

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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PLR WORLDWIDE SALES LIMITED,  
Petitioner

v.

FLIP PHONE GAMES, INC.,  
Patent Owner

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IPR No. IPR2024-00209

Patent No. 9,427,662

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**DECLARATION OF DR. ROBERT AKL, D.SC.  
IN SUPPORT OF PATENT OWNER'S RESPONSE**

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I, Robert Akl, declare and state as follows:

**I. Introduction**

1. I am over the age of 18 and am competent to make this Declaration. I have personal knowledge, or have developed knowledge, of the matters set forth herein based upon my education, training, and/or experience. If called upon to do so, I would testify competently thereto.

2. I have been retained by counsel for Patent Owner Flip Phone Games Inc. (“Patent Owner” or “FPG”) as an expert witness in the above matter. I am submitting this Declaration to address the validity of claims 1-20 in U.S. Patent No. 9,427,662 (“the ’662 Patent”). For the purposes of this Declaration, I have not been asked to opine on any other issues not addressed below.

3. My opinions are based on my years of education, research and experience, as well as my investigation and study of relevant materials, including those identified in this Declaration. I may rely upon these materials, my knowledge and experience, and/or additional materials in forming any necessary opinions. Further, I may also consider additional documents and information to rebut arguments raised by the Petitioner PLR Worldwide Sales Limited (“Petitioner” or “Playrix”). I reserve any right that I may have to supplement this Declaration if further information becomes available or if I am asked to consider additional information. Furthermore, I reserve any right that I may have to consider and

comment on any additional expert statements or testimony of Playrix's expert(s) in this matter.

4. My analysis of the materials produced in this investigation is ongoing and I will continue to review any new material as it is provided. This Declaration represents only those opinions I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials already provided.

## **II. Background and Qualifications**

5. I have studied, taught, played, and researched video games, including mobile games, through my studies and academic career in technologies used in games, both from the client-server and networking end, and related to game design and game play. I also have knowledge and experience in the fields of mobile communication systems, client-server systems, and mobile gaming systems for around 30 years. I have summarized in this section my educational background, work experience, and other relevant qualifications. A true and accurate copy of my *curriculum vitae* is attached as Ex. 2007.

6. I earned my Bachelor of Science degrees in Electrical Engineering and Computer Science *summa cum laude* with a grade point average of 4.0/4.0 and a ranking of first in my undergraduate class from Washington University in St. Louis in 1994. In 1996, I earned my Master of Science degree in Electrical Engineering

from Washington University in St. Louis with a grade point average of 4.0/4.0. I earned my Doctor of Science in Electrical Engineering from Washington University in St. Louis in 2000, again with a grade point average of 4.0/4.0, with my dissertation being on “Cell Design to Maximize Capacity in Cellular Code Division Multiple Access (CDMA) Networks.”

7. After obtaining my Doctor of Science degree, I worked as a Senior Systems Engineer at Comspace Corporation from October of 2000 to December of 2001. At Comspace, I designed and developed advanced data coding and modulation methods for improving the reliability and increasing the available data rates for cellular communications. I coded and simulated different encoding schemes (including Turbo coding, Viterbi decoding, trellis coded modulation, and Reed-Muller codes) and modulation techniques using amplitude and phase characteristics and multi-level star constellations.

8. In January of 2002, I joined the faculty of the University of New Orleans in Louisiana as an Assistant Professor in the Department of Electrical Engineering. While in this position, I designed and taught two new courses called “Computer Systems Design I and II.” I also developed a Computer Engineering Curriculum with a strong hardware-design emphasis, formed a wireless research group, and advised graduate and undergraduate students.

9. In September of 2002, I received an appointment as an Assistant Professor in the Department of Computer Science and Engineering at the University of North Texas (UNT), in Denton, Texas. In May of 2008, I became a tenured Associate Professor in the Department of Computer Science and Engineering. Between January 2015 and August 2022, I was appointed to Associate Chair of Graduate Studies in the Department of Computer Science and Engineering. In May of 2023, I was promoted to the rank of Professor.

10. I am also the director of the Wireless Sensor Lab (“WiSL”) at UNT. I am a member of the Center for Information and Cyber Security (CICS). It is the only program in the U.S. to be federally certified by the National Security Agency as a Center of Academic Excellence in Information Assurance Education and Research *and* Cyber Defense Research. Several of my research projects are funded by industry and the National Science Foundation and published in *IEEE* conference proceedings and journals.

11. In addition to advising and mentoring students at UNT, I was asked to join the faculty of the University of Arkansas in Little Rock as an Adjunct Assistant Professor from 2004 to 2008 in order to supervise the research of two Ph.D. graduate students who were doing research in wireless communications. At UNT, I have advised and supervised more than 250 undergraduate and graduate students, several of whom received a master’s or doctorate degree under my guidance.

12. Starting in 2005, I began to research and programming robotics and games at UNT. Between 2005 and 2017, I received over a million dollars in funding from the State of Texas, Texas Higher Education Coordination Board, the National Science Foundation, and industry to design and conduct robotics and video game (e.g., Xbox, PC, mobile games) programming summer camps for middle and high school students at UNT. By using gaming as the backdrop, I have taught participants coding and programming principles and an understanding of the role of physics and mathematics in video game design. For this work, I received the *IEEE* Professionalism Award and the Tech Titan of the Future award. As another example, I have taught video game design and programming to former students who later designed and worked on the Call of Duty video game franchise, which is a very successful video game franchise across multiple platforms including PC, Xbox, and mobile devices. As another example, I have published articles related to video game design and programming and the challenges of attracting underrepresented minorities to that field. As another example, I have developed courses in video game programming and design which I have taught at UNT and in my summer camp program. I have also been a “gamer” for most of my life.

13. In addition to my academic work, I have remained active in the communication industry through my consulting work. In 2002, I consulted for Input/Output Inc. and designed and implemented algorithms for optimizing the

frequency selection process used by sonar for scanning the bottom of the ocean. In 2004, I worked with Allegiant Integrated Solutions in Ft. Worth, Texas to design and develop an integrated set of tools for fast deployment of wireless networks, using the 802.11 standard. Among other features, these tools optimize the placement of Access Points and determine their respective channel allocations to minimize interference and maximize capacity. I also assisted the Collin County Sheriff's Office (Texas) in a double homicide investigation, analyzing cellular record data to determine user location.

14. I have authored and co-authored over 100 journal publications, conference proceedings, technical papers, book chapters, and technical presentations in a broad array of communications-related technologies, including networking, wireless communication, and video games. I have also developed and taught over 100 courses related to communications and computer systems, including several courses on signals and systems, LTE, OFDM, VoIP, Wi-Fi (802.11), 802.15.4, Zigbee, wireless communication, communications systems, communication interfaces and standards, sensor networks, source coding and compression, network security, computer systems design, game and app design, and computer architecture. These courses have included introductory courses on communication networks and signals and systems, as well as more advanced courses on wireless communications.

A complete list of my publications and the courses I have developed and/or taught is also contained in my *curriculum vitae*.

15. My professional affiliations include services in various professional organizations and serving as a reviewer for a number of technical publications, journals, and conferences. I have also received a number of awards and recognitions, including the *IEEE* Professionalism Award (2008), UNT College of Engineering Outstanding Teacher Award (2008), and Tech Titan of the Future (2010) among others, which are listed in my *curriculum vitae*.

16. I have also served as an expert in certain legal proceedings. A list of cases in which I have testified at trial, hearing, or by deposition (including those during the past five years) is provided in my *curriculum vitae*. Over the years, I have been retained by both plaintiffs as well as defendants.

17. I am being compensated for my work in this case at my standard rate of \$895 per hour (plus reimbursement for expenses) in connection with my preparation of this Declaration, as well as for each hour spent providing deposition or testimony. This compensation is not contingent upon my performance, the outcome of this case, or any issues involved in or related to this case. I have no financial interest in this matter.

### III. Documents and Materials Considered

18. In preparing my opinions, I have reviewed the '662 Patent and its prosecution history and have also reviewed the other documents and materials cited herein and the materials listed below. When citing from these references, all emphasis is added unless otherwise noted.

| Ex.  | Description                                                                                                                                       |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 1001 | U.S. Patent No. 9,427,662                                                                                                                         |
| 1002 | Prosecution History for U.S. Patent No. 9,427,662                                                                                                 |
| 1003 | Declaration of Dr. Jose Zagal                                                                                                                     |
| 1004 | International Patent Publication WO 2008/008038 (“Ho”)                                                                                            |
| 1005 | U.S. Patent Publication No. 2002/0120589 (“Aoki”)                                                                                                 |
| 1006 | International Patent Publication WO 2000/070489 (“Jiau”)                                                                                          |
| 1007 | U.S. Patent No. 6,928,414 (“Kim”)                                                                                                                 |
| 1008 | International Patent Publication WO 2006/071246 (“Sturman”)                                                                                       |
| 1015 | Mark Andrejevic, “Productive Play 2.0: The Logic of In-Game Advertising” in Media International Australia, Vol. 130, No. 1, pp. 66-76 (Feb. 2009) |
| 1016 | Ilya Vedrashko, Advertising in Computer Games (Doc. No. 123290221) [Master’s Thesis, Mass. Inst. of Technology], DSpace@MIT                       |
| 1017 | Exit Games, In-Game Advertising Goes Mobile [Press Release] (Mar. 21, 2006)                                                                       |
| 1018 | Jussi-Pekka Partanen, Mobile Gaming: A Framework for Evaluating the Industry 2000-2005 (2001)                                                     |
| 1020 | U.S. Patent Publication No. 2003/0100355 (“Hannay”)                                                                                               |
| 2005 | Prosecution History for U.S. Application No. 11/768,890 (U.S. Patent No. 8,688,089)                                                               |

19. My opinions are also based upon my education, training, research, knowledge, and personal and professional experience. I reserve the right to

supplement or amend this Declaration in the event that I hereafter become aware of additional relevant information.

#### **IV. Understanding of Legal Standards**

20. I am not an attorney and have not been asked to offer an opinion on the law. I understand, however, that certain aspects of the law are relevant to my evaluation and opinions set forth herein. I have therefore been informed of and asked to apply the legal principles summarized below.

##### **A. Priority Date**

21. I understand that the “priority date” of a patent is the date on which it is filed. I further understand that a patent may be entitled to the filing date of an earlier-filed application or foreign patent filing.

22. In this case I understand the ’662 Patent was filed on February 14, 2014, but claims priority to an earlier application (No. 11/768,890) filed on June 26, 2007. I have reviewed the contents of that application filed on June 26, 2007 (Ex. 2005 at 4-48) and can confirm that the specification of the ’662 Patent is substantially the same as the specification of that application, as filed on June 26, 2007.

##### **B. Burden of Proof**

23. I understand that Playrix as the Petitioner bears the burden of proof in this proceeding and that that burden is to establish by a preponderance of the evidence that the claims are invalid.

**C. Claim Construction**

24. I understand that the words of a claim are generally given their ordinary and customary meaning, which I understand is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application. I understand the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification and prosecution history. Additionally, I understand other extrinsic evidence external to the patent and prosecution history, such as dictionaries and treatises, may also be useful in determining the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention. I understand that such extrinsic evidence, however, is generally afforded less weight than intrinsic evidence in determining the meaning of claim terms, and overall is unlikely to result in a reliable interpretation of a patent claim scope unless considered in the context of the intrinsic evidence.

**D. Obviousness Under 35 U.S.C. § 103**

25. I understand that a claim is invalid if the invention recited in the claim would have been obvious to one of ordinary skill in the art at the time the invention was made. I understand this means that even if all the requirements of the claim cannot be found in a single prior art reference that would anticipate the claim, a

person of ordinary skill in the field of the invention knowledgeable of the prior art would have come up with the claimed invention. In considering whether a claim is obvious, I have been asked to consider (a) the level of skill in the art at the time of the claimed invention, (b) the scope and content of the prior art, (c) any differences between the prior art and the claims of the patent-in-suit, and (d) any “secondary factors” tending to show non-obviousness of the claimed invention, including commercial success, long-felt but unresolved need, failure of others, copying, praise by others, unexpected results, and simultaneous invention by others.

26. I understand that a claim composed of several elements is not proved obvious merely by demonstrating that each of its elements was independently known in the prior art. I also understand that obviousness should not be analyzed using the benefit of hindsight. Instead, it must be analyzed from the standpoint of what was known and understood by a POSITA at the time of the claimed invention. I further understand demonstrating that a modification to a reference or the combination of multiple references is obvious requires providing a reason for why a POSITA would modify a reference or combine multiple references and that reason must be supported with some rationale underpinning. Merely pointing out that two references are similar or in the same field of endeavor is not sufficient.

#### **E. Secondary Considerations of Non-Obviousness**

27. I understand that in determining whether the claims are obvious I must also consider certain factors that may help determine that a particular concept was not obvious. These include practical factors relating to the concept, including (1) commercial success, (2) a long-felt need for a solution to the problem facing the inventors, (3) whether others tried and failed to solve the problem, (4) whether others copied the claimed invention, (5) whether the invention achieved unexpected results, (6) whether the prior art teaches away from combining certain known elements, and (7) whether others in the field praised the invention.

#### **V. Level of Ordinary Skill**

28. I understand there is a concept in patent law known as a person having ordinary skill in the art (POSITA). I understand that this concept refers to a person who is trained in the relevant technical field of a patent without possessing extraordinary or otherwise exceptional skill. I further understand that factors such as the education level of those working in the field, the sophistication of the technology, the types of problems encountered in the art, prior art solutions to those problems, and the speed at which innovations are made may help establish the level of skill in the art.

29. Taking these factors into consideration, it my opinion, with regard to the '662 Patent, a person of ordinary skill in the art would have a bachelor's degree

in electrical engineering, computer engineering, computer science, or a similar field, along with one to two years of experience developing or programming video games or video game systems, or similar types of computer systems. Additional education might substitute for some of the experience, and additional substantial experience might substitute for some of the educational background.

30. I understand that Petitioner asserts that a person of ordinary skill in the art would have “an undergraduate degree in game design or development, computer science, computer engineering, or a related field, with at least two years of experience working with computer gaming systems or software application development.” Petition at 10-11.

31. Based at least on my educational and work experience, I was at least a person of ordinary skill in the art as of the effective filing date of the '662 Patent (June 26, 2007) under either party's proposal. And while I note that my qualifications and experience exceed this definition of a person of ordinary skill of the art, in arriving at the conclusions in this Declaration, I have considered the issues from the perspective of a person of ordinary skill of the art at the relevant time.

32. Unless otherwise stated, I have applied this level of ordinary skill in the art for the purposes of this Declaration.

## **VI. Overview of the '662 Patent**

33. The '662 Patent is entitled “Methods and systems for providing in-game hot spots” and issued on August 30, 2016.

34. The '662 Patent describes systems and methods for providing video-game content of a video game played on a mobile device and addresses shortcomings in the prior art. *See* '662 Patent at Abstract. More specifically, the '662 Patent describes “systems and methods for providing hot spots of triggered content within the gaming environment of a mobile video game on a mobile communication device,” which “may prolong user interest in a game for a mobile communication device ....” '662 Patent, at 1:64-2:6.

35. The '662 Patent explains that, at the time the '662 Patent was effectively filed, “[m]any mobile communication devices (including cellular phones, PDAs, and other handheld devices capable of communicating with a server) [we]re capable of operating video games,” and, further, that “most [then-]current mobile communication devices c[a]me equipped with one or more games at the time of purchase, and most [then-]modern mobile communication devices also allow[ed] users to download and/or purchase new games.” '662 Patent at 1:15-21. “As a result, gaming on mobile communication devices has become a popular mode of entertainment in a mobile environment.” '662 Patent at 1:27-30.

36. At that time, however, video games on mobile phones had a limited life cycle. Game developers addressed loss of user interest by releasing new mobile games rather than updating existing mobile games. The '662 Patent itself even recognizes that: “[A]ll video games tend to have a popularity life span. As game elements become increasingly familiar to players, the game may hold less surprises and/or no longer present a challenge to the user, at which point the user may stop playing that particular game in favor of others.” ’662 Patent at 1:31-35.

37. The '662 Patent provides a novel solution to this problem—“systems and methods for providing hot spots of triggered content within the gaming environment of a mobile video game on a mobile communication device.” ’662 Patent at 1:64-67. The '662 Patent describes that a “hot spot” is “a location or item, sometimes hidden within the game, that triggers additional specialized content when activated by a user or some other in-game element.” ’662 Patent at 1:67-2:3.

38. The '662 Patent describes: “The ability to provide hot spots and update in-game hot spot information may allow game companies to keep game elements fresh and prolong user enjoyment of the game. For example, new interactive items and/or hidden features may be placed within a particular scene in the game so that the user has something new to look at or trigger (sometimes unexpectedly).” ’662 Patent at 4:28-39. The '662 Patent explains these in-game hot spots “may prolong user interest in a game for a mobile communication device” (’662 Patent at 2:4-5)

and/or allow a game to “sustain its popularity and be more profitable for the game creator than existing mobile communication device games.” ’662 Patent at 4:36-39.

39. The technology described and claimed by the ’662 Patent allowed carriers to provide new interactive and/or hidden video-game content (“hot spots”) by tailored gaming updates in lieu of replacing games on mobile communication devices as a whole and hence, decreasing the bandwidth required by the phone. *See* ’662 Patent at 1:35-38 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”).

## **VII. Background of the Technology**

40. As of the priority date of the ’662 Patent (June 26, 2007), the claimed invention described above was novel and non-obvious, in my opinion.

41. At that time, mobile phones and mobile gaming faced numerous limitations. Mobile phones of that era had limited storage capacity, limited processing capability, and much slower network connectivity. *See* ’662 Patent at 1:35-38 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”). For example, the first-generation iPhone would not be released until June 29, 2007—after the priority date of the ’662 Patent. And that first-generation iPhone did not have a wireless broadband connection, and came with just 4, 8, or 16GB of data storage, much of which was used by the iOS operating system. Download speeds were also limited to

3 Mbps (Mega bits per second) via 3G. Due in part to these limitations, the first generation of the Apple Appstore would not be released for another year.

42. Thus, at the time of the priority date, mobile games existed in a very different form than we think of today. As of the June 26, 2007, priority date, mobile games were generally designed for only specific devices (e.g., specific models of phones) and were made available on specific game decks or offerings available through mobile device carriers. *See* Petition at 4-5 (discussing Nokia’s game for the Nokia “N-Gage” mobile phone). At the time, no systems existed to update mobile games via the data connection on the phone. Thus, once a game was released and installed on a mobile device, the developers did not develop new features or new game levels for that existing game. Rather, a developer may develop a new version of the game, which would be installed on later sold versions of the mobile device.

43. Because each wireless provider managed their own games and mobile games were not standardized, only a limited number of mobile games were available. And the available games had a much shorter lifecycle as old games were removed (or “sunset”) to make space for new games given storage and capacity limitations. *See* ’662 Patent at 1:31-35.

44. Video games in non-mobile contexts, e.g., on consoles, did not face these same limitations. At the time of invention of the ’662 Patent, console games such as the Microsoft Xbox or the Sony PlayStation included large storage, fast

processing, and wired broadband data connections. *See* '662 Patent at 1:35-38 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”). These games could be updated relatively easily, and game engines were available that provided architecture for loading new executable software that was absent from the mobile device industry.

45. In contrast, due to the much more limited processing, storage, and data bandwidth capabilities of mobile devices (*see* '662 Patent at 1:35-38), the only option readily available for mobile games, at that time, was to download an entire new game. *See* '662 Patent at 1:31-35. But downloading even a second copy of an entire game was not practical. Downloads for the games were large, data storage space on the mobile devices was extremely limited, and available bandwidth was too low to efficiently download a full game across the 3G mobile network. *See* '662 Patent at 1:35-38 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”).

46. These limitations in mobile technology at the time, combined with the short lifecycle of games, encouraged game developers to create new game titles (*see* '662 Patent at 1:31-35) rather than creating updates to a game itself, like the claimed invention of the '662 Patent. Instead, games were purchased only once and at a higher price point than they are offered at today, ranging from \$4.99 to \$9.99.

47. The claimed invention of '662 Patent solves the problems above by providing and controlling access to certain content in a mobile video game via a “hot spot”—and “update[s]” to in-game hot spot information”—“to keep game elements fresh and prolong user enjoyment of the game” and thereby prolong user interest in a game for a mobile communication device” and allow a game to “sustain its popularity and be more profitable for the game creator than existing mobile communication device games.” '662 Patent at 1:64-2:7, 4:28-39. Moreover, the claimed invention allows this to be done without re-downloading the entire contents of the game. This technology was not offered by service providers or device manufacturers at the time of invention.

### **VIII. Petitioner’s Technology Background**

48. I have reviewed Petitioner’s “Technology Background” and disagree with many of the statements therein as provided below.

49. The Petition states that “[a]lthough mobile game development posed some unique challenges, hardware manufacturers and software developers quickly adapted to meet these changes.” Petition at 5. I disagree. As explained above, and as the Petition acknowledges, developers were siloed, and mobile game development was not mainstream. The developers and service providers each operated and developed games in accordance with their own technology and platforms. Petition at 5-6 (discussion platforms specific to graphics and handset providers). The

platforms were not unified nor universal, which hindered mobile game development. This led to short life cycles of games, as evidence cited by Petitioner recognizes. *See, e.g.*, Ex. 1018 at 52 (“A life cycle of a certain game will [be] quite short, and will be replaced by more trendy games very promptly.”).

50. The Petition also states that “[g]ame developers embraced the idea of updateable games even before mobile games became popular.” Petition at 5. I disagree. In my opinion, the prior art taught away from the claimed invention of the ’662 Patent. As noted above, partial game updates were available on other video game platforms (console games or desktop computer games). But such updates were not available for mobile video games played on mobile devices at the time. As explained above, at this time mobile broadband was not available and mobile devices had limited processing and data storage capacity. *See* ’662 Patent at 1:35-38 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”). Thus, developers did not provide updates to these games once installed, except for full game updates requiring another download of the entire application. The evidence that Petitioner relies on does not indicate otherwise.

51. Petitioner cites to a book titled “MOBILE GAMING: A Framework for Evaluating the Industry 2000-2005” (Ex. 1018) for the contention that Nokia “allowed members to download new levels for games.” Petition at 5. But Ex. 1018

does not support that proposition. Ex. 1018 shows that users still had to download the entire game application to get new games or versions of the game. Ex. 1018 at 52 (“Exclusive membership allows Nokia 3330 owners to download a totally new game 'Bumper' or new game packs for Space Impact and Snake II.”).

52. Petitioner also asserts that “[b]y 2006, several advertising companies had launched in-game advertising networks that allowed game developers to incorporate dynamic ads from third parties into their games, including mobile games.” Petition at 5. As discussed above, this is incorrect. Ad servers were available for console and PC-based games, but were not readily available for mobile devices. This is confirmed by the very papers cited by Petitioner. Indeed, Ex. 1016, for example, states that “advertisers should experiment with in-game advertising to gain skills that could become vital in the *near future*.” Ex. 1016 at 2. This confirms that in-game advertising (or other updates to video game content) were not readily available for mobile phone games at the time of invention of the ’662 Patent.

53. Likewise, Ex. 1017 is also forward looking and provides that “[i]n the *near future*, mobile in-game advertising *will become* increasingly attractive for providers of mobile phones.” Ex. 1017 at 1. Again, this does not support Petitioner’s contention that in-game advertising was available at the time of invention.

54. This evidence, instead, shows that there was a need for providing updated video-game content to video games on mobile devices, but it was not yet

available. *See* Ex. 1015 at 1 (providing that “suggestive events for the future of online gaming took place in the [Australian] spring of 2007”); Ex. 1016 at 2 (suggesting that “advertisers should experiment with in-game advertising to gain skills that could become vital in the near future”); Ex. 1017 at 1 (“In the near future, mobile in-game advertising will become increasingly attractive for providers of mobile phones.”); Ex. 1018 at 50 (“The biggest change between the current game technologies and the future ones is that in the future it will be possible to offer also games with real-time interactivity.”); *id.* at 52 (“A life cycle of a certain game will [be] quite short, and will be replaced by more trendy games very promptly.”).

## **IX. Non-Obviousness of the '662 Patent**

### **A. Ho, In View of Aoki, Does Not Render Claims 1-11 or 13-19 Obvious.**

#### **1) Claim 1**

55. Claim 1 of the '662 Patent recites “contacting a server for hot spot information to download, comprising providing the server with at least one of: a game for which hot spot information is desired, a scene for which hot spot information is desired, an element for which hot spot information is desired, the model type of the mobile communication device, the service plan to which the mobile device belongs, the service provider for the mobile communications device, the base location of the mobile communication device, the current location of the mobile communication device, a version identifier for hot spot information currently

on the mobile communication device, user-identification information, preset location, amount of game-play time, game score, and level of play.” ’662 Patent at 14:39-52.

56. In my opinion, Ho, in view of Aoki, fails to disclose or render obvious providing a server with any of the claimed items of information in connection with contacting the server for “hot spot information” to download.

57. I understand that Petitioner contends that Ho discloses a “client end device” connecting to a “server” to obtain “interactive information elements” (“i.e., hot spots”) for a game, and Petitioner suggests that the server “obtain[s]” some unspecified “data from the client end device” to this end. Petition at 21. I understand Petitioner further contends that “[a] POSITA would understand that the data ... may comprise one or more items recited in limitation 1[a].” Petition at 21-22. In particular, Petitioner contends that a POSITA would understand that the data may be (i) “the model type of the mobile communication device”; (ii) “the current location of the mobile communication device”; (iii) the “scene” or “element” “for which hot spot information is desired”; or (iv) “a version identifier” for an interactive information element. Petition at 22-24. I disagree with Petitioner’s contentions.

58. Ho discloses “a method [] of playing a video game with at least one interactive information element incorporated within the game.” Ex. 1004 at 4:4-6. The “interactive information element” may be “an icon in the game, a character in

the game or an item in the game.” *Id.* at 4:28-29. If a player engages the “interactive information element,” an action may be “activated,” such as an “on-screen presentation” within the gameplay. *Id.* at 5:27-38.

59. In addition to a method of playing such a video game, Ho discloses “a method for incorporating at least one interactive information element into a video game.” Ex. 1004 at 9:25-26. Ho discloses that a “module” may be “added” to an already-published video game or a video game “in the midst of development.” Ex. 1004 at 9:26–28. The “module” enables the “interactive information element” to be “added” or “updated” to the game by “*automatically* downloading and replacing relevant sub-modules of the interactive information element[] in the video game *whenever the player goes online.*” Ex. 1004 at 9:29-33; *see* Ex. 1004 at 6:28-36, 9:10-18.

60. In my opinion, a POSITA would thus understand that Ho teaches that, when a client device goes online, the server in Ho “automatically” “determines whether the interactive information element(s)” is “legitimate” and/or “needs to be changed/renewed,” and then sends interactive information elements to the client device. Ex. 1004 at 9:29–33, 10:14–25, Fig. 5. Ho does not disclose or suggest that the client device in Ho affirmatively contacts and provides to the server any one of the items of information listed in claim 1 of the ’662 Patent in connection with seeking an interactive information element(s).

61. For example, a POSITA would understand that Ho does not disclose or suggest having Ho's client device provide Ho's server with "the model type of the mobile communication device" in connection with contacting the server for an interactive information element, contrary to Petitioner's suggestion. Petition at 23. Rather, Ho makes clear that, when a client device goes "online," the server in Ho "automatically" determines and sends an interactive information element(s) to the client device—without any affirmative provision of information by the client device to the server. Ex. 1004 at 9:29-33, 10:14-25, Fig. 5. And while a POSITA *today* may find it obvious to provide a server with a model type of the mobile phone to ensure that data returned by the server is compatible or optimized for the mobile phone, neither Petition nor Dr. Zagal has identified any evidence demonstrating a POSITA would have found that obvious in June 2007. And, in my opinion, it would not have been obvious at that time, because before the June 26, 2007, priority date, a mobile game was generally designed for only a specific device, such that there was no need for the device to affirmatively provide its "model type" when requesting content from a server. *See* Petition at 4-5 (discussing Nokia's game for the Nokia "N-Gage" mobile phone).

62. As another example, a POSITA would understand that Ho does not disclose or suggest having Ho's client device provide Ho's server with "the current location of the mobile communication device" in connection with contacting the

server for an interactive information element, contrary to Petitioner's suggestion. Petition at 22. Rather, Ho makes clear that, when a client device goes "online," the server in Ho "automatically" determines and sends interactive information elements to the client device—without any affirmative provision of information by the client device to the server. Ex. 1004 at 9:29-33, 10:14-25, Fig. 5.

63. For instance, Ho does not disclose or suggest that "an advertisement of a chain of fast food restaurants" generated after a player "slay[s] the hamburger monster" in Ho (Ex. 1004 at 5:35-38, 8:19-21) should be targeted or otherwise limited based on the "the current location" of the player, contrary to Petitioner's suggestion. Petition at 22. Quite the opposite, the advertisements taught by Ho are with respect to ubiquitous brands, such as "airliner[s]" and "chain[s] of fast food restaurants" (Ex. 1004 at 5:27-38, 8:11-21), suggesting that Ho envisions its advertisements need not be based on "the current location" of the player.

64. That Ho teaches its interactive information elements may alternatively "be used for the propagation of public announcement services, such as warnings of hurricanes, tsunamis, earthquakes, mobilisation of armed forces and the like" (Ex. 1004 at 9:7-15)—as opposed to advertisements—does not change my opinion. Ho states this alternative functionality "facilitates the *instant transmittal* of emergency warning to players of video games." Ex. 1004 at 9:13-15. Ho thus does not disclose or suggest having Ho's client device provide Ho's server with any information—let

alone the “the current location of the [client] device”—in connection with such “emergency warning[s],” contrary to Petitioner’s suggestion. Petition at 22. Moreover, pursuant to the full language of claim 1, the “hot spot information to download” includes “hidden content for presenting to the user when the hot spot is activated.” ’662 Patent at 14:53-57. In my opinion, a POSITA would understand that an emergency warning that is instantly transmitted (Ex. 1004 at 9:7–15) is not “hidden content” that is only presented to a user upon activation of a hot spot by the user, as required by claim 1 of the ’662 Patent.

65. Additionally, in my opinion, a POSITA would understand that Ho is suggesting that, in this alternative function of Ho’s interactive information elements, a government system would overtake Ho’s server and network traffic to propagate such “emergency warning[s].” Ex. 1004 at 9:8-15. Indeed, in my opinion, a government most likely would not rely on communicating “emergency warning[s],” such as the “mobilization of armed forces,” exclusively through a game developer’s system, including due to the potential ramifications should the game developer’s server malfunction or otherwise lead to a breakdown in “instant transmittal” of the “emergency warning.” Ex. 1004 at 9:8-15.

66. As another example, a POSITA would understand that Ho does not disclose or suggest having Ho’s client device provide Ho’s server with a “scene” or “element” “for which hot spot information is desired” in connection with contacting

the server for an interactive information element, contrary to Petitioner's suggestion. Petition at 22. Rather, Ho makes clear that, when a client device goes "online," the server in Ho "automatically" determines and sends "updated" interactive information elements to the client device (regardless of "scene," for example)—without any affirmative provision of information by the client device to the server. Ex. 1004 at 9:29-33, 10:14-25, Fig. 5.

67. Ho's disclosure with respect to the "hamburger monster" example of Ho's interactive information elements (Ex. 1004 at 5:35-38, 8:19-21) does not demonstrate otherwise, in my opinion, contrary to Petitioner's suggestion. Petition at 22. According to Petitioner's own remarks, Ho's "hamburger monster 56" is not a "scene" or "element" for which "hot spot information is desired." Rather, Petitioner contends that Ho's "hamburger monster" (*i.e.*, a "interactive information element") is the claimed "hot spot information" itself. Petition at 21, 25. Thus, under Petitioner's theory, any (undisclosed) provision of "the hamburger monster"—*i.e.*, the "hot spot information" itself—to the server by the client device, so that the server may return *only* a corresponding "advertisement," necessarily fails to teach providing the server with "a scene" or "an element" for which hot spot information is desired, and subsequent downloading of "hot spot information"—*i.e.*, "the hamburger monster," as required by claim 1 of the '662 Patent.

68. Moreover, Ho discloses that each “interactive information element,” including “hamburger monster 56,” is “linked/related to a particular advertiser.” Ex. 1004 at 5:1-7. Indeed, Petitioner itself notes that “Ho [] teaches that interactive information elements (*i.e.*, hot spots) comprise hidden content for presenting to the user when the hot spot is activated.” Petition at 25. Thus, a POSITA would understand that, when a user “slay[s] the hamburger monster 56” in Ho’s video game, the “advertisement of a chain of fast food restaurants” that is presented as a result is not newly fetched from Ho’s server, but rather already associated with “hamburger monster 56” on Ho’s client end device—including for offline play.

69. As another example, a POSITA would understand that Ho does not disclose or suggest having Ho’s client device provide Ho’s server with “a version identifier for hot spot information currently on the mobile communication device” in connection with contacting the server for an interactive information element, contrary to Petitioner’s suggestion. Petition at 23. Rather, Ho makes clear that, when a client device goes “online,” the server in Ho “automatically” determines and sends interactive information elements to the client device—without any affirmative provision of information by the client device to the server. Ex. 1004 at 9:29-33, 10:14-25, Fig. 5.

70. Ho, at most, teaches only that, when a client device connects to the server (*i.e.*, goes “online”), the server “automatically” checks some *unspecified*

“information on the client end device relating to the interactive information elements” and “then determines whether the interactive information element(s)” “needs to be changed/renewed.” Ex. 1004 at 9:29-33, 10:2-25, Fig. 5. I disagree with Petitioner’s contention that a POSITA would have necessarily understood this cursory disclosure in Ho to “teach and render obvious providing the server with ‘a version identifier’ for the interactive information element so that the mobile phone can keep track of whether the version on the mobile phone is the latest version.” Petition at 23. As noted above, Ho fails to disclose any versioning of its video game, let alone the creation and logging of any “version identifier” with respect to Ho’s interactive information elements.

71. In my opinion, in view of the full disclosure of Ho, a POSITA would have understood that, when a client device connects to the server (*i.e.*, goes “online”), the server “automatically” would check information such as the date and time the interactive information element was created, the date and time the interactive information element was last modified, and/or the date and time of the last connection to the server by the client device, to determine “whether the interactive information element(s)” “needs to be changed/renewed,” as opposed to some *undisclosed* “version identifier” for Ho’s interactive information element. Ex. 1004 at 9:29-33, 10:2-25, Fig. 5.

72. Petitioner's short, passing reference to Ex. 1020 ("Hannay") does not demonstrative otherwise, in my opinion. Hannay teaches that, as "new levels and/or versions" of its video game are created, some "games content" therein may have "an associated identifier tag that identifies the version that has been used in its construction." Ex. 1020, [0019]. But, despite shouldering the burden of proof in this proceeding, Petitioner fails to rely on Hannay in any Ground in the Petition and also fails to explain why a POSITA would have been motivated to apply Hannay's "identifier tag[s]" with respect to a game version to Ho's interactive information elements.

73. I also disagree with Petitioner's contention that "the combined teachings of Ho and Aoki render the limitation obvious." Petition at 24. Fundamentally, Petitioner contends that Aoki discloses a game terminal that sends "the ID of the player who uses the game terminal" to an "advertisement management sever" "in order to obtain advertisements." Petition at 24. I disagree with Petitioner's characterization of Aoki.

74. Aoki is directed to a "game advertisement charge system." *E.g.*, Ex. 1005, [0002]. While other publications "disclose ... distribution or displaying techniques for game advertisements," Aoki's teachings are focused on "methods for setting advertisement charges." Ex. 1005, [0005]. Indeed, Aoki contains a generic disclosure by which a "game advertisement" is simply sent to and output at a "game

terminal.” Ex. 1005, [0067]. In contrast, the single paragraph of Aoki cited by Petitioner relates to an “advertisement charge process.” Ex. 1005, [0077]; *see* Petition at 43. In particular, Aoki teaches that—after display of an advertisement in a game—information regarding that advertisement, including its “advertisement ID,” “advertisement point,” and “ID of the player who uses the game terminal,” is uploaded to an “advertisement management server” for “use[] in an advertisement charge process applied in the advertisement management server.” Ex. 1005, [0077].

75. That “advertisement charge process” is illustrated in Figure 12 of Aoki. Ex. 1005, [0088], Fig. 12. Aoki describes that the advertisement management server calculates a “charge point” based on the information received by the server. Ex. 1005, [0088]. At a part of that calculation, the advertisement management server determines whether the “user information” received by the server (*e.g.*, “age, sex, profession”) falls within the “user range” for which the advertisement was intended. Ex. 1005, [0089]. Thus, Aoki does not teach propagation of an advertisement in game based on “the ID of the player who uses the game terminal.” Rather, at most, Aoki teaches only post-display analysis of information regarding a user that viewed an advertisement (at the back end) in the context of setting the charge for that advertisement to its publisher.

76. Petitioner’s suggestion that, “in the combined Ho-Aoki system,” Ho’s “client end device would continue to download from the server interactive

information elements and hidden content, and would do so after providing the server the ID of the player[] and a game ID []” is thus incorrect. Petition at 24. In any such combined Ho-Aoki system, Ho’s client device would, at most, only provide the server with the “ID of the player” *after* the downloading of a hotspot and display of the content associated therewith—for calculation of a “charge point” for the content in accordance with Aoki’s advertisement charge process, as discussed above. *See* Ex. 1005, [0077], [0088], [0089], Fig. 12.

77. Relatedly, given Petitioner’s incorrect interpretation of Aoki, I also disagree with Petitioner’s contention that a POSITA would have been motivated to modify Ho in view of Aoki because such modification would “allow[] the server to provide Ho’s mobile device with advertisements that are targeted to specific users.” Petition at 24. As discussed, a POSITA would understand that Ho does not suggest the client device in Ho provides any specific information to Ho’s server in connection with contacting the server for “hot spot information” to download—let alone a “user ID” or “game ID.” Rather, when a client device goes “online,” the server in Ho “automatically” determines and sends interactive information elements to the client device—without any affirmative provision of information by the client device to the server. Ex. 1004 at 9:29-33, 10:14-25, Fig. 5. Moreover, the advertisements taught by Ho are with respect to ubiquitous brands, such as “airliner[s]” and “chain[s] of fast food restaurants” (Ex. 1004 at 5:27-38, 8:11-21),

suggesting that Ho envisions its advertisements need not be targeted to specific users.

78. Petitioner's passing reference to Ex. 1008 ("Sturman") does not demonstrate otherwise, in my opinion. Sturman simply suggests that "[p]layer-specific information" (e.g., "gender"; "age") may be used in some advertising delivery schemes. Ex. 1008, [0054]. But Petitioner fails to articulate any specific reason why a POSITA would have been motivated to modify Ho's video game in light of Sturman's advertising delivery schemes. And Ho makes clear that when a client device goes "online," the server in Ho "automatically" determines and sends interactive information element to the client device—without any affirmative provision of information by the client device to the server. Ex. 1004 at 9:29-33, 10:14-25, Fig. 5. Moreover, as noted, the advertisements taught by Ho are with respect to ubiquitous brands, such as "airliner[s]" and "chain[s] of fast food restaurants" (Ex. 1004 at 5:27-38, 8:11-21), suggesting that Ho envisions its advertisements need not be targeted to specific users.

## **2) Claim 7**

79. Claim 7 of the '662 Patent recites the method of claim 1 "further comprising saving on the mobile communication device a version identifier for the downloaded hot spot information." '662 Patent at 15:12-14. I understand Petitioner contends only that Ho alone "discloses and renders obvious th[is] additional

limitation of claim 7.” Petition at 33. In particular, I understand Petitioner contends Ho renders this limitation obvious for the same reasons Ho allegedly renders obvious “contacting a server for hot spot information to download, comprising providing the server with at least one of: ... a version identifier for hot spot information currently on the mobile communication device.” Petition at 33. I disagree with Petitioner’s contention for the reasons discussed above with respect to the “version identifier” limitation in claim 1 of the ’662 Patent.

### **3) Claim 13**

80. Claim 13 of the ’662 Patent recites “contacting a server for hot spot information to download, comprising providing the server with user-identification information.” ’662 Patent, at 15:30-32. I understand that Petitioner contends that Ho in view of Aoki renders this limitation obvious for the same reason with respect to the “user-identification information” limitation in claim 1. Petition at 57. I disagree with Petitioner’s contention for the reasons discussed above with respect to the “user-identification information” limitation in claim 1 of the ’662 Patent.

## **B. Ho, In View of Kim, Does Not Render Claims 1-11 or 13-19 Obvious.**

### **1) Claim 1**

81. Claim 1 of the ’662 Patent recites “contacting a server for hot spot information to download, comprising providing the server with at least one of: a game for which hot spot information is desired, a scene for which hot spot

information is desired, an element for which hot spot information is desired, the model type of the mobile communication device, the service plan to which the mobile device belongs, the service provider for the mobile communications device, the base location of the mobile communication device, the current location of the mobile communication device, a version identifier for hot spot information currently on the mobile communication device, user-identification information, preset location, amount of game-play time, game score, and level of play.” ’662 Patent at 14:39-52. I understand that Petitioner contends that Ho alone “discloses and renders obvious” this limitation for the same reasons Petitioner set forth with respect to Ho in Ground 1 (Ho in view of Aoki) relative to this limitation. Petition at 61. I disagree for the reasons set forth above in Section IX.A.1. In my opinion, Ho fails to disclose or render obvious providing a server with any of the claimed items of information in connection with contacting the server for “hot spot information” to download.

## **2) Claim 7**

82. Claim 7 of the ’662 Patent recites the method of claim 1 “further comprising saving on the mobile communication device a version identifier for the downloaded hot spot information.” ’662 Patent at 15:12-14. I understand that Petitioner contends that Ho alone “discloses and renders obvious the additional limitation of claim 7” for the same reasons Petitioner set forth with respect to Ho in Ground 1 (Ho in view of Aoki) relative to this limitation. Petition at 64. I disagree

for the reasons set forth above in Section IX.A.2. In my opinion, Ho fails to disclose or render obvious “saving on the mobile communication device a version identifier for the downloaded hot spot information,” as required by claim 7 of the ’662 Patent.

**3) Claim 13**

83. Claim 13 of the ’662 Patent recites “contacting a server for hot spot information to download, comprising providing the server with user-identification information.” ’662 Patent, at 15:30-32. I understand that Petitioner contends that Ho in view of Kim renders this limitation obvious for the same reason as claim limitation 1[a]. I disagree. Indeed, the Petition is devoid of any contention that Ho discloses or renders obvious contacting a server for hot spot information to download, comprising providing the server with user-identification information,” as required by claim 13. *See* Petition at 65–66; *see also* Petition at 21–24, 61. And Petitioner does not contend that Kim cures this deficiency in any way. *See* Petition at 65–66

**C. Jiau, In View of Aoki, Does Not Render Claims 1-20 Obvious.**

**1) Claim 1**

84. Claim 1 of the ’662 Patent recites “downloading hot spot information from the server to the mobile communication device, the hot spot information comprising: 1) hidden content for presenting to the user when the hot spot is activated; and 2) coordinate information.” ’662 Patent at 14:53-58. In my opinion,

Jiau, in view of Aoki, fails to disclose or render obvious “downloading” such “hot spot information.”

85. I understand that Petitioner contends that Jiau alone “discloses and renders obvious” this limitation because Jiau discloses a client system that can “load” “lots and objects” that “comprise hotspot and hotspace information” from a “server system 108.” Petition at 44. I disagree with Petitioner’s contention.

86. Jiau is directed to a “computer network” that “allows users to explore and interact in a multi-owner, three-dimensional virtual world.” Ex. 1006 at 1:7-9, 1:31-32. Jiau’s “virtual word” is “divided into a plurality of ‘lots,’ similar to ‘lots’ of real estate in the real world.” Ex. 1006 at 2:1-2. Jiau notes that each “lot” in the “virtual word” is stored in the “memory or database” of a remote “server”. Ex. 1006 at 2:7-9, 6:22-24. As such, Jiau teaches that “users access the virtual world via client data processing systems using a networking model such as the World Wide Web, and a network such as the internet or an intranet.” Ex. 1006 at 2:4-6.

87. Jiau discloses a computer network that “allows [a] user to move seamlessly from lot to lot in the virtual world by implementing multithreaded loader software in the client data processing system that fetches and displays both lots and objects in the lots from the server in such a way that the user feels as if he is moving through an endless landscape.” Ex. 1006 at 3:15-18. To facilitate this continuous streaming of Jiau’s virtual world, the client data processing system in Jiau “*fetches*

*and discards* lots ... depending, in part, on the motions of the user as the user ‘moves’ through the virtual three- dimensional world.” Ex. 1006 at 3:18-21. Each client system includes “loader/network (NW) communication software 114 that allows a client system to communicate with server system 108 in order to load lots and objects from server system 108.” Ex. 1006 at 6:31-7:2.

88. Jiau describes that, initially, a “user starts at a predetermined current location of a predetermined current lot in the virtual world.” Ex. 1006 at 9:31-32. Therewith, Jiau describes that the client system in Jiau “will request from the server and load all eight lots surrounding this current lot.” Ex. 1006 at 10:1-2. As such lots are requested from the server, “they are cached by the client system.” Ex. 1006 at 10:3-5. Whenever a user moves, however, Jiau notes that “the client system updates his current location” (Ex. 1006 at 10:32-11:1) and accordingly “fetches” any “new lots”—and “*discards*” lots that are no longer needed—“to re-render and display the current three-dimensional view.” Ex. 1006 at 3:18-21, 10:32-11:4.

89. Petitioner characterizes the virtual lots in Jiau as “downloaded lots” that “comprise[] hotspot and hotspace information.” Petition at 44. Jiau, however, itself does not refer to its virtual lots as such. *See generally* Ex. 1006. In fact, the word “download” is not mentioned in Jiau. And, in my opinion, a POSITA would understand that Jiau’s virtual lots are stored on the server system in Jiau for only occasional fetching by a client system (as opposed to downloading for later use by

the client system). Ex. 1006 at 2:7-9 (stating each “lot” in the “virtual word” is stored in the “memory or database” of a remote “server”); 6:22-24 (stating “lots of various users are stored” in the “server data processing system”); *see* Ex. 1006 at 3:15-18 (describing “software in the client data processing system that fetches and displays both lots and objects in the lots from the server”), 3:18-21 (“The client data processing system fetches and discards lots ....”).

90. This understanding is confirmed by the fact that Jiau teaches that users can only access Jiau’s “virtual world”—*i.e.*, the virtual lots stored on the remote server system—via a client system when “using a networking model such as the World Wide Web, and a network such as the internet or an intranet.” Ex. 1006 at 2:4-6. As such, a POSITA would understand that users cannot access any virtual lot of Jiau on a client system *disconnected* from the server system. Indeed, Jiau does not disclose a user accessing any virtual lot of Jiau on a client system while the client system is offline, which, in my opinion, confirms that virtual lots are stored on the server system in Jiau—and not downloaded onto any client system.

91. At most, Jiau discloses that, when a client system is connected to Jiau’s server system, some limited number of virtual lots may simply be “cached by the client system.” Ex. 1006 at 10:1-5. But, as discussed above, as a user moves in Jiau’s virtual world, those cached lots are automatically “*discard[ed]*” from the client system. Ex. 1006 at 3:18-21. In my opinion, a POSITA would not understand such

momentary retention of those lots in the cache of a client system of Jiau to equate to the claimed “downloading” of “hot spot information” required in claim 1 of the ’662 Patent. Cache is, by its definition, only temporary storage that is separate and distinct from a device’s main memory storage and thus is not a reliable means for later access of the data on the device. Indeed, as discussed above, Jiau itself notes that virtual lots “cached by the client system” in Jiau are readily “*discard[ed]*” from the client system as a user moves in Jiau’s virtual world. Ex. 1006 at 3:18-21. Additionally, in my opinion, a POSITA would understand that mobile phones as of June 26, 2007, did not generally have the bandwidth and capacity to download and store “*eight*” virtual lots (Ex. 1006 at 10:1-2) for later access on the mobile phone. *See* ’662 Patent at 1:35-39 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”).

92. As such, in my opinion, Jiau fails to disclose or render obvious “downloading” of “hot spot information” on a mobile communication device, as required by claim 1 of the ’662 Patent. Rather, as discussed, Jiau teaches that the lots of Jiau’s virtual world, and objects therein (including any associated hotspots), shall be commonly accessed by client data process systems through a real-time, continuous network connection with a remote server on which the lots of Jiau’s virtual world, and objects therein (including any associated hotspots), are stored.

## **2) Claim 7**

93. Claim 7 of the '662 Patent recites the method of claim 1 “further comprising saving on the mobile communication device a version identifier for the downloaded hot spot information.” '662 Patent at 15:12-14. In my opinion, a POSITA would understand that the claimed “version identifier for the downloaded hot spot information” is a unique number or other designation for distinguishing one “hot spot information” from another “hot spot information.” For example, the '662 Patent describes that “version identification numbers” may be used “to determine if [a] mobile communication device already has downloaded some or all of the hot spot information available for download.” '662 Patent at 9:44-53, 11:30–47.

94. In my opinion, Jiau, in view of Aoki, fails to disclose or render obvious this “version identifier for the downloaded hot spot information” limitation of claim 7. As an initial matter, Jiau, in view of Aoki, fails to disclose or render obvious “downloaded hot spot information,” as explained above. Moreover, in any event, Jiau, in view of Aoki, fails to disclose or render obvious any “version identifier” for Jiau’s “hotspots” or “hotspaces.”

95. I understand that Petitioner contends that Jiau alone “discloses and renders obvious” this limitation because Jiau suggests that an “object id” of Jiau associated with an “object [that] may have a hotspot or hotspace” may constitute a

“version identifier” if that “object is changed or modified.” Petition at 53. I disagree with Petitioner’s contention.

96. As I summarized above, Jiau’s virtual world consists of virtual “lots.” Ex. 1006 at 2:1-2. Jiau’s virtual “lots” can include “objects.” Ex. 1006 at 2:12–21. And Jiau’s “objects” can include “hotspots.” Ex. 1006 at 2:12–21, 16:29–17:6; *see, e.g., id.* at 15:9–17, 15:18–24. Jiau describes that “Figs. 13(a) and 13(b) show exemplary attributes and properties of lots and objects, respectively.” Ex. 1006 at 8:9-10. Figure 13(a) shows a “lot name 1302” and a “unique lot id 1304” as well as a list 1306 of objects in the lot. Ex. 1006 at 17:14-20; Fig. 13(a). Figure 13(b) shows an object “name 1352” and “type of object 1356” as well as a “list of hotspots and hotspaces 1358.” Ex. 1006 at 17:25-32; Fig. 13(b).

97. Unlike the “unique lot id 1304” for Jiau’s lots, Jiau does not disclose any type of unique object id nor any type of unique hotspot id (or hotspace id). *See* Ex. 1006 at 17:25-32; Fig. 13(b). Rather, at most, Jiau discloses only an object name 1352. Ex. 1006 at 17:25-32. Jiau, however, teaches that this object name “need not be unique.” Ex. 1006 at Fig. 13(b). And while other portions of Jiau refer to an “object id” as opposed to object name, none of those portions, in my opinion, suggest that an “object id” is something materially different than object name—let alone some type of unique version identifier for an “object.” *See, e.g.,* Ex. 1006 at 17:7-9; 19:31-32. Indeed, Jiau does not suggest that an “object id” should be updated if an

object is changed or modified. Quite the opposite, Jiau discloses that any “object id” or “object name” is with respect to a “predetermined” list of objects in a “World Database” for a virtual world. Ex. 1006 at Fig. 1a. That “World Database” includes “pointers” to “objects that can be located in the various lots.” Ex. 1006 at 7:23-35. This “predetermined” nature of Jiau’s objects suggests that Jiau does not contemplate versioning of the objects. And this conclusion is confirmed, in my opinion, by the absence of any teaching or suggestion of a “version identifier” in Jiau with respect to the objects available in a virtual world.

98. Jiau’s disclosure that the “header definition” of a “file for a lot” includes a reference to a “short nVersion” in Figure 17 of Jiau supports my opinion that this claim limitation is not disclosed in Jiau. Petition at 54; Ex. 1006 at 19:28-20:1, Fig. 17. Jiau states that Figure 17 specifies file information for a “lot.” Ex. 1006 at 19:28-29, Fig. 17. And, as made clear by context, the reference to “short nVersion” in Figure 17 is with respect to the structure for the “File Header” (“FOREVER21HEAD”)—not the structure for any “object” (*e.g.*, “Object1”/“FOREVER21OBJ”), let alone “hotspot” therein. Ex. 1006 at Fig. 17.

99. As such, in my opinion, Jiau fails to disclose or render obvious “saving on the mobile communication device a version identifier for the downloaded hot spot information,” as required by claim 7 of the ’662 Patent.

### 3) Claim 12

100. Claim 12 of the '662 Patent recites the method of claim 1 wherein the “hidden content” downloaded to the mobile communication device as part of the claimed “hot spot information” comprises “a second hot spot.” '662 Patent at 15:25-26. In my opinion, Jiau, in view of Aoki, fails to disclose or render obvious this “second hot spot” limitation.

101. I understand that Petitioner contends that Jiau alone “discloses and renders obvious” this limitation because Jiau teaches that an “object” may be associated with “a plurality of hot spots,” which may be “activated separately” with “different hotspot activities associated therewith.” Petition at 56. I disagree with Petitioner’s contention.

102. Jiau generally discloses that an “object” in a virtual “lot” can have one or more “hotspots.” Ex. 1006 at 16:29-31, 21:27. For instance, Jiau discloses that a “hotspot” may be “the entirety of the object,” such that the object only has a single hotspot. Ex. 1006 at 3:29-30. Alternatively, Jiau discloses that a hotspot may take up only a portion of an object, such that the object may include multiple hotspots. For example, Figure 11(d) of Jiau illustrates “object 1184” (“a sign”) that includes “hotspot link 1186” in the lower left corner of the object. Ex. 1006 at 15:9-17, Fig. 11(d). That object thus has available area for one or more additional hotspots.

103. In my opinion, a POSITA would thus understand Jiau's claim that an "object" may have "a plurality of hot spots" (Ex. 1006 at 21:27) simply to mean that an object, as presented to a user, may be sized in a virtual lot such that it may contain two or more hotspots. Jiau, however, does not disclose an object that has a hotspot with another, second hot spot within it that is accessed only by activating the first hot spot, as required by claim 12 of the '662 Patent. Rather, Jiau teaches that activation of a hot spot results in an "action," "such as display of an advertisement or animation" or display of a "web page." Ex. 1006 at Abstract; *see, e.g.*, Ex. 1006 at 15:9-17 (Jiau disclosing an "animation 1188" appearing when hotspot 1186 is activated); 16:31-32 ("For example, when the user touches or selects an object, a pop-up advertisement may appear."). Jiau does not teach that activation of a hot spot results in display of another, second hot spot.

104. I understand that Petitioner contends Jiau's Figures 11(e) and 11(f) demonstrate that "Jiau teaches an object may be associated with 'a plurality of hotspots'" and thereby renders obvious claim 12. Petition at 55-56. I disagree with Petitioner's contention.

105. Figure 11(e) of Jiau (reproduced below) "shows an example of an object 1192 having a[] hotspot link 1194 (e.g., a door-shape) allowing a user to enter an interior of the object." Ex 1006 at 15:19-20, Fig. 11(e). "When a user activates

hotspot 1194 of Fig. 11(e),” the “interior of object 1192” is displayed to the user, as shown in Figure 11(f) of Jiau (reproduced below). Ex 1006 at 15:21-23; Fig. 11(f).

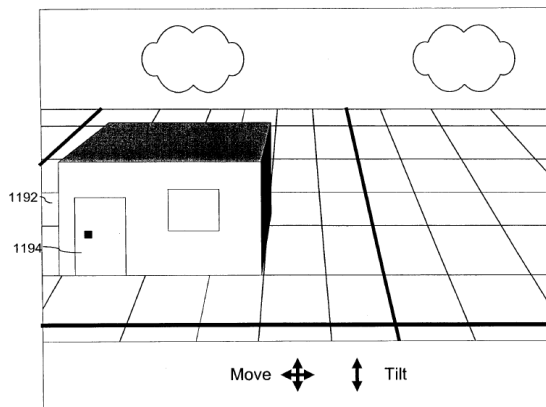


Fig. 11(e)

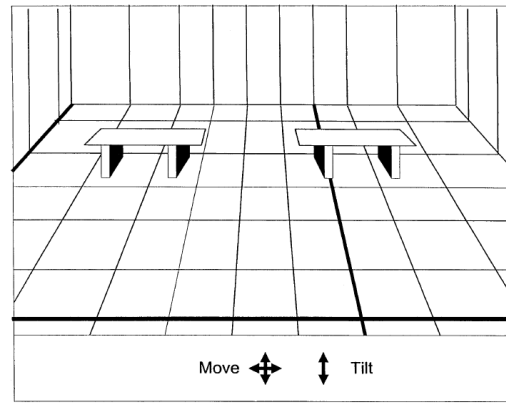


Fig. 11(f)

106. As shown above, Jiau’s Figure 11(f) itself is devoid of any hotspots. And, as discussed above, Jiau does not teach that activation of a hot spot, such as hotspot 1194 in Figure 11(e), results in display of another, second hot spot. I thus disagree with Petitioner’s suggestion that the “furniture” in the “building interior” shown in Figure 11(f) “comprise[s] additional hotspots” associated therewith “that are activated when a user ‘collides with or passes sufficiently close’ to them.” Petition at 56. In fact, Jiau expressly states that Figure 11(f) is simply an “interior view” of object 1192, which is “defined as an attribute of object 1192”—as opposed to any new, second “hotspot.” Ex. 1006 at 15:23-24. And no hotspot is called out or otherwise identified by Jiau in Figure 11(f).

#### 4) Claim 13

107. Claim 13 of the '662 Patent recites “contacting a server for hot spot information to download, comprising providing the server with user-identification information.” '662 Patent, at 15:30-32. In my opinion, Jiau, in view of Aoki, fails to disclose or render obvious this limitation of claim 13.

108. I understand that Petitioner contends that Jiau in view of Aoki renders this limitation obvious for the same reason as claim limitation 1[a]. Petition at 57. In particular, I understand Petitioner contends that (i) “Jiau discloses that the client system provides the server with ‘lot/object id(s)’; (ii) “Jiau also teaches that lot and objects are associated with a ‘user id’”; and thus (iii) “a POSITA would have also understood that the client system provides ‘user-identification information’ (*i.e.* a user id) in order to access and download the lots and objects comprising hot spot information.” Petition at 43. I disagree with Petitioner’s contention.

109. Jiau discloses that lots (and objects therein) in Jiau’s virtual world are fetched from the server in Jiau based on exclusively on the submission of “lot id(s)” (or “object id(s)”) by the client system to the server system. Ex. 1006 at 13:8-18, 16:3-17, 17:7-13, Figs. 8, 12. In particular, software running on the client system sends requests to the server system for the needed lot or object based on “lot/object ids” and the server “[g]ets lot(s)/objects(s) in accordance with the id(s).” Ex. 1006 at Fig. 8. Jiau does not disclose that lots and objects are fetched from Jiau’s server

in response to submission of any “user-identification information” by a client system of Jiau. *See id.* Rather, lots and objects therein are fetched from Jiau’s server based on the user’s movements in the virtual world via transmission of “lot id(s)” (or “object id(s)”) by the client system to the server system. Ex. 1006 at 3:13-21, 9:30-10:30, 10:32-11:6; 13:8-18, Fig. 8. And Jiau expressly notes that “[a]ll users, even those who do not have their own lots, can browse the lots of the virtual world, visiting in turn the lots that others have designed.” Ex. 1006 at 2:22-23.

110. In my opinion, the fact that Jiau discloses that a “user id” (*i.e.*, the id of the user that “own[s]” the lot/object) may simply be associated with both a “lot” and/or an “object” does not disclose or suggest that a client system in Jiau provides the server system in Jiau with any such “user id” (*i.e.*, the id of the user that “own[s]” the lot/object) to fetch new lots or objects, as a user moves around Jiau’s virtual world. Ex. 1006 at 17:14-20, 17:25-18:4. Rather, as discussed, Jiau teaches that a “lot id” or “object id” is provided by the client system. *E.g.*, Ex. 1006 at Fig. 8.

111. I also disagree with Petitioner’s contention that “the combined teachings of Jiau and Aoki render the limitation obvious.” Petition at 43. Fundamentally, Petitioner contends that Aoki discloses a game terminal that sends “the ID of the player who uses the game terminal” to an “advertisement management sever” “in order to obtain advertisements.” Petition at 43. I disagree with Petitioner’s characterization of Aoki.

112. Aoki is directed to a “game advertisement charge system.” *E.g.*, Ex. 1005, [0002]. While other publications “disclose ... distribution or displaying techniques for game advertisements,” Aoki’s teachings are focused on “methods for setting advertisement charges.” Ex. 1005, [0005]. Indeed, Aoki contains a generic disclosure by which a “game advertisement” is simply sent to and output at a “game terminal.” Ex. 1005, [0067]. In contrast, the single paragraph of Aoki cited by Petitioner relates to an “advertisement charge process.” Ex. 1005, [0077]; *see* Petition at 43. In particular, Aoki teaches that—after display of an advertisement in a game—information regarding that advertisement, including its “advertisement ID,” “advertisement point,” and “ID of the player who uses the game terminal,” is uploaded to an “advertisement management server” for “use[] in an advertisement charge process applied in the advertisement management server.” Ex. 1005, [0077].

113. That “advertisement charge process” is illustrated in Figure 12 of Aoki. Ex. 1005, [0088], Fig. 12. Aoki describes that the advertisement management server calculates a “charge point” based on the information received by the server. Ex. 1005, [0088]. At a part of that calculation, the advertisement management server determines whether the “user information” received by the server (*e.g.*, “age, sex, profession”) falls within the “user range” for which the advertisement was intended. Ex. 1005, [0089]. Thus, Aoki does not teach propagation of an advertisement in game based on “the ID of the player who uses the game terminal.” Rather, at most,

Aoki teaches only post-display analysis of information regarding a user that viewed an advertisement (at the back end) in the context of setting the charge for that advertisement to its publisher.

114. Petitioner's suggestion that, "in the combined Jiau-Aoki system," Jiau's "client end device would continue to download hotspot [] information, and would do so after providing the server the ID of the player" is thus incorrect. Petition at 43. In any such combined Jiau-Aoki system, Jiau's client device would, at most, only provide the server with the "ID of the player" *after* the downloading of a hotspot and display of the content associated therewith—for calculation of a "charge point" for the content in accordance with Aoki's advertisement charge process, as discussed above. *See* Ex. 1005, [0077], [0088], [0089], Fig. 12.

115. Petitioner's passing reference to Ex. 1008 ("Sturman") does not demonstrative otherwise, in my opinion. Sturman simply suggest that "[p]layer-specific information" (*e.g.*, "gender"; "age") may be used in some advertising delivery schemes. Ex. 1008, [0054]. But Petitioner fails to articulate any specific reason why a POSITA would have been motivated to modify Jiau's virtual world in light of Sturman's advertising delivery schemes. Moreover, in my opinion, a POSITA would not be motivated to modify Jiau so as to condition the hotspots being loaded in Jiau's virtual world on the specific identification of the user. Rather, quite the opposite, Jiau strives to ensure that "[a]ll users, even those who do not have their

own lots, can browse the lots of the virtual world”—and thereby enjoy the same virtual world (including the lots, objects, and hotspots therein) in the same manner. Ex. 1006 at 2:22-23. Moreover, Jiau discloses that each virtual lot—including the objects therein and their associated hotspots—are stored on a remote server for common access by all “client systems” of Jiau. Ex. 1006 at 6:22-7:2.

116. Thus, in my opinion, Petitioner’s proposed modification of Jiau—such that different users are presented with different “targeted” advertising content as a result of activation of the same “hotspot” in Jiau—is directly contrary to intended purposes of Jiau.

117. Additionally, and similar to claim 1 of the ’662 Patent, claim 13 of the ’662 Patent also recites “downloading hot spot information from the server to the mobile communication device, the hot spot information comprising: 1) hidden promotional content for presenting to the user when the hot spot is activated; and 2) coordinate information.” ’662 Patent at 16:1-6. I understand Petitioner contends that Jiau in view of Aoki renders this limitation obvious for the same reasons as claim 1 of the ’662 Patent. Petition at 57. I disagree for the reasons discussed above with respect to claim 1 of the ’662 Patent. In my opinion, Jiau, in view of Aoki, fails to disclose or render obvious “downloading” the claimed “hot spot information.”

## **5) Claim 20**

118. Like claim 12 of the '662 Patent, claim 20 of the '662 Patent recites the method of claim 13 wherein the “hidden content” downloaded to the mobile communication device as part of the claimed “hot spot information” comprises “a second hot spot.” '662 Patent at 16:30-31. I understand Petitioner contends that Jiau in view of Aoki renders this limitation obvious for the same reasons as claim 12 of the '662 Patent. Petition at 57. I disagree for the reasons discussed above with respect to claim 12 of the '662 Patent. In my opinion, Jiau, in view of Aoki, fails to disclose or render obvious this “second hot spot” limitation.

### **D. Jiau, In View of Kim, Does Not Render Claims 1-20 Obvious.**

#### **1) Claim 1**

119. Claim 1 of the '662 Patent recites “downloading hot spot information from the server to the mobile communication device, the hot spot information comprising: 1) hidden content for presenting to the user when the hot spot is activated; and 2) coordinate information.” '662 Patent at 14:53-58. I understand that Petitioner contends that Jiau alone “discloses and renders obvious” this limitation for the same reasons Petitioner set forth with respect to Jiau in Ground 2 (Jiau in view of Aoki) relative to this limitation. Petition at 68. I disagree with Petitioner’s contention for the reasons set forth above in Section IX.C.1. In my opinion, Jiau fails

to disclose or render obvious “downloading” of “hot spot information” on a mobile communication device, as required by claim 1 of the ’662 Patent.

**2) Claim 7**

120. Claim 7 of the ’662 Patent recites the method of claim 1 “further comprising saving on the mobile communication device a version identifier for the downloaded hot spot information.” ’662 Patent at 15:12-14. I understand that Petitioner contends that Jiau alone “discloses and renders obvious the additional limitation of claim 7” for the same reasons Petitioner set forth with respect to Jiau in Ground 2 (Jiau in view of Aoki) relative to this limitation. Petition at 70. I disagree with Petitioner’s contention for the reasons set forth above in Section IX.C.2. In my opinion, Jiau fails to disclose or render obvious “saving on the mobile communication device a version identifier for the downloaded hot spot information,” as required by claim 7 of the ’662 Patent.

**3) Claim 12**

121. Claim 12 of the ’662 Patent recites the method of claim 1 wherein the “hidden content” downloaded to the mobile communication device as part of the claimed “hot spot information” comprises “a second hot spot.” ’662 Patent at 15:25-26. I understand that Petitioner contends that Jiau alone “discloses and renders obvious the additional limitation of claim 12” for the same reasons Petitioner set forth with respect to Jiau in Ground 2 (Jiau in view of Aoki) relative to this

limitation. Petition at 71. I disagree with Petitioner's contention for the reasons set forth above in Section IX.C.3. In my opinion, Jiau fails to disclose or render obvious this "second hot spot" limitation of claim 12 of the '662 Patent.

#### **4) Claim 13**

122. Claim 13 of the '662 Patent recites "contacting a server for hot spot information to download, comprising providing the server with user-identification information." '662 Patent, at 15:30-32. I understand that Petitioner contends that Jiau in view of Kim renders this limitation obvious for the same reason as claim limitation 1[a]. Petition at 71. In particular, I understand that Petitioner contends that Jiau alone "discloses and renders obvious" this limitation for the same reasons Petitioner set forth with respect to Jiau in Ground 2 (Jiau in view of Aoki) relative to limitation 1[a] of claim 1 of the '662 Patent. Petition at 68. I disagree with Petitioner's contention for the reasons set forth above in Section IX.C.4. In my opinion, Jiau does not disclose or render obvious "contacting a server for hot spot information to download, comprising providing the server with user-identification information."

123. Additionally, similar to claim 1 of the '662 Patent, claim 13 of the '662 Patent also recites "downloading hot spot information from the server to the mobile communication device, the hot spot information comprising: 1) hidden promotional content for presenting to the user when the hot spot is activated; and 2) coordinate

information.” ’662 Patent at 16:1-6. I understand that Petitioner contends that Jiau in view of Kim renders this limitation obvious for the same reason as claim limitation 1[b]. I disagree with Petitioner’s contention for the reasons set forth above with respect to claim limitation 1[b]. In my opinion, Jiau, in view of Kim, fails to disclose or render obvious “downloading” of “hot spot information” on a mobile communication device, as required by claim 13 of the ’662 Patent.

### **5) Claim 20**

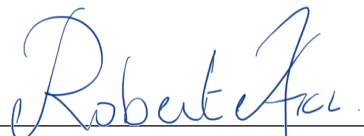
124. Like claim 12 of the ’662 Patent, claim 20 of the ’662 Patent recites the method of claim 13 wherein the “hidden content” downloaded to the mobile communication device as part of the claimed “hot spot information” comprises “a second hot spot.” ’662 Patent at 16:30-31. I understand that Petitioner contends that Jiau alone renders this limitation obvious for the same reason as claim 12 of the ’662 Patent. Petition at 72. I disagree with Petitioner’s contention for the reasons discussed above with respect to claim 12 of the ’662 Patent. In my opinion, Jiau fails to disclose or render obvious this “second hot spot” limitation of claim 20 of the ’662 Patent.

### **X. Conclusion**

For the reasons I explain above, none of the Challenged Claims of the ’662 Patent are rendered obvious.

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

Executed on August 2, 2024 in Dallas, Texas.

  
Dr. Robert Ak1, D.Sc.

## **CERTIFICATE OF SERVICE**

The undersigned hereby certifies that a copy of the foregoing  
**DECLARATION OF DR. ROBERT AKL, D.SC. IN SUPPORT OF PATENT  
OWNER'S RESPONSE** has been served electronically via email upon the  
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