

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. AND
SAMSUNG ELECTRONICS AMERICA, INC.,

Petitioners,

v.

MAXELL, LTD.,

Patent Owner

IPR2025-01307

U.S. Patent No. 11,026,088

**DECLARATION OF DR. RADOSTIN PACHAMANOV
IN SUPPORT OF PATENT OWNER'S RESPONSE TO PETITION
FOR *INTER PARTES REVIEW* OF U.S. PATENT NO. 11,026,088**

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P.O. Box 1450
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Maxell, Ltd.
Ex. 2014
1 of 81

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PATENT OWNER'S EXHIBIT LIST

Exhibit #	Description
2001	Notice Letter to Samsung (July 7, 2021)
2002	Follow-up Notice Letter to Samsung (December 29, 2021)
2003	Docket Navigator Time to Trial Statistics for the Eastern District of Texas
2004	Docket Control Order, <i>Maxell, Ltd. v. Samsung Elecs. Co., Ltd.</i> , No. 5:25-cv-00052-RWS (E.D. Tex.)
2005	Jury Trial Transcript, Vol. 4, <i>Maxell, Ltd. v. Samsung Elecs. Co., Ltd.</i> , No. 5:23-cv-00092-RWS (E.D. Tex.)
2006	Complaint, <i>Maxell, Ltd. v. Samsung Elecs. Co., Ltd.</i> , No. 5:25-cv-00052-RWS (E.D. Tex.)
2007	Follow-up Notice Letter to Samsung (April 21, 2025)
2008	Law360 Article, "Maxell Settles Patent Suit Against Apple Over Mobile Tech"
2009	Law360 Article, "Maxell Scores \$43M EDTX Jury Win In ZTE Patent Trial"
2010	Law360 Article, "Maxell, Huawei Reach Terms To End Smartphone Patent Suit"
2011	Hudson Institute Article, "Google's Loss to Sonos Settles It, Big Tech Has an IP Piracy Problem"
2012	PatentRenewal.com Article, "which-companies-hold-the-most-patents-in-the-world"
2013	Motion for Partial Summary Judgment of Validity Based on Sotera Stipulations, <i>Maxell, Ltd. v. Samsung Elecs. Co., Ltd.</i> , No. 5:23-cv-00092-RWS (E.D. Tex.)
2014	Declaration of Dr. Radostin Pachamanov in Support of Patent Owner's Response
2015	Transcript of March 27, 2026 Deposition of Dr. Joseph A. Paradiso

LISTING OF CHALLENGED CLAIMS

Claim	Claim Text
[1pre]	A communication system comprising:
[1a]	a communication device;
[1b]	an access point device;
[1c]	a first communication terminal configured to connect to the communication device via the access point device and transmit a command to remotely control a display operation on the communication device connected with the first communication terminal; and
[1d]	a second communication terminal configured to, if having permission from the first communication terminal, establish a connection with the communication device to use the communication device;
[1e]	wherein, while the communication device outputs data received from the second communication terminal that has established the connection with the communication device and upon receiving, by the communication device, the command from the first communication terminal, the communication device is configured to control how to display the data received from the second communication terminal while maintaining the connection with the second communication terminal, and
[1f]	wherein, when the communication device receives information to terminate the permission from the first communication terminal, the communication device is configured to terminate the connection with

	the second communication terminal in accordance with the information to terminate permission received from the first communication terminal.
[2pre]	The communication system according to claim 1, wherein,
[2a]	for the permission, the first communication terminal transmits, to the second communication terminal, connection information necessary for a connection through short range communication with the second communication terminal, and the second communication terminal connects to the communication device by using the connection information.
[5pre]	The communication system according to claim 1, wherein,
[5a]	the first communication terminal displays information whether to terminate the permission on a display screen, receives an input operation for terminating the permission, and transmits the information to terminate the permission to the communication device in accordance with the input operation for terminating the permission.
[6pre]	The communication system according to claim 1, wherein,
[6a]	in a case that the communication device is able to receive information from the first communication terminal, the communication device controls the communication device in accordance with information from the first communication terminal,
[6b]	wherein, in a case that the communication device is unable to receive information from the first communication terminal, the communication device terminates the connection with the second communication terminal.

[7pre]	The communication system according to claim 1, wherein,
[7a]	for the permission, the first communication terminal transmits, to the second communication terminal, connection information necessary for a connection through short range communication with the second communication terminal, and
[7b]	the second communication terminal transmits address information on the second communication terminal to the first communication terminal,
[7c]	the first communication terminal transmits the address information on the second communication terminal to the communication device,
[7d]	the communication device registers the address information on the second communication terminal into a permission list,
[7e]	the second communication terminal connects to the communication device by using the connection information,
[7f]	upon confirming the permission is to be terminated, the first communication terminal causes the communication device to delete the address information on the second communication terminal from the permission list of the communication device, and,
[7g]	upon the address information on the second communication terminal being not registered in the permission list, the communication device terminates the connection with the second communication terminal.
[8pre]	The communication system according to claim 1, wherein,
[8a]	for the permission, the first communication terminal transmits, to the second communication terminal, connection information necessary for a connection through short range communication with the second

	communication terminal, and
[8b]	the second communication terminal transmits address information on the second communication terminal to the first communication terminal,
[8c]	the first communication terminal registers the address information on the second communication terminal into a permission list,
[8d]	the second communication terminal connects to the communication device by using the connection information,
[8e]	upon confirming the permission is to be terminated, the first communication terminal causes the communication device to delete the address information on the second communication terminal from the permission list, and
[8f]	the communication device performs communication for confirmation with the first communication terminal and,
[8g]	upon the address information on the second communication terminal being not registered in the permission list of the communication device, terminates the connection with the second communication terminal.
[9pre]	The communication system according to claim 1, wherein,
[9a]	for the permission, the first communication terminal requests a one-time password from the communication device, and the communication device responds with the one-time password,
[9b]	the first communication terminal transmits, to the second communication terminal, connection information including the one-time password necessary for a connection through short range

	communication with the second communication terminal, and
[9c]	the second communication terminal connects to the communication device by using the connection information including the one-time password.
[10pre]	The communication system according to claim 1, wherein,
[10a]	for the permission, the second communication terminal performs short range communication with the communication device,
[10b]	the communication device transmits, to the second communication terminal, connection information necessary for a connection, and
[10c]	the second communication terminal transmits address information on the second communication terminal to the communication device,
[10d]	the communication device registers the address information on the second communication terminal into a permission list,
[10e]	the second communication terminal connects to the communication device by using the connection information,
[10f]	upon confirming the permission is to be terminated, the first communication terminal causes the communication device to delete the address information on the second communication terminal from the permission list of the communication device, and,
[10g]	upon the address information on the second communication terminal being not registered in the permission list, the communication device terminates the connection with the second communication terminal.
[11pre]	The communication system according to claim 1, wherein,
[11a]	for the permission, the second communication terminal requests a one-time password from the communication device through short range

	communication with the communication device, and
[11b]	the communication device transmits connection information including the one-time password necessary for a connection to the second communication terminal, and
[11c]	the second communication terminal connects to the communication device by using the connection information including the one-time password.
[12pre]	The communication system according to claim 1, wherein,
[12a]	for the permission, the first communication terminal transmits, to the second communication terminal, connection information necessary for a connection through short range communication with the second communication terminal, the second communication terminal connects to the communication device by using the connection information, and
[12b]	in the short range communication, the first communication terminal displays a bar code representing the connection information on a display screen thereof and the second communication terminal captures an image of the bar code with a camera to read the connection information.
[13pre]	The communication system according to claim 1, wherein,
[13a]	the second communication terminal controls the communication device while maintaining the connection with the communication device, and
[13b]	the first communication terminal controls the communication device while maintaining the connection with the communication device via the access point.

[14pre]	A communication terminal comprising:
[14a]	a wireless connection interface configured to connect to a communication device via an access point device; and
[14b]	a controller configured to control the wireless connection interface and to transmit a command to remotely control a display operation on the communication device connected with the communication terminal,
[14c]	wherein the controller is configured to transmit permission to establish a connection for the communication device and another communication terminal,
[14d]	wherein, while the communication device outputs data received from the another communication terminal that has established the connection with the communication device, the controller is configured to transmit the command to control how to display the data while the communication device and the another communication terminal are connected, and
[14e]	wherein, when the controller transmits information to terminate the permission from the communication terminal, the controller is configured to transmit the information to terminate the connection with the another communication terminal to the communication device.
[15pre]	A communication device comprising:
[15a]	a wireless connection interface configured to connect to a communication terminal and another communication terminal; and
[15b]	a controller configured to control the wireless connection interface,
[15c]	wherein the wireless connection interface is configured to connect to

	the communication terminal via an access point device,
[15d]	wherein the controller is configured to control to establish a connection with the another communication terminal, if having permission from the communication terminal, and control data received from the another communication terminal,
[15e]	wherein, while the controller controls the data received from the another communication terminal and upon receiving at the wireless communication interface, from the communication terminal, a command to remotely control how the data received from the another communication terminal is displayed, the controller is configured to control the data received from the another communication terminal in accordance with the command from the communication terminal while maintaining the connection with the another communication terminal, and
[15f]	wherein, when the wireless communication interface receives information to terminate the permission from the communication terminal, the controller is configured to terminate the connection with the another communication terminal.

I. INTRODUCTION

1. My name is Dr. Radostin Pachamanov. I have been asked by Patent Owner, Maxell, Ltd. (“Maxell”), to provide my opinion as to the patentability of claims 1, 2 and 5-15 (“Challenged Claims”) of U.S. Patent No. 11,026,088 (“’088 Patent”) (EX1001). I have also been asked to provide my understanding of the claim construction and level of ordinary skill in the art related to this patent, as well as to explain the relevant technical background related to this patent.

2. Depending on new information learned during this proceeding, or positions taken throughout this IPR by Petitioner or its expert, I may edit, add to, or otherwise refine the topics and expected testimony described here. I reserve the right to supplement my opinions based on new information.

3. Although I am being compensated at my usual consulting rate of \$550 per hour for my time reviewing materials and preparing this declaration, my opinions expressed here are my own. My compensation is in no way dependent on the outcome of this proceeding or upon the Board accepting my opinions. I have no other financial interest in this matter or the parties thereto.

4. If called upon to do so, I am prepared to testify regarding my opinions expressed here.

II. BACKGROUND AND QUALIFICATIONS

5. My qualifications to testify about the ‘088 Patent and the relevant

technology are set forth in my curriculum vitae (“CV”), which I have attached here as Appendix A. My CV includes the matters in which I have testified (either at trial, hearing, or by deposition) at least in the past five years. It also includes a list of all my publications within at least the past twenty years.

6. I will briefly summarize my qualifications to render opinions regarding this technology in the following paragraphs.

7. I graduated with a B.Sc. in Electrical Engineering with a focus in Telecommunications Networks from the Technical University of Sofia (Bulgaria) in 2002. In 2008, I received a Ph.D. in Telecommunications Engineering from the same university. My doctoral studies focused on telecommunications traffic engineering, Quality of Service (QoS) assurance, and traffic management in fixed broadband and wireless/mobile networks.

8. During my studies, I worked on a number of research projects funded by the government of the Republic of Bulgaria related to network planning and traffic management in fixed broadband and cellular networks. I also worked as a software developer for systems that implemented data transmission over networks for the purposes of remote monitoring and control, which helped me acquire firsthand experience with machine-to-machine communications.

9. I was also involved as a consultant in the “E-Street” initiative, which is

part of the European Union's "Intelligent Energy Europe" program, and participated in a research group aimed at developing recommendations for EU standards and legislation for managed outdoor networked lighting systems, where my contribution focused on the use of wireless standards and technologies for implementing intelligent remote monitoring and control.

10. From January 2008 to July 2013, I was employed by Ericsson in Sofia, Bulgaria. While at Ericsson, I worked as a Solution Architect in its Multimedia department, responsible for Ericsson's portfolio of products, solutions, and offerings in its TV & Media Management, Billing, Fulfillment, Assurance, and System Integration solution areas. As a Solution Architect, I was involved in the offering, design, and implementation of client-specific solutions which required an extensive knowledge of the architecture, components, and operations of various telecommunications networks and technologies. Notably, I was involved in the design and acted as a technical project lead in the delivery of an end-to-end DVB-S2 Satellite TV system for a major telecommunications carrier, which included content acquisition, content distribution, conditional access control, and system monitoring and control.

11. In addition, I acted as the technical lead on a large system integration project financed by the Ministry of Interior in Bulgaria for a border surveillance

system – an extremely complex system integration project that allowed the surveillance of an external European Union border by positioning surveillance equipment in a large geographical area. As part of that system, we designed and built a dedicated transport communication network allowing connection, secure data transmission, and data collection between distributed system components such as sensors, radars, and surveillance cameras, enabling those devices to connect and exchange information across multiple access technologies and network protocols and ensuring they functioned together seamlessly. The surveillance data from the variety of devices was collected, displayed, and stored in centralized control centers, allowing personnel to monitor different content (live TV streams, radar data, device alarms, etc.) in real time, and control and manage the devices remotely.

12. Between 2011 and 2013, I also served as an Account Manager, where, among other things, I managed a team that designed network infrastructure for a “greenfield” telecommunication carrier.

13. Since 2013, I have worked in technical litigation consulting, specializing in providing computer science and electrical engineering expertise in legal disputes involving intellectual property and high-tech subject matters. In this capacity, I have worked on more than 50 technical matters related to telecommunications, television systems, data forensics, electronic devices, and

computer networks. As part of my work, I have been deeply involved in patent portfolio analysis and litigation cases that require an extensive study of various network topologies, media routing protocols, and wireless standards.

14. Throughout my career in both industry and litigation consulting, I have worked on many different aspects of telecommunications and communication systems in general. My experience spans the design, implementation, and analysis of diverse network architectures and technologies. Specifically, my expertise encompasses content and media distribution systems, including the protocols and mechanisms used to route, synchronize, and manage content and media across multiple client devices. I have extensive experience with network addressing, device identification and authentication, and dynamically distributing content to targeted devices based on those device identifications. I also have extensive experience and knowledge with wireless local area networks (WLAN) and mobile cellular networks, network routing, access control mechanisms, and distributed communication architectures.

III. UNDERSTANDING OF LEGAL STANDARDS

15. I am not a lawyer and I am not offering any opinions regarding legal matters. However, the legal principles relevant to my opinion herein have been explained to me by Patent Owner's counsel. In this section, I summarize these legal

principles as they have been explained to me.

16. I reserve the right to change or formulate new opinions in the event there is a change in the law concerning my opinions provided in this report.

A. Claim Construction

17. I understand that the claim construction exercise begins with the language of the claims themselves, and that the general rule is that claim terms are given their plain and ordinary meaning to a person of ordinary skill in the art, in view of the specification of the patent, at the time of the invention. I also understand that the intrinsic evidence (*i.e.*, the claims, the written description including the figures, and prosecution history) are the primary sources used in interpreting claim language.

18. I understand that if disputed claim language is clear on its face, the intrinsic evidence should be consulted to determine whether some deviation from the ordinary meaning of the claim language is warranted.

19. When the disputed claim language is not clear on its face, I understand that the intrinsic evidence should be used to resolve, if possible, any lack of clarity. I also understand that the specification is the best evidence of what the patentee intended the term to mean when there is no clear meaning of a claim term, and that the prosecution history may also shed light on the meaning of ambiguous terms. However, I understand that it is improper to import limitations from the specification

into a patent claim through claim construction.

20. I have been informed that sometimes the ordinary meaning of claim language as understood by a person of ordinary skill in the art may be readily apparent even to lay persons. I understand that claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.

B. Presumption of Validity

21. I understand that all patents enjoy a presumption of validity. In other words, patents are presumed to have been correctly issued by the United States Patent and Trademark Office after undergoing a rigorous examination process that often lasts for years.

22. For this reason, I understand that Petitioner's burden to show invalidity of the '088 Patents' claims is a high one. Specifically, I am informed that the burden for proving a patent claim is invalid is by the "preponderance of the evidence."

C. Obviousness

23. I understand that a patent claim can be invalid under 35 U.S.C. § 103 if the claimed subject matter would have been "obvious" to a person of ordinary skill in the art as of the priority date of the patent based upon one or more prior art references. I understand that an obviousness analysis should consider each of the following so-called "*Graham* factors": (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 (such as unexpected results, commercial success, long felt but unsolved needs, failure of others, copying by others, licensing, and skepticism of experts).

24. I understand that a conclusion of obviousness may be based upon either a single prior art reference or a combination of prior art references, particularly if the combination of elements does no more than yield predictable results. However, I understand that merely demonstrating that each of the claim elements was, independently, known in the prior art does not prove that a patent composed of several claim elements is obvious.

25. Moreover, I understand that it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in a way the claimed new invention does.

26. I further understand that, to determine obviousness, courts look to the interrelated teachings of multiple patents or other prior art references, the effects of demands known to the design community or present in the marketplace, and the background knowledge possessed by a person having ordinary skill in the art.

27. I also understand that, in determining whether a combination of prior art references renders a claim obvious, it may be 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 the teaching, suggestion, or motivation to combine inquiry is not required and may not be relied upon in lieu of the obviousness analysis outlined above.

28. I understand that the following exemplary rationales may lead to a conclusion of obviousness: the combination of prior art elements according to known methods to yield predictable results; the substitution of one known element for another to obtain predictable results; and the use of known techniques to improve similar devices in the same way.

29. However, a claim is not obvious if the improvement is more than the predictable use of prior art elements according to their established functions. Similarly, a claim is not obvious if the application of a known technique is beyond the level of ordinary skill in the art.

30. Further, when the prior art teaches away from combining certain known elements, discovery of successful means of combining them is not obvious. I understand that similar subject matter may not be sufficient motivation for a person of skill in the art to combine references if the references have conflicting elements.

31. I understand that, in order to be used in an obviousness combination, a prior art reference must be “analogous.” I understand that a prior art reference may

be analogous if it is in the same field of endeavor as the other references with which it is combined, or if the reference is reasonably pertinent to the solving the problems the inventors of the patent-at-issue sought to solve.

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

33. I understand that obviousness is not established by simply combining previously known elements from the prior art. A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. An invention is unpatentable as obvious if the differences between the patented subject matter and the prior art would have been obvious at the time of invention to a person of ordinary skill in the art.

34. I understand that obviousness of a patent cannot properly be established by mere conclusory statements. Instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.

When an expert opines that all the elements of a claim disparately exist in the prior art, the expert should provide the rationale to combine the disparate references. A reason for combining disparate prior art references is a critical component of an obviousness analysis. The obviousness analysis should be made explicit and needs to provide an articulated reasoning with some rational underpinning to identify the reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.

35. I also understand that inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known. This is another reason why merely pointing to the elements being known in the art in separate locations is not the end of the obviousness inquiry.

36. I understand that technical experts may testify to matters like the level of skill in the art at the time of the invention and what a skilled artisan might find obvious in light of the prior art without addressing objective indicia of non-obviousness. However, where an expert purports to testify not just to certain factual components underlying the obviousness inquiry, but to the ultimate question of obviousness, the expert must consider all factors relevant to that ultimate question, including all objective evidence of nonobviousness.

D. Level of Ordinary Skill in the Art

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

38. I am informed that the factors to be considered in determining the level of ordinary skill in the art are: (1) the education level of active workers in the field, (2) the type of problems encountered in the art, (3) prior art solutions to those problems, (4) the speed with which innovations are made, and (5) the sophistication of the technology in the art.

39. I have also been asked to assume that the relevant time period for determining the level of skill in the art for the '088 Patent is its earliest claimed priority date, August 29, 2014.

IV. MATERIALS CONSIDERED

40. I considered the following materials at the time I formed my opinions set forth herein. Among those materials are the '088 Patent (EX1001); the file history of the '088 Patent (EX1002); the Petition (Paper 3) and all accompanying exhibits, including, for example, Dr. Paradiso's declaration (EX1003) and the alleged prior art; the Institution Decision (Paper 13); all other papers and exhibits filed in this IPR;

the deposition transcript of Petitioner's expert, Dr. Paradiso (EX2015); and other materials that I specifically cite to and mention throughout my declaration.

41. In addition to these materials, I also relied upon my extensive experience and expertise in computer science and electrical engineering, particularly in system for content distribution and reception in networks, as discussed above. In forming my opinions, I have also taken into account the knowledge and background principles that a person of ordinary skill in the art would be familiar with at the time of Patent Owner's invention (no later than August 29, 2014), as well as my experience and training in the field of art.

V. OVERVIEW OF THE '088 PATENT

A. Technical Background

42. Based on my review, the '088 Patent, entitled "Communication System, Communication Device, and Communication Terminal Device," issued from U.S. Patent Application No. 15/504,668, which was filed on February 17, 2017 as a U.S. National Phase application of PCT/JP2014/072783, filed on August 29, 2014. *See* EX1001.

43. In my opinion, the '088 patent is generally directed to communication systems for establishing and managing a network of devices, including, for example, a communication device, an access point device, and/or one or more communication terminals. EX1001 2:13-37. The '088 patent describes features and procedures for

ensuring that a communication device and communication terminals connect to each other via an access point device and enable one communication terminal to permit another communication terminal to establish a connection with the communication device in the communication system. *See id.* For example, a first communication terminal may be an internal device of Company A and may grant access to a second communication terminal operated by a user outside of Company A, such that the second communication terminal is temporarily granted permission to connect to the communication device and provide it with content (or other information), such as content to be displayed on a display screen controlled by the communication device.

44. Additionally, the system and apparatus disclosed in the '088 patent “provide a technology pertaining to a wireless LAN communication system, a communication device in the system, and the like, which can achieve convenience for a terminal of a user who is external to an organization to temporarily use the system and ensure security in such a case.” *Id.* at 2:4-9.

45. From my review, the '088 patent discloses an exemplary communication system including “a communication device,” “a first communication terminal,” “a second communication terminal,” and “an access point device” that all work in conjunction to provide permission to a second communication terminal to establish a connection with a communication device if the first communication

terminal provides the permission. EX1001 2:13-37.

46. Moreover, the first communication device is configured to control displaying of data received from the second communication terminal and the first communication terminal is configured to remotely control a display operation on the communication device. *See id.*

B. Patent Prosecution History

47. It is my understanding that the '088 Patent is the result of a thorough examination whereby the Examiner considered prior art analogous to that in the Petition and found the invention patentable. *See* EX1002 at 12-20. During prosecution, the Examiner issued four office actions, including two non-final office actions and two final office actions. EX1002 at 52-297.

48. From my review, the Notice of Allowance dated February 1, 2021 stated that: "The applicants' arguments filed on 30 November 2020 have been deemed persuasive. Specifically, the prior art does not disclose, teach or fairly suggest the feature of 'wherein, while the communication device outputs data received from the second communication terminal that has established the connection with the communication device and upon receiving, by the communication device, the command from the first communication terminal, the communication device is configured to control how to display the data received from

the second communication terminal while maintaining the connection with the second communication terminal.” *Id.* at 293, 296-297.

49. The Examiner also noted that the claims of the ‘088 Patent were patentable over multiple references, including Birkler et al. (US 2014/0197232 A1) directed to establishing a communication channel between devices, Lieb et al. (US 2014/0164930 A1) directed to providing authentication information for presentations, and Harrison et al. (US 2013/0143651 A1) directed to controlling public output devices with client devices over a network. *Id.* at 297.

50. In my opinion, the prosecution history therefore demonstrates that the USPTO recognized that the interplay between the communication device, the first communication terminal, and second communication terminal of the ‘088 Patent as patentably distinct over the relevant art. As I explain below, the cited references in the Petition fail to disclose at least the same limitations the Examiner noted as the reasons for allowance in the Notice of Allowance.

C. Summary of Instituted Grounds for Unpatentability

51. It is my understanding that the Board instituted review of claims 1, 2, and 5-15 of the ‘088 Patent based on five grounds of alleged unpatentability. See Pet. at 12; Paper 13. The instituted invalidity grounds are summarized in the table below.

D. Cited References

52. I have reviewed the six references relied upon by Petitioner. I summarize my understanding of each reference below.

1. Overview of Iwami (EX1004)

53. Iwami is entitled “Information Processing Device, Information Processing System, and Information Processing Method” and directed to a many-to-one system, where there are many “source devices” and a single “display device.” See EX1004, FIGs. 17-18. According to Iwami, “when real-time image transmission is performed between the sink device and a plurality of source devices according to the Wi-Fi CERTIFIED Miracast specification, the control unit 747 [of control device 740] performs control such that the communication mode is set in the source device.” See EX1004, ¶ [0264].

54. Based on my analysis, Iwami is directed to a fundamentally different technological field than the ‘088 patent—specifically, the problem of real-time video streaming and image transmission between information processing devices using the Wi-Fi CERTIFIED Miracast specification. EX1004, ¶ [0002]. Rather than addressing the security concerns of temporary guest access to an organizational network (as the ‘088 Patent does), Iwami identifies a different technical challenge: “when communication is performed directly between the two information

processing devices, transition is assumed to be performed so that communication is performed indirectly between the two information processing devices” and vice versa. Iwami, ¶ [0007].

55. Iwami notes that “[w]hen switching of communication is performed as described above, it is important to perform appropriate control.” EX1004, ¶ [0007]. Accordingly, Iwami states “it is an object of the present technology to perform appropriate control when communication is performed between a plurality of information processing devices.” EX1004, ¶ [0008].

56. Iwami’s solution involves, for example, “a control unit configured to perform control such that setting request information for performing a setting related to the real-time image transmission is received from the other information processing device via an access point,” and “a setting request for performing the setting based on the setting request information is transmitted to the other information processing device through direct communication.” EX1004, ¶ [0009].

57. From my review, Iwami describes controlling how a “sink device” receives image data from “source devices” (e.g., cameras, smartphones, or content players) and displays that content—with the ability to switch between direct peer-to-peer communication and indirect communication via an access point. EX1004, ¶

¶ [0079]-[0081]. This stands in stark contrast to the ‘088 patent, which is directed to a “wireless LAN communication system which achieves convenience where a terminal of a user who is external to an organization can temporarily use the system while ensuring security.” EX1001, Abstract.

58. In its second embodiment (system 700)—which the Petition relies upon—Iwami describes a classroom setting where a teacher’s control device 740 manages connections between student source devices (710, 720) and a sink device 730 connected to a display device 731. EX1004, ¶¶ [0235]-[0236].

59. I understand that Iwami’s system is designed to enable “appropriate control” of image transmission modes and display regions for educational presentations rather than to manage temporary guest access and security permissions for external users within an organization’s network. EX1004, ¶ [0024].

2. Overview of Kim (EX1006)

60. Kim is entitled “Multicast Streaming Service Method and System Thereof,” and is directed to managing multi-casting in relation to a one-to-many system where there is a single “source device” (described as “media server” (MS) in Kim) and multiple “display devices” (described as “media renderers” (MRs) in Kim). EX1006, ¶ [0019]. Kim states that a control point facilitates the ability of a media renderer to join and leave a multicast group. See, e.g., EX1006, ¶ [0036].

61. Based on my review, Kim is directed to an entirely different field of invention from the '088 patent, focusing on “a home networking service, and more particularly to, a multicast streaming service and system in the UPnP technology.” EX1006, ¶ [0001]. The problem addressed by Kim arises in the context of UPnP Audio/Video networks, where “in the conventional UPnP AV standards, only the circumstances of establishing a connection between the media server and the media renderer and transmitting media data are taken into consideration, thus in case of sending and receiving contents to/from a multicast group, this cannot be controlled effectively.” EX1006, ¶ [0017].

62. Kim’s proposed solution is specific to UPnP multicast protocols: “an object of the present invention is to provide a multicast streaming service method and system which are devised to enable an efficient control of multicast streaming on an UPnP by defining actions such as MulticastStart(), Join() and Leave() in order to enable a multicast service by UPnP AV standards.” EX1006, ¶ [0018].

63. In my opinion, this entire framework in Kim is directed to the narrow problem of UPnP home network multicast streaming—an entirely different technical field from the wireless communication system architecture addressed by the '088 patent. EX1006, ¶¶ [0001], [0018].

3. Overview of Liansky (EX1012)

64. Liansky is entitled “Method for Automatic Establishing Wireless Connectivity Between a Mobile Wireless Device and a Target Screen for Multimedia Data Streaming” and is directed to a mobile wireless device that may connect “by pointing its camera 180 to the receiving screen device 110 and capturing a picture which later on will be decoded by the QR-Code decoding software 140.” EX1012 at 4:27-33.

65. From my review, Liansky is directed to an entirely different field of invention from the ‘088 Patent, focusing on “a method for automatically establishing a wireless connection between a receiving screen and a mobile wireless device to enable streaming of multimedia data.” EX1012, Abstract. The problem addressed by Liansky arises in the context of consumer device pairing, where “there are several challenges when connecting a mobile wireless device to another wireless device.” EX1012, 3:43-44.

66. The solution proposed by Liansky is narrow and technically specific to QR code-based device pairing: “methods and systems which use Quick Response (QR) Code technology” to “transfer required connection information from a receiving screen device to a mobile wireless device.” EX1012, 3:66-4:4. In my opinion, this entire framework is directed to the narrow problem of simplifying

device pairing for consumer multimedia streaming from mobile devices to external screens—an entirely different technical field from the wireless communication system architecture involving communication terminals and access point devices addressed by the ‘088 patent. EX1012, Abstract, 1:16-28.

4. Overview of Weiser (EX1008)

67. Weiser is entitled “Systems and Methods for Providing Video Conferencing Services via an Ethernet Adapter” and is directed to “systems and methods for providing video conference services via a single device installed as an Ethernet adapter on a computing device.” EX1008, Abstract.

68. Based on my review, Weiser is directed to an entirely different field of invention from the ‘088 patent, focusing specifically on video conference services. The problem addressed by Weiser arises in the context of enterprise video conferencing, where “[a]s more users are added to a video conference, bandwidth requirements may drastically increase, scaling according to (number of users)*(number of users-1).” EX1008, ¶ [0003].

69. In my opinion, Weiser’s framework is directed to the narrow problem of video conferencing bandwidth and processing optimization—an entirely different technical field from the wireless communication system architecture addressed by the ‘088 patent.

5. Overview of Kato (EX1009)

70. Kato is entitled “Communication Apparatus, Communication System, and Recording Medium” and is directed to a communication apparatus including “a communication unit that connects with an external device in a one-to-one relationship.” EX1009, Abstract.

71. From my review, Kato addresses a problem in the context of enterprise wireless security, where “it has been difficult in the related art to supply enhanced prevention of leakage of information from a communication apparatus and allow a user to set up security information in a simple manner.” EX1009, ¶ [0007]. Kato’s framework is directed to the narrow problem of secure wireless network authentication through certificate importation from external devices—an entirely different technical field from the wireless communication system architecture addressed by the ‘088 patent.

6. Overview of Dowling (EX1021)

72. Dowling is entitled “Apparatus and Method for Cluster Network Device Discovery” and is directed to “[a] group of network devices, such as Ethernet switches, [that] are logically configured as a single cluster, with one commander device and one or more member devices.” EX1021, Abstract.

73. Based on my review, the problem addressed by Dowling arises in the

context of enterprise network administration, where “network devices such as LAN switches need to be configured and managed, because they typically include a number of programmable features that can be changed by a network administrator for optimal performance.” EX1021, 6:13-17. In my opinion, this framework employed by Dowling is directed to the narrow problem of network device management and discovery for LAN infrastructure—an entirely different technical field from the wireless communication system architecture addressed by the ‘088 patent.

VI. LEVEL OF ORDINARY SKILL

74. It is my understanding that Petitioner proposes that a person of ordinary skill in the art (POSITA) would have had “a Bachelors’ degree in Electrical or Computer Engineering or a comparable field of study, plus approximately two to three years of professional experience with wireless LAN communications systems and distribution of information over the same, or other relevant industry experience.” Pet. at 18; see also EX1003 at ¶54.

75. While I do not necessarily contest the relevant fields of art, I believe a more accurate definition would be a degree in Computer Science or Electrical Engineering or equivalent degree, and at least two years of experience in the field of managing communication systems including network devices or other relevant

fields.

76. I qualify as a POSITA under either definition based on my background and qualifications set forth above.

VII. CLAIM CONSTRUCTION

A. The Proper Construction of “access point device” (Claims 1, 14, and 15)

77. It is my understanding that Petitioner asserts that “access point device,” as recited in Claims 1, 14, and 15 of the ‘088 Patent means “in a wireless LAN (local area network), a transceiver that connects the LAN to a wired network.” See Pet. at 19; see also EX1003 at ¶52. In my opinion, Petitioner’s proposed construction is unnecessary, overly narrow, and fails to account for the context provided by the ‘088 Patent.

78. In my view, no construction is necessary and the plain and ordinary meaning of the term should apply. An access point device is a well-known term for a device in the field of wireless communications, and a POSITA would readily understand its meaning.

79. I understand the meaning of the “access point device” to be clear from the context of the claims themselves. For example, claim 1 recites that the access point device connects the first communication terminal to the communication device in the communication system. Similarly, claims 13 and 14 recite that the access point

device connects the communication terminal to a wireless connection interface, which connects the communication terminal to another communication terminal.

80. The specification of the '088 Patent describes the access point device consistent with the claims. For example, the specification teaches that “Communication systems of the embodiments provide the function of temporarily connecting, under permission from a terminal of a user who is internal to a company, a terminal of a user who is external to the company, to a projector which has a wireless LAN access point function and enabling the terminal of the user who is external to the company to use a display function of the projector.” EX1001, 3:32-38.

81. Petitioner relies on general-purpose telecom dictionaries to artificially narrow the plain and ordinary meaning of the term. To a person of ordinary skill in the art, the plain and ordinary meaning of an “access point device” is defined by its functional role in a network: a device acting as a wireless hub to provide access (connectivity). Whether that wireless hub connects to the rest of the network via wire or a wireless link is irrelevant. A POSITA in 2014 would have known that a device does not require a wired connection to function as an access point. For example, in a Wireless Distribution System (WDS) or a Mesh network, multiple access points connect to one another wirelessly to bridge traffic. Even a device functioning as a

wireless repeater is an “access point” from the perspective of the devices connected to it, because it manages the wireless connection and provides those devices with access.

82. Furthermore, a person of ordinary skill in the art would have known that such devices can function as access points through, *e.g.*, software-based hotspot capabilities without any wired connection. By the priority date of the '088 patent (August 29, 2014), software-defined access point functionality was well-known and commonly implemented in portable devices through “hotspot” features, enabling them to function as access points without any wired connection to another network. While enterprise access points often utilize a wired backhaul connection (as described in Petitioner’s dictionaries), the presence of a wired backhaul connection is not a fundamental requirement of the device itself. Because the '088 patent uses the term “access point device” in its broad meaning, and because the core function of providing network access is identical regardless of the type of network to which access is provided (wired, wireless, or even cellular), Petitioner’s attempt to import a “wired network” limitation is technically unsound. A POSITA would understand that an access point device is defined by the service it provides to the client, not the cable connected to its chassis.

83. More importantly, the specification of the '088 patent confirms that

“access point device” does not require a physical wired connection, and all devices can be wirelessly connected. While Figure 7 illustrates an “Access Point Device 3B,” the specification explicitly treats the use of a wired connection as merely exemplary, not mandatory. The specification explains “[t]he projector device 3A and the access point device 3B establish a connection 44... **For example**, the projector device 3A and the access point device 3B include a wired LAN interface 330 as in Fig. 3 and carry out a communication process through the connection 44 via a wired LAN.” EX1001, 17:43-49 (emphasis added). By using the phrase “for example,” the ’088 patent expressly contemplates that the connection 44, and the access point device itself, can be implemented using other known communication mediums, such as, *e.g.*, wireless links. Adopting Petitioner’s narrow construction would improperly ignore this non-limiting language and write a mandatory wired requirement into the claims where none exists. Dr. Paradiso even acknowledged as much during his deposition. *See* EX2015, 52:8-17, 58:14-61:23.

84. Accordingly, in my opinion, Petitioner’s proposed construction is overly narrow because it requires a connection to a wired network. The claims of the ’088 Patent do not impose any wired connection requirement for the “access point device.” Claim 1 recites “an access point device” and “a first communication terminal configured to connect to the communication device via the access point

device.” This language describes only that the access point device enables wireless connections between communication terminals and the communication device. The claim language is silent as to any wired connection requirement for the access point device itself.

85. Based on the foregoing, I believe a POSITA would readily understand the meaning of the term “access point device” and no construction is necessary.

B. The Proper Construction of Claim Element [6b]

86. It is my understanding that Petitioner asserts that claim element [6b] of the '088 Patent (“wherein, in a case that the communication device is unable to receive information from the first communication terminal, the communication device terminates the connection with the second communication terminal”) “does not include any requirement for the communication device to terminate the connection with the second communication terminal in response to or as a result of the communication device being unable to receive information from the first communication terminal” and “does not limit what kind of information the communication device must be unable to receive.” *See* Pet. at 19-20; *see also* EX1003 at ¶ 53.

87. In my opinion, no construction is necessary for this claim element. The claim language is clear on its face: in a case that the communication device is unable

to receive information from the first communication terminal, the communication device terminates the connection with the second communication terminal. A POSITA would readily understand the scope and meaning of claim element [6b] without the need for a construction of the plainly worded phrase.

C. All Remaining Claim Terms Should be Given Their Plain and Ordinary Meaning

88. For purposes of this proceeding, it is my understanding that Petitioner has not identified any other claim terms for construction as necessary to resolve the controversy. I agree that the plain and ordinary meaning should apply to the remaining claim terms.

VIII. NONE OF THE CHALLENGED CLAIMS ARE RENDERED OBVIOUS BY THE REFERENCES CITED IN THE PETITION

89. In my opinion, Petitioner has failed to show by a preponderance of the evidence that any of Grounds 1-5 renders obvious claims 1, 2, and 5-15. Based on my review of the references relied upon by Petitioner, the asserted combinations of Iwami, Kim, Liansky, Weiser, Kato, and Dowling fail to establish obviousness of several aspects of the claims.

90. Moreover, the Petition contains numerous conclusory statements, which (1) are neither bolstered nor supported by the similarly conclusory statements in Dr. Paradiso's declaration (EX1003), and (2) fail to demonstrate by a preponderance of the evidence that any of the Challenged Claims are rendered

obvious by the asserted combinations of references.

A. Ground 1: Iwami and Kim Fail to Render Obvious Claims 1, 5, and 13-15

91. In my opinion, Petitioner has not shown by a preponderance of the evidence that claims 1, 5, and 13-15 are invalid based on Ground 1 because the alleged combination of Iwami and Kim would not have been obvious to a POSITA and fails to disclose or suggest key features of the '088 Patent's invention. Because all instituted grounds, *i.e.*, Grounds 1-5, depend on the combination of Iwami and Kim, the following analysis applies equally to Grounds 2-5.

92. Further, the '088 Patent includes three independent claims (claims 1, 14, and 15), which are only challenged in Ground 1. Therefore, upon confirming the patentability of claims 1, 14, and 15, the patentability of the remaining Challenged Claims should also be confirmed.

1. Iwami is Fundamentally Different than the '088 Patent

93. In my opinion, Petitioner mischaracterizes and misapplies the teachings of Iwami in the Petition. As I explained above, the '088 Patent addresses the risk that “a terminal of a user who is external to an organization can independently use the wireless LAN communication system inside the organization after a temporary use.” EX1001, 1:65-67. Its stated object is “to provide a technology . . . which can achieve convenience for a terminal of a user who is external to an organization to

temporarily use the system and ensure security in such a case.” EX1001, 2:4-9.

94. In contrast, Iwami is wholly unconcerned with temporary access control or organizational security. It is directed to “an information processing device . . . performing real-time image transmission with another information processing device according to a wireless fidelity (Wi-Fi) CERTIFIED Miracast specification” (EX1004, ¶ [0009]) with the object “to perform appropriate control when communication is performed between a plurality of information processing devices.” EX1004, ¶ [0008]. Specifically, Iwami’s “control” refers to the technical coordination and parameters of multimedia sessions to ensure the transmission of image data between Miracast devices. EX1004, ¶¶ [0023], [0118].

95. A person of ordinary skill in the art would not look to Iwami’s stream-optimization teachings to solve the ’088 Patent’s security-and-permission problem. The ’088 patent’s system is organized around a trust hierarchy: “the user A, such as an employee who is internal to the company A, possesses and uses the terminal 1” while “[t]he user B, such as an employee of the company B outside the company A, possesses and uses the terminal 2.” EX1001, 4:38-45.

96. In this hierarchy, the first terminal is a standard communication terminal belonging to the internal organization that is capable of sending data to the communication device for presentation. EX1001, 5:9-14. However, in addition to its

normal operational capabilities, it acts as a functional gatekeeper: “[t]he second communication terminal device connects, under permission from the first communication terminal device, to the communication device via the wireless LAN.” EX1001, 2:24-27. According to the ’088 Patent, permission requires that “the terminal 1 of the user A and the terminal 2 of the user B are located close to each other and the user A knows the existence of the user B...” EX1001, 6:34-36.

97. Iwami’s architecture lacks any teaching of such trust hierarchy. Iwami comprises generic “information processing devices” with “a wireless communication function,” organized into source devices and a sink device, with the second embodiment adding “an access point 701 . . . a display device 731, and a control device 740.” EX1004, ¶¶ [0074], [0236]. Of note, all source devices in Iwami are functionally equivalent peers—there is no concept of “internal” versus “external” users. Iwami’s control device 740 manages “any one communication mode of a standby mode . . . and an image transmission mode,” as well as bandwidth allocation and display scheduling, not security-based access permission. EX1004, ¶ [0023].

98. Further, the ’088 Patent recites “a second communication terminal configured to, if having permission from the first communication terminal, establish a connection with the communication device to use the communication device.” *See*

EX1001, cl. 1. The specification describes multiple helpful examples of this mechanism, including short range communication via NFC of permission information “between the terminal 1 and the terminal 2 for the connection to and use of the projector 3 by the terminal 2,” and “the terminal 1 transmits connection information including the SSID and PW . . . to the terminal 2.” EX1001, 12:58–66. Each of these examples involves the first terminal actively enabling the second terminal’s access.

99. Iwami has no analogous mechanism. In Iwami, a source device simply “activates an application that is installed in advance, and transmits a connection request to the sink device . . . via a specific access point.” EX1004, ¶ [0329]. The sink device then performs “a group authentication process” in which “it is determined whether or not the manipulation of the user for giving the permission to the information processing device 710 has been performed in any one of the source device, the sink device, and the control device 740 that belong to the same group.” EX1004, ¶¶ [0357]–[0358].

100. This is group-level access control performed by the sink device and existing group members—not a permission granted by one designated gatekeeper terminal to another based on a trust hierarchy, as described by the ’088 Patent.

101. In sum, Iwami is a fundamentally different invention from the ’088

Patent. Iwami addresses real-time multimedia stream optimization in a Miracast-compliant environment, whereas the '088 Patent addresses temporary access control and security in a wireless LAN system where an internal user's terminal gatekeeps an external user's access. The '088 Patent and Iwami differ in their technological problems, system architectures, permission paradigms, display control mechanisms, and uses of short-range communication. Accordingly, a POSITA would have had no reason to look to Iwami's stream-optimization teachings to solve the security-and-permission problem addressed by the '088 Patent.

2. Petitioner Fails to Establish Any Motivation to Combine the Separate and Distinct Embodiments of Iwami

102. In my opinion, Petitioner mischaracterizes the teachings of Iwami by improperly combining features from separate and distinct embodiments of Iwami, treating these embodiments like a buffet to be picked and chosen from, without providing any sufficient reason to attempt such modifications, and ignoring their fundamental architectural and control logic incompatibilities.

103. I understand that the Petitioner must supply a sufficient motivation to combine multiple embodiments from a single reference, along with a reasonable expectation that such a combination would be successful, otherwise a skilled artisan would not arrive at the claimed combination. In my view, Petitioner fails to meet this burden because Iwami's embodiments are not modular. Instead, they represent

distinct control paradigms.

104. Based on my review, Iwami presents distinct embodiments as complete, alternative designs that address different control problems in mutually exclusive ways, not as modular features to be freely intermixed. EX1004, ¶¶ [0066]-[0070]. Each embodiment carries its own dedicated system configuration, sequence charts, and flowcharts. These self-contained systems have architectures and control logics that conflict if superimposed.

105. For example, in Iwami's sink-controlled flow, the source device transmits a mode table request to the sink device (steps 505-506), and the sink device responds with command information specifying the output form, audio quality, and power mode that the source device must adopt (steps 507-510). EX1004, ¶¶ [0146]-[0148]. In contrast, in the source-controlled flow, the sink transmits a mode status notification—not command information—to the source. EX1004, ¶ [0176]. The source then independently decides the setting content and transmits a mode setting request to the sink (steps 567-568). EX1004, ¶¶ [0177]-[0178]. These two flows represent diametrically opposed command-and-control hierarchies: one where the sink acts as the master (and primary decision-maker), and another where the source acts as the primary decision-maker. Therefore, these flows are structurally incompatible.

106. In my opinion, Iwami's embodiments solve different problems in incompatible ways and are taught as alternatives. EX1004, ¶¶ [0024], [0066]-[0070]. Petitioner provides no articulated reason (beyond a desire to reach the claimed invention) to merge them, and doing so would result in a logically inconsistent system that would destabilize the appropriate control discipline Iwami seeks to achieve.

3. Petitioner Fails to Establish Any Motivation to Combine Iwami and Kim

107. In my opinion, Iwami and Kim are directed to two fundamentally different systems and a POSITA would not be motivated to combine the two references in the manner proposed by Petitioner. In particular, Iwami and Kim inhabit different protocol stacks, control planes, and distribution models that are technically incompatible without substantial reengineering.

108. As I discussed above, Iwami is directed to a many-to-one system where there are many "source devices" and a single "display device." EX1004, FIGs. 17-18. In Iwami, a control device asserts control over multiple source devices. Kim, in contrast, is directed to managing multi-casting in relation to a one-to-many system where there is a single "source device" (described as "media server" (MS)) and multiple "display devices" (described as "media renderers" (MRs)). EX1004, FIG. 1, ¶ [0019]. A POSITA would recognize that the technical challenges of

orchestrating multiple unicast, peer-to-peer streams (Iwami) are very distinct from managing the subscription of multiple clients to a single source multicast stream (Kim).

109. On the other hand, Kim describes that a control point facilitates the ability of a media renderer to join and leave a multicast group. EX1006, ¶ [0036]. The control point requests the media server to transmit media to a multicast address and informs media renderers of the multicast address so that the media renderers can “subscribe” to (use) the multicast address to receive the source media. *Id.* Importantly, Kim does not disclose a system of permissions. The control point simply functions as an intermediary to allow media renderers to join or leave a multicast group. EX1006, ¶¶ [0042], [0045]. Nothing in Kim suggests that the control point will block access to media renderers or the media server based on revoking permission. EX1006, ¶¶ [0043]-[0046].

110. In fact, Kim does not even use the word “permission” in its disclosure. Petitioner asserts that “[a] POSITA would have been motivated to implement elements of the Kim permission technique as one mechanism by which the control device 740 of Iwami can manage connections between source devices 703, 704, 710, and/or 720 and sink device 730.” Pet. at 22. However, as explained, Kim fails to recite any “permission techniques” at all. Petitioner’s argument relies on hindsight

bias to recharacterize Kim's standard multicast group management as a "permission technique" to fill the gaps in Iwami.

111. Fundamentally, Kim and Iwami are directed to different systems, that implement very distinct technologies to achieve data/content transmission in completely different environments and related to different applications. Therefore, a POSITA would not have found it obvious to modify Iwami with Kim to achieve the elements of the Challenged Claims. Iwami is focused on Miracast/Wi-Fi Direct with RTSP-based control and a source-sink point-to-point model. EX1004, ¶¶ [0076]-[0077], [0219]. Whereas Kim describes extending UPnP AV with multicast-specific actions (MulticastStart(), Join(), Leave()) for group streaming under UPnP's SOAP/HTTP architecture.

112. From my reading of Iwami, as a POSITA, nowhere does it suggest introducing UPnP control primitives. Iwami instead links its control logic to RTSP exchanges and WFD sub-elements that presuppose a unicast Miracast session. Displacing that with Kim's multicast group distribution would fundamentally break Iwami's WFD capability model and RTSP state machine. EX1004, ¶¶ [0147], [0219]-[0228]. Similarly, Kim fails to teach porting its multicast action model into a Miracast/WFD session. Miracast is specifically designed for low-latency, point-to-point mirroring, whereas managing multicast groups requires significant data

exchange, which create lag. Therefore, POSITA would understand that introducing multicast group semantics from a different protocol (UPnP) would jeopardize the real-time requirements essential to Iwami's stated object.

113. In my opinion, there is no reasoned path by which a POSITA would select Kim's multicast UPnP actions to modify Iwami's Miracast/RTSP flows, and no basis to expect success without entirely rearchitecting the system. Iwami's Miracast/WFD and RTSP pairwise controls are not interchangeable with Kim's UPnP AV multicast semantics. EX1004, ¶¶ [0076]-[0077], [0219]-[0228]. Accordingly, a POSITA would not have found it obvious to combine Iwami with Kim to achieve the elements of the Challenged Claims.

114. Furthermore, the two systems are fundamentally incompatible in their functional objectives. As mentioned above, Kim is directed to a one-to-many content delivery model where a central server "broadcasts" data to "passive" media renderers. In this model, the renderers merely "join" or "subscribe" to a multicast IP address to receive content; they exercise no control over the session itself. Iwami, by contrast, is a many-to-one system designed for active source devices to transmit data to a single sink. A POSITA would find no technical reason to port the "passive subscription" teachings of a multicast system (Kim) into a "coordinated transmission system" (Iwami), as the two systems serve diametrically opposite purposes.

Combining them would require forcing a protocol designed for passive reception into an architecture built for active, negotiated transmission, which would serve no recognizable benefit to a person of ordinary skill in the art.

4. Iwami and Kim Fail to Render Obvious Claim Elements [1d], [14c], and [15d]

115. Claim Element [1d] recites “a second communication terminal configured to, if having permission from the first communication terminal, establish a connection with the communication device to use the communication device.” Claim Elements [14c] and [15d] recite similar limitations. In my opinion, the Petition fails to establish that the combination of Iwami and Kim would have rendered obvious these claim elements.

116. It is my understanding that Petitioner relies on combining distinct features from Iwami’s second embodiment and third embodiment without providing a sufficient motivation to combine, as explained above. Setting aside this error, Petitioner continues to err by fundamentally failing to establish the required functional and causal link between permission from the first terminal and the second terminal’s establishment of a connection to use the communication device. EX1004, ¶¶ [0406]–[0407], [0437]–[0455].

117. Iwami defines “outdoor use permission” as “permission information indicating whether or not the connection with the information processing device 730

via the access point other than the access point 701 or the base station is permitted,” which is a routing/location parameter tied to access-point choice, not a gate that enables or disables the second terminal’s ability to connect to and use the communication device. EX1004, ¶ [0407]. Nothing in that definition makes the second terminal’s ability to establish the connection to use the sink dependent on a discretionary act of authorization (permission) from the first terminal’s.

118. Based on my review, there is no relationship between having “outdoor use” permission in Iwami and establishing a connection with the communication device to “use the communication device.” In the ’088 patent, the permission is a condition provided by a first terminal before a connection is allowed. In Iwami, the “permission” is an attribute retrieved from the control unit to determine whether a connection path is “indoors” or “outdoors.” These serve entirely different technical objectives: the former is peer-to-peer access control, where the latter does not restrict the connection, but only the access point used.

119. Petitioner mixes reliance on the second and third embodiments. Iwami expressly states that outdoor use permission “is permission information indicating whether or not the connection with the information processing device 730 via the access point other than the access point 701 or the base station is permitted,” and it is irrelevant to the third embodiment’s near-field-initiated, direct-connection

workflow. EX1004, ¶¶ [0407], [0448]–[0455]. The Petition’s mapping improperly mixes the access-point embodiment (which provides outdoor use permission) with the touch-initiated embodiment (which provides direct P2P connection and control messaging), contrary to Iwami’s own disclosure. In the third embodiment, the outdoor use permission does not cause connection establishment for use because a source must first disconnect from the access point, initiate a direct P2P session, negotiate GO/WPS/4-way handshake, acquire a new IP address, and then transition to image transmission. EX1004, ¶¶ [0437]–[0447]. Those intervening steps break any causal link between the mere receipt of “outdoor use permission” and the act of establishing the P2P connection used for image transmission. EX1004, ¶¶ [0437]–[0447].

120. The Petition also contends that a POSITA would have found it obvious to modify Iwami such that “any and all connection permission information would originate with control device 740 and be passed to source device 710 via sink device 730.” Pet. at 36. However, this shifting of “permission information” to originate from Iwami’s control device 740, as the Petition suggests, does not cure the causation defect explained herein because the same sequence of disconnection, P2P negotiation, IP address reassignment, and start of image transmission would still be required before any “use” of the sink device occurs. EX1004, ¶¶ [0437]–[0447]. In

Iwami, the control device 740 “is a connection control device that manages the information processing devices (the information processing devices 703, 704, 710, 720, and 730) included in the communication system 700 and controls the connection of the information processing devices. For example, the control device 740 manages and detects information (such as terminal identification information and capability information) related to the information processing devices and an operation state (for example, a communication mode and a group participation state) of the information processing devices.” EX1004, ¶ [0250]. Iwami’s control device 740 “manages and detects” information related to the information processing devices, such as whether they are in standby mode or image transmission mode. EX1004, ¶¶ [0250], [0296]-[0297]. However, the control device 740 does not provide permission (outdoor use permission or any other permission) to any of the information processing devices (e.g., 703, 704, 710, and/or 720) to “establish a connection with the communication device to use the communication device” as recited in Claim 1.

121. Kim does not cure these deficiencies because, as noted above, Kim does not address “permission” at all. Instead, Kim focuses on multicast session orchestration in which a control point coordinates MulticastStart(), Join(), and Leave() actions for renderers and a server, not a gatekeeping “permission” from a

first terminal that enables or disables a second terminal's direct connection to and use of a sink device. EX1006, ¶¶ [0016], [0018], [0037]-[0045].

122. Furthermore, Petitioner's reliance on Kim is technically flawed because Kim's multicast architecture does not involve "establishing a connection" between the second terminal (renderer) and a communication device. As a POSITA would understand, Kim is directed to a connectionless multicast environment where a media server streams data to a multicast group address. EX1006, ¶¶ [0016], [0036]. The Renderers in Kim merely "subscribe" to or "join" a network-level multicast group to receive a multicast stream; they do not perform a point-to-point handshake or establish a dedicated session-state connection with the media server or any other device. In Kim, the "Join" and "Leave" actions are protocol-level requests handled by network infrastructure (such as a switch or router managing the multicast group), whereas the '088 patent requires a specific terminal-to-device connection establishment. Because Claim Elements [1d], [14c] and [15d] specifically require the second terminal to "establish a connection with the communication device," Kim's disclosure of a connectionless subscription model cannot satisfy such limitation.

123. Accordingly, in my opinion, Petitioner fails to show by a preponderance of the evidence that Claim Elements [1d], [14c], and [15d] would

have been rendered obvious based on Iwami and Kim. The Petitioner's attempt to equate Iwami's automated routing filter with the claimed discretionary permission as required in the '088 patent is a mischaracterization of standard network administration. Kim does not cure the deficiencies of Iwami.

5. Iwami and Kim Fail to Render Obvious Claim Elements [1c], [1e], [14b], and [15e]

124. Claim Element [1c] recites “a first communication terminal configured to connect to the communication device via the access point device and transmit a command to remotely control a display operation on the communication device connected with the first communication terminal.” Claim Element [1e] recites “wherein, while the communication device outputs data received from the second communication terminal that has established the connection with the communication device and upon receiving, by the communication device, the command from the first communication terminal, the communication device is configured to control how to display the data received from the second communication terminal while maintaining the connection with the second communication terminal.” Claim Elements [14b] and [15e] recite similar limitations.

125. In my opinion, the Petition fails to establish that the combination of Iwami and Kim would have rendered obvious these claim elements. Petitioner relies on purely conclusory assumptions that Iwami teaches that control device 740

transmits a command to sink device 730 that causes an image to be moved. Iwami's deficiencies are implicitly acknowledged by Petitioner by failing to cite to Iwami a single time in relation to limitation [1e]. *See* Pet. at 37-38.

126. Based on my review, Iwami teaches that when changing communication modes, control device 740 sets the communication mode in the source device, *i.e.*, transmits information to the source device, rather than the sink device 730. EX1004, ¶ [0264] (“[W]hen real-time image transmission is performed between the sink device and a plurality of source devices according to the Wi-Fi CERTIFIED Miracast specification, the control unit 747 [of control device 740] performs control such that the communication mode is set in the source device.”). Iwami fails to disclose that a command is sent from the control device to the sink device to change the communication mode in the sink device.

127. Notably, Iwami's architecture sends mode-switching and related commands to the source devices, not display-control commands to the sink device as required by the claims. *See* EX1004, ¶¶ [0437]-[0447]. Iwami describes the control device manipulating which source is active and in which band or mode, and then the sink displays whatever it receives from the sources. Therefore, Iwami does not describe the sink device receiving a display-control command from the control device and then, in response, controlling how it displays the second terminal's data.

128. Furthermore, even if the Petitioner's conclusory assumptions were correct (which they are not), the Petition and the Declaration of Dr. Paradiso rely on a technical impossibility to satisfy the "maintaining the connection" requirement of Claim Elements [1e] and [15e]. The Petitioner argues that moving an image from the peripheral channel (734) to the middle channel (733) constitutes controlling the display operation "while maintaining the connection with the second communication terminal." Pet. at 37; EX1003, ¶¶ 82-83. Dr. Paradiso further asserts that this is achieved by "switching the communication mode between a low frequency band and a high frequency band." EX1003, ¶ 83.

129. In my opinion, this specific argument is technically flawed, because changing the frequencies requires network re-configuration. A POSITA would understand that the specific architecture disclosed by Iwami, which expressly utilizes the Wi-Fi CERTIFIED Miracast specification for real-time image transmission (EX1004, ¶ [0264]), ***cannot maintain a continuous connection while switching frequency bands***. In a Miracast/Wi-Fi Direct environment, a switch from a low-frequency band to a high-frequency band necessitates a change in the physical operating channel of the radio hardware.

130. Under the IEEE 802.11 standards that govern Iwami's Miracast implementation, such a frequency transition, requires the connection to be

terminated first before being re-established on the new frequency. Specifically, under the MAC Sublayer Management Entity (MLME) procedures for association and reassociation (e.g., IEEE Std 802.11-2012, ¶ 10.3.5), an active data connection requires the wireless station (STA) to maintain a specific protocol state (“State 4: Authenticated, Associated”). To transition to a new target frequency, the station must trigger a reassociation process that drops the station from State 4 with respect to the current channel, effectively moving it to an unassociated state and blocking the data transmission, before it can successfully re-associate and establish a new “State 4” connection on the new frequency. This is a disruptive event that terminates the existing Media Access Control (MAC) layer session. This is fundamentally distinct from, e.g., a “soft handover” found in cellular network architectures (such as LTE or 5G), where a terminal can maintain a persistent “connected” state with the network core while physically transitioning between different carrier frequencies.

131. Because the specific “mode switching” mechanism identified by the Petitioner (moving between frequency bands) inherently requires an architectural break and reset of the wireless link, Iwami cannot be “maintaining the connection” as required by the claims. The Petitioner has reached a conclusion of obviousness by ignoring the underlying physical and protocol-layer constraints of the very

reference they cite.

132. Kim likewise fails to cure these deficiencies in Iwami. Kim describes that a control point facilitates the ability of a media renderer to join and leave a multicast group and does not contemplate how to manage how a media renderer displays information, instead focusing on sending information that allows a media renderer to display media from a multicast stream. *See, e.g.*, EX1006 ¶ [0036]. Kim's UPnP AV actions are limited to session/multicast orchestration such as MulticastStart(), Join(), and Leave(); Kim says nothing about a control point transmitting display-control commands to a renderer that cause the renderer to change how it displays ongoing content from a particular source while maintaining that source's connection. EX1006, ¶¶ [0037]-[0045]. Also, as explained earlier, in the UPnP AV architecture that Kim relies on, there is no persistent, bi-directional connection between the Control Point (CP) and the media renderer in the way the '088 patent describes. Therefore, Kim does not cure the deficiencies of Iwami in that regard.

133. Accordingly, in my opinion, Petitioner fails to show by a preponderance of the evidence that Claim Elements [1c], [1e], [14b], and [15e] would have been rendered obvious based on Iwami and Kim.

6. Iwami and Kim Fail to Render Obvious Claim Elements [1f], [14e], and [15f]

134. Claim Element [1f] recites “wherein, when the communication device receives information to terminate the permission from the first communication terminal, the communication device is configured to terminate the connection with the second communication terminal in accordance with the information to terminate permission received from the first communication terminal.” Claim Elements [14e] and [15f] recite similar limitations.

135. In my opinion, the Petition fails to establish that the combination of Iwami and Kim would have rendered obvious these claim elements. Petitioner acknowledges that “Iwami does not disclose a mechanism by which control device 740 terminates the permission of source device 710 to connect to sink device 730.” Pet. at 39. Petitioner tenuously contends that “[b]ased on Kim’s teachings, a POSITA would have found it obvious to modify the system 700 of Iwami to send an explicit message from first communication terminal 740 to sink device 730 to terminate permission for a second communication terminal 710 to connect with sink device 730.” Pet. at 40.

136. This rationale fails because neither Iwami nor Kim teaches any alleged communication device receiving “information to terminate the permission” from an alleged first communication terminal. Petitioner relies on the “Leave() action” in

Kim to satisfy this limitation. Pet. at 40. However, the Leave() action is described in Kim is an action used by a media renderer (the alleged second communication terminal) to leave a multicast group. EX1006 ¶ [0045]. In other words, Kim's Leave() is a renderer-side (client-side) action sent to the, *e.g.*, the network router indicating that a renderer stops receiving multicast content. Therefore, it is a request originating from the recipient of the media, not an authoritative termination of permission originating from a first terminal to force the disconnection of a second terminal.

137. Kim does not disclose the communication device receiving “information to terminate the permission” from a first terminal and then terminating the second terminal's connection in accordance with that termination information. When Kim's control point sends the Leave() action to the media renderer, Kim fails to disclose that the media renderer (the alleged “communication device”) is configured to terminate the connection. EX1006, ¶ [0045].

138. Notably, a POSITA would understand that Kim's multicast architecture is “connectionless” at the data-plane level, which stands in direct contrast to the stateful, point-to-point connections required by the '088 Patent and utilized in Iwami's Miracast embodiments. In Kim, a Media Renderer (alleged second communication terminal) receives data by subscribing to a multicast IP address. it

does not establish or maintain a point-to-point “connection” with the source of that data. Because Kim’s Media Renderer is merely a recipient of a network-wide multicast stream, there is no discrete, stateful connection between the renderer and the source for a “communication device” to terminate. Importing Kim’s Leave() logic, which is merely a recipient opting out of a stream, into Iwami’s sink (730) would not result in the sink terminating a connection with the source device. In a multicast environment, the “termination” of a stream at the renderer has no effect on the source’s transmission.

139. This is further evident from the goal purported by Kim—to enable the UPnP device to join and leave the multicast group, such that it is the media renderer (*i.e.*, the UPnP device) that determines when to leave the multicast group by using the Leave() action; information received from the control point fails to trigger termination of the connection. *See* EX1006, ¶¶ [0016], [0018], [0032], [0033]. In Kim, the information to terminate comes from the media renderer itself and is not received from the control point (the alleged “first communication terminal”).

140. Therefore, in my opinion, Kim fails to cure the deficiencies of Iwami (admitted by Petitioner). Accordingly, Petitioner fails to show by a preponderance of the evidence that Claim Elements [1f], [14e], and [15f] would have been rendered obvious based on Iwami and Kim.

7. Dependent Claims 5 and 13

141. Because claims 5 and 13 depend from claim 1, they include all of the limitations that Iwami and Kim fail to teach with regard to claim 1, as detailed above. For at least these reasons, Petitioner fails to show by a preponderance of the evidence that claims 5 and 13 would have been rendered obvious based on the alleged combination of Iwami and Kim.

B. Ground 2: Iwami, Kim, and Liansky Fail to Render Obvious Claims 2 and 12

142. Because claims 2 and 12 both depend from claim 1, they include all of the limitations that Iwami and Kim fail to teach with regard to claim 1, as detailed above with respect to Ground 1.

143. Further, claim 2 (and similarly claim 12) recites “wherein for the permission, the first communication terminal transmits, to the second communication terminal, connection information necessary for a connection through short range communication with the second communication terminal, and the second communication terminal connects to the communication device by using the connection information.” In my opinion, the Petition fails to establish that the combination of Iwami, Kim, and Liansky would have rendered obvious these claim elements.

144. The Petition primarily relies on Liansky for barcode-based short-range

transmission of connection parameters. EX1012, 5:3-37, FIG. 2. However, based on my review, Liansky describes role assignments that are the opposite of the claim's roles. Liansky describes a receiving screen device that displays a QR code and a mobile device that captures it. EX1012, 5:3-37, FIG. 2. In other words, Liansky's screen device may be considered to perform the role of the claimed communication device and Liansky's mobile device may be considered to perform the role of the claimed second terminal, not the claimed first terminal that transmits/displays connection information.

145. Liansky therefore does not disclose or render obvious the first communication terminal transmitting or displaying connection information for the second communication terminal as required by Claim Elements [2a] and [12a], nor does it disclose the second terminal receiving that information from the first terminal as required by Claim Elements [2b] and [12b]. Iwami and Kim do not cure these deficiencies of Liansky.

146. For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that claims 2 and 12 would have been rendered obvious based on the alleged combination of Iwami, Kim, and Liansky.

C. Ground 3: Iwami, Kim, Liansky, and Weiser Fail to Render Obvious Claims 7, 8, and 10

147. Because claims 7, 8, and 10 each depend from claim 1, they include all

of the limitations that Iwami and Kim fail to teach with regard to claim 1, as detailed above with respect to Ground 1.

148. The Petition relies primarily on Weiser's whitelists/blacklists as a purported "permission list" recited in claims 7, 8, and 10. See EX1008, ¶¶ [0191], [0194], [0200], FIG. 6B, FIG. 6D. Based on my review, Weiser teaches that whitelist/blacklist mechanisms are implemented at a proxy/video conference bridge and/or firewall that act as infrastructure intermediaries, not at an endpoint display/communication device as required by the claims. EX1008, ¶¶ [0190]-[0195], [0200]-[0206].

149. The Petition does not show the first terminal transmitting the second terminal's address information to the communication device for registration in a permission list at that communication device as Claims 7, 8, and 10 recite; rather, Weiser describes bridge-managed lists populated via client registration events and firewall policy, not via instructions from a separate first terminal to a sink device. EX1008, ¶¶ [0190]-[0194], [0200]-[0206], FIGs. 6B, 6D.

150. Nor does the Petition show the claim-specific confirmation loop for termination, in which the communication device "communicates with the first communication terminal for confirmation of termination of the permission" prior to deletion, and then terminates the second-terminal connection when the second

terminal's address is not registered in the communication device's permission list. Weiser's connection allow/deny occurs at the bridge/firewall level, not by a sink device enforcing its own permission list against a second terminal. EX1008, ¶¶ [0191]-[0195], [0200]-[0206]. Iwami, Kim, and Liansky do not cure these deficiencies of Weiser.

151. For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that claims 7, 8, and 10 would have been rendered obvious based on the alleged combination of Iwami, Kim, Liansky, and Weiser.

D. Ground 4: Iwami, Kim, Liansky, and Kato Fail to Render Obvious Claims 9 and 11

152. Because claims 9 and 11 both depend from claim 1, they include all of the limitations that Iwami and Kim fail to teach with regard to claim 1, as detailed above with respect to Ground 1.

153. The Petition primarily relies on a combination of Liansky and Kato to attempt to show the OTP and short-range workflow requirements recited in Claims 9 and 11. Based on my review, Kato is directed to an apparatus-centric OTP login and verification, not a three-device workflow, as claimed, in which a first terminal requests an OTP from a communication device, relays it by short-range communication to a second terminal, and the second terminal then uses it to connect with the communication device.

154. Liansky's inversion of roles persists for claims 9 and 11 because the screen device presents the code and the mobile device passively captures it, rather than the first terminal presenting to the second terminal or the second terminal using short-range communication to request it from the communication device as claims 9 and 11 recite. See EX1012, 5:3-37; FIG. 2.

155. For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that claims 9 and 11 would have been rendered obvious based on the alleged combination of Iwami, Kim, Liansky, and Kato.

E. Ground 5: Iwami, Kim, and Dowling Fail to Render Obvious Claim 6

156. Because claim 6 depends from claim 1, it includes all of the limitations that Iwami and Kim fail to teach with regard to claim 1, as detailed above with respect to Ground 1.

157. The Petition relies primarily on Dowling's cluster "heartbeat" signals to argue termination when the communication device is unable to receive information. EX1021, 19:45-62. Based on my review, Dowling's heartbeat mechanism detects switch presence/absence in a cluster at periodic intervals; it does not disclose a supervisory relationship in which, when the communication device is able to receive information from the first terminal, it controls itself in accordance with that information, and when it is unable to receive such information, it terminates

the connection with the second terminal for that reason. EX1021, 19:45-62.

158. Dowling describes a commander switch and member switches exchanging “ICC ‘heartbeat’ packets” and marking a member inactive when heartbeats are not received, which is generic liveness detection, not the claimed permission- and command-based supervisory control over a second-terminal connection at a display device. *Id.* Iwami and Kim fail to cure these deficiencies of Dowling because, as explained above, Iwami does not disclose the sink receiving display-control commands from the first terminal and, in response, controlling how it displays the second terminal’s data while maintaining that connection.

159. For at least the foregoing reasons, Petitioner fails to show by a preponderance of the evidence that claim 6 would have been rendered obvious based on the alleged combination of Iwami, Kim, and Dowling.

IX. CONCLUSION

160. For at least the foregoing reasons, it is my opinion that the Petitioner and Dr. Paradiso have failed to show by a preponderance of the evidence that any of the Challenged Claims are unpatentable.

161. In addition to the opinions and evidence expressed herein, I reserve the right to rebut any arguments made or evidence presented in response to this report. I also reserve the right to supplement this report based on further investigation or

analysis.

162. I hereby declare under the penalty of perjury under the laws of the United States of America that the opinions set forth herein are true and accurate to the best of my knowledge, information, and belief.

Dated: April 8, 2026

A handwritten signature in black ink, appearing to read 'Radostin Pachamanov', written over a horizontal line.

Radostin Pachamanov, Ph.D.

APPENDIX A

Radostin Pachamanov PhD

Director

781-201-4877

rado@quandarypeak.com

Quandary Peak Research

Boston, MA

<https://quandarypeak.com/rado/>

I am an expert in intellectual property litigation, specializing in patent, trade secret, and copyright matters. I have extensive consulting experience across diverse software and hardware technologies, including infringement and invalidity analyses, reverse engineering, hands-on testing of complex systems, and detailed source code analysis. I have authored numerous expert declarations in IPR proceedings and provided deposition testimony in multiple telecommunications-related cases.

My technical expertise is rooted in a strong telecommunications engineering background, covering mobile networks (5G, LTE, UMTS, GSM, CDMA, WiFi, WiMAX), fixed broadband networks, telecom protocols, OSS/BSS, TV platforms and standards, and technical surveillance systems.

Prior to consulting, I worked at Ericsson as a solution architect and account manager, leading major carrier projects from design to implementation.

Technical and Professional Expertise

- Deep academic knowledge and hands-on experience in telecommunications and information technology.
- Deep understanding of the broader telecommunications ecosystems, including knowledge about Operations Support Systems (OSS) and Billing Support Systems (BSS), as well as CRM and ERP applications.
- Proven ability to apply practical approaches to complex challenges and deliver successful outcomes.
- Strong leadership, team management, and cross-functional collaboration.
- Expertise and hands-on experience in intellectual property asset management and IP protection principles.
- Proficiency in source code analysis, including experience with Assembly, C/C++, Java, Python, SQL, Matlab, etc.

Education

Ph.D. in Telecommunications Engineering

Technical University of Sofia, Bulgaria | 2003–2008

Thesis: *Traffic Efficiency in Cellular Mobile Networks*

B.Sc., Eng. in Telecommunications Networks

Technical University of Sofia, Bulgaria | 1998–2002

Languages

- Fluent in English and Bulgarian
- Proficient in Russian

Employment

Quandary Peak Research

Director | Boston, MA | Sept 2025–Present

- Conduct expert analyses in intellectual property litigation, including source code review, reverse engineering, and technical evaluations across telecommunications, software, and hardware technologies.

Elysium Digital, LLC

Director, Aon Intellectual Property Solutions | Boston, MA | Oct 2013–Jul 2025

- Provided in-depth technical analysis and consulting in patent litigation and IT technology-related intellectual property matters.
- Provided clients with strategic insights from Telecommunications and IT industries.
- Analyzed a large variety of patents for clients in the IT and Telecommunications domains in regard to infringement, validity and argument construction.
- Advised clients on IP strategy to leverage their existing assets, identify potential threats, and take advantage of new opportunities.
- Testified in patent litigation disputes.

Ericsson

Account Manager | Sofia, Bulgaria | Apr 2011–July 2013

- Project stakeholder in various system integration and network development projects and sales opportunities. Financial and cash flow management. Close interactions with Project Management Office and Logistics Department.
- Account management for telecom operators with millions in annual sales. Exceeded sales targets for 2012. Performed marketing campaigns, pricing analysis, and sales offers preparation.
- Researched industry trends and mapped industry information to develop business strategies for clients in the Telecommunications, Transport & Media and Public Administration sectors.
- Actively collaborated with customer teams in resolving contract negotiations.

Ericsson

Solutions Architect | Sofia, Bulgaria | Jan 2008–Mar 2011

- Technical project lead for strategic multimillion System Integration projects: Vivacom Satellite TV, Bulgarian National Border Security and Surveillance System.
- Developed solution design and cost optimization models for solutions in the OSS/BSS, TV & Media Management, and System Integration areas.
- Performed customer requirements analysis and solution assessments.
- Collaborated with internal corporate and external client team project stakeholders in complex organizations.
- Coordinated large teams of system integrators, solution architects and external subcontractors in complex system integration projects.

Technical University Of Sofia

Teaching Assistant | Sofia, Bulgaria | Mar 2003–Dec 2007

- Taught university courses: “Teletraffic Engineering” and “Telecommunications Networks”.
- Developed academic seminars.
- Provided guidance and support to students in thesis research.

Litigation Consulting

- **Maxell, Ltd. v. Samsung Electronics Co.** | Jan 2026–Present
Jurisdiction: U.S. District Court for the Eastern District of Texas
Case Number: 5:25-cv-00052
Counsel: Mayer Brown LLP
Nature of Suit: Patent Infringement
- **In the Matter of Certain Mobile Cellular Communications Devices: Pantech Corp. v. OnePlus, Lenovo, TCL, Tinno, and HMD** | Oct 2025–Present
Jurisdiction: International Trade Commission (ITC)
Case Number: 337-TA-3835
Counsel: Mayer Brown LLP
Nature of Suit: Patent
- **Intellectual Ventures v. American Airlines, Inc.** | Oct 2025–Present
Jurisdiction: U.S. District Court for the Eastern District of Texas
Case Number: 4:24-cv-00980
Counsel: Kasowitz LLP
Nature of Suit: Patent
- **Intellectual Ventures v. Southwest Airlines Co.** | Oct 2025–Present
Jurisdiction: U.S. District Court for the Western District of Texas
Case Number: 7:24-cv-00277
Counsel: Kasowitz LLP
Nature of Suit: Patent
- **CCC Information Services Inc. v. Tractable Inc.** | 2019–2024
Jurisdiction: U.S. District Court for the Northern District of Illinois
Case Number: 1:18-cv-07246
Counsel: Latham & Watkins
Nature of Suit: Trade Secret
Technology: AI and auto insurance claims technology
- **Oracle America, Inc. v. Hewlett Packard Enterprise Company** | 2017–2022
Jurisdiction: U.S. District Court for the Northern District of California
Case Number: 4:16-cv-01393
Counsel: Latham & Watkins
Nature of Suit: Trade Secret
- **Dolby Laboratories, Inc. v. Intertrust Technologies Corporation** | 2020–2021
Jurisdiction: U.S. District Court for the Northern District of California
Case Number: 3:19-cv-03371
Counsel: Quinn Emanuel Urquhart & Sullivan, LLP
Nature of Suit: Patent
Technology: DRM and secure content distribution

- **Dali Wireless, Inc. v. John Mezzalingua Associates, LLC** | 2021
 Jurisdiction: U.S. District Court for the District of Delaware
 Case Number: 1:19-cv-02367
 Counsel: Folio Law Group
 Nature of Suit: Patent
 Technology: Wireless/mobile telecommunications technology
- **Vaporstream, Inc. v. Snap Inc. d/b/a Snapchat, Inc.** | 2015–2020
 Jurisdiction: U.S. District Court for the Central District of California
 Case Number: 2:17-cv-00220
 Counsel: Susman Godfrey LLP
 Nature of Suit: Patent
 Technology: Ephemeral communications
- **Entrust Datacard Corporation v. Atlantic Zeiser GmbH, et al.** | 2019
 Jurisdiction: U.S. District Court for the Middle District of Florida
 Case Number: 3:17-cv-00110
 Counsel: Briggs & Morgan, PA
 Nature of Suit: Patent
 Technology: Smart card technology and hardware controlling software
- **Oracle USA, Inc., et al. v. Rimini Street, Inc., et al.** | 2014–2019
 Jurisdiction: U.S. District Court for the District of Nevada
 Case Number: 2:10-cv-00106
 Counsel: Boies Schiller Flexner LLP
 Nature of Suit: Copyright
 Technology: Enterprise software support services and practices
- **Maxell, Ltd. v. ASUSTeK Computer Inc., et al.** | 2019
 Jurisdiction: U.S. District Court for the Northern District of California
 Case Number: 3:18-cv-01788
 Counsel: Mayer Brown
 Nature of Suit: Patent
 Technology: Digital camera technology and automatic gain control in cell phones
- **The People of the State of New York by Eric T. Schneiderman v. Charter Communications, Inc., et al.** | 2018
 Jurisdiction: Supreme Court of the State of New York, County of New York
 Case Number: 450318/2017
 Counsel: Latham & Watkins LLP
 Nature of Suit: Regulatory
 Technology: Internet infrastructure and network capacity testing
- **Rimini Street, Inc. v. Oracle International Corporation** | 2015–2018
 Jurisdiction: U.S. District Court for the District of Nevada
 Case Number: 2:14-cv-01699
 Counsel: Morgan Lewis & Bockius LLP
 Nature of Suit: Copyright
 Technology: Enterprise software support services and practices
- **Hitachi Maxell, Ltd. v. ZTE Corporation, et al.** | 2017–2018
 Jurisdiction: U.S. District Court for the Eastern District of Texas
 Case Number: 5:16-cv-00179
 Counsel: Mayer Brown

Nature of Suit: Patent
Technology: Mobile technology

- **Hitachi Maxell, Ltd. v. Huawei Technologies Co., Ltd., et al.** | 2017–2018
Jurisdiction: U.S. District Court for the Eastern District of Texas
Case Number: 5:16-cv-00178
Counsel: Mayer Brown
Nature of Suit: Patent
Technology: Mobile technology
- **Rovi Guides Inc., et al. v. Comcast Corporation, et al.** | 2016–2017
Jurisdiction: U.S. District Court for the Eastern District of Texas
Case Number: 2:16-cv-00321; 2:16-cv-00322
Counsel: McKool Smith
Nature of Suit: Patent
Technology: Digital video recorder technology
- **Motorola Solutions, Inc. v. Hytera Communications Corporation Ltd.** | 2017
Jurisdiction: U.S. District Court for the Northern District of Illinois, Eastern Division
Case Number: 1:17-cv-01973
Counsel: Kirkland & Ellis LLP
Nature of Suit: Trade Secret
Technology: Two-way radio transmissions
- **Uniloc USA, Inc., et al v. Avaya Inc.** | 2017
Jurisdiction: U.S. District Court for the Eastern District of Texas
Case Number: 6:15-cv-01168
Counsel: Prince Lobel Tye LLP
Nature of Suit: Patent
Technology: Conference calling technology
- **Telesocial Inc. v. Orange S.A., et al.** | 2016
Jurisdiction: U.S. District Court for the Northern District of California
Case Number: 3:14-cv-03985
Counsel: Quinn Emanuel Urquhart & Sullivan, LLP
Nature of Suit: Trade Secret
Technology: Social calling app
- **TCL Communication Technology Holdings, Ltd v. Telefonaktienbolaget LM Ericsson, et al.** | 2016
Jurisdiction: U.S. District Court for the Central District of California
Case Number: 8:14-cv-00341
Counsel: McKool Smith
Nature of Suit: Patent
Technology: Telecommunications technology
- **Ericsson Inc., et al. v. TCL Communication Technology Holdings Limited, et al.** | 2016
Jurisdiction: U.S. District Court for the Eastern District of Texas
Case Number: 2:15-cv-00011
Counsel: McKool Smith
Nature of Suit: Patent
Technology: Telecommunications technology

- **Ericsson Inc., et al. v. TCL Communication Technology Holdings Limited, et al.** | 2015
Jurisdiction: U.S. District Court for the Central District of California
Case Number: 2:15-cv-02370
Counsel: McKool Smith
Nature of Suit: Patent
Technology: Telecommunications technology
- **In the Matter of Certain Wireless Standard Compliant Electronic Devices, Including Communication Devices and Tablet Computers** | 2015
Jurisdiction: International Trade Commission (ITC)
Investigation Number: ITC-337-TA-953
Counsel: McKool Smith
Nature of Suit: Patent
- **In the Matter of Certain Electronic Devices, Including Wireless Communication Devices, Computers, Tablet Computers, Digital Media Players, and Cameras** | 2015
Jurisdiction: International Trade Commission (ITC)
Investigation Number: ITC-337-TA-952
Counsel: McKool Smith
Nature of Suit: Patent
- **Ericsson Inc., et al. v. Apple Inc.** | 2015
Jurisdiction: U.S. District Court for the Eastern District of Texas
Case Number: 2:15-cv-00287, 2:15-cv-00293
Counsel: McKool Smith
Nature of Suit: Patent
Technology: Data transmission and generation of keys in encrypted or decrypted LTE data
- **Bridgestone Americas Tire Operations, LLC v. Schrader-Bridgeport International, Inc.** | 2014–2015
Jurisdiction: U.S. District Court for the District of Delaware
Case Number: 1:13-cv-00763
Counsel: Wilmer Hale
Nature of Suit: Patent
Technology: Automotive embedded systems technology
- **St. Jude Medical Cardiology Division Inc. v. Volcano Corporation** | 2014
Jurisdiction: U.S. District Court for the District of Delaware
Case Number: 1:12-cv-00441
Counsel: Fish & Richardson
Nature of Suit: Patent
Technology: Medical technology
- **Smartflash LLC, et al. v. Samsung Electronics Co. Ltd., et al.** | 2014
Jurisdiction: U.S. District Court for the Eastern District of Virginia
Case Number: 6:13-cv-00448
Counsel: Quinn Emanuel
Nature of Suit: Patent
Technology: DRM technology and in-app payment transactions

Testimony Experience

- **Ericsson, Inc., et al. v. Koninklijke KPN N.V.** | 2023
Jurisdiction: U.S. Patent and Trademark Office, Patent Trial and Appeal Board
Case Number: 2023-00582
Counsel: Cabello Hall Zinda
Nature of Suit: Patent
Technology: Telecommunications
Role: Submitted expert declaration
- **Ericsson, Inc., et al. v. Koninklijke KPN N.V.** | 2023
Jurisdiction: U.S. Patent and Trademark Office, Patent Trial and Appeal Board
Case Number: 2023-00524
Counsel: Cabello Hall Zinda
Nature of Suit: Patent
Technology: Telecommunications
Role: Submitted expert declaration
- **Ericsson, Inc., et al. v. Koninklijke KPN N.V.** | 2023
Jurisdiction: U.S. Patent and Trademark Office, Patent Trial and Appeal Board
Case Number: 2022-00068
Counsel: Hamilton Brook Smith & Reynolds
Nature of Suit: Patent
Technology: Telecommunications
Role: Deposed and submitted expert declaration
- **Ericsson, Inc., et al. v. Koninklijke KPN N.V.** | 2022
Jurisdiction: U.S. Patent and Trademark Office, Patent Trial and Appeal Board
Case Number: 2022-00069
Counsel: Hamilton Brook Smith & Reynolds
Nature of Suit: Patent
Technology: Telecommunications
Role: Deposed and submitted expert declaration
- **Ericsson, Inc., et al. v. Koninklijke KPN N.V.** | 2022
Jurisdiction: U.S. Patent and Trademark Office, Patent Trial and Appeal Board
Case Number: 2022-00079
Counsel: Hamilton Brook Smith & Reynolds
Nature of Suit: Patent
Technology: Telecommunications
Role: Deposed and submitted expert declaration
- **Sierra Wireless, Inc., et al. v. Koninklijke KPN N.V.** | 2018
Jurisdiction: U.S. Patent and Trademark Office, Patent Trial and Appeal Board
Case Number: 2018-00320
Counsel: Hamilton Brook Smith & Reynolds
Nature of Suit: Patent
Technology: Telecommunications
Role: Deposed and submitted expert declaration

Publications

- **Traffic efficiency enhancement of cellular structures in mobile networks.**
Pachamanov, R.A. (2008). Ph.D. dissertation, Technical University of Sofia.
- **Resource planning for voice over wireless both-way transmission media.**
Pachamanov, R.A., Tsankov, B., & Pachamanova, D. (2008). Radioengineering Journal, 17(1), 78–81.
- **Optimal resource allocation in WiMAX.**
Pachamanov, R.A., Pachamanova, D., & Tsankov, B. (2008). Electrotechnica & Electronica, 43(1–2), 41–47.
- **Modified Brady voice traffic model for WLAN and WMAN.**
Pachamanov, R.A., Tsankov, B., & Pachamanova, D. (2007). Electronics Letters, 43(23), 1295–1297.
<https://doi.org/10.1049/el:20072425>
- **A model for WiMAX simulation.**
Pachamanov, R.A. (2007, October). In Proceedings of the National Conference with International Participation Telecom.
- **An optimization-based connection admission control method for IEEE 802.16 wireless networks.**
Pachamanov, R.A., & co-authors (2007, September). In Proceedings of IEEE Africon.
- **Throughput and fairness in IEEE 802.16 broadband wireless networks.**
Pachamanov, R.A., & co-authors (2007, June). In Proceedings of the International Scientific Conference on Information, Communication and Energy Systems and Technologies (ICEST).
- **Analytical performance evaluation of WiMAX.**
Pachamanov, R.A., & co-authors (2007, October). In Proceedings of the National Conference with International Participation Telecom.
- **Priority traffic management in IP networks.**
Pachamanov, R.A., & co-authors (2004, October). In Proceedings of the National Conference with International Participation Telecom.
- **Umbrella-cell in cellular networks: Traffic efficiency analysis.**
Pachamanov, R.A., & co-authors (2003, October). In Proceedings of the National Conference with International Participation Telecom.

Certifications

- **Google Cybersecurity Professional Certificate** | 2024
- **Harvard Law School – Mediation and Conflict Management** | 2018
- **Harvard Law School – Negotiation and Dispute Resolution** | 2018
- **IEEE – Wireless Communications Professional** | 2017