

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

Case: IPR2025-01310

U.S. Patent No. 12,160,681

**DECLARATION OF RADOSTIN PACHAMANOV, PH.D.
CONCERNING PATENTABILITY OF U.S. PATENT NO. 12,160,681**

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and/or imprisonment under Section 1001 of Title 18 of the United States Code, and such willful false statements may jeopardize the validity of the patent which is under review in this proceeding.

Dated: June 15, 2026



Radostin Pachamanov, Ph.D.

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I. INTRODUCTION

1. My name is Radostin Pachamanov. I have been asked by Patent Owner in this IPR (Maxell, Ltd.) to respond to the Declaration of Dr. Robert Stevenson (the “Stevenson Decl.”) and to provide my expert opinion regarding the patentability of U.S. Patent No. 12,160,681 (Ex. 1001, the “’681 Patent”) in view of the opinions in the Stevenson Decl.

2. 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 Court or jury accepting my opinions. I have no other financial interest in this matter or the parties thereto.

3. Depending on new information learned during discovery or positions taken throughout the IPR by Samsung or its experts, 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.

II. BACKGROUND AND QUALIFICATIONS

4. My qualifications to testify about the ’681 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 selected publications within at least the past twenty years.

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

6. 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.

7. 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.

8. 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.

9. 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

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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.

10. 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.

11. 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.

12. 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.

13. 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

14. I am not a lawyer, but I have been informed by Maxell's counsel of the legal principles necessary to my patentability analysis. In this section, I set forth my understanding of these legal principles as they have been explained to me.

15. I understand that a (patentability) validity analysis of a patent claim consists of two steps. The first step is the construction (or interpretation) of any disputed claim terms. The second step is a comparison of the properly construed claims to the prior art.

A. Anticipation

16. A claim is anticipated under 35 U.S.C. § 102 only if a single prior art reference discloses each and every limitation of the challenged claim, arranged as in the claim. Anticipation is a strict standard, and any missing claim limitation defeats anticipation. Moreover, inherent disclosure requires that the missing limitation be necessarily present, not merely probable or possible.

B. Obviousness

17. 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).

18. 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.

19. 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.

20. 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.

21. 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.

22. 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.

23. 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.

24. 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.

25. 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.

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

27. 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.

28. 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.

29. 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.

30. 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.

31. I understand that one of the so-called *Graham* factors that must be considered in determining obviousness is the existence of any secondary considerations, which tend to show that a patent claim is not obvious. Such secondary considerations of nonobviousness of a patent include (1) long-felt and unmet need in the art that was satisfied by the claimed invention of the patent; (2)

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failure of others to achieve the results of the claimed invention; (3) commercial success or lack thereof of the products and processes covered by the claimed invention; (4) deliberate copying of the claimed invention by others in the field; (5) taking of licenses under the patent by others; (6) whether the claimed invention was contrary to the accepted wisdom of the prior art; (7) expression of disbelief or skepticism by those skilled in the art upon learning of the claimed invention; (8) unexpected results achieved by the claimed invention; (9) praise of the claimed invention by others skilled in the art; and (10) lack of contemporaneous and independent invention by others.

32. I understand that each of these considerations may form an independent basis for nonobviousness of a patent. I also understand that the fact that another person simultaneously and independently created the same invention claimed in an asserted patent can serve as an indication that the invention was obvious

33. I also have been informed by counsel that there must be a nexus between any such secondary considerations and the claimed invention.

C. Claim Construction

34. I understand that a patent may include two types of claims: independent claims and dependent claims. An independent claim stands alone and includes only the limitations it recites. A dependent claim can depend from an independent claim or another dependent claim and includes all the limitations

that it recites in addition to all of the limitations recited in the claim or claims from which it depends.

35. 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, written description including the figures, and prosecution history) are the primary sources used in interpreting claim language.

36. 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.

37. When the disputed 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 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.

38. 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 person. I understand that claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.

39. I have applied the ordinary and customary meaning that the terms would have had to a person of ordinary skill in the art at the time of the invention, July 3, 2009 (the '681 Patent's priority date), in view of the patent's specification. In other words, I have interpreted the remaining terms in accordance with their "plain and ordinary" meaning.

40. I understand that Dr. Stevenson purported to interpret the claims according to their plain and ordinary meaning to a POSITA at the time of the invention (July 3, 2009). *See* EX1003, Stevenson Decl., ¶ 53.

D. Level of Ordinary Skill in the Art

41. I understand that claims are to be interpreted from the viewpoint of a person of ordinary skill in the art ("POSITA"). 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.

42. 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.

43. I have also been asked to assume that the relevant time period for determining the level of skill in the art for the '681 Patent is its earliest claimed priority date, July 3, 2009.

44. I understand that Dr. Stevenson has identified the relevant art of the '681 Patent to be in the field of “display technology” and has provided a definition of a POSITA based on that field. *See* EX1003, Stevenson Decl., ¶¶ 46-47. The phrase “display technology” implies the physical engineering and manufacturing of screens, such as the design of LCD panels, pixel arrays, and color rendering. The '681 Patent does not concern that. Rather, the '681 Patent solves problems related to wireless bandwidth management and the efficient exchange of capability information between devices. Therefore, in my opinion, the relevant art of the '681 Patent is in the field of multimedia communication interfaces and data transmission protocols. With that clarification regarding the proper field of art, I agree with Dr. Stevenson’s baseline educational and experience requirements. For the purpose of this declaration, I adopt his definition of a POSITA subject to the above clarification.

45. I am and was at all relevant times at least a person of ordinary skill in the relevant art, and I am able to provide insight and opinions into the understandings of such persons.

IV. MATERIALS CONSIDERED

46. Among the materials I specifically considered at the time I formed my opinions on patentability are the '681 Patent (EX1001); the '681 Patent’s

prosecution history (EX1002); the Stevenson Declaration (EX1003) and the materials cited therein; Samsung's Petition for institution of an Inter Partes Review (IPR) of the '681 Patent, matter number IPR2025-1310 ("'681 IPR Petition") and related filings from that matter; the alleged prior art relied upon by Dr. Stevenson; Dr. Stevenson's deposition transcript dated May 20, 2026 (EX2019); and the other materials that I specifically cite to and mention throughout this declaration.

47. In addition to these materials, I relied upon my decades of experience and expertise in computer science and electrical engineering, particularly in user interface technology, data transmission, and development of tools for mobile and display devices. 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 July 3, 2009).

V. BACKGROUND OF THE TECHNOLOGY OF THE '681 PATENT

A. Overview of the '681 Patent

48. The '681 Patent, entitled "Video Transmitter Apparatus and Video Receiver Apparatus," is directed to techniques for efficiently exchanging receiver apparatus information between a video transmitter apparatus and a video receiver apparatus. Ex. 1001, Abstract; 1:5-15. As described in the Abstract, the video receiver apparatus includes a memory portion that memorizes receiver apparatus information and history information that changes depending on alternation of the

receiver apparatus information, and a transmitter/receiver portion configured to respond to requests from the video transmitter apparatus. *Id.*, Abstract.

49. The specification explains that, in video systems using interfaces such as HDMI—whether wired or wireless—the video transmitter apparatus reads receiver apparatus information indicating the capability and specifications of the video receiver apparatus, such as EDID, when transmitting video signals. Ex. 1001, 1:19–30. However, the specification identifies a technical problem in conventional systems: repeatedly transmitting receiver apparatus information can increase transmission volume and delay, particularly in environments with limited transmission capacity or wireless communication delays. *Id.* at 1:31–45; 2:1–10.

50. To address these issues, the '681 Patent discloses memorizing receiver apparatus information together with history information that reflects whether the receiver apparatus information has changed. *Id.* at 2:20–35. According to the disclosed embodiments, the video receiver apparatus memorizes its receiver apparatus information and associated history information and transmits that information to the video transmitter apparatus in response to a request. *Id.* at 2:36–55; Abstract.

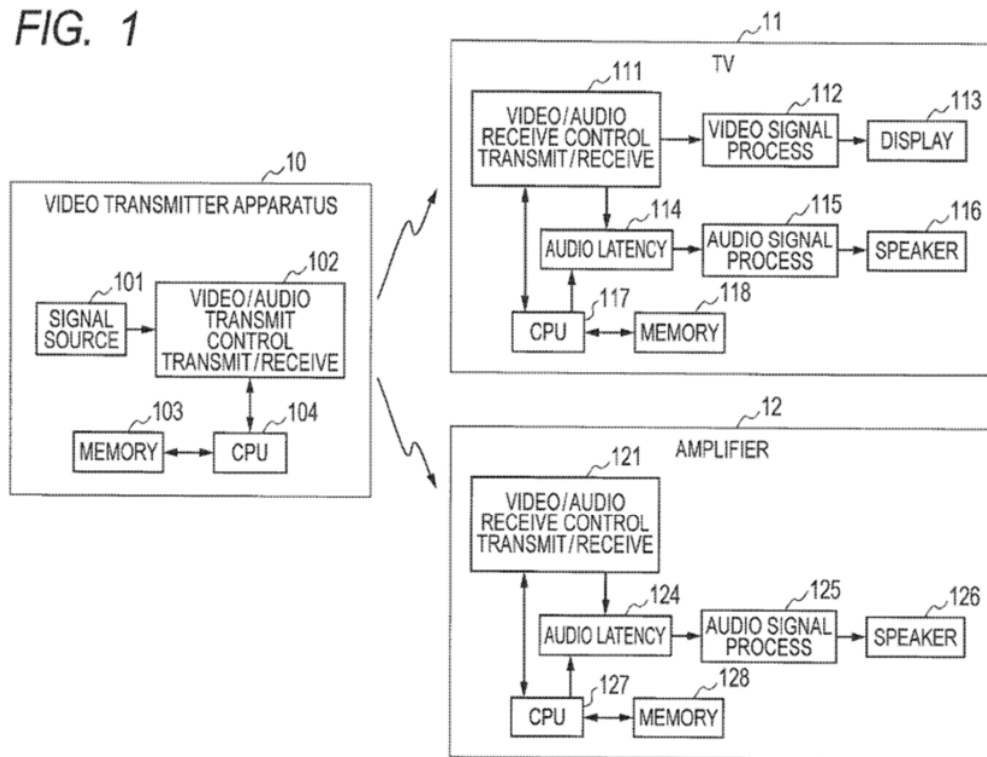
51. The video transmitter apparatus likewise memorizes receiver apparatus information and history information received from the video receiver apparatus and compares the received history information with history information stored in its own memory. *Id.* at 3:11–30. When the history information received

from the video receiver apparatus and the history information stored by the video transmitter apparatus are inconsistent, updated receiver apparatus information is transmitted. *Id.* at 3:31–45; Abstract. When the history information is consistent, transmission of receiver apparatus information may be omitted, thereby reducing communication volume and transmission time. *Id.* at 3:45–55.

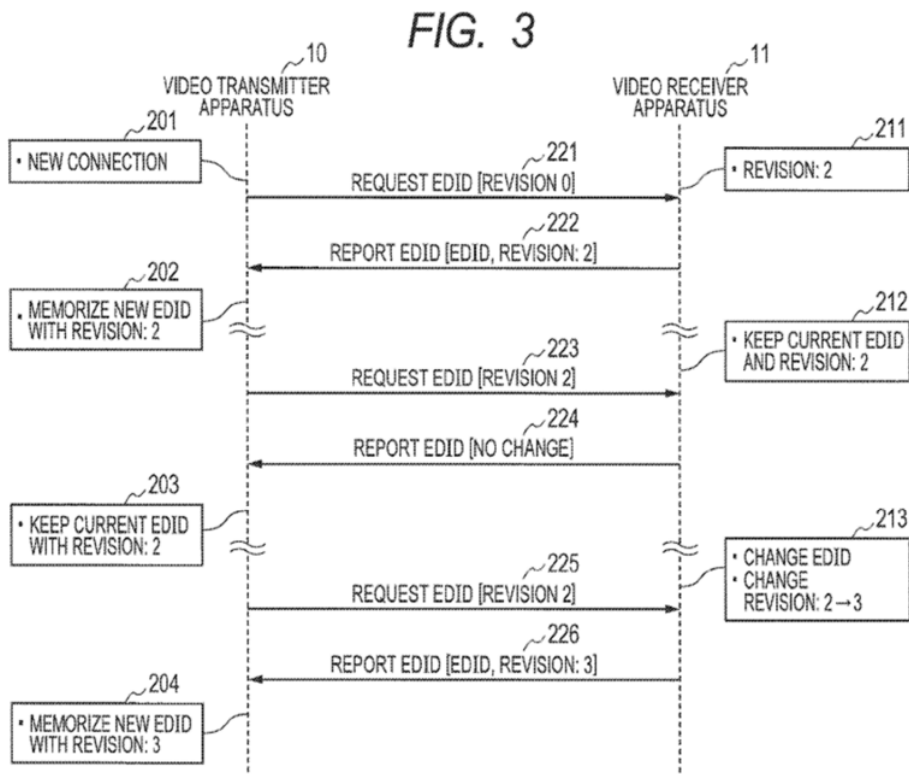
52. The specification further explains that receiver apparatus information may include EDID indicating the capability and specifications of the video receiver apparatus, such as supported video/audio formats and latency characteristics. *Id.* at 4:25–35. By determining whether receiver apparatus information has changed based on history information, the disclosed system enables efficient communication while avoiding unnecessary retransmission of unchanged information. *Id.* at 3:45–55; 4:1–10.

53. Figures 1 through 5 illustrate example system configurations and communication flows between the video transmitter apparatus and the video receiver apparatus, including transmission of request messages, reception of receiver apparatus information, memorization of history information, and comparison of history information to determine whether updated information should be obtained. *Id.* at 3:56–65; 4:1–10.

FIG. 1



Id. at Fig. 1.



Id. at Fig. 3.

B. Prosecution History of the '681 Patent

54. U.S. Patent Application No. 18/113,545 ("545 application"), which would ultimately issue as the '681 Patent, claims priority to Japanese application published on July 3, 2009.

55. The '545 application was allowed, and in the Notice of Allowance, dated June 6, 2024, the Examiner noted the following:

The following is an examiner's statement of reasons for allowance: The Prior Art US Pub. 2006/0095638 ("Unger '5638") and further in view of US US Pat. 7,162,499 ("Lees") and Pub. 2006/0129370 ("Unger '9370") fails to disclose, teach, or suggest all of the limitations of the claimed invention. The Prior Art fails to sufficiently teach or suggest that A video transmitting apparatus comprising: wireless communication circuitry configured to communicate with a display apparatus, the wireless communication circuitry being configured to transmit, while the wireless communication is connected to the display apparatus after a new connection is established with the display apparatus, a first request message and a second request message to the display apparatus; audio/video signal generation circuitry configured to generate an audio/video signal stream; a memory; and control circuitry configured to: transmit a first request messages to the display apparatus together with a first number via the wireless communication circuitry, the first request message together with a first number; receive capability information relating to the display apparatus from the display apparatus via the wireless communication circuitry; store the received capability information relating to the display apparatus in the memory; determine at least one parameter relating to the audio/video signal stream based on the received capability information relating to the display apparatus; cause the audio/video signal generation circuitry to generate the audio/video signal stream based on the determined at least one parameter relating to the audio/video signal stream; transmit the generated audio/video signal stream to the display apparatus via the wireless communication circuitry;

and when a predetermined condition is met, transmit a second request message, to the display apparatus via the wireless communication circuitry, the second request message together with a second number[[,]] which is different from the first number, via the wireless communication circuitry, wherein one of the first number transmitted with the first request message to the display apparatus and the second number transmitted with the second request message to the display apparatus is generated by increasing the other of the first number and the second number by an arbitrary number. As such, the specific ordered combination of steps as required by the recited limitations are considered to be non-obvious over the Prior Art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

EX1002 at 101-102.

56. The prosecution history therefore demonstrates that the Office recognized in the Notice of Allowance that the claimed invention of the '681 Patent is patentably distinct over the prior art based on the absence of specific claim elements—most notably, the requirement that “one of the first number transmitted with the first request message and the second number transmitted with the second request message is generated by increasing the other of the first number and the second number by an arbitrary number”. EX1002 at 101–102.

C. Claims of the '681 Patent At Issue¹

57. Following are the challenged claims:

¹ For convenience purposes only, I have adopted the numbering of claim elements advanced by Petitioner in the Petition (Paper 3) on page v-x.

Claim	Claim Text
[1pre]	A video transmitting apparatus comprising:
[1a]	wireless communication circuitry configured to communicate with a display apparatus, the wireless communication circuitry being configured to transmit, while the wireless communication is connected to the display apparatus after a new connection is established with the display apparatus, a first request message and a second request message to the display apparatus;
[1b]	audio/video signal generation circuitry configured to generate an audio/video signal stream;
[1c]	a memory; and
[1d]	control circuitry configured to:
[1e]	transmit, to the display apparatus via the wireless communication circuitry, the first request message together with a first number;
[1f]	receive capability information relating to the display apparatus from the display apparatus via the wireless communication circuitry;
[1g]	store the received capability information relating to the display apparatus in the memory;
[1h]	determine at least one parameter relating to the audio/video signal stream based on the received capability information relating to the display apparatus;
[1i]	cause the audio/video signal generation circuitry to generate the audio/video signal stream based on the determined at least one parameter relating to the audio/video signal stream;
[1j]	transmit the generated audio/video signal stream to the display apparatus via the wireless communication circuitry; and
[1k]	when a predetermined condition is met, transmit, to the display apparatus via the wireless communication circuitry, the second request message together with a second number which is different from the first number,
[1l]	wherein one of the first number transmitted with the first request message to the display apparatus and the second number transmitted with the second request message to the display apparatus is generated by increasing the other of the first number and the second number by an arbitrary number.
[2]	The video transmitting apparatus according to claim 1, wherein the capability information relates to either EDID (Extended Display Identification Data), normal rated power, brightness of display panel, or total operating time of the display apparatus.
[3]	The video transmitting apparatus according to claim 1, wherein the

	predetermined condition is met when identification information for wireless communication received from the display apparatus matches identification information stored in the memory.
[4]	The video transmitting apparatus according to claim 1, wherein the predetermined condition is met when specific information included in EDID (Extended Display Identification Data) received from the display apparatus matches specific information stored in the memory.
[5]	The video transmitting apparatus according to claim 4, wherein the specific information included in the EDID is either a checksum value, a CRC (Cyclic Redundancy Check) value, or a hash value of the EDID.
[6]	The video transmitting apparatus according to claim 1, wherein the control circuitry is further configured to transmit the first request message with the first number or the second request message with the second number periodically to the display apparatus via the wireless communication circuitry.
[7]	The video transmitting apparatus according to claim 1, wherein the control circuitry is further configured to store a third number in the memory, the third number being different from the first number, the third number being received from the display apparatus via the wireless communication circuitry.
[8a]	The video transmitting apparatus according to claim 7, wherein the third number is changed to a fourth number by the display apparatus, and
[8b]	wherein the control circuitry is further configured to store the fourth number in the memory, the fourth number being received from the display apparatus via the wireless communication circuitry.
[9pre]	A video transmitting apparatus comprising:
[9a]	wireless communication circuitry configured to communicate with a display apparatus, the wireless communication circuitry being configured to transmit, while the wireless communication is connected to the display apparatus after a new connection is established with the display apparatus, a first request message and a second request message to the display apparatus;
[9b]	audio/video signal generation circuitry configured to generate an audio/video signal stream;
[9c]	a memory; and
[9d]	control circuitry configured to:
[9e]	transmit, to the display apparatus via the wireless communication circuitry, the first request message together with a first number;

[9f]	receive capability information relating to the display apparatus from the display apparatus via the wireless communication circuitry;
[9g]	store the received capability information relating to the display apparatus in the memory;
[9h]	determine at least one parameter relating to the audio/video signal stream based on the received capability information relating to the display apparatus;
[9i]	cause the audio/video signal generation circuitry to generate the audio/video signal stream based on the determined at least one parameter relating to the audio/video signal stream;
[9j]	transmit the generated audio/video signal stream to the display apparatus via the wireless communication circuitry;
[9k]	when a predetermined condition is met, transmit, to the display apparatus via the wireless communication circuitry, the second request message together with a second number which is different from the first number;
[9l]	store a third number in the memory, the third number being different from the first number and received from the display apparatus via the wireless communication circuitry; and
[9m]	store a fourth number in the memory, the fourth number being generated by the display apparatus based on the third number and received from the display apparatus via the wireless communication circuitry,
[9n]	wherein one of the first number transmitted with the first request message to the display apparatus and the second number transmitted with the second request message to the display apparatus is generated by increasing the other of the first number and the second number by an arbitrary number.
[10]	The video transmitting apparatus according to claim 9, wherein the capability information relates to either EDID (Extended Display Identification Data), normal rated power, brightness of display panel, or total operating time of the display apparatus.
[11pre]	A method for controlling a video transmitting apparatus, the video transmitting apparatus comprising:
[11a]	wireless communication circuitry configured to communicate with a display apparatus, the wireless communication circuitry being configured to transmit, while the wireless communication is connected to the display apparatus after a new connection is established with the display apparatus, a first request message and a second request message to the display apparatus;
[11b]	audio/video signal generation circuitry configured to generate an

	audio/video signal stream; and
[11c]	a memory,
[11d]	the method comprising: transmitting, to the display apparatus via the wireless communication circuitry, the first request message together with a first number;
[11e]	receiving capability information relating to the display apparatus from the display apparatus via the wireless communication circuitry;
[11f]	storing the received capability information relating to the display apparatus in the memory;
[11g]	determining at least one parameter relating to the audio/video signal stream based on the received capability information relating to the display apparatus;
[11h]	causing the audio/video signal generation circuitry to generate the audio/video signal stream based on the determined at least one parameter relating to the audio/video signal stream;
[11i]	transmitting the generated audio/video signal stream to the display apparatus via the wireless communication circuitry; and
[11j]	in response to meeting a predetermined condition, transmitting, to the display apparatus via the wireless communication circuitry, the second request message together with a second number which is different from the first number,
[11k]	wherein one of the first number transmitted with the first request message to the display apparatus and the second number transmitted with the second request message to the display apparatus is generated by increasing the other of the first number and the second number by an arbitrary number.
[12]	The method according to claim 11, wherein the capability information relates to either EDID (Extended Display Identification Data), normal rated power, brightness of display panel, or total operating time of the display apparatus.
[13]	The method according to claim 11, wherein the second request message is sent in response to determining that identification information for wireless communication received from the display apparatus matches identification information stored in the memory.
[14]	The method according to claim 11, wherein the second request message is sent in response to determining that specific information included in EDID (Extended Display Identification Data) received

	from the display apparatus matches specific information stored in the memory.
[15]	The method according to claim 14, wherein the specific information included in the EDID is either a checksum value, a CRC (Cyclic Redundancy Check) value, or a hash value of the EDID.
[16]	The method according to claim 11, further comprising transmitting the first request message with the first number or the second request message with the second number periodically to the display apparatus via the wireless communication circuitry.
[17]	The method according to claim 11, further comprising storing a third number in the memory, the third number being different from the first number, the third number being received from the display apparatus via the wireless communication circuitry.
[18a]	The method according to claim 17, wherein the third number is changed to a fourth number by the display apparatus, and
[18b]	wherein the method further comprising storing the fourth number in the memory, the fourth number being received from the display apparatus via the wireless communication circuitry.
[19pre]	A method for controlling a video transmitting apparatus, the video transmitting apparatus comprising:
[19a]	wireless communication circuitry configured to communicate with a display apparatus, the wireless communication circuitry being configured to transmit, after a new connection is established with the display apparatus, a first request message and a second request message to the display apparatus while the wireless communication circuitry is connected with the display apparatus;
[19b]	audio/video signal generation circuitry configured to generate an audio/video signal stream; and
[19c]	a memory
[19d]	the method comprising: transmitting, to the display apparatus via the wireless communication circuitry, the first request message together with a first number;
[19e]	receiving capability information relating to the display apparatus from the display apparatus via the wireless communication circuitry;
[19f]	storing the received capability information relating to the display apparatus in the memory;

[19g]	determining at least one parameter relating to the audio/video signal stream based on the received capability information relating to the display apparatus;
[19h]	causing the audio/video signal generation circuitry to generate the audio/video signal stream based on the determined at least one parameter relating to the audio/video signal stream;
[19i]	transmitting the generated audio/video signal stream to the display apparatus via the wireless communication circuitry;
[19j]	in response to meeting a predetermined condition, transmitting, to the display apparatus via the wireless communication circuitry, the second request together with a second number which is different from the first number;
[19k]	storing a third number in the memory, the third number being different from the first number, the third number being received from the display apparatus via the wireless communication circuitry; and
[19l]	storing a fourth number in the memory, the fourth number being generated by the display apparatus based on the third number, the further number being received from the display apparatus via the wireless communication circuitry,
[19m]	wherein one of the first number transmitted with the first request message to the display apparatus and the second number transmitted with the second request message to the display apparatus is generated by increasing the other of the first number and the second number by an arbitrary number.
[20]	The method according to claim 19, wherein the capability information relates to either EDID (Extended Display Identification Data), normal rated power, brightness of display panel, or total operating time of the display apparatus.

VI. CLAIM CONSTRUCTION FOR THE '681 PATENT

58. For any terms not specifically construed, I have applied the plain and ordinary meaning that the terms would have had to a person of ordinary skill in the art at the time of the invention of July 3, 2009 (the '681 Patent's priority date) in view of the patent's specification.

59. I understand that Dr. Stevenson purported to interpret the claims according to their plain and ordinary meaning to a POSITA at the time of the invention (July 3, 2009). *See* EX1003, Stevenson Decl., ¶ 53.

VII. SUMMARY OF PETITIONER’S PROPOSED GROUNDS

60. Dr. Stevenson alleges that claims 1-20 of the ’681 Patent would have been anticipated or obvious and raises 5 grounds of alleged unpatentability. *See* EX1003, Stevenson Decl., ¶ 23. The alleged invalidity grounds are summarized as follows:

Ground	’681 Claims	Type of Challenge	References	Missing Limitations/claims
1	1-2, 7-13, 17-20	§ 102	Funabiki	[1a]/[11a], [11d], [1k]/[11j], [1l]/[11k] and the dependent claims
2	1-3, 7-13, 17-20	§ 102	Guo	[1a]/[11a], [11d], [1k]/[11j], [1l]/[11k] and the dependent claims
3	3, 13	§ 103	Funabiki and Guo	3, 13
4	6, 16	§ 103	Funabiki or Guo, and Fastert	6, 16
5	1-2, 4-5, 7, 11-12, 14-15, 17	§ 103	E-DDC Standard and Fastert	[1h]/[11g], [1i]/[11h], [1j]/[11i], [1k]/[11j], [1l]/[11k] and the dependent claims

VIII. THE PRIOR ART

61. Here, I will provide a brief overview of each of the references used by Dr. Stevenson.

A. Funabiki (EX1004)

62. Funabiki is entitled “Wireless Communication System For Wirelessly Transmitting Setting Information of Display Unit.” EX1004. Funabiki describes a “wireless communication system including a source device for wirelessly transmitting a video signal, and a sink device for receiving the wirelessly transmitted video signal and displaying the received video signal on a display, the sink device reads out EDID information from a ROM and wirelessly transmits a wireless data signal including the EDID information to the source device.” See EX1004, Abstract.

B. Guo (EX1005)

63. Guo is entitled “EDID Pass Through Via Serial Channel.” EX1005. Guo describes techniques “for passing Extended Display Identification Data (EDID) or Enhanced-EDID (E-EDID) in an uncompressed multimedia communication system including a video sink side communicatively coupled to a video source side.” EX1005, Abstract.

C. Fastert (EX1006)

64. Fastert is entitled “System, method, and apparatus for content delivery format control.” EX1006. Fastert describes “a content delivery system that includes at least one bi-directional distribution system between a generalized content source and a generalized content sink.” EX1006, Abstract.

D. E-DDC Standard (EX1007)

65. VESA Enhanced Display Data Channel (EDDC) Standard describes a communications channel between an electronic display (e.g., a CRT, LCD, display etc.) and a host system. EX1007 at 1. The channel may be used to carry configuration information to enable ‘plug & play’ and allow optimum use of the display. *Id.*

IX. ANALYSIS OF INSTITUTED GROUNDS

66. I have analyzed each of the instituted grounds. As explained in greater detail below, it is my opinion that none of these grounds shows by the preponderance of the evidence that Claims 1–20 of the ’681 Patent are unpatentable.

A. Ground 1: Petitioner and Dr. Stevenson Fail to Establish That Claims 1-3, 7-13, And 17-20 Are Anticipated by Funabiki

67. Petitioner and Dr. Stevenson have not shown by a preponderance of the evidence that Ground 1 renders claims 1-3, 7-13, and 17-20 unpatentable because Funabiki does not disclose each and every limitation of the challenged claims, as required for anticipation. In particular, Dr. Stevenson has not shown that Funabiki teaches at least elements [1a], [1k], and [1l] (and comparable elements of claim 11), as required for each of these claims. Dr. Stevenson’s mapping of the claimed “first number,” “second number,” and the “generated by increasing ... by an arbitrary number” requirement rests on speculation and re-labeling of Funabiki’s generic “sequence number” counter functionality. *See* EX1003, Stevenson Decl., ¶¶ 58-62, 69-70, 82-87. Dr. Stevenson never identifies

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where Funabiki discloses the specific requirement regarding the claimed numbers. Additionally, because dependent claims 2-3, 7-8, 10, 12-13, 17-18, and 20 depend from claims that Dr. Stevenson has not shown to be unpatentable, Petitioner and Dr. Stevenson have also failed to show that claims 2-3, 7-8, 10, 12-13, 17-18, and 20 are unpatentable by Funabiki.

1. Funabiki Fails to Disclose Limitation [1a]

68. Dr. Stevenson has not shown that Funabiki discloses limitation [1a]: “wireless communication circuitry configured to communicate with a display apparatus, the wireless communication circuitry being configured to transmit, **while the wireless communication is connected to the display apparatus after a new connection is established**, a first request message and a second request message to the display apparatus.” Claim 1 requires that, **after a new connection is established**, the wireless communication circuitry is configured to transmit both a first request message and a second request message to the display apparatus. This limitation is not satisfied by the disclosure of a single request message transmitted during or after a connection process.

69. Dr. Stevenson points to Funabiki’s description of transmitting an EDID request after authentication as allegedly satisfying this limitation. *See* EX1003, Stevenson Decl., ¶¶ 58-62. But Funabiki describes, at most, a single EDID request/response exchange following completion of authentication. *See, e.g.,* EX1004, [0062]-[0063], Fig. 11. Funabiki does not disclose two distinct request messages transmitted after a new connection is established, as claim 1

expressly requires. Dr. Stevenson never identifies where Funabiki discloses a **first** request message transmitted after connection establishment and a **second**, separate request message transmitted after the connection is established. Instead, Dr. Stevenson collapses the claimed two-request architecture into a single request message, which is insufficient as a matter of claim scope.

70. Dr. Stevenson's deposition testimony confirms that his Ground 1 theory relies on EDID request signals in Funabiki's connection flow rather than on a distinct second request message sent during an already-established connection. Dr. Stevenson identified an EDID request signal in Funabiki's Figure 11 and described that EDID request as being sent after the authentication process when one of the devices is turned on. EX2019, 16:10-18; 17:18-24.

71. This understanding of limitation [1a] is also consistent with the practical role of "while" in the '681 Patent's specification. The specification explains that, after the video transmitter apparatus obtains and stores EDID, the CPU determines optimal video/audio transmission formats based on the stored EDID, controls the signal source to produce the corresponding video/audio signals, and transmits those video/audio signals to the video receiver apparatus. EX1001, 4:40-57. The specification further explains that while there is video/audio transmission in place ("after a new connection is established with the display apparatus") the transmitter later may need to confirm whether the stored EDID remains current or any capability changes on the receiving side may require changing the parameters of the transmission; to do so, it sends an EDID request

with a stored revision value (history information), and if the revision values match, the receiver simply reports back “no change” rather than retransmitting the EDID. EX1001, 5:59-6:14; 6:30-7:8. This matters because EDID transmission requires relatively large transmission capacity and may prevent ensuring or maintaining the transmission capacity needed for video/audio signals; by avoiding transmitting the EDID unless there is indeed an EDID change, the disclosed system avoids influence on the ongoing video/audio transmission. EX1001, 6:14-25.

72. In contrast, the Funabiki process relied on by Dr. Stevenson performs the EDID request as part of the wireless connection process itself. In Funabiki’s source-side flow, after the source device transmits an authentication request and receives an authentication completion signal, the source transmits a single EDID request signal, receives the EDID response signal, stores the EDID information, completes the connection process, and only then begins AV data transmission. EX1004, [0062]-[0063], Fig. 11; *see also* EX1003, Stevenson Decl., ¶¶ 58-62. Funabiki further describes executing that wireless connection process when the source device is powered on, when the sink display is powered on, when the sink device is connected to source device 2 or 3, or at another such timing. EX1004, [0069]. Thus, the EDID request in Funabiki is tied to connection establishment or re-establishment only, not to a later second request message sent while an already-established wireless connection remains active to monitor whether EDID has changed. Even if Funabiki’s initialization request were

considered the claimed “first request message,” Funabiki fails to disclose transmitting the required “second request message” during that same active connection session. For this additional reason, Funabiki does not disclose the “while the wireless communication is connected ... after a new connection is established” aspect of limitation [1a].

73. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that Funabiki anticipates limitation [1a].

2. Funabiki Fails to Disclose Limitation [1k]

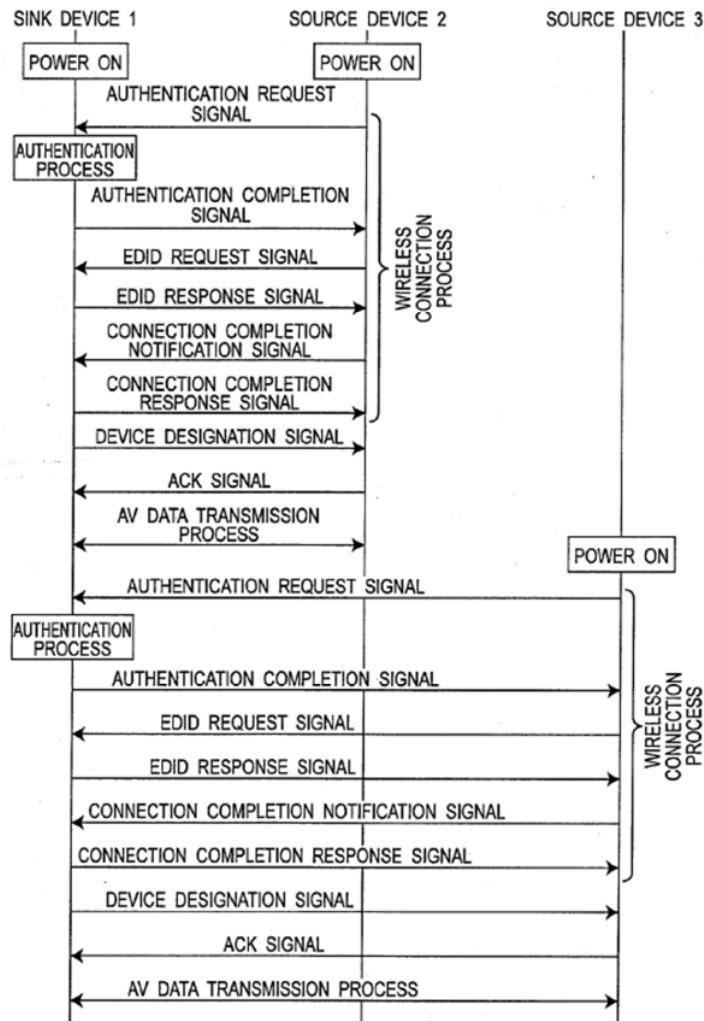
74. Dr. Stevenson further has not shown that Funabiki discloses limitation [1k]: **“when a predetermined condition is met, transmit, to the display apparatus via the wireless communication circuitry, the second request message together with a second number which is different from the first number.”** Dr. Stevenson identifies completion of authentication as the alleged “predetermined condition” and points to transmission of an EDID request following authentication as the alleged second request message. See EX1003, Stevenson Decl., ¶¶ 82-83. That showing is deficient for multiple reasons. First, Claim 1 requires the system to transmit the second message under a predetermined condition after a new connection is already established. Funabiki focuses entirely on the initialization process, such as turning on the device and authenticating. Dr. Stevenson essentially alleges that the “predetermined condition” for the second request is the exact same initialization event that triggered the first request. However, the predetermined condition triggering a

subsequent request cannot logically be the initial establishment of the connection itself as claimed by Dr. Stevenson.

75. Furthermore, without an identified first request message and first number, Petitioner and Dr. Stevenson cannot establish that any later number is a “second number which is different from the first number,” as limitation [1k] expressly requires.

76. Moreover, Funabiki does not disclose **“the second request message together with a second number”** transmitted **“when a predetermined condition is met.”** Figure 11 depicts a single EDID request/response exchange following authentication; it does not disclose a second request message transmitted only after a predetermined condition is met, nor does it disclose that any such message is transmitted together with a second number that is different from a first number. As Figure 11 clearly shows, the sequence ends once the connection is established. There is no subsequent phase where a predetermined condition could ever trigger a second request.

Fig.11



EX1004, Fig. 11.

77. Dr. Stevenson's reliance on Funabiki's generic disclosure of a sequence number region does not cure this defect. See EX1003, Stevenson Decl., ¶¶ 82-83.

78. The existence of a sequence number does not disclose that: (1) a first request message is transmitted together with a first number, (2) a second request message is transmitted together with a second number, and (3) the second number

is different from the first number. Dr. Stevenson's argument improperly assumes that the mere existence of a counter necessarily implies that "a predetermined condition is met" to transmit "the second request message together with a second number which is different from the first number," as required by the claim. Dr. Stevenson does not identify any portion of Funabiki that necessarily results in such transmissions. *See* EX1003, Stevenson Decl., ¶¶ 82-83.

79. Dr. Stevenson's deposition testimony further confirms the gap in Funabiki's disclosure. He testified that the alleged second number is a "sequence number associated with this second EDID request signal," but when asked how that second sequence number is determined, he explained only that the device would be operating over time, making multiple requests, with each request having a sequence number; the resulting number would depend on "how many messages are in between." EX2019, 27:13-28:4. That testimony does not identify any disclosure in Funabiki that one request-message number is generated from the other request-message number, nor does it establish that Funabiki's internal counter counts only EDID requests.

80. Anticipation requires that the claimed limitation be disclosed expressly or inherently, and inherency requires that the missing limitation necessarily and inevitably be present in the prior art. Nothing in Funabiki establishes that the claimed "second request message together with a second number which is different from the first number" is transmitted "when a

predetermined condition is met.” Mere possibility or POSITA inference cannot substitute for disclosure.

81. Accordingly, Petitioner and Dr. Stevenson have not established anticipation of limitation [1k] by a preponderance of the evidence.

3. Funabiki Fails to Disclose Limitation [1l]

82. Dr. Stevenson has not shown that Funabiki discloses limitation [1l]: “wherein **one of the first number transmitted with the first request message and the second number transmitted with the second request message** is generated by increasing the other of the first number and the second number by an **arbitrary number**,” which the Examiner also found missing from the prior art. Dr. Stevenson again relies on Funabiki’s disclosure of a counter-based sequence number. See EX1003, Stevenson Decl., ¶¶ 84-87. But that disclosure does not satisfy limitation [1l].

83. First, Funabiki does not disclose that the second number is generated by increasing the first number, or vice versa. The claim requires “generat[ing] by increasing the other” number. Funabiki does not describe any such generating by increasing the other. It merely describes a sequence number being stored or updated, without tying one transmitted number to another transmitted number to show generating by increasing the other.

84. Second, Funabiki does not disclose that any increase is by an **arbitrary number**, as claim 1 expressly requires. Dr. Stevenson relies on generalized assertions about counters, but Funabiki does not disclose the

“generated by increasing the other of the first number and the second number by an arbitrary number” requirement.

85. In particular, Dr. Stevenson’s argument reduces this limitation to the assertion that Funabiki uses a counter so that sequence numbers are “incremented,” and that a POSITA would understand counters to “increment” numbers. See EX1003, Stevenson Decl., ¶¶ 84-87. But Funabiki’s cited disclosure does not satisfy the limitation. The cited disclosure states only that a “sequence number region 803” “stores a sequence number according to an internal counter of the controller 20.” EX1004, [0058]. That disclosure does not describe—let alone require—generation of a second number by increasing a first number by an arbitrary number. *Id.* It does not identify (1) a first number, (2) a second number, or (3) the required “generated by increasing the other of the first number and the second number by an **arbitrary number**”.

86. Dr. Stevenson also acknowledged that his counter theory depends on a fixed increment and intervening messages, not on one request-message number being generated from the other by an arbitrary value. He testified that “the counter is incrementing by one,” and that the difference between the alleged first and second sequence numbers depends on the number of messages or counter counts between the two messages. EX2019, 28:24-29:10; 29:15-30:6. That testimony reinforces that Funabiki’s sequence-number theory does not satisfy the claim language: if the counter advances one count at a time, then the sequence rule is fixed; and if several intervening messages create a larger gap, that gap

reflects intervening counter counts rather than generation of the later request-message number from the earlier request-message number by an arbitrary amount.

87. Dr. Stevenson also attempts to bridge this gap by asserting, at a high level, that counters increment numbers, and then contending that doing so is “consistent” with the ’681 Patent’s embodiment. *See* EX1003, Stevenson Decl., ¶¶ 86-87. But anticipation cannot be proven by arguing “consistency” with the challenged patent’s own disclosure; anticipation requires that the prior art itself disclose the limitation. Funabiki does not state that one of the claimed numbers is generated by increasing the other “by an arbitrary number,” and Dr. Stevenson’s functional generalities about counters do not substitute for disclosure of the claim limitation reciting “generating by increasing the other.”

88. The “second number” requirement also cannot be satisfied merely by invoking Funabiki’s use of a sequence number. Dr. Stevenson’s logic assumes that a later EDID request, if one existed, would use a later sequence number generated from the prior request’s sequence number. *See* EX1003, Stevenson Decl., ¶¶ 82-87. But Funabiki says only that the EDID request signal includes a sequence number region that “stores a sequence number according to an internal counter of the controller 20.” EX1004, [0058]. Funabiki does not disclose whether that internal counter counts only EDID requests, whether it advances for other control signals, how it would generate a number for a later initialization request, or whether any such later number would be generated from the number

transmitted with a previous request. In fact, Funabiki lacks any disclosure of “generated by increasing the other of the first number and the second number by an **arbitrary number**.” For example, in Figure 11, the subsequent EDID request comes from a completely different transmitting device (Source Device 3 instead of Source Device 2). Furthermore, in the case where the receiving device is powered off and then turned back on again to trigger a new authentication process followed by a new EDID request, Funabiki does not explain whether the transmitted uses the first number from the previous session to generate the second number. Thus, even if Funabiki’s sequence number were treated as a “number,” Funabiki still does not disclose that the alleged second number is generated by increasing the alleged first number, as the claim requires.

89. This point is important because the claim requires more than a numerical difference between two values; it requires that one of the two transmitted request-message numbers be generated by increasing the other by an arbitrary number. If Dr. Stevenson’s theory is that Funabiki’s sequence numbers are consecutive values calculated by adding one to the previous sequence number, then the alleged increase is not arbitrary—it is fixed by the operation of the sequence. *See* EX1003, Stevenson Decl., ¶¶ 84-87. And if Dr. Stevenson instead suggests that an arbitrary jump could be created by skipping intervening packets, that theory still fails because the sequence counter would still increment packet-by-packet; the number in a later EDID request would be a result of the counter’s intervening packet count, not a number generated from the number transmitted

with the earlier EDID request. EX1004, [0058]. Funabiki therefore does not disclose “generated by increasing the other of the first number and the second number by an **arbitrary number**”.

90. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that Funabiki anticipates limitation [11].

4. Petitioner’s and Dr. Stevenson’s Inconsistent Claim Construction Positions Independently Reinforce My Opinions

91. As I stated in Section VI above, I have analyzed the claims under their plain and ordinary meaning. However, I have been informed by counsel that in parallel district court litigation involving the same patent and the same claim language, Petitioner construes this limitation to mean “by adding an arbitrary number to the other of the first number and the second number.” EX2016 at 6. Regardless of Petitioner’s inconsistent claim-construction positions, Dr. Stevenson still fails to establish that Funabiki discloses the limitation “by increasing the other of the first number and the second number by an arbitrary number” under any construction. If I were to apply this alternative construction, my opinion remains the same: Funabiki fails to disclose the claimed requirement.

92. Under Petitioner’s district-court construction, the claim requires that one transmitted number be generated by adding an arbitrary number to another transmitted number. Funabiki does not disclose this. As discussed above, Funabiki merely describes storing, updating, or incrementing a sequence number according to an internal counter. EX1004, [0058]. It does not disclose generating

one transmitted number by adding an arbitrary number to another transmitted number, nor does it tie any transmitted number to another transmitted number through such an addition operation. Dr. Stevenson’s reliance on generalized statements that counters “increment” does not satisfy even Petitioner’s own district-court articulation of the claim language. An internal counter that updates a stored value is not disclosure of adding an arbitrary number to one transmitted number to generate another transmitted number, as the construction requires.

93. While Funabiki discloses a generic sequence number, it never identifies a first transmitted number and a second transmitted number that operate together as the claims of the ’681 Patent require. Specifically, Funabiki lacks any mechanism where one transmitted number is “generated by increasing the other of the first number and the second number by an **arbitrary number**.”

94. For these reasons, Petitioner’s and Dr. Stevenson’s inconsistent claim-construction positions reinforce my opinion that Funabiki does not anticipate the challenged claims.

5. Funabiki Fails to Disclose Claims 7-9

95. Dr. Stevenson’s mapping of claims 7-9 similarly fails because it treats “EDID information” (a bundle of capability data) as a “number,” without identifying where Funabiki discloses that the claim-required “third number” (and “fourth number”) exists as a number, is distinct from the other claimed numbers, and is generated in the manner required by the claims. The ’681 Patent’s specification is clear that these claimed numbers serve as “revision values” –

“history numbers” representing the EDID used specifically to check if the EDID has changed. Therefore, a POSITA would understand that the first, second, third, and fourth numbers must share a consistent fundamental type, and cannot be just any number. However, Dr. Stevenson relies on an incompatible mapping to manufacture his anticipation argument – while he maps the first and second numbers to sequence counters, he suddenly maps the third and fourth numbers to an EDID which he previously mapped to “capability information relating to the display apparatus” in relation to, e.g., Claim [1f]. For example, Dr. Stevenson states that an “EDID response signal” contains “EDID information 905,” and asserts that “EDID information 905 in turn includes numbers, i.e., a third number.” See EX1003, Stevenson Decl., ¶¶ 90-93. But identifying that EDID information contains various fields (such as display settings or resolution data) does not establish that Funabiki discloses the claim-required “third number” (or fourth number for that matter) as a distinct numerical value consistent with the type of the first and second numbers, as opposed to a complex bundle of capability data.

96. Dr. Stevenson further asserts that source device 2 stores EDID information 905 in its DRAM 21. See EX1003, Stevenson Decl., ¶¶ 91-93. But this again conflates (1) storing EDID data (capability information) with (2) storing a particular claim-defined “number,” without showing that the “third number” is a number meeting the claim requirements, or that it is the specific third number required by the claim language (i.e., a discrete value of the same

fundamental type as the first and second numbers). See EX1004, [0061]-[0062], Fig. 6, Fig. 10.

97. Furthermore, Dr. Stevenson fails to address the distinct limitations across these claims. Claim 8 requires the third number to be “changed to a fourth number” by the display apparatus, whereas claim 9 requires the fourth number to be “generated by the display apparatus based on the third number.” The deficiencies become clearer in claim 9, where Dr. Stevenson contends that Funabiki discloses storing “a fourth number ... the fourth number being generated by the display apparatus based on the third number.” See EX1003, Stevenson Decl., ¶¶ 94-114. The cited Funabiki passage discusses overwriting EDID information when maximum data transmission rate changes, including deleting video format information depending on throughput. While this describes updating or changing capability information, it is not disclosure that a “fourth number” is generated “based on” a “third number.” At most, Funabiki describes updating capability information in view of transmission constraints. EX1004, [0067]. That is not the claim’s “fourth number generated by the display apparatus based on the third number.”

98. Dr. Stevenson’s deposition also undercuts his reliance on “Sequence Number 903” for Funabiki’s dependent-claim theories. He testified that, in paragraph 94 of his declaration, the parenthetical reference to “latest Sequence Number 903” should be “scratched out” because that section “just discusses the revised EDID information.” EX2019, 8:7-13.

99. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that Funabiki anticipates claims 7-9 or the dependent claims that incorporate the same third-number/fourth-number structure.

6. Funabiki Fails to Disclose Claims 2-3, 10-13, and 17-20

100. Ground 1 also challenges claims 2-3, 10-13, and 17-20, but Dr. Stevenson's showing relies on cross-references and the same defective "sequence number / EDID information" re-labeling discussed above. *See* EX1003, Stevenson Decl., ¶¶ 88-146. Where the challenged dependent claims incorporate the same first-number/second-number requirement (including the "generated by increasing ... by an arbitrary number"), Dr. Stevenson does not cure the lack of disclosure in Funabiki.

101. Accordingly, because Petitioner and Dr. Stevenson have not met their burden to establish anticipation of claim 1, and because they have not independently established the additional requirements of the dependent claims, they fail to show by a preponderance of the evidence that claims 1-3, 7-13, and 17-20 are anticipated by Funabiki.

B. Ground 2: Petitioner and Dr. Stevenson Fail to Establish That Claims 1-3, 7-13, And 17-20 Are Anticipated by Guo

102. Petitioner and Dr. Stevenson have not shown by a preponderance of the evidence that Ground 2 renders claims 1-3, 7-13, and 17-20 unpatentable because Guo does not disclose each and every limitation of the challenged claims,

as required for anticipation. Dr. Stevenson has not shown that Guo teaches at least elements [1a], [1k], and [1l] (and comparable elements of claim 11), as required for each of these claims. Additionally, because dependent claims 2-3, 7-8, 10, 12-13, 17-18, and 20 depend from claims that Petitioner and Dr. Stevenson have not shown to be unpatentable, Petitioner and Dr. Stevenson have also failed to show that claims 2-3, 7-8, 10, 12-13, 17-18, and 20 are unpatentable by Guo.

1. Guo Fails to Disclose Limitation [1a]

103. Dr. Stevenson has not shown that Guo discloses limitation [1a]: “wireless communication circuitry configured to communicate with a display apparatus, the wireless communication circuitry being configured to transmit, while the wireless communication is connected to the display apparatus after a new connection is established, a first request message and a second request message to the display apparatus.” Dr. Stevenson contends that Guo’s disclosure of EDID requests over a backward channel satisfies this limitation. *See* EX1003, Stevenson Decl., ¶¶ 149-153. Specifically, Dr. Stevenson argues that a “second request message” is transmitted when there is a new transition on the HPD signal, such as when “the video sink device... is powered on, and/or an HDMI cable is plugged in.” *Id.* at ¶ 153. This mapping fundamentally contradicts the claim language, because Guo does not disclose transmitting both a first request message and a second request message **after a new connection is established**.

104. The claim explicitly requires transmitting both the first and second requests “while the wireless communication is connected following the

establishment of a new connection. Dr. Stevenson's mapped triggers for the second request, namely power cycling the device or physically unplugging and re-plugging an HDMI cable, inherently require terminating the original connection. Therefore, Guo's second request as identified by Dr. Stevenson does not occur "while the wireless communication is connected" under the first connection, but rather as a result of initiating an entirely separate, subsequent connection.

105. As I explained earlier, this understanding of limitation [1a] is also consistent with the practical role of "while" in the '681 Patent's specification. The specification explains that, after the video transmitter apparatus obtains and stores EDID, the CPU determines optimal video/audio transmission formats based on the stored EDID, controls the signal source to produce the corresponding video/audio signals, and transmits those video/audio signals to the video receiver apparatus. EX1001, 4:40-57. The specification further explains that while there is video/audio transmission in place ("after a new connection is established with the display apparatus") the transmitter later may need to confirm whether the stored EDID remains current; to do so, it sends an EDID request with a stored revision value, and if the revision values match, the receiver reports "no change" rather than retransmitting EDID. EX1001, 5:59-6:14; 6:30-7:8. This matters because EDID transmission requires relatively large transmission capacity and may prevent ensuring or maintaining the transmission capacity needed for video/audio signals; by avoiding transmitting the EDID unless there is indeed an

EDID change, the disclosed system avoids influence on the ongoing video/audio transmission. EX1001, 6:14-25.

106. In contrast, the Guo process relied on by Dr. Stevenson is an EDID pass-through procedure triggered by initialization-type events which may also include error recovery. Guo explains that the ASMI 111 reads EDID after detecting a low-to-high HPD transition, which may occur when the ASMI 111 is powered on, the video sink device is powered on, or an HDMI cable is plugged in, including a change of connection from one sink device to another. EX1005, [0126]; *see also* EX1003, Stevenson Decl., ¶¶ 149-153. Guo then sends an EDID AVAILABLE packet, the source-side ASMI sends a REQUEST packet, the sink-side ASMI sends EDID packets, and the source-side ASMI requests the EDID data again only if errors are detected, until all data is received correctly. EX1005, [0127], Fig. 4b; *see also* EX1003, Stevenson Decl., ¶¶ 173-176. Guo further describes holding HPD low until successful EDID reading is complete as the “normal power on procedure.” EX1005, [0128]. Thus, Guo’s EDID request is tied to power-on/connection-change initialization or retransmission of the same EDID request for error recovery, not to a later first and second request message sent while an already-established wireless connection remains active to monitor whether EDID has changed. For this additional reason, Guo does not disclose the “while the wireless communication is connected ... after a new connection is established” aspect of limitation [1a].

107. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that Guo anticipates limitation [1a].

2. Guo Fails to Disclose Limitation [1k]

108. Dr. Stevenson further has not shown that Guo discloses limitation [1k]: “**when a predetermined condition is met**, transmit, to the display apparatus via the wireless communication circuitry, **the second request message together with a second number which is different from the first number.**” In addition to relying on the power-on events that I addressed above in relation to limitation [1a], Dr. Stevenson relies on Guo’s discussion of repeating EDID requests when an “error [is] detected” (such as a CRC mismatch), asserting that these various behaviors satisfy the claimed “predetermined condition” and “second request message.” See EX1003, Stevenson Decl., ¶¶ 173-176. That showing is deficient.

109. Guo merely describes protocol-level error recovery during EDID transmission. EX1005, [0126]-[0127]. Specifically, Guo explains that if a locally computed CRC value does not match a received CRC value, “an error is inferred and the EDID request is repeated.” *Id.* This disclosure reflects automatic retransmission dictated by the ASMI protocol, not a predetermined condition evaluated by control circuitry of a video transmitting apparatus as required by claim 1. Nothing in Guo describes defining, storing, or evaluating a predetermined condition that governs whether a second request message is transmitted. Instead, Guo’s retransmission behavior is mandatory protocol logic

that applies uniformly whenever an error occurs. *Id.* Such protocol-driven retry logic does not satisfy the claim requirement that a predetermined condition be met before transmitting a second request message. Therefore, Dr. Stevenson improperly relies on a network malfunction during the initial EDID download to manufacture this claim limitation. A CRC error does not satisfy the claimed “predetermined condition” especially when read in the context of the ’681 Patent. The specification explicitly teaches that this condition triggers the second request to verify whether a successfully stored EDID has changed while the established connection remains active. EX1001, 5:59-6:13. Guo’s error retry, however, occurs precisely because the initial EDID was never successfully received in the first place. If the initial EDID reception in Guo is successful, the device remains silent. EX1005, [0126]-[0127]. Because Guo’s error retry is merely an attempt to successfully complete the initial data transfer, rather than a deliberate “second request message” sent to monitor an established connection for capability updates, it fundamentally fails to satisfy this limitation.

110. Further, Guo does not disclose “the second request message together with a second number which is different from the first number.” Rather, Guo describes retransmitting the same EDID request packet until transmission succeeds. *Id.* A conditional retransmission of an identical protocol packet due to an error is not a distinct second request message within the meaning of claim 1. Dr. Stevenson’s attempt to characterize protocol retry behavior as a claim-level

control decision impermissibly conflates transport-layer error handling with the deliberate control logic recited in the '681 Patent.

111. Dr. Stevenson's deposition testimony confirms that his Guo theory treats generic packet-level fields as the alleged request-message numbers. For limitation [11], Dr. Stevenson testified that the first message is an EDID request packet, that the first number is either the packet sequence number or timestamp associated with that request, that the second request message is a subsequent (retried) EDID request packet, and that the subsequent EDID request has its own packet sequence number. EX2019, 30:10-31:5. He further testified that the Guo sequence numbers are determined by "increment[ing]" a counter that keeps track of packet sequence numbers and that the two packet numbers depend on the packets sent in between. EX2019, 31:6-13. That testimony supports my opinion that Guo discloses transport-level packet fields, not a request-level numbering scheme in which one request-message number is generated by increasing the other.

112. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that Guo anticipates limitation [1k].

3. Guo Fails to Disclose Limitation [11]

113. Dr. Stevenson has not shown that Guo discloses limitation [11]: "wherein one of the first number transmitted with the first request message and the second number transmitted with the second request message is generated by increasing the other of the first number and the second number by an arbitrary

number,” which the Examiner also found missing from the prior art. Dr. Stevenson relies on Guo’s disclosure of packet sequence numbers, timestamps, and CRC values as allegedly satisfying the claimed numbering requirement. See EX1003, Stevenson Decl., ¶¶ 177-180. That reliance is misplaced.

114. The fundamental flaw in Dr. Stevenson’s mapping is causality. The claim explicitly requires “generated by increasing the other of the first number and the second number by an **arbitrary number**”. Neither of Dr. Stevenson’s proposed values in Guo (timestamps or packet sequence numbers) operates this way. Most importantly, Guo discloses only transport-level packet fields that increment or change according to protocol rules, but does not disclose generation of one request-level number by increasing another request-level number, as required by claim 1. EX1005, [0094]. Also, Guo’s timestamps are derived from a clock and monotonically increase according to system timing. EX1005, [0086]-[0088]. These values are not generated by increasing another number by an arbitrary amount, nor are they associated with first and second request messages as required by the claim. Dr. Stevenson attempts to rely on the ’681 Patent’s embodiment, which describes incrementing by one, to argue that Guo’s increment-by-one scheme satisfies the claim. See EX1003, Stevenson Decl., ¶¶ 178-180. But this improperly imports an embodiment into the claim. The claim requires that one number “is generated by increasing the other,” which Guo does not disclose.

115. Furthermore, Dr. Stevenson's timestamp theory fails because timestamps are generated by the passage of time, not by the first request message. At deposition, he admitted that the timestamp is based on a system clock or timer, and that in a digital system a timer may be represented by a register updated by hardware. EX2019, 31:14-23; 35:3-24; 36:2-12. He also testified that the EDID request is the output formed by putting together timestamp bits, a code, and packet information. EX2019, 36:14-37:5. This testimony confirms that the second timestamp is not generated by increasing the prior EDID-request timestamp; rather, it is a separate transport/timing field independently generated by a hardware clock.

116. Dr. Stevenson's sequence number theory fails for the exact same reason. Nothing in Guo discloses a request-level numbering scheme in which one request number is generated by increasing another request number by an arbitrary number. At most, Guo discloses transport-level packet numbering and error-detection values that operate independently of any request-message control logic.

117. The "second number" requirement cannot be satisfied merely by invoking Guo's packet sequence numbers or timestamps. Dr. Stevenson's logic assumes that a repeated EDID REQUEST packet would include a later packet sequence number or later timestamp and therefore a second number different from the first. See EX1003, Stevenson Decl., ¶¶ 173-180. But Guo's packet sequence number is a transport-level packet field that is "incremented by one for each packet transmitted at the source," and its timestamps record the relative time

at which control-signal changes take place. EX1005, [0087], [0094]. Those disclosures do not show that the number transmitted with an alleged second EDID request is generated from the number transmitted with an alleged first EDID request. At most, they show independently generated transport fields governed by packet sequencing or timing, not a request-message number generated by increasing another request-message number.

118. This point is important because Guo’s alleged sequence numbers do not satisfy the claimed “generated by increasing the other of the first number and the second number by an **arbitrary number**” under Dr. Stevenson’s theory. Generally speaking, the sequence counter increments for every packet sent over the network (e.g., video, audio, or other data), and therefore the sequence number attached to a subsequent EDID request is entirely dependent on how many unrelated packets were transmitted in the interim. EX1005, [0094]; *see also* EX1003, Stevenson Decl., ¶¶ 177-180. The later packet number merely reflects a running tally of the number of intervening packets, not a number generated from the prior EDID-request number. Guo’s timestamp theory fails for the same reason: timestamps are derived from an independent hardware clock running between the two requests, not generated from the number transmitted with a prior request message. EX1005, [0087]. Guo therefore does not disclose the required “generated by increasing the other of the first number and the second number by an **arbitrary number**”.

119. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that Guo anticipates limitation [11].

4. Petitioner's and Dr. Stevenson's Inconsistent Claim Construction Positions Independently Reinforce My Opinions

120. As I stated in Section VI above, I have analyzed the claims under their plain and ordinary meaning. However, I have been informed by counsel that in parallel district court litigation involving the same patent and the same claim language, Petitioner construes this limitation to mean “by adding an arbitrary number to the other of the first number and the second number.” EX2016 at 6. Even setting aside Petitioner's inconsistent claim-construction positions, Dr. Stevenson still fails to establish that Guo discloses the limitation “by increasing the other of the first number and the second number by an arbitrary number” under any construction, including Petitioner's own.

121. Under Petitioner's district-court construction, the claim requires that one transmitted number be generated by adding an arbitrary number to another transmitted number. Guo does not disclose this. As discussed above, Guo merely describes transport-level packet fields, timestamps, or CRC values that increment according to protocol rules or system timing. EX1005, [0094]; EX1005, [0086]-[0088]. As I explained, reading the current state of an independent, globally running clock, or packet sequence is not a mathematical addition operation applied to the first transmitted number. Guo does not disclose generating one transmitted number by adding an arbitrary number to another transmitted number,

nor does it tie any transmitted number to another transmitted number through such an addition operation. Dr. Stevenson’s reliance on generalized statements that counters or timestamps “increment” does not satisfy even Petitioner’s own district-court articulation of the claim language.

122. An internal counter, timestamp, or protocol-defined sequence field that updates independently of the request messages is not disclosure of adding an arbitrary number to one transmitted number to generate another transmitted number, as the construction requires. While Guo discloses transmitting generic sequence and timing fields, it never identifies a mechanism by which one transmitted number is generated from the other by addition of an arbitrary number.

123. For these reasons, Petitioner’s and Dr. Stevenson’s inconsistent claim-construction positions reinforce my opinion that Guo does not anticipate the challenged claims.

5. Guo Fails to Disclose Claims 2-8

124. Claims 2-8 depend from claim 1 and incorporate its limitations. Because Guo does not disclose multiple limitations of claim 1, including at least limitations [1a], [1k], and [1l], it cannot anticipate claims 2-8. To the extent Dr. Stevenson relies on Guo’s disclosure of CRC values or EDID data storage to address certain dependent claims, those disclosures do not remedy the absence of the required request-message numbering scheme or the claimed control logic. See EX1003, Stevenson Decl., ¶¶ 181-190. Accordingly, Petitioner and Dr.

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Stevenson have not shown by a preponderance of the evidence that Guo anticipates claims 2-8. Specifically regarding claims 7 and 8, Dr. Stevenson introduces a fundamentally flawed theory: he maps the “third number” to the EDID data payload, and the “fourth number” to a Cyclic Redundancy Check (CRC) value. See EX1003, Stevenson Decl., ¶¶ 186-193. First, as I explained in relation to Funabiki, a complex EDID capability payload is not the specific “number” as required by the claims. Second, Dr. Stevenson argues that the display apparatus “changes” the EDID data into the CRC value. This misrepresents basic networking principles. A CRC algorithm calculates a supplementary error-detection value from a data payload; it does not change the underlying data into a CRC. In fact, Dr. Stevenson admits, and Guo explicitly states, that the CRC is transmitted along with the EDID data. EX1005, [0111], [0127]. Calculating and appending a checksum to a payload is not “changing” a third number to a fourth number as strictly required by claim 8.

6. Guo Fails to Disclose Claims 9-20

125. Dr. Stevenson similarly fails to establish anticipation of claims 9-20. Claims 9 and 11 are independent claims, yet Dr. Stevenson provides no meaningful claim-specific analysis for these claims. Instead, Dr. Stevenson repeatedly asserts that “Guo discloses this claim element” and incorporates prior sections by reference. See EX1003, Stevenson Decl., ¶¶ 194-244. This conclusory approach is insufficient, particularly where Dr. Stevenson’s analysis of claim 1 is deficient.

126. Because Guo does not disclose the control-circuitry logic, request-message numbering, or number-generation requirements recited in claim 1, and because Dr. Stevenson does not explain how Guo independently satisfies the distinct limitations of claims 9 and 11, anticipation is not established. Furthermore, Dr. Stevenson's incorporated arguments fail to satisfy the unique "third number" and "fourth number" limitations across these claims. For claims 17 and 18, which require a third number to be "changed to a fourth number," his mapping fails for the exact same reasons discussed for claims 7 and 8: appending a CRC error-check to an EDID payload does not "change" the underlying data into a CRC. Similarly, for independent claim 9 and dependent claim 19, which require the fourth number to be "generated by the display apparatus based on the third number," his theories fail for lack of causality. Whether relying on CRC calculations, independent hardware clocks, or global packet tallies, Guo's display apparatus simply does not perform the claimed mathematical generation of a fourth number based on a third number.

127. Accordingly, because Petitioner and Dr. Stevenson have not met their burden to establish anticipation of claim 1, and because they have not established the additional requirements of the remaining independent and dependent claims, they fail to show by a preponderance of the evidence that claims 1-3, 7-13, and 17-20 are anticipated by Guo.

C. **Ground 3: Petitioner and Dr. Stevenson Fail to Establish That Claims 3 And 13 Would Have Been Obvious Over Funabiki and Guo**

128. Petitioner and Dr. Stevenson have not demonstrated by a preponderance of the evidence that Ground 3 renders claims 3 and 13 unpatentable because the proposed combination of Funabiki and Guo does not disclose, teach, or suggest the limitations of claims 1 and 11 from which claims 3 and 13 depend. As discussed above in Grounds 1 and 2, neither Funabiki nor Guo discloses the request-message sequencing and numbering requirements recited in claim 1, including limitations [1k] and [1l]. Guo does not cure those deficiencies, and Dr. Stevenson's combination relies on impermissible hindsight.

1. **Petitioner and Dr. Stevenson Fail to Show That the Combination of Funabiki and Guo Discloses Claim 3**

129. Claim 3 depends from claim 1 and further recites that the predetermined condition is met when identification information for wireless communication received from the display apparatus matches identification information stored in the memory. Dr. Stevenson asserts that Funabiki discloses this limitation because Funabiki describes an authentication process between a sink device and a source device, and contends that completion of that authentication process satisfies the claimed predetermined condition. See EX1003, Stevenson Decl., ¶¶ 245-250. That assertion does not withstand scrutiny.

130. Even assuming *arguendo* that Funabiki discloses a predetermined condition based on authentication completion, claim 3 still incorporates all limitations of claim 1, including the requirement that, when the predetermined condition is met, the control circuitry transmits a second request message together with a second number different from the first number, and that one of the first number and the second number is generated by increasing the other by an arbitrary number. Dr. Stevenson does not show that Funabiki discloses those limitations.

131. Funabiki describes an authentication completion signal transmitted from the sink device to the source device at the conclusion of an authentication process. *See* EX1003, Stevenson Decl., ¶¶ 245-248; EX1004, [0058–0059]; Figs. 5–8. But an authentication completion signal is not a “second request message,” nor is it transmitted together with a second number as required by claim 1. Funabiki’s authentication completion signal merely indicates that authentication has completed successfully. It does not request anything from the display apparatus, nor does it initiate a request sequence governed by numbered request messages. At most, Funabiki discloses a state-transition signal, not a request message transmitted in response to a predetermined condition as required by limitation [1k].

132. Dr. Stevenson attempts to bridge this gap by proposing to modify Funabiki to include a sequence number in the authentication completion signal,

relying on Guo's disclosure of HDCP packet sequence numbers. *See* EX1003, Stevenson Decl., ¶¶ 247-250. That proposal is not supported by the prior art.

133. Guo's disclosure of sequence numbers arises in the context of HDCP packet headers, where sequence numbers are used to ensure proper ordering and synchronization of encrypted packets. EX1005, [0122]. Those sequence numbers are protocol-defined and are used for packet ordering within a secure transport channel. Guo does not disclose using sequence numbers in request messages, does not disclose first and second request messages, and does not disclose generating a second request number by increasing a first request number by an arbitrary number.

134. Dr. Stevenson's deposition testimony reinforces that Guo's sequence numbers are packet-synchronization fields, not request-message numbers generated in the manner claimed. He testified that Guo's "sequence number" is a "packet sequence number" and part of the packet header information in a packetized communication protocol. EX2019, 18:17-25. He further testified that the sequence number is used so the devices can verify order and match responses to requests, and that Guo uses packet sequence numbers for synchronization of encrypted packets in HDCP over ASMI. EX2019, 18:1-8; 19:22-20:7. That testimony is consistent with my opinion that importing Guo's HDCP packet sequencing into Funabiki would at most add packet-ordering information, not the claimed request-message numbering scheme.

135. Furthermore, as I detailed in Ground 2 regarding limitation [11], the fundamental flaw with relying on Guo's sequence numbers is causality. Dr. Stevenson's proposed modification would require reengineering Funabiki's authentication signaling to incorporate Guo's HDCP packet sequencing and then further repurposing that continuous global packet counter to serve as the claimed causal request-message numbering scheme. Neither reference teaches or suggests such a modification.

136. Dr. Stevenson asserts that a POSITA would have been motivated to incorporate Guo's HDCP protocol into Funabiki to increase security. *See* EX1003, Stevenson Decl., ¶¶ 249-250. But even if HDCP were incorporated into Funabiki, that incorporation would not result in the claimed behavior. HDCP sequence numbers ensure packet order and synchronization. EX1005, [0122]. They do not create a system in which a second request message is transmitted when a predetermined condition is met, nor do they generate a second request number by increasing a first request number by an arbitrary number. Security motivation does not supply missing claim limitations.

137. Dr. Stevenson also did not identify a Funabiki-specific teaching or problem that would support repurposing Guo's packet-sequencing fields as the claimed request-message numbers. When asked whether Funabiki expressed a need to ensure greater security, Dr. Stevenson answered that he had not reviewed Funabiki with that exact question in mind. EX2019, 22:2-10. When asked whether he recalled the problem Funabiki set out to solve, he answered, "Not off

the top of my head,” and after reviewing Funabiki paragraph 5, characterized the problem as part of establishing a communication channel so video can be sent in the right format. EX2019, 23:12-24:5. He also testified that he did not specifically try to ascertain what Funabiki independently invented. EX2019, 24:25-25:9. This testimony further supports my opinion that Dr. Stevenson’s combination uses Guo as a toolbox to retrofit missing claim elements into Funabiki after the fact.

138. Therefore, combining a non-request state-transition signal (Funabiki) with an independent packet synchronization counter (Guo) does not magically yield the claimed system. A POSITA would not look to a secure transport protocol to convert a simple authentication signal into the deliberate, numbered request-message control sequence required by the claims. Dr. Stevenson’s rationale uses Guo as a toolbox to retrofit missing claim elements into Funabiki after the fact. That is impermissible hindsight.

139. Because the Funabiki-Guo combination does not disclose limitations [1k] and [1l], Petitioner and Dr. Stevenson fail to show that claim 1 is unpatentable. Claim 3, which depends from claim 1, therefore also cannot be rendered obvious. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that claim 3 would have been obvious over Funabiki and Guo.

2. Petitioner and Dr. Stevenson Fail to Show That the Combination of Funabiki and Guo Discloses Claim 13

140. Claim 13 depends from claim 11, which itself recites a method version of the same core limitations found in claim 1, including transmitting a second request message together with a second number different from a first number when a predetermined condition is met. Dr. Stevenson's challenge to claim 13 simply incorporates his arguments for claim 3 and asserts that the same Funabiki-Guo combination renders the method obvious. See EX1003, Stevenson Decl., ¶ 251. That argument fails for the same reasons as claim 3.

141. Neither Funabiki nor Guo discloses a method in which, upon satisfaction of a predetermined condition, a second request message is transmitted together with a second number generated by increasing a first number by an arbitrary number. As explained above, Funabiki's authentication completion signaling does not constitute a request message, and Guo's HDCP sequence numbers and timestamps are not request numbers and are not arbitrarily generated. Because Petitioner and Dr. Stevenson have not shown that the combination discloses the limitations of independent claim 11, they likewise fail to show that dependent claim 13 is unpatentable.

142. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that claim 13 would have been obvious over Funabiki and Guo.

D. Ground 4: Petitioner and Dr. Stevenson Fail to Establish That Claims 6 And 16 Would Have Been Obvious Over Funabiki, Guo, and Fastert

143. Petitioner and Dr. Stevenson have not demonstrated by a preponderance of the evidence that Ground 4 renders claims 6 and 16 unpatentable because the proposed combination of Funabiki, Guo, and Fastert does not disclose, teach, or suggest the limitations of claims 1 and 11 from which claims 6 and 16 depend.

1. Petitioner and Dr. Stevenson Fail to Show That the Combination of Funabiki, Guo, and Fastert Discloses Claim 6

144. Claim 6 depends from claim 1 and further requires that “the control circuitry is further configured to transmit the first request message with the first number or the second request message with the second number periodically to the display apparatus via the wireless communication circuitry.” As discussed above with respect to claim 1, Petitioner and Dr. Stevenson have not shown that Funabiki and Guo disclose the claimed numbered request-message structure. Dr. Stevenson does not contend that Funabiki or Guo alone discloses periodically transmitting the claimed request messages. *See* EX1003, Stevenson Decl., ¶¶ 252-257. Instead, Dr. Stevenson relies on Fastert to supply the “periodically” limitation. *Id.*

145. Fastert does not disclose transmitting the first request message with the first number or the second request message with the second number periodically, as required by claim 6. Fastert discloses a content delivery system

in which a content source periodically issues transmission capabilities/quality queries to determine whether to adjust content delivery parameters, such as data rate. EX1006, Fig. 3, [0043]-[0046]. These periodic exchanges involve repeating a transmission capabilities/quality query so that the content source can decide whether to reformat content in response to changes in link quality. *Id.* Fastert does not disclose transmitting different request messages that include different numbers, nor does it disclose alternating between a first request message with a first number and a second request message with a second number. *Id.*

146. Dr. Stevenson asserts that Fastert's disclosure renders it obvious to "transmit the EDID requests of Funabiki and Guo periodically." See EX1003, Stevenson Decl., ¶¶ 255-257. But Dr. Stevenson does not identify any disclosure in Fastert describing the claimed numbered request messages, nor does he explain how Fastert's periodic transmission capabilities/quality queries correspond to the specific request messages recited in claim 6. *Id.* Nor does Dr. Stevenson explain how a POSITA would modify Funabiki or Guo to implement the claimed periodic transmission of the first request message with the first number or the second request message with the second number, as opposed to merely repeating a generic capabilities query. *Id.*

147. Dr. Stevenson's argument impermissibly treats Fastert's link-quality polling mechanism as interchangeable with the specific numbered request-message structure recited in claim 6, without support in the cited disclosures. *Id.*

148. Finally, Dr. Stevenson’s assertion that the proposed modification would involve “only routine skill in the art” and would yield “predictable results” is conclusory and unsupported. *Id.* Because Petitioner and Dr. Stevenson have not shown that Fastert discloses or suggests the claimed numbered request messages, they have not shown that the combination of Funabiki or Guo with Fastert discloses claim 6.

149. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that claim 6 would have been obvious over Funabiki, Guo, and Fastert.

2. Petitioner and Dr. Stevenson Fail to Show That the Combination of Funabiki, Guo, and Fastert Discloses Claim 16

150. Claim 16 depends from claim 11, which itself recites a method version of the same core limitations found in claim 1. Specifically, claim 16 recites a method corresponding to claim 6 and similarly requires “transmitting the first request message with the first number or the second request message with the second number periodically to the display apparatus via the wireless communication circuitry.” Dr. Stevenson relies on the same Fastert disclosures and the same reasoning for claim 16 as for claim 6. *See* EX1003, Stevenson Decl., ¶ 258. For the reasons discussed above, Fastert does not disclose periodically transmitting the claimed first or second request messages with corresponding first and second numbers. EX1006, Fig. 3, [0043]-[0046].

151. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that claim 16 would have been obvious over Funabiki, Guo, and Fastert.

E. Ground 5: Petitioner and Dr. Stevenson Fail to Establish That Claims 1-2, 4-5, 7, 11-12, 14-15 AND 17 Would Have Been Obvious in View of E-DDC Standard and Fastert

152. Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that Ground 5 renders claims 1-2, 4-5, 7, 11-12, 14-15, and 17 unpatentable because E-DDC Standard in view of Fastert does not teach each and every element of independent claims 1 and 11 or their asserted dependents. In particular, E-DDC Standard in combination with Fastert does not teach limitations [1h]-[1l] (and comparable limitations of claim 11). Additionally, because dependent claims 2, 4-5, 7, 12, 14-15, and 17 depend from independent claims that Petitioner and Dr. Stevenson have not shown to be unpatentable, Petitioner and Dr. Stevenson have also failed to show that claims 2, 4-5, 7, 12, 14-15, and 17 are unpatentable over E-DDC Standard in view of Fastert.

1. No Motivation to Combine E-DDC with Fastert

153. Dr. Stevenson fails to establish any motivation for a POSITA to combine E-DDC Standard with Fastert in the manner required by claim 1. E-DDC Standard is directed to low-level display identification and configuration signaling over a dedicated display data channel between a host and a display device. EX1007, 1. Its purpose is to enable basic display compatibility, not adaptive content delivery or network-based streaming. By contrast, Fastert is

directed to adaptive multimedia content delivery over a networked environment, focusing on content format selection and delivery based on device or transmission capabilities. EX1006, [0040]-[0046]. Fastert operates at a fundamentally different architectural layer and addresses different technical problems than E-DDC.

154. Dr. Stevenson does not explain why a POSITA would have been motivated to modify the tightly specified E-DDC protocol—designed for deterministic, low-latency display configuration—by incorporating Fastert’s high-level adaptive streaming framework. Nor does Dr. Stevenson explain how Fastert’s content-delivery mechanisms would be integrated into E-DDC’s rigid request-response structure without fundamentally altering E-DDC’s operation.

155. Moreover, combining Fastert with E-DDC would undermine E-DDC’s purpose by introducing unnecessary complexity into a protocol intended for simple, standardized display identification and configuration. Nothing in either reference suggests such a modification, and Dr. Stevenson relies only on hindsight to assert compatibility.

156. Accordingly, Petitioner and Dr. Stevenson have not shown by a preponderance of the evidence that a POSITA would have been motivated to combine E-DDC Standard and Fastert, nor that such a combination would have been straightforward or predictable.

2. E-DDC Standard in view of Fastert Fails to Disclose Limitation [1h]

157. Dr. Stevenson has not shown that E-DDC Standard in combination with Fastert discloses limitation [1h]: “determine at least one parameter relating to the audio/video signal stream based on the received capability information relating to the display apparatus.” Dr. Stevenson contends that E-DDC Standard and Fastert disclose determining at least one parameter relating to the audio/video signal stream based on received capability information. *See* EX1003, Stevenson Decl., ¶¶ 285-287. This contention is unsupported.

158. E-DDC Standard explains that configuration information (e.g., EDID) is exchanged to enable “plug & play” operation and allow optimum use of the display. EX1007, 1. E-DDC thus discloses that a host may use EDID information to configure its output to match display capabilities, which Dr. Stevenson characterizes as determining parameters relating to an audio/video signal stream. *See* EX1003, Stevenson Decl., ¶¶ 285-286. However, E-DDC does not disclose the claimed determination performed by control circuitry of at least one parameter relating to the audio/video signal stream in the manner recited in claim 1. E-DDC describes high-level configuration usage, not the claimed control-logic determination triggered by receipt of capability information via the claimed request-message process.

159. Dr. Stevenson additionally relies on Fastert to supply this limitation. *See* EX1003, Stevenson Decl., ¶ 287. But Fastert does not remedy E-DDC’s

deficiencies. Fastert describes a content source that may select a content format or adjust content delivery based on transmission or device capabilities. EX1006, [0040]-[0046]. This disclosure relates to adaptive content delivery at an architectural level, not to control circuitry determining audio/video signal stream parameters in response to capability information received via the claimed request-message sequence. *Id.*

160. Critically, Fastert does not disclose: (1) the claimed request messages, (2) the numbered requests and responses, or (3) control circuitry performing the claimed determination as part of the recited apparatus. Dr. Stevenson improperly equates Fastert's discussion of content format selection with the claimed determination of audio/video signal stream parameters, without explaining how Fastert satisfies the claim language. Such conclusory substitution is insufficient.

161. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that E-DDC Standard in view of Fastert discloses limitation [1h].

3. E-DDC Standard in view of Fastert Fails to Disclose Limitation [1i]

162. Dr. Stevenson has not shown that E-DDC Standard in combination with Fastert discloses limitation [1i]: "cause the audio/video signal generation circuitry to generate the audio/video signal stream based on the determined at least one parameter relating to the audio/video signal stream." Dr. Stevenson

asserts that E-DDC and Fastert disclose causing generation of an audio/video signal stream based on the determined parameter. See EX1003, Stevenson Decl., ¶¶ 288-290. Again, Dr. Stevenson overstates the disclosures.

163. E-DDC merely explains that configuration information may be used by a host to transmit audio/video signals compatible with a display. EX1007, 1. It does not disclose control circuitry that causes audio/video signal generation circuitry to generate the signal stream based on a parameter determined in the manner recited in claim 1.

164. Fastert's discussion of content delivery initiation similarly lacks the claimed structure and ordered relationship between receiving capability information, determining a parameter, and causing generation of the audio/video signal stream. EX1006, [0040]. At most, Dr. Stevenson identifies high-level functional overlap, which is insufficient to establish obviousness.

165. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that E-DDC Standard in view of Fastert discloses limitation [1i].

4. E-DDC Standard in view of Fastert Fails to Disclose Limitation [1j]

166. Dr. Stevenson has not shown that E-DDC Standard in combination with Fastert discloses limitation [1j]: "transmit the generated audio/video signal stream to the display apparatus via the **wireless** communication circuitry." Dr. Stevenson contends that E-DDC and Fastert disclose transmitting the generated

audio/video signal stream to the display apparatus via wireless communication circuitry. *See* EX1003, Stevenson Decl., ¶¶ 291-292. This contention fails because E-DDC is a wired standard that describes DDC/E-DDC communication over physical interfaces. EX1007 at 19-20, 28.

167. Dr. Stevenson points to the E-DDC Standard as allegedly transmitting an audio/video signal stream to a display, but does not explain how a wired E-DDC standard would perform that transmission “via the wireless communication circuitry,” as required by the claim. *See* EX1003, Stevenson Decl., ¶¶ 291-292. Instead, Dr. Stevenson relies on a POSITA to combine the teachings of the E-DDC Standard with Fastert, which allegedly implements E-DDC. *See* EX1003, Stevenson Decl., ¶¶ 288-290. But Fastert’s disclosure of E-DDC is limited to wired communication, and Fastert nowhere discloses using E-DDC for wireless communication. EX1006, [0055]. Even in combination, these references fail to disclose transmission of the generated audio/video signal stream via wireless communication circuitry, as explicitly required by claim 1. Dr. Stevenson’s attempt to gloss over this distinction impermissibly ignores express claim language and would require rewriting the claim to remove the wireless limitation.

168. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that E-DDC Standard in view of Fastert discloses limitation [1j].

5. E-DDC Standard in view of Fastert Fails to Disclose Limitation [1k]

169. Dr. Stevenson further has not shown that E-DDC in view of Fastert discloses limitation [1k]: **“when a predetermined condition is met, transmit, to the display apparatus via the wireless communication circuitry, the second request message together with a second number which is different from the first number.”** Dr. Stevenson identifies checksum validation and EDID extension detection as the alleged “predetermined condition,” and characterizes a subsequent EDID read as the claimed “second request message.” See EX1003, Stevenson Decl., ¶¶ 293-296. That characterization is incorrect.

170. The E-DDC Standard describes a mandatory, linear EDID read procedure, not a control-logic decision that conditionally triggers transmission of a second request message. After reading the base EDID, the host checks a predefined extension flag, and if the flag is nonzero, reads an extension block at a predefined address. EX1007, 18-20. This behavior is a protocol-required continuation of the same EDID read operation, not a separate control decision that causes transmission of a second request message “when a predetermined condition is met,” as limitation [1k] requires.

171. Claim 1 requires that, when a predetermined condition is met, the control circuitry transmits a “second request message together with a second number which is different from the first number.” The predetermined condition is part of the claimed control logic governing message transmission, not merely

validation or parsing of received data. E-DDC's checksum checking and extension flag detection merely describe verification and interpretation of received EDID data; they do not disclose a control decision that triggers transmission of a second request message as claimed. EX1007, 18-20.

172. Nor does the E-DDC Standard disclose transmitting a second request message together with a second number via wireless communication circuitry. The start addresses identified by Dr. Stevenson (e.g., 00h and 80h) are protocol-defined addresses, not numbers generated or transmitted by control circuitry in response to a predetermined condition. *See* EX1003, Stevenson Decl., ¶¶ 293-296. Fastert likewise does not disclose this limitation. Fastert discusses obtaining updated EDID information but does not disclose a predetermined condition that triggers a second request message with a second number generated and transmitted in the claimed manner. EX1006, [0040]-[0041].

173. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that E-DDC Standard in view of Fastert discloses limitation [1k].

6. E-DDC Standard in view of Fastert Fails to Disclose Limitation [1l]

174. Dr. Stevenson has not shown that E-DDC in view of Fastert discloses limitation [1l]: “wherein **one of the first number transmitted with the first request message and the second number transmitted with the second request message** is generated by increasing the other of the first number and the

second number **by an arbitrary number.**” Dr. Stevenson asserts that E-DDC discloses generating the second number by incrementing a word offset (e.g., 80h). See EX1003, Stevenson Decl., ¶¶ 297-299. This argument again mischaracterizes the claim.

175. Claim 1 requires that one number “is generated by increasing the other.” This requirement concerns how the claimed numbers are generated by increasing the other, not merely the presence of predefined protocol fields. E-DDC’s predefined start addresses (e.g., 00h, 80h) are fixed values dictated by the standard and do not disclose generation of one request-level number by increasing another request-level number, as required by the claim. EX1007, 20. Neither E-DDC nor Fastert discloses the claimed generation, and Dr. Stevenson offers no explanation reconciling his position with the claim language.

176. For these reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that E-DDC Standard in view of Fastert discloses limitation [11].

7. Petitioner’s and Dr. Stevenson’s Inconsistent Claim Construction Positions Independently Reinforce My Opinions

177. Even setting aside Petitioner’s inconsistent claim-construction positions, Dr. Stevenson still fails to establish that E-DDC in view of Fastert discloses the limitation “by increasing the other of the first number and the second number by an arbitrary number” under any construction. In parallel district court litigation involving the same patent and the same claim language, Petitioner

construes this limitation to mean “by adding an arbitrary number to the other of the first number and the second number.” EX2016 at 6. Even under this articulated construction, E-DDC in view of Fastert fails to disclose the claimed requirement.

178. Under Petitioner’s district-court construction, the claim requires that one transmitted number be generated by adding an arbitrary number to another transmitted number. E-DDC does not disclose this. As discussed above, E-DDC merely specifies predefined start addresses or offsets dictated by the standard (e.g., 00h, 80h). EX1007 at 18-20. It does not disclose generating one transmitted number by adding an arbitrary number to another transmitted number, nor does it tie any transmitted number to another transmitted number through such an addition operation. Fastert does not cure this deficiency. Fastert discusses obtaining EDID information using E-DDC but does not disclose generating one transmitted number by adding an arbitrary number to another transmitted number. EX1006, [0040]-[0041].

179. Neither reference identifies (1) a first transmitted number, (2) a second transmitted number, or (3) a mechanism by which one transmitted number is generated from the other by addition of an arbitrary amount. Dr. Stevenson’s reliance on generalized statements that protocol-defined offsets or address values “increment” does not satisfy even Petitioner’s own district-court articulation of the claim language. A protocol-defined offset or predefined address is not

disclosure of adding an arbitrary number to one transmitted number to generate another transmitted number, as the construction requires.

180. Accordingly, Petitioner's and Dr. Stevenson's inconsistent claim-construction positions reinforce my opinion that E-DDC Standard in view of Fastert does not render the challenged claims unpatentable.

181. For at least the foregoing reasons, Petitioner and Dr. Stevenson fail to show by a preponderance of the evidence that limitations [1h], [1i], [1j], [1k], and [1l]—and the comparable limitations of claim 11—would have been rendered obvious in view of E-DDC Standard and Fastert. Because claims 2, 4-5, 7, 12, 14-15, and 17 depend from claims 1 and 11, Petitioner and Dr. Stevenson have not met their burden for those claims either.

X. RESERVATION OF RIGHTS

182. 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 declaration. I also reserve the right to supplement this declaration based on further investigation or analysis.

183. At trial, I reserve the right to use graphic exhibits, demonstratives, live demonstrations of physical exhibits, or other visual aids to help illustrate the facts and opinions I express herein.

Radostin Pachamanov PhD

Director

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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

Maxell, Ltd.

Ex. 2018

IPR2025-01310

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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