radios not in use (*id.*, ¶¶34-35, 38-41). Olson discloses a similar goal and method, describing the invention as generally “aimed to reducing power consumption in a mobile unit” (Ex-1010, ¶4), and Olson discloses using profiles, each including location entry/exit criteria and radio settings including activation/deactivation information for the plurality of radios, to further that goal (*id.*, ¶¶21-23, 29, 33-35, 38-40, 48). Based on the teachings of Olson, a POSITA would have recognized that including profiles with explicit location entry/exit criteria and radio settings including activation/deactivation information for the plurality of radios in Rippon’s disclosed system would have enhanced Rippon’s power-conserving benefits. In

particular, a POSITA would have recognized that applying Olson's teaching of profiles with explicit location entry/exit criteria and radio activation/deactivation information to Rippon's system would provide further opportunities for the deactivation of radios when not in use and further opportunities to limit the activation of radios to only when appropriate for the user, both furthering Rippon's power-conservation goals. *See* Section VII. For example, a POSITA would have recognized that applying Olson's teachings regarding profiles with explicit location entry/exit criteria and activation/deactivation settings to Rippon's system would allow Rippon's device to immediately recognize appropriate radio settings upon arrival to and departure from a location, and thus maximize the amount of time that unnecessary radios are deactivated (and, as a result, the power-conserving capabilities of the device).

182. Moreover, implementing Olson's power-conserving mechanisms into Rippon's device would have been a straightforward engineering task for a POSITA as both Olson and Rippon disclose standard mobile computing devices. Indeed, both Rippon and Olson disclose general purpose computing devices that work in the same general way and that a POSITA would have understood were capable of using the same and/or similar programming languages and/or operating systems. *See* Section VII. Accordingly, a POSITA would have had a reasonable expectation of success in implementing the approaches described in Olson into Rippon's system as the

implementation would have been a matter of straightforward engineering and thus would have yielded predictable results. *See* Section VII. For example, both Rippon and Olson disclose the use of standard radio systems; controlling such radio systems via software in order to conserve power, as described in Olson, on a general purpose computing device (as described in both Rippon and Olson) was well within the skills of a POSITA.

1. Independent Claims 1, 6, and 11

- a. Element 6[pre]: A mobile platform comprising**
Element 1[a] / 11[a][i]: ...for a mobile platform...
Element 11[pre]: An apparatus comprising:

183. *See* Section XA.1.a.

- b. Element 6[a]: a plurality of radios; and**
Element 1[a]/11[a][i]: ...having a plurality of radios...

184. *See* Section X.A.1.b.

- c. **Element 6[b][i]/ 1[a] / 11[a][i]: logic to, detect a change in location for [the/a] mobile platform [having a plurality of radios], wherein each of the plurality of radios supports a different wireless technology, and the change in location is based on information received from one or more active radios of the plurality of radios on the mobile platform including a connection loss, and**

Element 1[pre]: A non-transitory computer readable storage medium comprising a set of instructions which, when executed by one or more processors, cause a system to:

185. *See* Section X.A.1.c.

- d. **Element 6[b][ii] / 1[b] / 11[a][ii]: activate a Wi-Fi radio in response to the change in location,**

186. *See* Section X.A.1.d.

- e. **Element 6[c] / 1[c] / 11[b]: wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.**

187. Rippon in view of Olson discloses Element 6[c]/1[c]/11[b].

188. Olson discloses wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.

189. A POSITA would have been motivated to apply Olson's teachings regarding profiles with location entry/exit criteria and radio activation/deactivation information to Rippon's disclosed system, and would have had a reasonable expectation of success in doing so, for the reasons discussed in Section X.C.1.

190. Olson discloses a system that is "programmed to control activation of" the "WiFi interface" "in response to stimulus" indicating that "the mobile unit is within a proximity range of one or more trusted or preferred wireless networks." Ex-1010, ¶33.

191. Accordingly, Olson discloses profiles including radio settings including activation information for the Wi-Fi radio.

192. Moreover, Olson discloses "deactivat[ing]" or "turn[ing] off" the Wi-Fi radio "such that it utilizes no power" when it is not in use, for example, after a certain amount of time has passed since it has been in use and/or been in connection with a network. *Id.*, ¶29; *see also id.*, Claims 12, 30.

193. Accordingly, Olson discloses profiles including radio settings including deactivation information for the Wi-Fi radio.

194. Furthermore, Olson discloses controlling the activation and deactivation of further wireless interfaces (e.g., "GPS, cellular, WiMax or the like") in the same manner. *Id.*, ¶¶21-23; *see also id.*, ¶23 ("system 10...is configured to control *one or more of the interfaces* 12, 14 and 16 to reduce power consumption").

195. Accordingly, Olson discloses profiles including radio settings including activation and deactivation information for the plurality of radios.

196. Olson discloses that the proximity range that triggers radio activation does not need “to enable communication” between the mobile unit and the wireless network but can instead “be a looser proximity range, such that there is an increased likelihood that communication...may be enabled.” *Id.*, ¶33. Indeed, the criteria that is used “to trigger activation of the WiFi interface” may be tailored “to a desired level geographic or regional specificity.” *Id.*, ¶40.

197. Accordingly, Olson discloses a first profile associated with a first location and a second profile associated with a second location, the profiles each including location entry criteria and location exit criteria.

198. Indeed, Olson discloses “network location data” that may “include predefined location criteria that is associated with a geographical region or zone that includes one or more preferred wireless network” and/or may be “programmed based on a known set of such data” that has been supplied by the carrier(s) providing services for a particular zone or region, for example, “from a comparison of a cellular coverage maps with the location of the access points in the wireless enterprise network.” *Id.*, ¶¶34-35. A “compare function” can determine “whether the location determined by the location calculator...substantially matches at least one of the pre-programmed location-indicating data in the network location data” and/or ascertain

“a match based on a comparison of the extracted parameter(s) relative to the pre-programmed data in the network location data.” *Id.*, ¶38. A “match...occurs when the mobile unit resides within a predetermined region, such as may be defined to contain one or more known wireless networks.” *Id.*

199. Thus, Olson provides further disclosure regarding first and second profiles each including location entry and exit criteria.

200. Table 1 shows a potential “set of location identifying data” that may “be stored in the network location data.” *Id.*, ¶39. Specifically, Table 1 depicts “cellular location information for a given building” that comprises “access points AP1, AP2, AP3, AP4 and AP5 in a multi-building enterprise” (though “network location data...can be extended to accommodate different sizes and configurations of wireless networks and enterprises, which may include any number of wireless networks”). *Id.*

TABLE 1

ACCESS POINT	CELL ID	LAC	SECTOR ID
AP1	CID_2, CID_4	LL5	SS2
AP2	CID_2, CID_4, CID_5	LL5	SS3
AP3	CID_2, CID_4	LL5	SS2
AP4	CID_2, CID_3, CID_5	LL5	SS3
AP5	CID_2, CID_4,	LL5	SS1

201. For example, as shown in Figures 4-6, when “mobile unit 216” “has entered the building 202 through the entry 212,” the mobile unit may still “receive

cellular network parameters in signals 222 and 224 from the base stations 218 and 220” and, further, the wireless network “can handoff the mobile unit 216 to connection to any of the access points AP1, AP2, AP3, AP4 and AP5 as the mobile unit moves within the building 202.” *Id.*, ¶48, Figures 4-6.

202. Thus, Olson provides further disclosure regarding first and second profiles each including location entry and exit criteria.

203. Indeed, Olson discloses profiles associated with different locations. The disclosed device stores “network location data 110,” which “can include predefined location criteria that is associated with a geographical region or zone that includes one or more preferred wireless network.” *Id.*, ¶34. The location data “can be stored as a table, a list or other data structure.” *Id.* The location data can also comprise “a set or range of GPS coordinates that can be derived from GPS data.” *Id.*, ¶36.

204. Accordingly, Olson provides further disclosure regarding a first profile associated with a first location and a second profile associated with a second location.

205. Similar to Olson’s disclosures, the ’840 Patent discloses the creation of location profiles, which may be determined “based on a range of GPS coordinates.” Ex-1001, 3:21-36, 4:31-45. The ’840 Patent also describes that the profiles “may

include radio settings...that indicate which radios should be activated/deactivated” at the location. *Id.*, 3:21-36.

206. Accordingly, Rippon in view of Olson discloses wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.

2. Dependent Claims 2, 7, 12: “wherein the change in location is a change in relative location with respect to an access point”

207. *See* Section X.A.2.

3. Dependent Claims 4, 9, 14: “wherein the access point is a Wi-Fi access point”

208. *See* Section X.A.3.

4. Dependent Claims 5, 10, 15: “wherein the change in relative location is based on a proximity to the access point”

209. *See* Section X.A.4.

D. Ground 4: Claims 1-2, 4-7, 9-12, and 14-15 are obvious over Arumi in view of Moy.

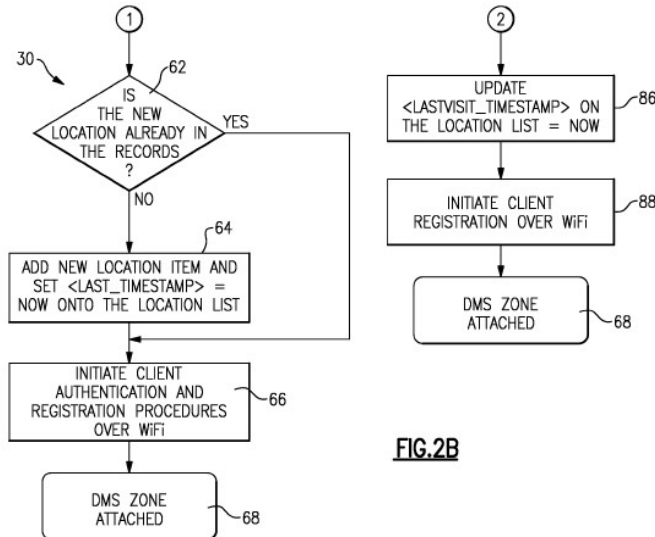
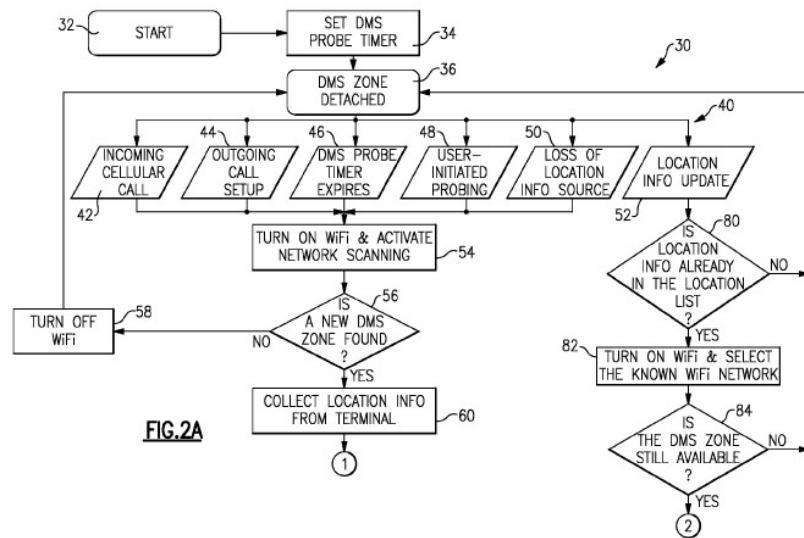
1. A POSITA would have been motivated to combine Arumi with Moy’s teachings and would have had a reasonable expectation of success in doing so.

210. A POSITA would have been motivated to combine the teachings of Moy with Arumi and would have had a reasonable expectation of success in doing

so, especially as each relates to the same technologies. *See* Section VII. In fact, both relate to location-based methods for reducing power consumption in wireless communication devices. Ex-1009, Abstract; Ex-1011, ¶¶4-6. And both describe activating and deactivating a Wi-Fi network based on stored location lists or profiles. Ex-1009, 2:25-31, 5:16-20, 6:35-44; Ex-1011, ¶¶21-22, 27.

211. Specifically, Arumi discloses a method “of managing Wi-Fi capability for a mobile station,” including “turning off a Wi-Fi communications portion...when the mobile station is not being used for Wi-Fi communications” and activating the Wi-Fi capability in response to a “triggering event.” Ex-1011, ¶¶7, 15, 18, 20, Figure 1. These “triggering events...instigate a Wi-Fi probing mode used for determining whether the Wi-Fi capability should remain active.” *Id.*, ¶15.

212. More specifically, Figure 2A/2B depicts the exemplary process, starting at 32 in Figure 2A. “Whenever the Wi-Fi capabilities are turned off, they remain off until [a] triggering event[] occurs.” *Id.*, ¶21, Figures 2A-2B. And, similarly, “once the Wi-Fi capabilities are active,” they remain active “until the user disconnects from the Wi-Fi access point manually or leaves the area of coverage of that DMS zone.” *Id.*, ¶29, Figure 3; *see also id.*, ¶29 (explaining that if the device “leaves the existing DMS zone” (at 74), its Wi-Fi capabilities “are automatically turned off” at 76).



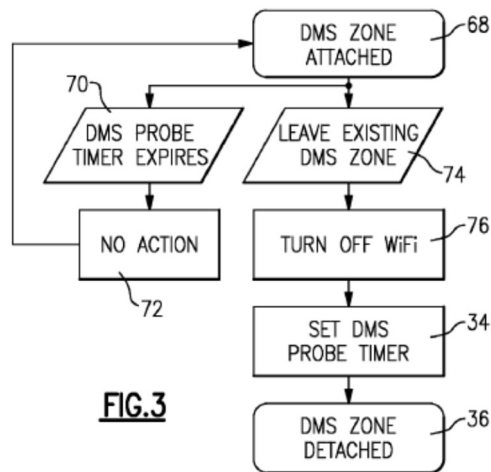
213. Triggering events include, for example, “a location information update at 52” and “the loss of a location information source at 50,” which “addresses a situation where the mobile station may control Wi-Fi capability based on known location information,” and which “recognizes that if a mobile station loses contact” with a location information source, for example, if it “loses sight of GPS satellites,” “it may be beneficial to probe for Wi-Fi access at that time.” *Id.*, ¶¶21, 25.

214. When any triggering event 42-50 occurs, the device's Wi-Fi capability turns on and "a Wi-Fi probing mode begins at 54" (i.e., a triggering event "allows for selectively turning on the Wi-Fi communication capability only when it is potentially useful or needed"). *Id.*, ¶26. A decision is made at 56 as to "whether a Wi-Fi access point is detected in the vicinity." *Id.* Once "Wi-Fi network is detected and through which DMS service is accessible," "that is considered a DMS zone." *Id.* If a DMS zone is not found, the device's Wi-Fi capability "is turned off at 58 and the process returns to the step at 36." *Id.* If "a DMS zone is found," then information regarding the device's current location "is collected from the mobile station at 60." *Id.*, ¶27. That location information is "compared to previously stored Wi-Fi availability locations from a location list" "stored on the mobile station." *Id.* If that DMS zone's location "is not already on the list based upon the determination made at 62," then "a new location is added to the location list at 64." *Id.* If that DMS zone's location was already on the list or after it is added to the list, "a Wi-Fi connection begins at 66." *Id.* Once authentication/registration with the Wi-Fi access point is finalized, "the DMS zone is considered attached at 68 and the Wi-Fi communication capabilities of the mobile station remain active." *Id.*

215. Indeed, Arumi discloses that its mobile station may have "a service set identifier (SSID) whitelist of known SSIDs stored in memory." *Id.*, ¶28. A "known DMS zone" means that "the SSID of a discovered DMS zone is on the whitelist."

Id. A “new DMS zone” may be discovered by the mobile station “when it detects an unknown SSID” and successfully performs the authentication/registration procedures, in which case that SSID will be “added to the known SSID whitelist.”

Id. The system may attempt “to locate a known DMS zone based on the known SSIDs before attempting to identify new or previously unknown SSIDs.” *Id.*



216. Although Arumi discloses using location lists to activate/deactivate Wi-Fi radio in order to reduce power consumption, Moy provides further details describing a first profile associated with a first location and a second profile associated with a second location, each including location entry and exit criteria and radio settings including activation and deactivation information for the plurality of radios. Ex-1009, 2:25-31, 5:16-20, 6:35-44. A POSITA would have been motivated to apply Moy’s additional teachings regarding location profiles to Arumi to enhance the power-conserving capabilities of the device. *See* Section VII. Indeed, Arumi explains that it seeks to improve upon prior art systems that “undesirably utilize[]

battery power” (Ex-1011, ¶4), and Arumi recognized the power-conserving benefits of deactivating Wi-Fi functionality when coverage is lost and creating location lists that store Wi-Fi locations (*id.*, ¶¶26-29). Moy discloses a similar goal and method, describing “turn[ing] functionality off when it is not needed” in order to “conserve power on the device” (Ex-1009, 1:19-29), and Moy discloses using profiles, each including location entry/exit criteria and radio settings including activation/deactivation information for the plurality of radios, to further that goal (*id.*, 2:10-13, 2:25-31, 5:16-20, 6:35-44). Based on the teachings of Moy, a POSITA would have recognized that including profiles with explicit location entry/exit criteria and radio settings including activation/deactivation information for the plurality of radios in Arumi’s disclosed system would have enhanced Arumi’s power-conserving benefits. *See* Section VII.

217. In particular, a POSITA would have recognized that applying Moy’s teaching of profiles with explicit location entry/exit criteria and radio activation/deactivation information to Arumi’s system would provide further opportunities for the deactivation of radios when not in use and further opportunities to limit the activation of radios to only when appropriate for the user, both furthering Arumi’s power-conservation goals. For example, a POSITA would have recognized that applying Moy’s teachings regarding profiles with activation/deactivation settings for the plurality of radios to Arumi’s system would allow Arumi’s device to

maximize the number of unnecessary radios that are deactivated (and, as a result, the power-conserving capabilities of the device). For instance, a POSITA would have understood that, for example, a user may never use Arumi's device's cellular radio while at the movies, and thus would have been motivated to apply Moy's teachings to Arumi's device to deactivate the user's cellular radio while the user is at the movie theater. Moreover, for example, a POSITA would have recognized that applying Moy's teachings regarding profiles with explicit location entry/exit criteria and activation/deactivation settings to Arumi's system would allow Arumi's device to immediately recognize appropriate radio settings upon arrival to and departure from a location, and thus maximize the amount of time that unnecessary radios are deactivated (and, as a result, the power-conserving capabilities of the device).

218. Moreover, implementing Moy's power-conserving mechanisms into Arumi's device would have been a straightforward engineering task for a POSITA as both Moy and Arumi disclose standard mobile computing devices. Indeed, both Arumi and Moy disclose general purpose computing devices that work in the same general way and that a POSITA would have understood were capable of using the same and/or similar programming languages and/or operating systems. *See* Section VII. Accordingly, a POSITA would have had a reasonable expectation of success in implementing the approaches described in Moy into Arumi's system as the implementation would have been a matter of straightforward engineering and thus

would have yielded predictable results. *See* Section VII. For example, both Arumi and Moy disclose the use of standard radio systems; controlling such radio systems via software in order to conserve power, as described in Moy, on a general purpose computing device (as described in both Arumi and Moy) was well within the skills of a POSITA.

2. Independent Claims 1, 6, and 11

a. Element 6[pre]: A mobile platform comprising:

Element 1[a] / 11[a][i]: ...for a mobile platform...

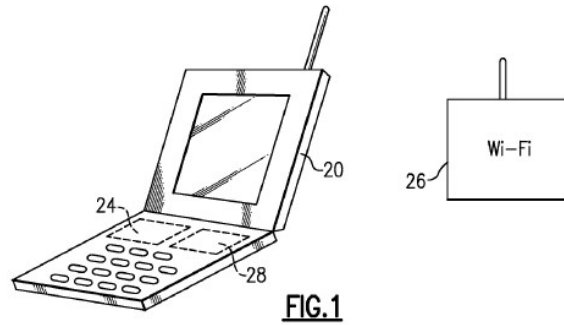
Element 11[pre]: An apparatus comprising:

219. Arumi discloses Elements 6[pre] (to the extent 6[pre] is limiting), 1[a]/11[a][i], and 11[pre] (to the extent 11[pre] is limiting).

220. Specifically, Arumi discloses a mobile platform.

221. Arumi discloses a method “of managing Wi-Fi capability for a mobile station” that “includes turning off a Wi-Fi communications portion of the mobile station when the mobile station is not being used for Wi-Fi communications” in order to conserve the device’s battery life. Ex-1011, ¶¶7, 18, 20, Figure 1.

222. Arumi depicts with Figure 1 “an example mobile station 20,” which may include but is not limited to a cellular phone, personal digital assistant, notebook, or laptop computer. *Id.*, ¶16.



223. Indeed, Arumi discloses that its device is a mobile station that has a “first portion that provides” “Wi-Fi communication capability,” a “second portion that comprises a Wi-Fi communications manager,” and “communication capability such as cellular phone communications over a wireless network (e.g., UMTS, GSM or CDMA communications).” *Id.*, ¶¶17-19. While the device could be a “cellular phone, other mobile stations can be used.” *Id.*, ¶16.

224. Similar to Arumi’s disclosures, the ’840 Patent describes a “mobile platform,” which may comprise a “mobile Internet device (MID), PDA, wireless smartphone...and so forth.” Ex-1001, 2:4-17. The ’840 Patent also describes its mobile platform as supporting various networks such as “GSM,” “Wi-Fi,” and “Bluetooth.” *Id.*, 2:18-32.

225. Accordingly, Arumi discloses a mobile platform.

b. Element 6[a]: a plurality of radios; and

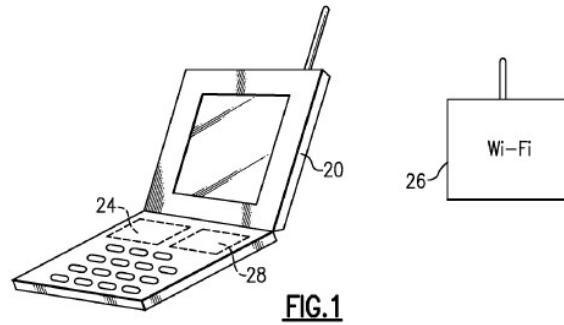
Element 1[a]/11[a][i]: ...having a plurality of radios...

226. Arumi discloses Elements 6[a] and 1[a]/11[a][i].

227. Specifically, Arumi discloses a plurality of radios.

228. Arumi discloses that its “mobile stations” are able to communicate “using a cellular network, Wi-Fi communications or both” and that some mobile stations include “a connection manager that switches between Wi-Fi and cellular-based (e.g., WAN IP connectivity) communications,” based on each network’s availability “and other criteria such as application needs.” Ex-1011, ¶4. In such mobile stations, the software for the connection manager relies on the mobile station’s “Wi-Fi network card” in order to determine “whether a Wi-Fi communication network is currently available.” *Id.*

229. Arumi’s “mobile station” comprises “a first portion...that provides...Wi-Fi communication capability” (e.g., “a Wi-Fi network card”) such that the mobile station is able to “communicate with at least one source...of Wi-Fi communications” (e.g., “any known Wi-Fi access point or device”). *Id.*, ¶17. The mobile station further comprises “communication capability such as cellular phone communications over a wireless network (e.g., UMTS, GSM or CDMA communications).” *Id.*, ¶19. Indeed, Arumi’s mobile station is capable “of operating in more than one mode for communicating” (i.e., both “Wi-Fi communications” and “another type of communications”) and is thus “considered a dual mode service (DMS) mobile station.” *Id.*



230. Arumi further discloses that its device can retrieve its own location through radio communication. The disclosed device can have “[v]arious sources of location information” available to it, including location from “GPS satellites.” *Id.*, ¶25.

231. Similar to Arumi’s disclosures, the ’840 Patent describes a plurality of radios “that could provide off-platform wireless communication functionality for a wide variety of purposes” such as “W-CDMA (UMTS), CDMA2000 (IS-856/IS-2000),” “Global System for Mobile Communications/GSM,” “Wi-Fi,” and “Bluetooth.” Ex-1001, 2:45-63, 2:18-32. Indeed, the ’840 Patent specifically describes a “cellular...radio” and a “Wi-Fi radio.” *Id.*

232. Accordingly, Arumi discloses a plurality of radios.

- c. **Element 6[b][i]/ 1[a] / 11[a][i]: logic to, detect a change in location for [the/a] mobile platform [having a plurality of radios], wherein each of the plurality of radios supports a different wireless technology, and the change in location is based on information received from one or more active radios of the plurality of radios on the mobile platform including a connection loss, and**

Element 1[pre]: A non-transitory computer readable storage medium comprising a set of instructions which, when executed by one or more processors, cause a system to:

233. Arumi discloses Elements 6[b][i]/1[a]/11[a][i] and 1[pre] (to the extent 1[pre] is limiting).

234. Specifically, Arumi discloses wherein each of the plurality of radios supports a different wireless technology.

235. Arumi discloses that its “mobile stations” communicate “using a cellular network, Wi-Fi communications or both” as the mobile stations include “a connection manager that switches between Wi-Fi and cellular-based...communications” based on each network’s availability. Ex-1011, ¶4. Indeed, Arumi’s “mobile station” comprises a radio “that provides...Wi-Fi communication capability” (e.g., “a Wi-Fi network card”). *Id.*, ¶17. The mobile station further comprises a radio that provides “communication capability such as cellular phone communications over a wireless network (e.g., UMTS, GSM or CDMA communications).” *Id.*, ¶19. Indeed, the plurality of radios, each supporting

a different wireless technology, allow the mobile station to “operat[e] in more than one mode for communicating” (i.e., both “Wi-Fi communications” and “another type of communications”) such that the device is “considered a dual mode service (DMS) mobile station.” *Id.*

236. Accordingly, Arumi discloses wherein each of the plurality of radios supports a different wireless technology.

237. Additionally, Arumi discloses logic.

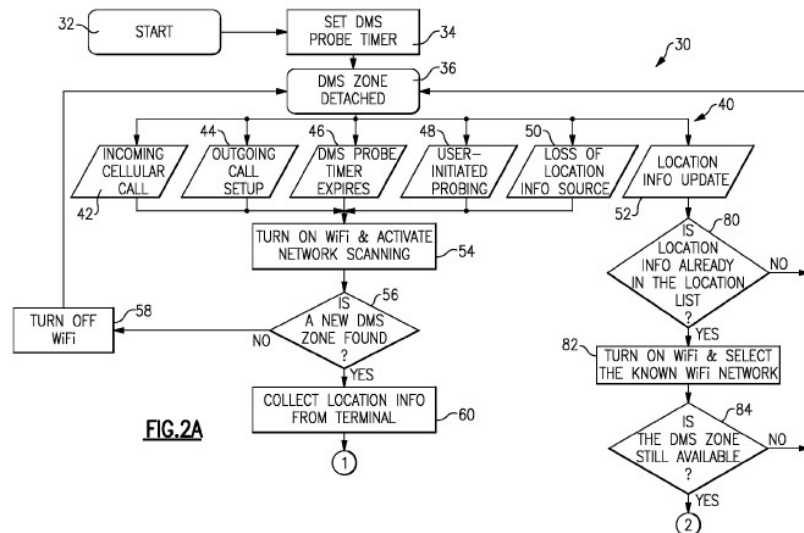
238. For example, Arumi’s device comprises a logical component that “allows for automatically controlling the activation of wireless fidelity (Wi-Fi) communication capability for a mobile station.” *Id.*, ¶15. The device’s “Wi-Fi communications manager...determines when at least one of a plurality of preselected triggering events occurs for purposes of controlling when” the other “portion...is active.” *Id.*, ¶18.

239. Accordingly, Arumi discloses logic.

240. Further, Arumi discloses logic to detect a change in location for the mobile platform, and the change in location is based on information received from one or more active radios of the plurality of radios on the mobile platform including a connection loss.

241. Indeed, Arumi discloses that its device may have “[v]arious sources of location information” available to the device, including information from “GPS satellites.” *Id.*, ¶25.

242. Moreover, Arumi discloses a method “of managing Wi-Fi capability for a mobile station” wherein “triggering events...instigate a Wi-Fi probing mode.” *Id.*, ¶¶7, 15, 18, 20-21, Figure 1; *see also id.*, Figure 2A/2B (depicting the exemplary process, starting at 32 in Figure 2A).



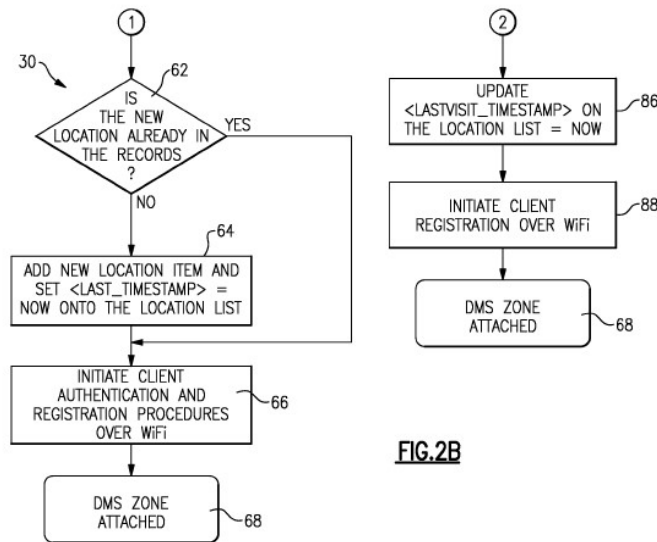


FIG. 2B

243. Triggering events may include, for example, “a location information update at 52.” *Id.*, ¶21. Triggering event 52 “detects an update regarding a location of the mobile station,” which may, for example, “be the result of user movement between different locations.” *Id.*, ¶30.

244. Accordingly, Arumi discloses logic to detect a change in location for the mobile platform, and the change in location is based on information received from one or more active radios of the plurality of radios.

245. Arumi discloses that the triggering events may also include, for example, “the loss of a location information source at 50.” *Id.*, ¶21. “Using the loss of a location information source as a triggering event (i.e., the triggering event 50) addresses a situation where the mobile station may control Wi-Fi capability based on known location information.” *Id.*, ¶25. Thus, triggering event 50 “recognizes that if a mobile station loses contact” with a location information source, for

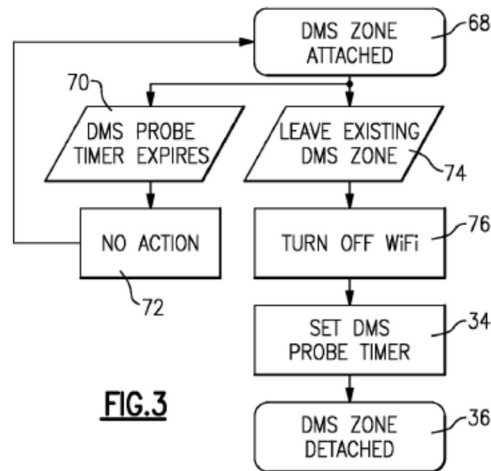
example, if it “loses sight of GPS satellites, it may be beneficial to probe for Wi-Fi access at that time.” *Id.*

246. Accordingly, Arumi discloses detecting a change in location based on information received from one or more active radios, including a connection loss.

247. Moreover, Arumi discloses that when any triggering event occurs, the device’s Wi-Fi capability turns on and “a Wi-Fi probing mode begins at 54.” *Id.*, ¶26. Accordingly, triggering event 50 “allows for potentially establishing a Wi-Fi connection, which can be used to obtain location information.” *Id.*, ¶25.

248. Thus, Arumi provides further disclosure regarding logic to detect a change in location for the mobile platform, and the change in location is based on information received from one or more active radios.

249. Furthermore, Arumi discloses that for all triggering events, “once the Wi-Fi capabilities are active,” they remain active until, for example, the user “leaves the area of coverage of that [Wi-Fi] zone.” *Id.*, ¶29, Figure 3 (showing that if the device “leaves the existing DMS zone” (at 74), its Wi-Fi capabilities “are automatically turned off” at 76).



250. Thus, Arumi provides further disclosure regarding detecting a change in location based on information received from one or more active radios, including a connection loss.

251. Similar to Arumi’s disclosure, the ’840 Patent specification describes detecting a change in location “based on absolute (e.g., GPS, 2G/3G triangulation) location information, relative (e.g., proximity to Wi-Fi access point/paired Bluetooth device) location information, or any combination thereof.” Ex-1001, 5:9-29. Moreover, the ’840 Patent also describes that, in response to a connection loss (e.g. “determining that the Wi-Fi connection has been lost”), the device may “activate one or more inactive radios (e.g., GPS radio) in order to obtain...location information.” *Id.*, 3:63-4:12.

252. Accordingly, Arumi discloses detecting a change in location based on information received from one or more active radios, including a connection loss.

d. Element 6[b][ii] / 1[b] / 11[a][ii]: activate a Wi-Fi radio in response to the change in location,

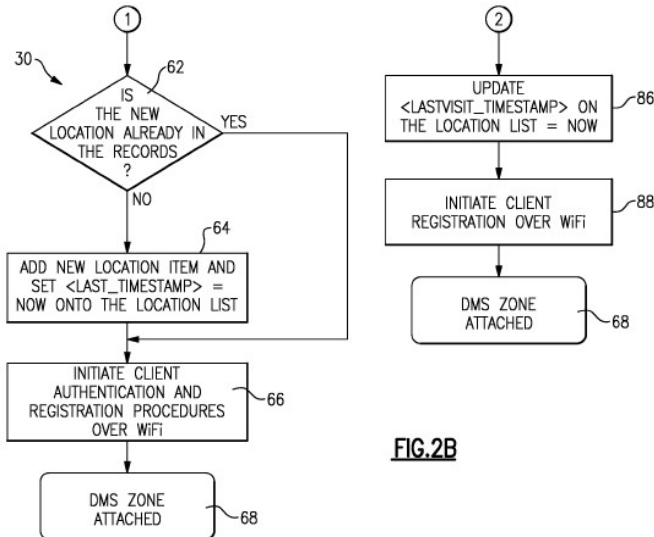
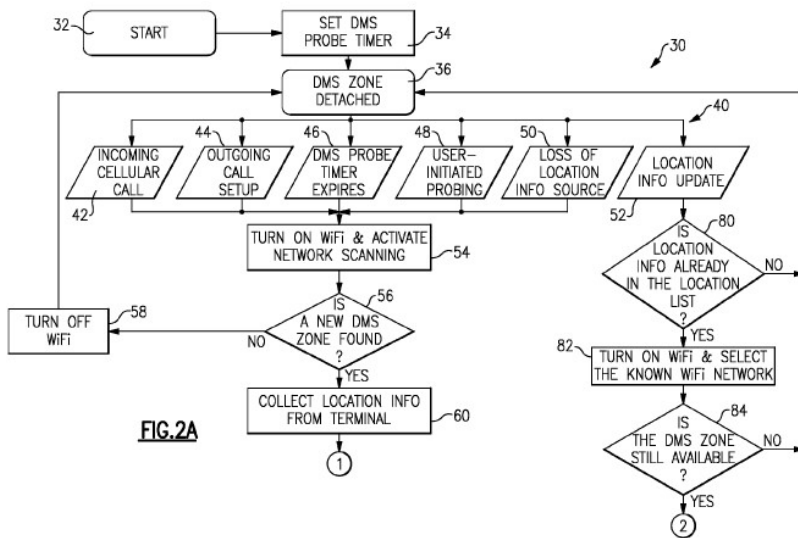
253. Arumi discloses Element 6[b][ii]/1[b]/11[a][ii].

254. Specifically, Arumi discloses logic to activate a Wi-Fi radio in response to the change in location.

255. Arumi discloses controlling the activation of Wi-Fi capability in response “to at least one of a plurality of...triggering events” such as “the loss of a location information source” and “a location information update.” Ex-1011, ¶¶7, 15, 18, 20-21, Figure 1; *see also id.*, ¶15 (“triggering events...instigate a Wi-Fi probing mode used for determining whether the Wi-Fi capability should remain active”), ¶26 (a triggering event “allows for selectively turning on the Wi-Fi communication capability only when it is potentially useful or needed”).

256. Accordingly, Arumi discloses activating a Wi-Fi radio in response to the change in location.

257. More specifically, Figure 2A/2B depicts the exemplary process, starting at 32 in Figure 2A. “Whenever the Wi-Fi capabilities are turned off, they remain off until [a] triggering event[] occurs.” *Id.*, ¶21, Figures 2A-2B.



258. Arumi’s disclosed triggering events include “the loss of a location information source at 50” and “a location information update at 52.” *Id.*, ¶21; *see also id.*, ¶25 (“[T]he loss of a location information source...(i.e., the triggering event 50) addresses a situation where the mobile station may control Wi-Fi capability based on known location information,” “recogniz[ing] that if a mobile station loses

contact” with a location information source, (e.g., if it “loses sight of GPS satellites”), “it may be beneficial to probe for Wi-Fi access at that time.”); ¶30 (Triggering event 52 “detects an update regarding a location of the mobile station,” which may, for example, “be the result of user movement between different locations”). When any triggering event occurs, the device’s Wi-Fi capability turns on and “a Wi-Fi probing mode begins at 54.” *Id.*, ¶26.

259. Accordingly, Arumi provides further disclosure regarding activating a Wi-Fi radio in response to the change in location.

260. Indeed, Arumi discloses that its device can activate a Wi-Fi radio in response to entering a known location. After the device registers a location update (i.e., the claimed “change in location”), a “decision is made...whether the current location is found...in the location list, which indicates where Wi-Fi capability is known to be available.” *Id.*, ¶30. If the device’s location “corresponds to a location where Wi-Fi communications are available, the Wi-Fi capability is turned on.” *Id.*

261. Thus, Arumi provides further disclosure regarding activating a Wi-Fi radio in response to the change in location.

262. Similar to Arumi’s disclosures, the ’840 Patent discloses that when a user enters a known location, “radio settings 40 could call for...a Wi-Fi radio of the mobile platform 30 to be activated.” Ex-1001, 3:21-36. “[L]ocation changes may be detected based on absolute (e.g., GPS, 2G/3G triangulation) location information,

relative (e.g., proximity to Wi-Fi access point/paired Bluetooth device) location information, or any combination thereof. Other radio provided information such as current speed (e.g., GPS based) could also be used to supplement the illustrated decision making process.” *Id.*, 5:11-14.

263. Accordingly, Arumi discloses logic to activate a Wi-Fi radio in response to the change in location.

- e. **Element 6[c] / 1[c] / 11[b]: wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.**

264. Arumi in view of Moy discloses Element 6[c]/1[c]/11[b].

265. Moy discloses wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios. *See* Section X.B.1.e.

266. A POSITA would have been motivated to apply Moy’s teachings regarding profiles with location entry/exit criteria and radio activation/deactivation information to Arumi’s disclosed system, and would have had a reasonable expectation of success in doing so, for the reasons discussed in Section X.D.1.

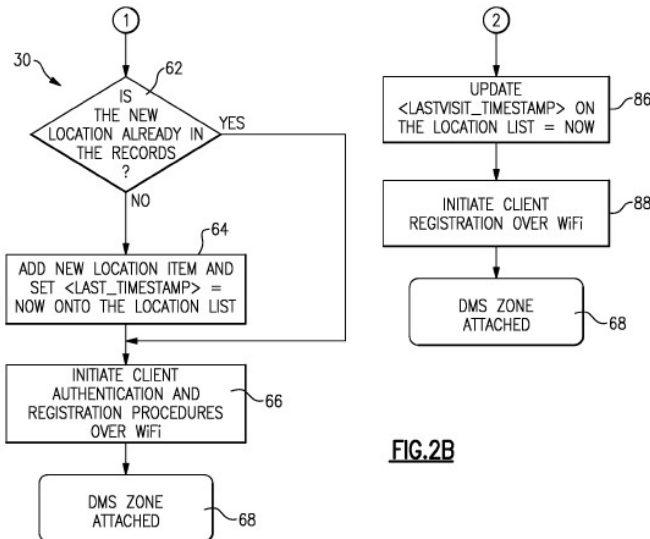
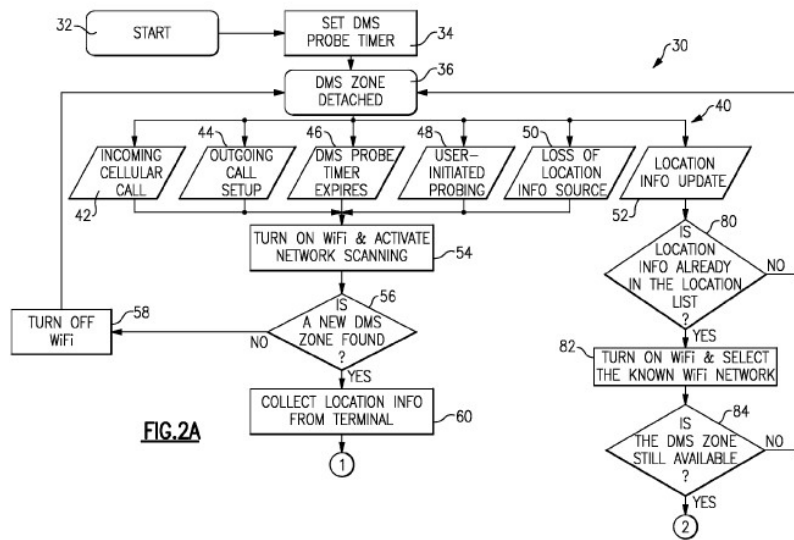
267. Accordingly, Arumi in view of Moy discloses wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.

3. Dependent Claims 2, 7, 12: “wherein the change in location is a change in relative location with respect to an access point”

268. Arumi further discloses dependent Claims 2, 7, and 12.

269. Specifically, Arumi discloses wherein the change in location is a change in relative location with respect to an access point.

270. Arumi discloses a method “of managing Wi-Fi capability for a mobile station” wherein “triggering events...instigate a Wi-Fi probing mode.” Ex-1011, ¶¶7, 15, 18, 20-21, Figure 1; *see also id.*, Figure 2A/2B (depicting the exemplary process, starting at 32 in Figure 2A).



Triggering events may include, for example, “the loss of a location information source at 50.” *Id.*, ¶21. “Using the loss of a location information source as a triggering event (i.e., the triggering event 50) addresses a situation where the mobile station may control Wi-Fi capability based on known location information.” *Id.*, ¶25. Thus, triggering event 50 “recognizes that if a mobile station loses contact”

with a location information source, for example, if it “loses sight of GPS satellites, it may be beneficial to probe for Wi-Fi access at that time.” *Id.*

271. Accordingly, Arumi discloses wherein the change in location is a change in relative location with respect to an access point.

272. Arumi discloses that when any triggering event occurs, the device’s Wi-Fi capability turns on and “a Wi-Fi probing mode begins at 54.” *Id.*, ¶26. The device initiates “a Wi-Fi probing mode in which the mobile station (e.g., the first portion 24) searches for a Wi-Fi access point in the vicinity of the current location of the mobile station.” *Id.*, ¶21. Thus, the device’s probing mode causes a determination regarding “whether a Wi-Fi access point is detected in the vicinity of the current location of the mobile station.” *Id.*, ¶26. Moreover, triggering event 50 “allows for potentially establishing a Wi-Fi connection, which can be used to obtain location information.” *Id.*, ¶25.

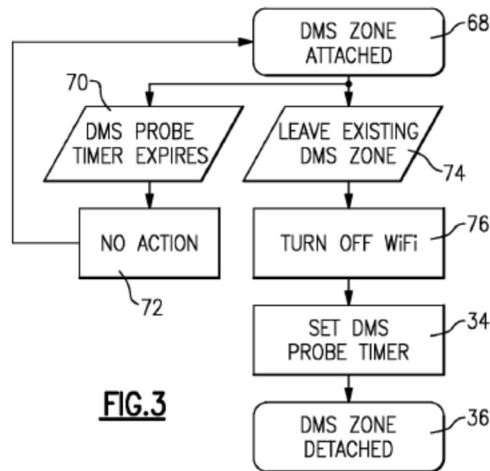
273. Thus, Arumi provides further disclosure regarding the change in location being a change in relative location with respect to an access point (i.e., a Wi-Fi access point).

274. More specifically, if the device’s location “corresponds to a location where Wi-Fi communications are available,” then “the Wi-Fi capability is turned on at 82” and previously-stored information relating to that location’s Wi-Fi network “is used to begin the process of establishing a Wi-Fi connection.” *Id.*, ¶30. Indeed,

“client registration begins to establish a Wi-Fi connection” at 88, and, if successful, “the DMS zone is attached at 68.” *Id.*, ¶31. Specifically, “[w]hen Wi-Fi network is detected and through which DMS service is accessible (e.g., successful registration with a VoIP gateway),” a DMS zone is attached. *Id.*, ¶¶26, 31. “[J]ust recognizing a Wi-Fi network is not considered sufficient,” however—it is also necessary that a connection to some VoIP gateway over that particular Wi-Fi network is possible.” *Id.*, ¶26. A POSITA would have understood that whether such a “DMS zone” is found “(e.g., a Wi-Fi access point is available and it is possible to register with a VoIP gateway)” is indicative of the change in location being a change in relative location with respect to an access point. *Id.*, ¶27.

275. Thus, Arumi provides further disclosure regarding the change in location being a change in relative location with respect to an access point (i.e., a Wi-Fi access point).

276. Furthermore, Arumi discloses that for all triggering events, “once the Wi-Fi capabilities are active,” they remain active until, for example, the user “leaves the area of coverage of that [Wi-Fi] zone.” *Id.*, ¶29, Figure 3 (showing that if the device “leaves the existing DMS zone” (at 74), its Wi-Fi capabilities “are automatically turned off” at 76).



277. Thus, Arumi provides further disclosure regarding the change in location being a change in relative location with respect to an access point (i.e., a Wi-Fi access point).

278. Similar to Arumi's disclosures, the '840 Patent discloses that in "determining whether a change in location has occurred," the device may use "absolute...location information," "relative...location information," and "[o]ther radio provided information such as current speed (e.g., GPS based)...to supplement the...decision making process." Ex-1001, 5:9-29.

279. Accordingly, Arumi discloses the change in location being a change in relative location with respect to an access point.

4. Dependent Claims 4, 9, 14: "wherein the access point is a Wi-Fi access point"

280. Arumi further discloses dependent Claims 4, 9, and 14.

281. Specifically, Arumi discloses wherein the access point is a Wi-Fi access point.

282. Arumi discloses a method “of managing Wi-Fi capability for a mobile station” wherein “triggering events...instigate a Wi-Fi probing mode.” Ex-1011, ¶¶7, 15, 18, 20-21, Figure 1; *see also id.*, Figure 2A/2B (depicting the exemplary process, starting at 32 in Figure 2A).

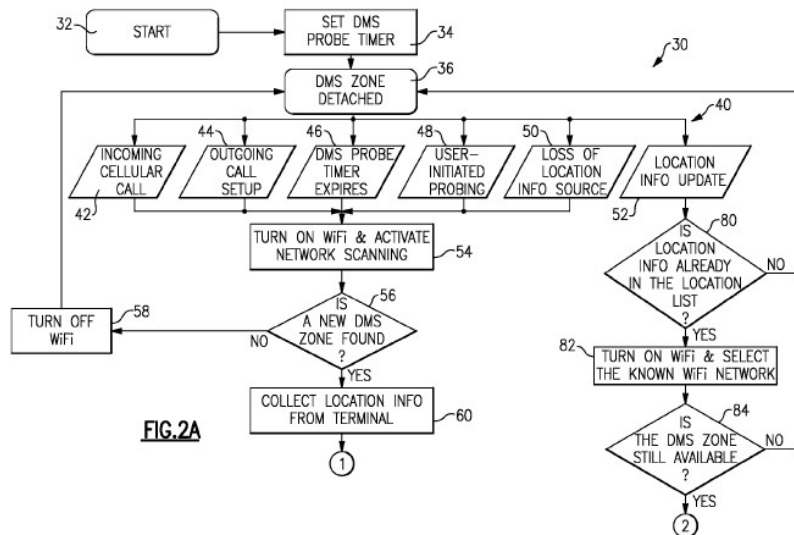


FIG. 2A

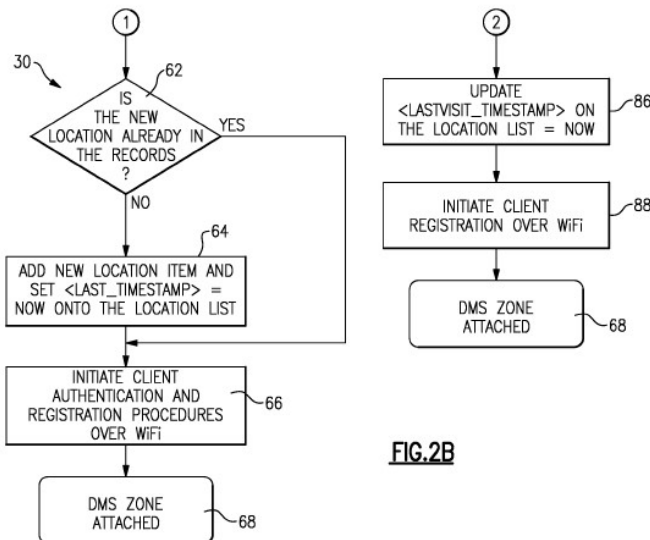


FIG. 2B

283. When any triggering event occurs, the device's Wi-Fi capability turns on and "a Wi-Fi probing mode begins at 54" such that a triggering event "allows for potentially establishing a Wi-Fi connection, which can be used to obtain location information." *Id.*, ¶¶25-26.

284. Accordingly, Arumi discloses wherein the access point is a Wi-Fi access point.

285. More specifically, Arumi discloses that when any triggering event occurs, the device's Wi-Fi capability turns on and "a Wi-Fi probing mode begins at 54." *Id.*, ¶26. The device initiates "a Wi-Fi probing mode in which the mobile station (e.g., the first portion 24) searches for a Wi-Fi access point in the vicinity of the current location of the mobile station." *Id.*, ¶21. Thus, the device's probing mode causes a determination regarding "whether a Wi-Fi access point is detected in the vicinity of the current location of the mobile station." *Id.*, ¶26. Moreover, triggering event 50 "allows for potentially establishing a Wi-Fi connection, which can be used to obtain location information." *Id.*, ¶25.

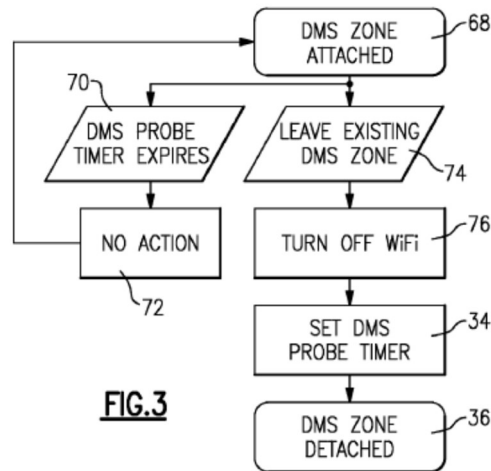
286. Thus, Arumi provides further disclosure regarding the access point as a Wi-Fi access point.

287. More specifically, if the device's location "corresponds to a location where Wi-Fi communications are available," then "the Wi-Fi capability is turned on at 82" and previously-stored information relating to that location's Wi-Fi network

“is used to begin the process of establishing a Wi-Fi connection.” *Id.*, ¶30. Indeed, “client registration begins to establish a Wi-Fi connection” at 88, and, if successful, “the DMS zone is attached at 68.” *Id.*, ¶31. Specifically, “[w]hen Wi-Fi network is detected and through which DMS service is accessible (e.g., successful registration with a VoIP gateway),” a DMS zone is attached. *Id.*, ¶¶26, 31. “[J]ust recognizing a Wi-Fi network is not considered sufficient,” however—it is also necessary that a connection to some VoIP gateway over that particular Wi-Fi network is possible.” *Id.*, ¶26.

288. Thus, Arumi provides further disclosure regarding the access point as a Wi-Fi access point.

289. Furthermore, Arumi discloses that for all triggering events, “once the Wi-Fi capabilities are active,” they remain active until, for example, the user “leaves the area of coverage of that [Wi-Fi] zone.” *Id.*, ¶29, Figure 3 (showing that if the device “leaves the existing DMS zone” (at 74), its Wi-Fi capabilities “are automatically turned off” at 76).



290. Thus, Arumi provides further disclosure regarding the access point as a Wi-Fi access point.

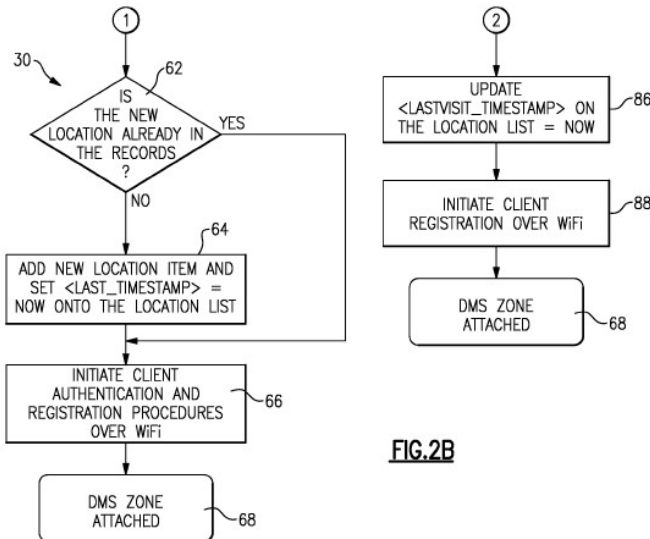
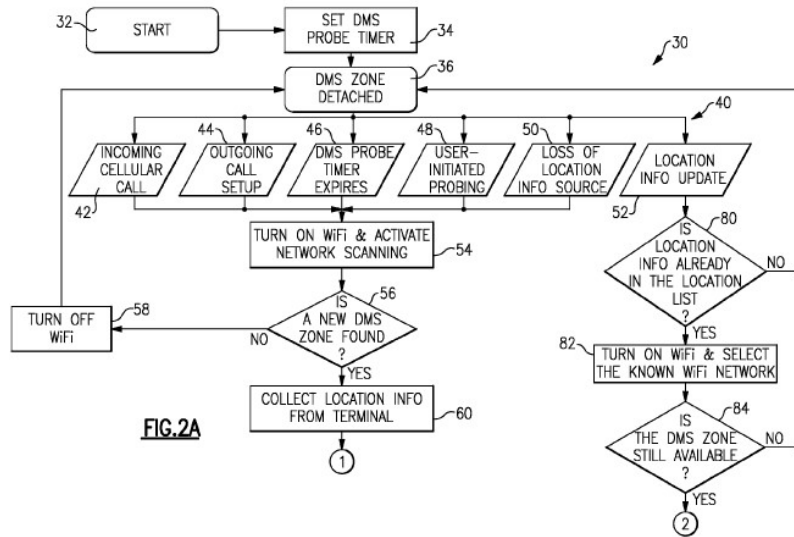
291. Accordingly, Arumi discloses wherein the access point is a Wi-Fi access point.

5. Dependent Claims 5, 10, 15: “wherein the change in relative location is based on a proximity to the access point”

292. Arumi further discloses dependent Claims 5, 10, and 15.

293. Specifically, Arumi discloses wherein the change in relative location is based on a proximity to the access point.

294. Arumi discloses a method “of managing Wi-Fi capability for a mobile station” wherein “triggering events...instigate a Wi-Fi probing mode.” Ex-1011, ¶¶7, 15, 18, 20-21, Figure 1; *see also id.*, Figure 2A/2B (depicting the exemplary process, starting at 32 in Figure 2A).



295. Triggering events may include, for example, “the loss of a location information source at 50.” *Id.*, ¶21. “Using the loss of a location information source as a triggering event (i.e., the triggering event 50) addresses a situation where the mobile station may control Wi-Fi capability based on known location information.” *Id.*, ¶25. Thus, triggering event 50 “recognizes that if a mobile station loses contact”

with a location information source, for example, if it “loses sight of GPS satellites, it may be beneficial to probe for Wi-Fi access at that time.” *Id.*

296. Accordingly, Arumi discloses wherein the change in relative location is based on a proximity to the access point.

297. Moreover, Arumi discloses that when any triggering event occurs, the device’s Wi-Fi capability turns on and “a Wi-Fi probing mode begins at 54.” *Id.*, ¶26. Accordingly, triggering event 50 “allows for potentially establishing a Wi-Fi connection, which can be used to obtain location information.” *Id.*, ¶25.

298. Thus, Arumi provides further disclosure regarding the change in relative location being based on a proximity to the access point (i.e., a Wi-Fi access point).

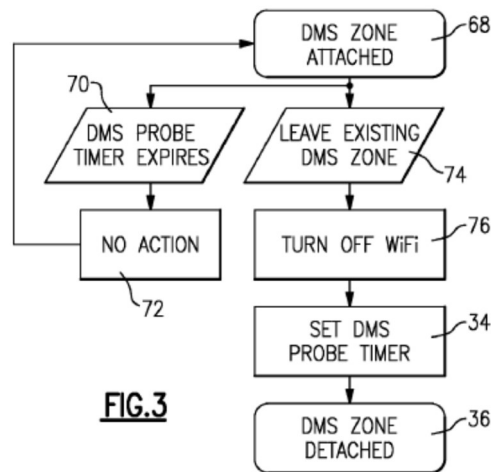
299. More specifically, Arumi discloses that when any triggering event occurs, the device’s Wi-Fi capability turns on and “a Wi-Fi probing mode begins at 54.” *Id.*, ¶26. The device initiates “a Wi-Fi probing mode in which the mobile station (e.g., the first portion 24) searches for a Wi-Fi access point in the vicinity of the current location of the mobile station.” *Id.*, ¶21. Thus, the device’s probing mode causes a determination regarding “whether a Wi-Fi access point is detected in the vicinity of the current location of the mobile station.” *Id.*, ¶26. Moreover, triggering event 50 “allows for potentially establishing a Wi-Fi connection, which can be used to obtain location information.” *Id.*, ¶25.

300. Thus, Arumi provides further disclosure regarding the change in relative location being based on a proximity to the access point (i.e., a Wi-Fi access point).

301. Specifically, if the device's location "corresponds to a location where Wi-Fi communications are available," then "the Wi-Fi capability is turned on at 82" and previously-stored information relating to that location's Wi-Fi network "is used to begin the process of establishing a Wi-Fi connection." *Id.*, ¶30. Indeed, "client registration begins to establish a Wi-Fi connection" at 88, and, if successful, "the DMS zone is attached at 68." *Id.*, ¶31. Specifically, "[w]hen Wi-Fi network is detected and through which DMS service is accessible (e.g., successful registration with a VoIP gateway)," a DMS zone is attached. *Id.*, ¶¶26, 31. "[J]ust recognizing a Wi-Fi network is not considered sufficient," however—it is also necessary that a connection to some VoIP gateway over that particular Wi-Fi network is possible." *Id.*, ¶26. A POSITA would have understood that whether such a "DMS zone" is found "(e.g., a Wi-Fi access point is available and it is possible to register with a VoIP gateway)" is indicative of a change in relative location based on a proximity to the access point. *Id.*, ¶27.

302. Thus, Arumi provides further disclosure regarding the change in relative location being based on a proximity to the access point (i.e., a Wi-Fi access point).

303. Furthermore, Arumi discloses that for all triggering events, “once the Wi-Fi capabilities are active,” they remain active until, for example, the user “leaves the area of coverage of that [Wi-Fi] zone.” *Id.*, ¶29, Figure 3 (showing that if the device “leaves the existing DMS zone” (at 74), its Wi-Fi capabilities “are automatically turned off” at 76).



304. Thus, Arumi provides further disclosure regarding the change in relative location being based on a proximity to the access point (i.e., a Wi-Fi access point).

305. Similar to Arumi’s disclosures, the ’840 Patent discloses that in “determining whether a change in location has occurred,” the device may use “absolute...location information,” “relative...location information,” and “[o]ther radio provided information such as current speed (e.g., GPS based)...to supplement the...decision making process.” Ex-1001, 5:9-29.

306. Accordingly, Arumi discloses wherein the change in relative location is based on a proximity to the access point.

E. Ground 5: Claims 1-2, 4-7, 9-12, and 14-15 are obvious over Arumi in view of Olson.

1. A POSITA would have been motivated to combine Arumi with Olson's teachings and would have had a reasonable expectation of success in doing so.

307. A POSITA would have been motivated to combine the teachings of Olson with Arumi and would have had a reasonable expectation of success in doing so, especially as each relates to the same technologies. *See* Section VII. In fact, both relate to location-based methods for reducing power consumption in wireless communication devices. Ex-1010, ¶7; Ex-1011, ¶¶4-6. And both describe activating and deactivating a Wi-Fi network based on stored location lists or profiles. Ex-1010, ¶¶34, 48, 10:40-58; Ex-1011, ¶¶21-22, 27. Although Arumi discloses using location lists to activate/deactivate Wi-Fi radio in order to reduce power consumption, Olson provides further details describing a first profile associated with a first location and a second profile associated with a second location, each including location entry and exit criteria and radio settings including activation and deactivation information for the plurality of radios. Ex-1010, ¶¶34, 48.

308. A POSITA would have been motivated to apply Olson's additional teachings regarding location profiles to Arumi to enhance the power-conserving capabilities of the device. *See* Section VII. Indeed, Arumi explains that it seeks to

improve upon prior art systems that “undesirably utilize[] battery power” (Ex-1011, ¶4), and Arumi recognized the power-conserving benefits of deactivating Wi-Fi functionality when coverage is lost and creating location lists that store Wi-Fi locations (*id.*, ¶¶26-29). Olson discloses a similar goal and method, describing the invention as generally “aimed to reducing power consumption in a mobile unit” (Ex-1010, ¶4), and Olson discloses using profiles, each including location entry/exit criteria and radio settings including activation/deactivation information for the plurality of radios, to further that goal (*id.*, ¶¶21-23, 29, 33-35, 38-40, 48). Based on the teachings of Olson, a POSITA would have recognized that including profiles with explicit location entry/exit criteria and radio settings including activation/deactivation information for the plurality of radios in Arumi’s disclosed system would have enhanced Arumi’s power-conserving benefits. *See* Section VII.

309. In particular, a POSITA would have recognized that applying Olson’s teaching of profiles with explicit location entry/exit criteria and radio activation/deactivation information to Arumi’s system would provide further opportunities for the deactivation of radios when not in use and further opportunities to limit the activation of radios to only when appropriate for the user, both furthering Arumi’s power-conservation goals. For example, a POSITA would have recognized that applying Olson’s teachings regarding profiles with activation/deactivation settings for the plurality of radios to Arumi’s system would allow Arumi’s device to

maximize the number of unnecessary radios that are deactivated (and, as a result, the power-conserving capabilities of the device). For instance, a POSITA would have understood that, for example, a user may never use Arumi's device's cellular radio while at the movies, and thus would have been motivated to apply Olson's teachings to Arumi's device to deactivate the user's cellular radio while the user is at the movie theater. Moreover, for example, a POSITA would have recognized that applying Olson's teachings regarding profiles with explicit location entry/exit criteria and activation/deactivation settings to Arumi's system would allow Arumi's device to immediately recognize appropriate radio settings upon arrival to and departure from a location, and thus maximize the amount of time that unnecessary radios are deactivated (and, as a result, the power-conserving capabilities of the device).

310. Moreover, implementing Olson's power-conserving mechanisms into Arumi's device would have been a straightforward engineering task for a POSITA as both Olson and Arumi disclose standard mobile computing devices. Indeed, both Arumi and Olson disclose general purpose computing devices that work in the same general way and that a POSITA would have understood were capable of using the same and/or similar programming languages and/or operating systems. *See* Section VII. Accordingly, a POSITA would have had a reasonable expectation of success in implementing the approaches described in Olson into Arumi's system as the implementation would have been a matter of straightforward engineering and thus

would have yielded predictable results. *See* Section VII. For example, both Arumi and Olson disclose the use of standard radio systems; controlling such radio systems via software in order to conserve power, as described in Olson, on a general purpose computing device (as described in both Arumi and Olson) was well within the skills of a POSITA.

2. Independent Claims 1, 6, and 11

a. Element 6[pre]: A mobile platform comprising:

Element 1[a] / 11[a][i]: ...for a mobile platform...

Element 11[pre]: An apparatus comprising:

311. *See* Section X.D.2.a.

b. Element 6[a]: a plurality of radios; and

Element 1[a] / 11[a][i]: ...having a plurality of radios...

312. *See* Section X.D.2.b.

c. Element 6[b][i]/ 1[a] / 11[a][i]: logic to, detect a change in location for [the/a] mobile platform [having a plurality of radios], wherein each of the plurality of radios supports a different wireless technology, and the change in location is based on information received from one or more active radios of the plurality of radios on the mobile platform including a connection loss, and

Element 1[pre]: A non-transitory computer readable storage medium comprising a set of instructions which, when executed by one or more processors, cause a system to:

313. *See* Section X.D.2.c.

d. Element 6[b][ii] / 1[b] / 11[a][ii]: activate a Wi-Fi radio in response to the change in location,

314. *See* Section X.D.2.d.

e. Element 6[c] / 1[c] / 11[b]: wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.

315. Arumi in view of Olson discloses Element 6[c]/1[c]/11[b].

316. Olson discloses wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios. *See* Section X.C.1.e.

317. A POSITA would have been motivated to apply Olson's teachings regarding profiles with location entry/exit criteria and radio activation/deactivation information to Arumi's disclosed system, and would have had a reasonable expectation of success in doing so, for the reasons discussed in Section X.E.1.

318. Accordingly, Arumi in view of Olson discloses wherein a first profile is associated with a first location and a second profile is associated with a second location, and the first profile and the second profile each include location entry

criteria, location exit criteria, and radio settings including activation and deactivation information for the plurality of radios.

3. Dependent Claims 2, 7, 12: “wherein the change in location is a change in relative location with respect to an access point”

319. *See* Section X.D.3.

4. Dependent Claims 4, 9, 14: “wherein the access point is a Wi-Fi access point”

320. *See* Section X.D.4.

5. Dependent Claims 5, 10, 15: “wherein the change in relative location is based on a proximity to the access point”

321. *See* Section X.D.5.

XI. CONCLUSION

322. It is my opinion that Claims 1-2, 4-7, 9-12, and 14-15 of the '840 Patent are invalid as obvious over the prior art I discussed above.

323. In signing this declaration, I recognize that it will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place in the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

324. I reserve the right to supplement my opinions in the future to respond to any arguments that the Patent Owner raises and to take into account new information as it becomes available to me.

325. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "B. B. Bederson", written in a cursive style.

Dr. Benjamin B. Bederson

Date: March 12, 2023