

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

YEALINK (USA) NETWORK TECHNOLOGY CO., LTD., AND YEALINK
NETWORK TECHNOLOGY CO., LTD.,

Petitioner,

v.

BARCO N.V.,

Patent Owner.

CASE: IPR2025-00491

U.S. PATENT NO. 10,684,972

DECLARATION OF MICHAEL C. BROGIOLI, Ph.D.

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I, Dr. Michael C. Brogioli, declare as follows:

1. I am over eighteen years of age, and I am competent to testify regarding the matters set forth in this declaration if called upon to do so.

2. I have been retained in this matter by K&L Gates LLP on behalf of Patent Owner, Barco NV (“Barco”).

3. I am being compensated at my standard consulting rate for my time spent on this matter through Elysium Digital LLC, who I understand charges \$950 per hour of my time. My compensation is not contingent upon the testimony I provide or the outcome of this matter. I submit this declaration at the request of K&L Gates as counsel for Patent Owner in this proceeding.

4. I understand that Yealink (USA) Network Technology Co., Ltd., and Yealink Network Technology Co., Ltd. (collectively, “Petitioner”) and its expert, Dr. Kevin C. Almeroth, have submitted papers in this proceeding arguing that Claims 1 to 18 (the “Challenged Claims”) of U.S. Patent No. 10,684,972 (the “’972 Patent”) (Ex. 1001) are unpatentable under the United States Patent and Trademark Office’s *inter partes* review standard of a preponderance of the evidence. I provide certain technical opinions regarding the scope and content of the prior art, including how those skilled in the art as of 2017 would have understood certain references, the industry as a whole, and what factors were driving innovation in this space.

5. In preparing this declaration, I have analyzed the '972 Patent (Ex. 1001), its file history (Ex. 1004), the declaration of Dr. Kevin C. Almeroth (Ex. 1002), and several prior art references, including Beel (Ex. 1005), Dinka (Ex. 1006), Van de Laar (Ex. 1007), Kaplan (Ex. 1008), and Christison (Ex. 1011). I also considered the other documents or references cited in this declaration.

6. In forming the opinions expressed below, I have considered the documents listed above, the relevant legal standards as provided to me by counsel, and my own knowledge and experience. My opinions are offered from the perspective of a person of ordinary skill, as that term is defined, as of December 29, 2017.

7. I understand Dr. Almeroth has already provided his opinions in Exhibit 1002; however, if he is permitted to offer additional opinions, I reserve my right to respond to those should I be asked.

I. QUALIFICATIONS AND BACKGROUND

8. Below is a summary of my education and experience. My *curriculum vitae* ("CV"), provided as Exhibit 2005 provides additional context regarding my professional background, experience, publications, patents, and other qualifications relevant to providing expert opinions. Here, I highlight experiences that are relevant to the technology described in the patent at issue.

9. I am currently an Adjunct Professor of Electrical and Computer Engineering at Rice University in Houston, Texas, and Managing Director of Polymathic Consulting in Austin, Texas. I received my Bachelor of Electrical Engineering from Rensselaer Polytechnic Institute in 1999, my Master of Science in Electrical and Computer Engineering from Rice University in 2003, and my Doctorate of Electrical and Computer Engineering from Rice University in 2007.

10. While at Rice University, I developed various computer architecture designs for embedded and high-performance systems, including multi-core and low power systems used in processing various workloads, including multimedia and other workloads. For example, from 1999 to 2003, I worked in the area of low-power computing, specifically focusing on dynamic power management and performance of configurable computing and memory systems with workloads, including multimedia and signal processing. From 2002 to 2004, I developed Spinach, a computer architecture design and modeling toolset, which models system components common to all programmable computing environments, including memory systems, multi-core microprocessor systems, and related hardware components. These systems targeted networking hardware and software solutions. From 2004 to 2009, I developed Spinach DSP-FPGA, a modular and composable simulator design infrastructure for programmable and reconfigurable embedded SOC architectures specifically targeting mobile, low-power, and embedded and

portable computing devices running networking and multimedia workloads. From 2005 to 2009, I developed and published a retargetable compiler infrastructure and hardware design exploration toolkit for systems microprocessor design, which facilitated the design space exploration of microprocessors and multi-core processor designs. Many of these tools have been used at United States universities in the area of electrical and computer engineering research.

11. In the late 1990s, I was a hardware and software developer at Vicarious Visions in New York, developing third-party titles for Nintendo's handheld consoles, in addition to various hardware and software interfaces and solutions. These were used for the optimization and transfer of audio and graphics streams from developer workstations (desktop computers) to the peripheral consoles, via custom hardware and software solutions. During my career, I have served as Chief Technology Officer, advisory board member, and board of directors' member, often in co-founding roles.

12. From June 2006 to August 2007, I worked as the Technical Co-Founder of Method Seven LLC in Boston, MA, working with high-performance software and hardware systems architecture. I am currently a co-founder, co-inventor, and Chief Technology Officer of Network Native, an Internet of Things technology company as well as others that are detailed on my CV.

13. I have held the position of Adjunct Professor at Rice University since 2009 and the position of Managing Director at Polymathic Consulting since 2011. At Rice University, I instruct graduate-level curriculum in the areas of computer architecture, hardware and software systems, including multimedia processing and various codecs and optimizations for emerging architectures. I also advise on university research and various design initiatives, including the design of audio and media processing solutions for multiprocessor systems. At Polymathic Consulting, I work with a range of technologists from early-stage start-ups to Fortune 500 companies on similar technologies.

14. From 2008 to 2009, I was Senior Engineer working in high-performance compiler designs and next-generation multi-core microprocessors and architectures at Freescale Semiconductor in Austin, Texas. From November 2009 to October 2011, I was Chief Architect, Senior Member Technical Staff, at Freescale Semiconductor in Austin, Texas (formerly Motorola), responsible for management of technology, engineering roadmaps, design lead on software infrastructure, and next-generation multi-core microprocessor architectures. During my tenure at Freescale Semiconductor, I was in charge of system developer tools. These included tools used for the programming of processors, simulation and modeling, and related technologies including digital networking and multimedia solutions.

15. I have previously worked for Texas Instruments' Advanced Architecture and Chip Technology division in Houston, Texas, in the areas of high-performance mobile and embedded systems design at the hardware and systems software level, specifically around heterogeneous computing, including solutions used in multimedia processing. I also have worked at Intel Corporation's Microprocessor Research Labs in the areas of computer architecture and compiler technologies.

16. I am recognized as an expert in the field of computer architecture, computer hardware and computer software systems as they relate to the subject matter at hand. I am a member of the Institute of Electrical and Electronics Engineers (IEEE) and Association for Computing Machinery (ACM) and have been a steering committee member for the IEEE and ACM Design Automation Conference since 2011 and have previously held the role of Program Chair of Design Automation Conference in the area of Embedded Computing. I have also been a reviewer and contributor to a number of IEEE and ACM technical conferences during the course of my career.

17. Over the past 20 plus years, I have authored numerous peer-reviewed publications, as well as engineering books in the area of computer hardware and software design, including solutions for and optimization of codec technologies. Many of these incorporate technologies specific to the subject matter at hand. These

publications are disclosed in my CV. I have previously served as an engineering consultant and testifying witness on matters related to, and including, microprocessors and multi-core technology as well as audio and video processing technology, peripherals and interfaces similar to those mentioned in the patents at suit in this matter.

18. My curriculum vitae contains more information on my background and experience, as well as the cases in which I have served as an expert witness over at least the past four years.

II. LEGAL STANDARD

19. Although I am not a lawyer, I have been advised on the relevant legal principles by counsel and have used them as a basis for my opinions.

A. Claims

20. I have been informed and understand that terms in the patent claims must be read as they would have been understood by a “person of ordinary skill in the art” (“POSITA”) at the time of the claimed invention.

21. I understand that a POSITA is a person to which the claimed subject matter pertains with the capability of understanding the scientific and engineering principles applicable to the pertinent art. I understand that the following factors may be considered in determining the level of ordinary skill:

- the type of problems encountered in the art;

- prior art solutions to those problems;
- the speed with which innovations are made;
- the sophistication of the technology; and
- the educational level of active workers in the field.

I also understand that not every factor may be present and that one or more factors may predominate others.

22. I understand that the claims within a patent set forth what the inventors have presented as their inventions. I understand that claims can be independent or in dependent form, meaning that they depend from the identified independent claims and add requirements to those claims.

B. Specification

23. I understand that there are other parts of a patent, including the abstract, the figures of a patent, the background of the invention, the summary of the invention, and the detailed description of the invention. I understand that these portions often are collectively referred to as the “specification” of a patent. I understand that technically, the claims are part of the specification, but that referring to the “specification” typically means referring to the written description of the inventions rather than the claims. I understand that the specification informs the understanding of the claims by, for example, describing the claimed invention and providing preferred examples of the claimed invention.

24. I have also been informed and understand that terms of a claim should be understood in the context of the claim as a whole. I also understand that the specification of the patent is relevant to the meaning of a claim term. I further understand that the claims must be read in light of the specification.

C. Prosecution History

25. I understand that the correspondence back and forth between the representative of the applicant, and the U.S. Patent and Trademark Office, leading up to the issuance of a patent is called the “file history” or “prosecution history.” It has been explained to me that, in the process of obtaining a claim of a patent, the inventors and the examiner may make statements explaining their understanding of the scope of their claimed invention. It has also been explained to me that for a statement by the inventors to narrow the scope of a claimed invention, the statement must clearly and unambiguously limit the scope of an invention. I understand this is called “prosecution disclaimer” or “prosecution disavowal.” I understand that the claim language, specification, and file history are referred to as “intrinsic evidence” or “the intrinsic record.”

D. Burden of Proof

26. I understand that, unlike at the district court, an *inter partes* review, such as this proceeding, apply a lower burden of proof to judge the patentability of

challenged claims. Unlike the district court’s “clear and convincing” burden, here, a “preponderance of the evidence” burden exists.

E. Anticipation

27. I understand that a patent claim is invalid as “anticipated” by a single “prior art” reference if the reference discloses every single element of the claim with sufficient precision and detail to establish that the subject matter of the claim existed in the prior art. In particular, I understand that it is not sufficient to establish that all of the elements are collectively disclosed within the four corners of a particular document. Instead, the operative question is whether a person of ordinary skill would have understood the elements as being arranged as in the claim itself. I also understand that a prior art reference cannot “anticipate” a patent claim unless that reference enables one of ordinary skill in the art to make and use what is disclosed without undue experimentation. Thus, if the reference does not enable one of ordinary skill to make or use each and every claim limitation, then the claim cannot be “anticipated” by the reference.¹

28. I understand that a prior art reference can disclose a given claim element actually or inherently.

¹ I understand that the Petition and Dr. Almeroth are not advancing any anticipation-based theories of unpatentability.

29. In the case of actual disclosure, I understand that a person of ordinary skill would need to have understood that the disclosure corresponds to the claim element in question. I also understand that such disclosure may be implicit rather than explicit. For example, prior art need not use the same words as the claimed invention. However, I understand that ambiguous references do not anticipate.

30. In the case of alleged “inherent” anticipation, I understand that the claim element in question must necessarily be present when practicing the described technology even though the prior art reference itself contains no express description of the element in question. In particular, I understand that “possibilities or probabilities” are not sufficient to establish inherency. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. Instead, the essence of inherency is that one of ordinary skill in the art would recognize that a reference unavoidably teaches the property in question.

F. Obviousness

31. I understand that a patent claim may describe an invention that was new (*i.e.*, not anticipated by any prior art reference), but nevertheless be invalid for “obviousness” if the differences between the patented subject matter and the prior

art are such that the subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time of the invention was made.²

i. *Analogous Art*

32. I understand that in order to rely on a reference to establish an obviousness theory the reference must be analogous to the claimed invention. I understand that in order to be analogous, the reference may either be part of the same “field of endeavor” or the reference may be “reasonably pertinent” to the problem addressed by the claimed invention.

33. I understand that to determine the field of endeavor of a patent, the focus should be on the subject matter of the application, including function, structure, and the claimed invention. I understand that to determine the field of endeavor of the reference, the primary focus should be on what the reference actually discloses. I understand to determine what is reasonably pertinent to a patent, one should consider the problem faced by the inventor as reflected in the specification, either explicitly or implicitly. A reference is only considered pertinent to that problem if a person of skill in the art would have considered it when faced with the problem the inventor was trying to solve.

² I understand that the Petition and Dr. Almeroth are advancing two “obviousness” theories with Grounds 1 and 2.

ii. *Reasonable Expectation of Success*

34. I understand that an invention is not rendered obvious simply on the basis of two or more different disclosures that collectively disclose all of the claimed elements. In other words, an invention is not obvious just because all of the elements that comprise the invention may have been known in the prior art. Instead, a person of ordinary skill in the art must have had a reasonable expectation of success in pursuing the possibility that turns out to succeed and is claimed. In particular, I understand that knowledge of a goal does not itself render achievement of that goal obvious.

35. I also understand that determining whether or not a claimed invention would have been obvious requires assessing facts related to (1) the scope and content of the prior art, (2) the differences between the prior art and the claimed invention, (3) the level of ordinary skill in the art, and (4) any objective evidence (“secondary considerations”) of non-obviousness. I understand that this is known as consideration of the “Graham Factors.”

iii. *Motivation to Combine*

36. I further understand that an invention is not obvious just by demonstrating that each of its elements were, independently, known in the prior art. To prove that an invention is obvious, I understand that there must be a reason or reasons, such as a teaching, suggestion, or motivation, which would have prompted

a person of ordinary skill in the relevant field to combine the elements in the way the claimed invention does. While an express teaching, suggestion, or motivation need not be found in a reference itself, I understand that there still must be an articulated reason why a person of ordinary skill in the art would make the proposed modification or changes. I understand that this is because inventions in most (if not all) instances rely upon building blocks already known, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known; therefore, it can be important to point to such a reason or reasons. I understand that in identifying such a reason, the analysis need not require precise teachings in the prior art references themselves directed to the reason, and that the reason can come from other sources, such as the testimony of an expert.

37. I understand that it will often be necessary for a court to look to interrelated teachings of multiple patents and the background knowledge possessed by a person having ordinary skill in the art in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. I understand that any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed. I understand that when a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. I understand that

the combination of familiar elements according to known methods may be obvious when it does no more than yield predictable results.

38. I also understand that a claim is not invalid as obvious if it is more than the predictable use of prior art elements according to their established functions.

39. Further, I understand that while predictability is a touchstone of obviousness, the concept of a “predictable result” under the law refers not only to the expectation that prior art elements are capable of being combined, but also that the combination would have arrived at the challenged claims.

40. I also understand that if the prior art “teaches away” from combining known elements in the manner claimed by the invention at issue, discovering a successful way to combine them is less likely to be obvious. In particular, I understand that a reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant, or would understand based on the reference that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant. Likewise, 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.

41. Further, I understand that even if a reference does not necessarily “teach away,” the reference’s statements regarding preferences are relevant to a finding regarding whether a person of ordinary skill would have had reason to combine that reference with another reference.

iv. *Hindsight*

42. I also understand that one must be cautious and resist the temptation to rely on hindsight reasoning when attempting to combine references to suggest that a claim may be obvious. It is important to analyze validity based on the perspective of one of skilled in the art at the time of the invention, which for this case I have been asked to assume is December 29, 2017, and which I understand is the date Dr. Almeroth used as the priority date of the ’972 Patent. Ex. 1002, ¶21 (“I have been asked to initially consider that the time of the alleged invention of the ’972 patent is around December 29, 2017.”). I understand that objective indicia (or “secondary considerations”) of non-obviousness or obviousness may be particularly probative and helpful in avoiding hindsight.

v. *Secondary Considerations*

43. I understand that as part of the obviousness analysis, one must also consider “objective indicia of non-obviousness” sometimes referred to as “secondary considerations.” These include commercial success, industry praise, unexpected results, copying, industry skepticism, licensing, and long-felt but

unsolved need. I further understand that secondary considerations have greater applicability when there is a sufficient “nexus” between the evidence of secondary consideration and the claimed invention. This “nexus” is established when the evidence is tied to a product that embodies the patented features and is coextensive with them. I understand that the obviousness inquiry itself, and the weighing of secondary considerations, is a question of fact left to the fact finder, as a result I am not providing any opinions on the impact of any secondary considerations on the obviousness analysis. However, I understand that Patent Owner, Barco, is making an argument tied to the commercial success of its ClickShare Conferencing products. I have been asked to analyze Barco’s products and provide my opinion as to whether Barco’s product embodies the patented features and whether there are significant unpatented features in the ClickShare products; I have done so. *See* Section VI.C.

III. LEVEL OF ORDINARY SKILL IN THE ART

44. I understand that Dr. Almeroth opines that a POSITA “in the field of art of the ’972 patent would have had at least a Master’s Degree in Electrical Engineering with at least five years of work experience in computer science and embedded systems, or a Master’s Degree in Computer Science with at least five years of work experience in electrical and computer engineering and embedded systems.” Ex. 1002, ¶37. I understand that Dr. Almeroth has further opined that additional experience could substitute for professional experience. Ex. 1002, ¶37.

45. Given the disclosures of the '972 Patent, the claim scope, and what I have been informed is the educational level of the inventors and their work experience, I agree that this is an appropriate level of skill in this art.

46. Accordingly, my analysis and opinions below are given from the perspective of a POSITA in this technological field in the relevant time frame, unless stated otherwise.

47. I satisfied the definition of a POSITA before the filing date of the application leading to the '972 Patent. I now consider myself an expert in the relevant field of technology for the '972 Patent.

48. In forming my opinions for this declaration, I have used the perspective of one of ordinary skill in the art as defined above. My opinions, however, would not be affected if a POSITA is defined as someone who has slightly more or slightly less experience than described above.

IV. SUMMARY OF THE '972 PATENT

A. Technical Overview

49. The '972 Patent describes a “method and system for making functional devices available to participants of meetings.” Ex. 1001, Title. As set forth by the inventors, mobile devices and laptops often utilize lower quality integrated functional device (e.g., cameras, microphones, speakers) for audio and video communications. Ex. 1001, 1:37-39. By providing access to higher quality audio and

video devices, ad hoc groups of people can communicate with each other while still using their mobile devices. Ex. 1001, 1:12-15, 1:39-42. So, the '972 Patent describes a system and software where functional devices may be made available to the mobile devices of participants in a meeting to improve communications. Ex. 1001, 1:46-49.

50. An example implementation of the '972 Patent's system is depicted below in Figure 5. Figure 5 shows four laptops 160-1, 160-2, 160-3, and 160-4, where one processing device 160-4 where one of the four laptops 160-4 participates remotely in a meeting over a unified communication while another laptop 160-3 attends the same unified communications call this time in the same location as the remaining two laptops 160-1 and 160-2. Ex 1001, 17:57-18:3. Processing devices 160-3 and 160-4 may require additional device configuration in order to participate in the unified communications call. Three of the laptops 160-1, 160-2, and 160-3 are connected to peripheral devices 130, which allows them to communicate to the system base unit 100. Ex. 1001, 17:64-67. Multiple functional devices are connected to the base unit 100 (E.g., a camera 95, microphone 96, and speaker 97) which communicate data to the laptop 160-3 via its peripheral device 130. Ex. 1001, 17:20-32, 18:4-11.

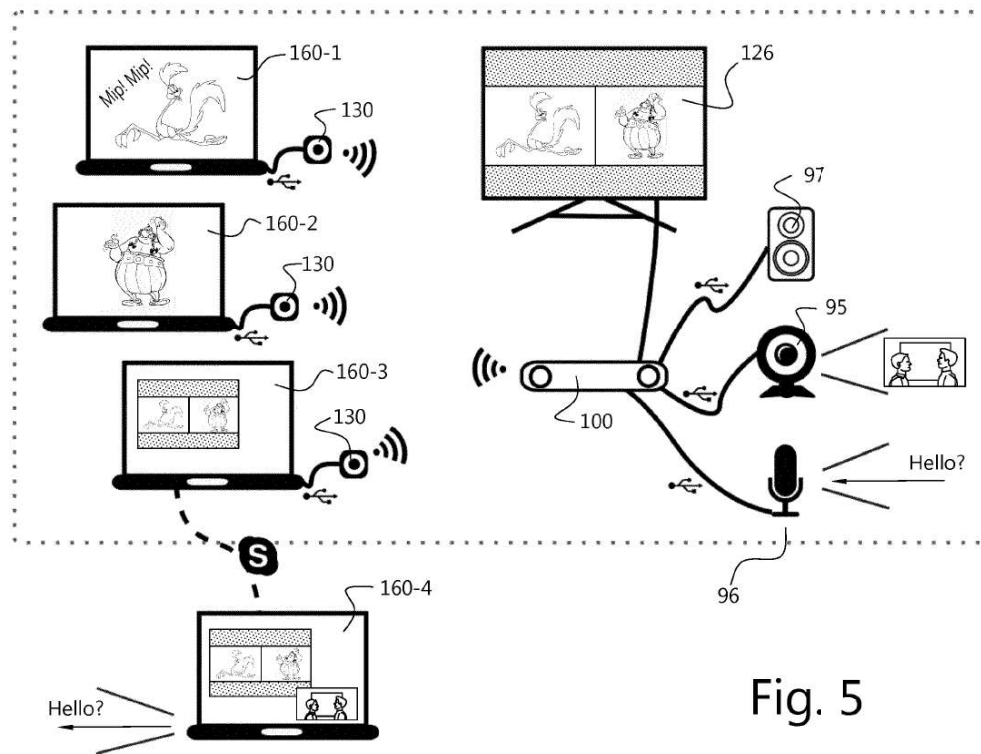


Fig. 5

Ex. 1001, Fig. 5.

51. The data received by the laptop 160-3 can be used by the laptop on a host application or a third-party application, like Skype. Ex. 1001, 17:32-39. Advantageously, the functional devices connected to the base unit 100 are exposed natively through an endpoint on the peripheral device 130. Ex. 1001, 18:42-45.

B. Claim Construction

52. I do not provide an opinion on any claim construction issues in this matter. I have applied the plain and ordinary meaning, as understood by a POSITA in view of the specification. I understand that Petitioner has proposed additional claim constructions which I have not identified here. My failure to respond to these

constructions does not mean I agree with these proposed constructions, and I reserve the right to later opine about these proposed constructions.

V. SUMMARY OF THE ART

A. Beel (Exhibit 1005)

53. Beel is U.S. Patent Pub. No. 2015/0169477 is assigned to Patent Owner. Ex. 1005, Title Page. *Beel* is also a continuation of a patent application that issued as U.S. Patent No. 8,756,348. Ex. 1005, Title Page. U.S. patent No. 8,756,348 was cited during prosecution of the '972 Patent, however the claims of the '972 Patent were still found allowable. Ex. 1004, 184.

54. Beel provides “electronic tools for meetings with audio including methods or devices for providing connection to a communications network.” Ex. 1001, Title. Beel’s inventors recognized modifications necessary to improve collaborating and presenting in a meeting room context. Ex. 1005, [0015]-[0038], [0113]-[0116].

55. Most computers include standard built-in support for a USB device, and thus standard generic audio drivers are also available for use. Ex. 1005, [0312]. Accordingly, the standard computer interfaces, including the pre-installed generic drivers, can be leveraged to provide wireless presentation functionality without requiring additional PC configuration or special driver installation. Ex. 1005, [0312].

56. In one example, Figure 1a “shows a meeting room that can be used with embodiments of the present invention.” Ex. 1005, [0096]. As shown below, multiple participants 37 are in meeting room 30. Ex. 1005, [0117]. Each participant 37 has a processing device 31, which is a host device with a first connection unit 47 (or peripheral devices) coupled to network 50. Ex. 1005, [0117]. Connection unit 47 is also coupled to input device 48. Ex. 1005, [0117]. Network 50 further includes base node 36 connected to display 44. Ex. 1005, [0118]. Thus, the base node, user processing devices, and connection units form a communication network that links with central display device 44. Ex. 1005, [0119], [0122].

58. The peripheral device can also share display data. Namely, the peripheral device stores a software application, which is then loaded on the processing device. Ex. 1005, [0320]. The software, then running on the processing device, captures the video data that is available on the processing device. Ex. 1005, [0320]. Because the software application is stored on the peripheral device and loaded onto the processing device when coupled, the software is implemented as a portable application thereby leaving a zero-footprint on the processing device once disconnected. Ex. 1005, [0159], [0320]. The video encoder then encodes the video signal for a packetizer to packet and share to the peripheral device using another pre-installed generic driver. Ex. 1005, [0320]. In an example, the pre-installed generic driver is a human interface device driver. Ex. 1005, [0320]. Once received at the plug and play port, the HID header on the video data is removed and the data is transmitted over the communications network with the audio data. Ex. 1005, [0321]. The base node receives the audio and video data, which is unpacked and decoded, before synchronizing and sharing the data over the display and other output devices. Ex. 1005, [0323].

B. Dinka (Exhibit 1006)

59. Dinka is a patent which is assigned to Skype. It describes a television set with integrated functionality to host bidirectional communication sessions between remote users over the network. Ex. 1006, Title, Abstract. The inventors of

Dinka appreciated that packet-based communications are most often completed between users on personal computers, and taught that it would be more desirable to utilized the packet-based communications on a television set or set box plugged into a television instead. Ex. 1006, 2:1-4, 2:19-24.

60. So, Dinka proposed a television designed with secondary embedded functionality of VoIP communications. Ex. 1006, 7:20-21. Said televisions include components in addition to a screen, speaker, and audio-video input, such as a processing apparatus, RAM, non-volatile storage, flash memory, magnetic storage medium, one-time writable ROM, a video frame buffer, user interface frame buffer, video hardware, a receiver, a webcam input, a network interface, a first remote interface, and a Bluetooth transceiver. Ex. 1006, 7:22-27, 7:44-56.

C. Van de Laar (Exhibit 1007)

61. Van de Laar is a patent application publication signed to Koninklijke Phillips. Ex. 1007, Title Page. Van de Laar describes a system where multiple mobile devices (e.g., laptops, phones tablets, portal media players, cameras, and electronic watches), or “dockees” are wirelessly docked to the same host device which enables shared usage of A/V peripherals. Ex. 1007, [0006], [0009], [0072].

62. The wireless docking station has a host device coupled to a number of peripherals which render audio or video data, and the host device provides wireless communication to the dockee devices. Ex. 1007 [0074]. The peripherals may be of

various types, for example, a display, a graphical input/output devices (e.g., smartboards, touch screens), audio output devices (e.g., loudspeakers, headphones) or control devices (mouse, room control units) and data processing devices (e.g., storage units, printers). Ex. 1007, [0074].

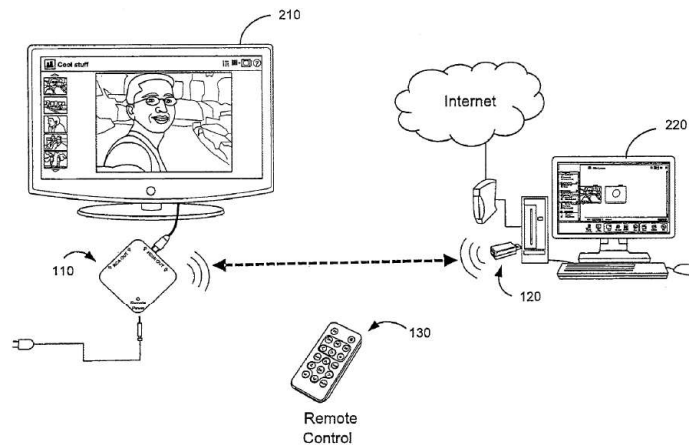
63. The docking process is arranged for docking a primary dockee device and a secondary dockee device. Ex. 1007, [0078]. A primary dockee is granted control to at least one peripheral, while the secondary dockee is not granted control but merely receives the AV data rendered on the peripherals. Ex. 1007, [0078], [0082].

D. Kaplan (Exhibit 1008)

64. Kaplan provides a “method of transmitting video content between a computing device and display device” using a data connection between a transmitter and receiver. Ex. 1008, Abstract. In an illustrative example, Figure 1 provides a communication system having transmitter 120 and receiver 110. Ex. 1008, Figure 1, [0016]. The transmitter is a dongle with USB connector 122; the USB connector is can be inserted into a USB port of a computer. Ex. 1008, [0017]. The receiver connects to a display device and as shown below, includes one or more video outputs and one or more audio outputs. Ex. 1008, [0017], Figure 1.

65. The communication system also includes remote control 130, which is used to communicate with the receiver and control the playback of video on the

display. Ex. 1008, [0019]. Collectively, the components of Figure 1 provide a system that can take footage stored on a computer and display the video footage on a display device. Ex. 1008, [0019]. Figure 2 provides an illustration example of this relationship; the receiver 110 is connected to display device and transmitter 120 is connected to computer 220. Ex. 1008, Figure 2 (reproduced below).



Ex. 1008, Figure 2.

66. To access video footage stored on a computer and thereby display such footage on a display device, the transmitter includes software. Ex. 1008, [0022]. Kaplan explains that, when the transmitter is plugged into the computer for the first time, the software is uploaded and installed onto the computer. Ex. 1008, [0022]. Then, using this installed software, a user can access the video footage stored on the computer and view the footage on the display device. Ex. 1008, [0022]. In this example, the software is automatically installed onto the computer. Ex. 1008, [0022].

67. Another aspect of Kaplan which the inventors identified as advantageous is Kaplan's "walled-garden" approach. In Kaplan, the transmitter and receiver are paired to each other prior to shipment and initial use by the customer. Ex. 1008, ¶21. This is beneficial because it ensures that when a user receives the device, they do not need to pair the different components of the system. Ex. 1008, ¶21. Additionally, there is a decreased risk that the system components will communicate or interfere with non-system components. Ex. 1008, ¶21.

E. Christison (Exhibit 1011)

68. Christison is a patent assigned to Qualcomm. Ex. 1011, Title Page. Christison describes a wireless USB hub which improves throughput for USB systems which contain both wired and wireless components. Ex. 1011, Title, 2:18-20. As shown in Figure 2, the system includes a host 200 and external USB device 210 with built-in wireless adapters 201, 211 which communicate a signal provided by antennae 220, 221 wirelessly rather than through a wired cable. Ex. 1011, 3:34-41.

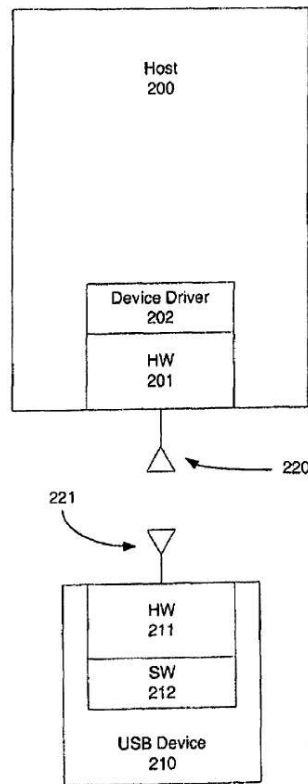


Fig. 2

Ex. 1011, Fig. 2. The wired USB devices may be also be plugged in to a device wire adapter DWA to connect with the USB host. Ex. 1011, 3:48-53.

VI. OPINIONS

A. Ground 1: Dr. Almeroth Fails to Establish that the Combination of Beel, Dinka, and Christison Renders Obvious Any of the Challenged Claims

69. Dr. Almeroth opines that Claims 1 to 18 of the '972 Patent are obvious over the combination of Beel, Dinka, and Christison. Ex. 1002, Section IX.A. I disagree with Dr. Almeroth for four main reasons.

70. First, it is my opinion that Dr. Almeroth relies on a reference, Dinka, that teaches away from the claimed subject matter of the '972 Patent.

71. Second, it is my opinion that a POSITA would not be motivated to combine Beel, Dinka, Christison.

72. Third, it is my opinion that the combination of Beel, Dinka, and Christison do not teach the limitation that “the first peripheral device having... at least one fixed or a configurable endpoint, where the at least one fixed or a configurable endpoint is a data source or a data sink which is able to store or emit data, of the functional device exposed or made available on the first peripheral device” as required by claims 1, 9, and 15.

73. Fourth, it is my opinion that the combination of Beel, Dinka, and Christison do not teach the limitation that “the base unit and the first peripheral device being adapted to transmit and receive data respectively over the communications network from the functional device to the processing device via the at least one fixed or configurable endpoint using the generic communications protocol for communication between the processing device and the first peripheral device” as required by claims 1, 9, and 15.

i. Dinka teaches away from the claimed subject matter of the '972 Patent.

74. It is my opinion that Dinka teaches away from the subject matter claimed by the '972 Patent. Rather than lead a POSITA to construct a system which provides functional devices of a base unit to a processing device using a peripheral device in wireless communication with the base unit, Dinka instead teaches to avoid using a processing device to host a unified communications call. Instead, Dinka provides for a television or television set box with embedded systems that provide for unified communications over VoIP services without the need for a user processing device.

75. The inventors of the '972 Patent identified that laptops or other mobile devices often utilize low quality microphones, speakers, video cameras, and other functional devices during virtual meetings. Ex. 1001, 1:12-14, 1:31-34, 1:37-42. To overcome this issue, the '972 Patent identifies a system which provides higher quality functional devices to laptops by allowing communication from these laptops to a base unit with higher quality functional devices. Ex. 1001, 1:46-49, 9:10-22.

76. Rather than improve the functional devices available to a laptop (like the '972 Patent) Dinka discourages use of laptops to host the virtual meeting and instead advocates for participating in packet-based communication from a television or set-top box with these embedded functions. Ex. 1006, 2:4-30.

77. The '972 Patent claims are directed to “[a] system for connecting a processing device to a functional device connected to or in a base unit of a communications network[.]” Ex. 1001, Cl. 1. *see also*, Cl. 9, Cl. 15. As disclosed in the '972 Patent, a processing device is a laptop, computer, PDA, smartphone or other similar devices. Ex. 1001, 7:30-35.

78. Figure 5, which is reproduced below, shows an example arrangement of processing devices used in a meeting along with unified communication to remote participants. Ex. 1001, Fig. 5, 4:34-36. The unified communication call is shared between processing devices 160-3 and 160-4, with 160-4 being in a separate location. Ex. 1001, 18:4-11. Still, the unified communications call on the processing devices 160-3, 160-4 is capable of interacting with the USB endpoints available on the first peripheral device 130 (e.g., the microphone 96, speaker 97 or webcam 95) which are connected to the base unit 100. Ex. 1001, 18:14-20. This way, the higher quality functional devices and display of the base unit can be used with processing device 160-3 rather than relying on the lower quality functional devices that are integrated in processing device 160-3. Ex. 1001, 1:12-14, 1:39-42.

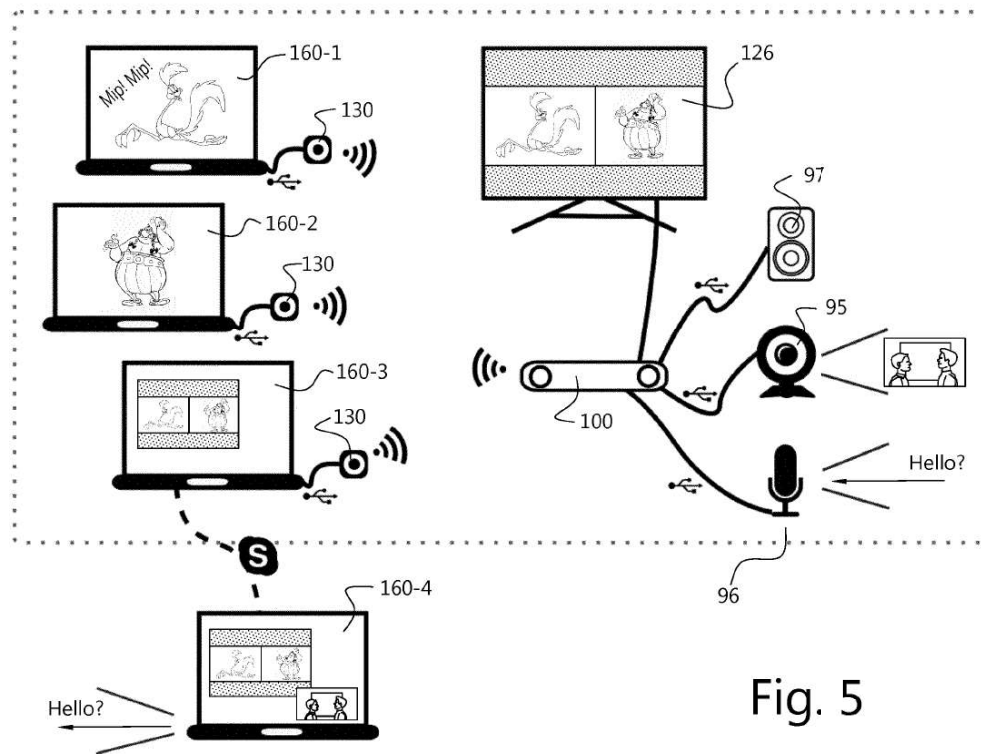


Fig. 5

Ex. 1001, Fig. 5.

79. In contrast, Dinka criticizes, discourages, and discredits this approach. Dinka teaches that accessing packet-based communications on a laptop is disadvantageous because the user must be sufficiently technically competent to download, install, and operate the call on their personal computer. Ex. 1006, 2:4-12. Additionally, laptops and other mobile devices do not have the processing resources and displays to provide a full range of features of these communications. Ex. 1006, 2:15-18, 11:35-50.

80. Rather than seeking to provide improved resources to a mobile device, Dinka addresses this problem by embedding voice or video call functionality into a

television or set-box. Ex. 1006, 2:19-25, 2:34-38. In this system, the television still has the primary purpose of displaying televised content, but it may also be used for VoIP calling, which obviates the need for a user to reply on their own laptop. Ex. 1006, 7:17-21.

81. So, unlike the '972 Patent which provides better resources and displays to the user devices, Dinka discourages such systems and instead advocates for using embedded functions of a special purpose television. So, a POSITA would not arrive at the invention claimed by the '972 Patent based on the teachings of Dinka.

ii. A POSITA would not be motivated to combine Beel, Dinka, and Christison

82. It is my opinion that a POSITA of the '972 Patent would not be motivated to combine the teachings of Beel, Dinka, and Christison to arrive at the claimed invention. First, Beel and Dinka provide competing solutions which cannot be predictably combined with a reasonable expectation of success. Further, it is my opinion that the supposed “motivations to combine” provided by Dr. Almeroth are unpersuasive.

83. As I noted above in Paragraphs 74-81, Dinka teaches away from systems that provide improved peripheral devices to a laptop, instead embedding communication functionality into a television set itself. However, Beel is focused on providing greater features to a mobile device. Ex. 1005, [0040].

84. In other words, Beel and Dinka provide competing options to address the limited functionality of laptop computers. A POSITA would not consider combining the teachings of these diametrically opposed solutions, nor would such combination be predictably achieved with a reasonable expectation of success.

85. It is also my opinion that the supposed motivations provided by Dr. Almeroth are also unpersuasive, and would not actually motivate a POSITA to combine the teachings of the cited references.

86. For example, Dr. Almeroth opines that because Dinka is assigned to Skype, and that the use of Skype was well known at the time, that a POSITA would combine the teachings of Beel and Dinka. Ex. 1002, ¶109. However, Dr. Almeroth does not articulate how Skype improves, Beel, a system which already acknowledges the existence of web conferencing systems as noted by Dr. Almeroth himself. Ex. 1002, ¶108 (citing Ex. 1005, [0085]-[0089]). Further, Dr. Almeroth does not say what is actually improved Beel.

87. It is also my opinion that disclosure of Skype in the '972 Patent as a unified communications system or tool does not suggest such a combination. The mere existence of Skype does not motivate a POSITA to combine two very different systems. *Compare* Ex. 1005, [0039] (“electronic tools with audio for meeting as well as providing connections to a communications network”); Ex. 1006, 1:13-15 (“a television apparatus having an embedded processing apparatus for conducting voice

or video calls via a packet-based network”). While Beel makes use of a peripheral device to communicate content, Dinka’s television participates in VoIP communicates without even relying on a processing device that the peripheral device connects to. Ex. 1005, [0041]; Ex. 1006, 7:17-21.

88. It is also my opinion that Dr. Almeroth’s motivation to combine Christison with Beel and Dinka is also insufficient. For example, Dr. Almeroth concludes that “A POSA would have recognized that Christison’s method of presenting wireless USB devices as “native” devices provides an effective way to implement Beel’s virtual devices.” Ex. 1002, ¶110. Dr. Almeroth provides no explanation of why a POSITA would be motivated to modify Beel to use this method over any teachings already disclosed in Beel.

89. Lastly, it is my opinion that Dr. Almeroth fails to provide a coherent combination, but instead simply relies on separate elements from different cited references. For example, Dr. Almeroth relies “optionally” on the teachings of Christison. Ex. 1002, ¶112. Further, Dr. Almeroth’s identification of aspects of the references as allegedly “well-known” does not indicate why a POSITA would combine the cited references. E.g., Ex. 1002, ¶136.

- iii. “the first peripheral device having... at least one fixed or a configurable endpoint, where the at least one fixed or a configurable endpoint is a data source or a data sink which is able

to store or emit data, of the functional device exposed or made available on the first peripheral device”

90. It is my opinion that the cited references, neither alone or in combination, render “the first peripheral device having... at least one fixed or a configurable endpoint, where the at least one fixed or a configurable endpoint is a data source or a data sink which is able to store or emit data, of the functional device exposed or made available on the first peripheral device” obvious.

91. First, I disagree with Dr. Almeroth that this limitation “is ambiguous because it is unclear whether it requires ‘the peripheral device having [an] endpoint’ or an ‘endpoint of the functional device.’” Ex. 1002, ¶123. It is my opinion that the ’972 Patent clearly identifies the endpoint as a component of the first peripheral device. Ex. 1001, Cl. 1 (“the first peripheral device having [1] a receiver *and* [2] *at least one fixed or configurable endpoint*”). Further, the specification of the ’972 Patent supports this interpretation. Ex. 1001, 19:64-20:3 (“The microphone of the speakerphone 92 generates a signal that is transmitted to the processing device 160 via a USB speakerphone endpoint 136 on the first peripheral device whereby any noise reduction or echo cancellation can be carried out in the base unit 100 as described with respect to Fig. 1 (block 115)”). Additionally, the processing device receives data from the peripheral device’s endpoint as if the endpoint was from the functional device itself. Ex. 1001, Cl. 1, 7:58-63, 19: 52-61, 19:64-20:11.

92. I also disagree with Dr. Almeroth that the terms “fixed” and “configurable” endpoints are unclear in the ’972 Patent. Ex. 1002, ¶85. The ’972 Patent explains that “fixed USB endpoints on the first peripheral device 130 are provided for the basic functionality.” Ex. 1001, 16:49-51. The ’972 Patent goes on to explain that “configurable USB endpoints are configured either when pairing a first peripheral device 130 device with a base unit 100 or over the wireless connection 127 between the processing device 130 and the base unit 100. Once configured, the USB endpoints will expose the second peripherals devices 91-93.... These endpoints can be an exact copy of the ones of the second peripheral devices 91-93 connected to the Base Unit 100 or can be dedicated specified endpoints.” Ex. 1001, 16:56-67.

93. Further, Dr. Almeroth’s opinions regarding the fixed or configurable endpoint do not take into consideration the disclose of the ’972 Patent nor provide any additional evidence to support his conclusion. Ex. 1002, ¶86. Accordingly, I find Dr. Almeroth’s statements that “a device *must fall into one of these two categories* (i.e., if it is not configurable, then it must be fixed),” or that “a fixed endpoint could refer to a mass storage device, while a configurable endpoint might refer to an HID or audio device capable of pairing with a base unit” unpersuasive. Ex. 1002, ¶86.

94. It is my opinion that Beel does not teach a peripheral device having an endpoint. For example, the word endpoint does not appear in Beel. Ex. 1005. I also

do not interpret Figure 4 of the '972 Patent (reproduced below), which is also present as Figure 11 in Beel, as teaching an endpoint of the peripheral device. For example, none of components identified in Figure 4 are labeled as an endpoint. Similarly, I do not read any disclosure of the '972 Patent as explaining that any of these elements are endpoints. For example, the statement that “[t]hese are fixed and are combination of vendor specific endpoints and a number of standard endpoints and *can be interpreted or understood* as a custom Driver, a default OS driver and/or a host application as has been described with reference to FIG. 4 do screen sharing and audio” does not indicate Figure 4 depicts endpoints of the peripheral device. Ex. 1001, 16:51-56. In fact, drivers, as shown in Figure 4, are components of the client PC, not the external USB device.

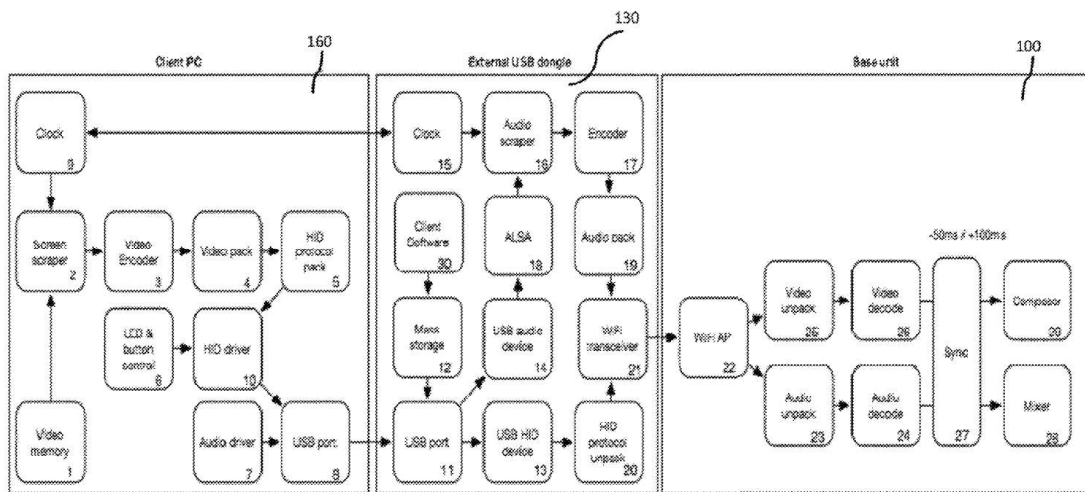


Fig. 4

Ex. 1001, Fig. 4.

95. Further, it is my opinion that Figure 4 of the '972 Patent is included in Beel for a different purpose. In the '972 Patent, it is used to described “Sending Data from the Processing Device to the Base Unit[.]” Ex. 1001, 16:26-27. In Beel, Figure 11 provides a “detailed embodiment of the present invention for audio capture[.]” Ex. 1005, [0318]. In other words, the use of the same figure does not mean the figure was used for the same purpose nor that Beel has the same teachings as the '972 Patent.

96. It is also my opinion that Beel's disclosure does not teach the peripheral device's includes is a data source or a data sink which store or emit data of the functional device. For example, Dr. Almeroth identifies [0043] and [0313] to [0317] as teaching this limitation. However, Dr. Almeroth does not provide any explanation for how these paragraphs teach this limitation. Further, it is my opinion that in these passages the data that is communicated is not data of a functional device. Ex. 1005, [0313]-[0317]. Instead, the peripheral device acts as an audio out device for the processing device, and it is the data of the processing device (not the data of a functional device) that is then communicate through the peripheral device to the base unit. Ex. 1005, [0313], [0315]. The data may be *received* by a speaker at the base node, this data is not data of the functional device. Ex. 1005, [0317]. In other words, the peripheral device in Beel does not store data or emit data of a functional device.

97. It is also my opinion that Dinka and Christison do not teach the peripheral device having a fixed or configurable endpoint. Dr. Almeroth does not identify any aspect of Dinka which allegedly discloses this limitation. Additionally, Dr. Almeroth only identifies aspects of Christison that allegedly teach “exposed or made available[.]” Ex. 1002, ¶¶131-133.

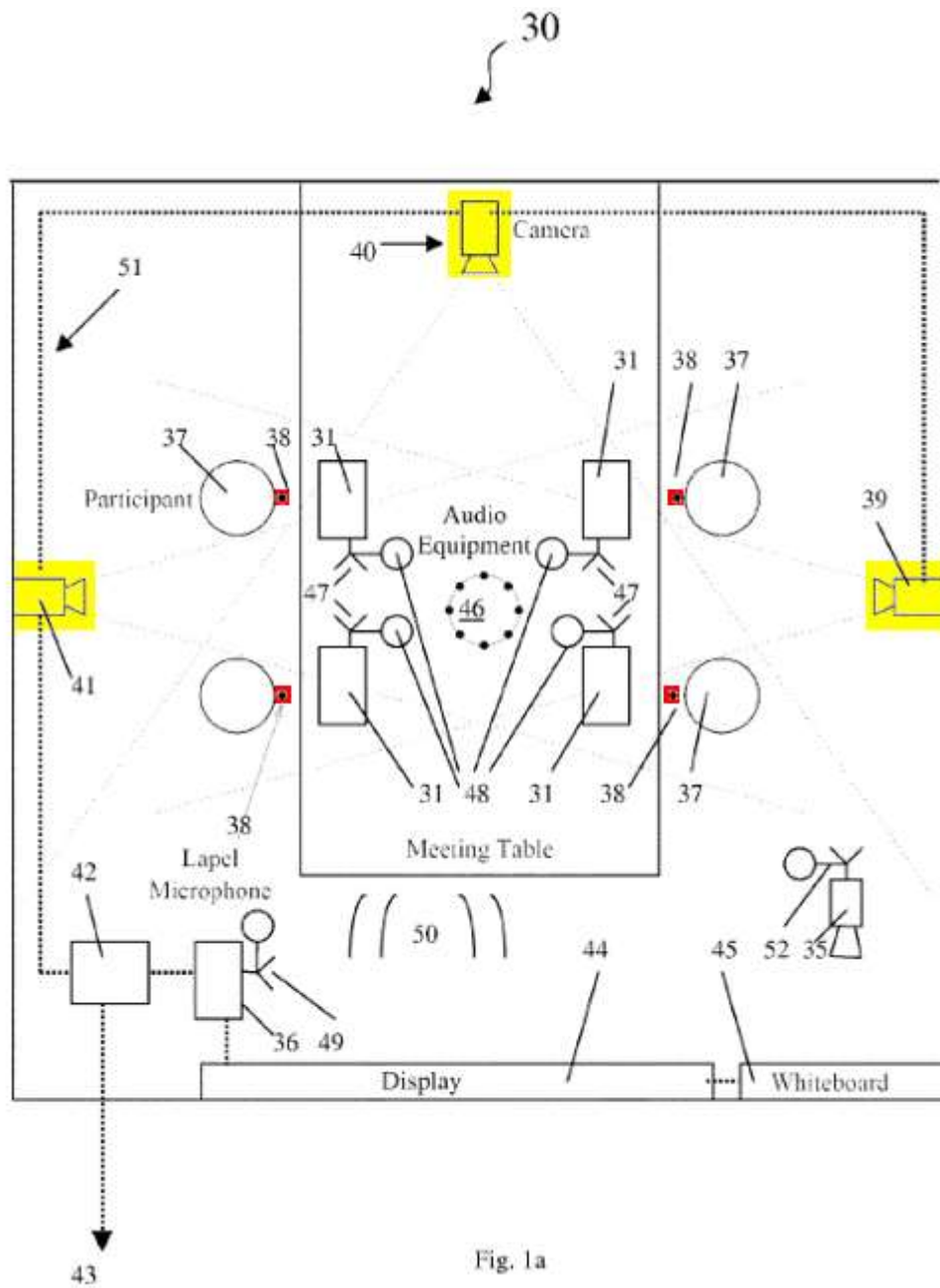
- iv. “the base unit and the first peripheral device being adapted to transmit and receive data respectively over the communications network from the functional device to the processing device via the at least one fixed or configurable endpoint using the generic communications protocol for communication between the processing device and the first peripheral device”

98. It is my opinion that the cited references, neither alone or in combination, render “the base unit and the first peripheral device being adapted to transmit and receive data respectively over the communications network from the functional device to the processing device via the at least one fixed or configurable endpoint using the generic communications protocol for communication between the processing device and the first peripheral device” obvious.

99. First, it is my opinion that based on the limitations of Claim 1, that Claim 1 claims a communication path from (1) from the functional device to the base unit, (2) from the base unit to the peripheral device, and (3) from the peripheral device to the processing device. Ex. 1001, Cl. 1 (“A system for connecting a processing device to *a functional device* connected to or in a base unit...the base

unit and the first peripheral device being adapted to transmit and receive data respectively... from the *functional device* to the *processing device via* the at least one fixed or configuration endpoint *using the generic communications protocol for communication between the processing device and the first peripheral device.*”).

100. Beel does not teach data which is communicated from the functional device connected to a base unit which is received by the first peripheral device and then shared to a computer. For example, Dr. Almeroth identifies [0120] in Beel. Ex. 1002, ¶134. But none of the identified functional devices use the claimed communications path. I have identified the cameras 39, 40, 41 (yellow) and microphones (red) identified in Fig. 1a:



Ex. 1005, Fig. 1a.

101. First, regarding the identified cameras, Beel does not teach that data from the cameras is sent to and arrives at the user processing device. Ex. 1005, [0120]. Instead, the data “can be linked by a network 51, e.g., a cable router 42 and/or

the base node 36” but that is where the communication ends. Ex. 1005, [0120]. Rather than communicate the data to the processing device via the peripheral device, the camera data is sent to the internet 43 over the router 42. Ex. 1005, [0118]-[0119].

102. Second, regarding the microphones, Beel also does not disclose the data being shared over the claimed communications path. Ex. 1005, [0118]. The data from the microphones are used to transfer audio data to the processing device and loud speaker attached to the base node. Ex. 1005, [0120]. In other words, the data is not communicated from the base node to the processing device via the peripheral device, but rather is received on the processing devices and optionally communicated to the loudspeaker connected to the base unit. These outputs from the microphones and cameras are then stored elsewhere to “provide a complete record with correct time sequence.” Ex. 1005, [0121].

103. The communications which occur between the peripheral device and the base node also do not originate in a functional device and communicated from the base node to the peripheral device. Ex. 1005, [0071] (“a third software code portion for receiving media content from the network and *for displaying the media content on the display in accordance with a set of rules*”). Instead, they are communicated in the opposite direction, from the processing device to the base node via the peripheral. Ex. 1005, [0075] (“receiving media content from the communications network *at the base node*”), [0126] (“to transmit the arbitrary

media content of at least one of the plurality of processing devices to the central display device 44.”), [0263] (“This provides the advantage that one can present on multiple base units from a single peripheral device.”). I have also reviewed the other portions string cited by Dr. Almeroth and also do not find that they teach the claimed limitation. Ex. 1005, [0050], [0056], [0075], [0085], [0088]-[0089], [0093], [0118]-[0121], [0126], [0253]-[0271], [0298], [0310]-[0311]; *see*, Ex. 1002, ¶135.

104. It is also my opinion that Dinka does not teach the claimed communications path. Ex. 1001, Cl. 1. Rather, Dinka’s system is a television with an embedded VoIP calling functionalities. Ex. 1006, 7:17-21. Accordingly, there is no disclosure in Dinka of functional data moving *from* a base unit to a processing device *via* a peripheral device. Rather, any communication in Dinka between the computer terminals (i.e., processing devices) to the television set (i.e., base unit) is over the internet network interface, not the claimed peripheral device. Ex. 1006, 5:45-51.

105. Dr. Almeroth provides the same arguments for Claim 9 and Claim 15 as for Claim 1. Accordingly, it is my opinion that his arguments fail with respect to Claim 9 and Claim 15 for the same reasons.

B. Ground 2: Dr. Almeroth Fails to Establish that the Combination of Kaplan, Van de Laar, and Christison Renders Obvious Any of the Challenged Claims

106. Dr. Almeroth opines that Claims 1 to 18 of the '972 Patent are obvious over the combination of Kaplan, Van de Laar, and Christison. Ex. 1002, Section IX.B. I disagree with Dr. Almeroth for four main reasons.

107. First, it is my opinion that a POSITA would not be motivated to combine Kaplan, Van de Laar, and Christison.

108. Second, it is my opinion that the combination of Beel, Dinka, and Christison do not teach the limitation that “the first peripheral device having... at least one fixed or a configurable endpoint, where the at least one fixed or a configurable endpoint is a data source or a data sink which is able to store or emit data, of the functional device exposed or made available on the first peripheral device” as required by claims 1, 9, and 15.

109. Third, it is my opinion that the combination of Beel, Dinka, and Christison do not teach the limitation that “the base unit and the first peripheral device being adapted to transmit and receive data respectively over the communications network from the functional device to the processing device via the at least one fixed or configurable endpoint using the generic communications protocol for communication between the processing device and the first peripheral.”

i. A POSITA would not be motivated to combine Kaplan, Van de Laar, and Christison

110. It is my opinion that a POSITA would not be motivated to combine Kaplan, Van de Laar, and Christison.

111. First, it is my opinion that Kaplan and Van de Laar rely on very different protocols for wireless connectivity, so a POSITA would not consider the combination. Dr. Almeroth opines that “A POSA would have been motivated to modify Kaplan’s receiver 110 to incorporate features of Van de Laar’s WDH to enhance usability.” Ex. 1002, ¶182. However, it is my opinion that Dr. Almeroth does not clearly articulate why this modification would be implemented and how it would function.

112. For example, the combination does not address the difference in wireless communication between Kaplan and Van de Laar. Kaplan provides a system where video content is transmitted between a computer and display device using a transmitter and a receiver. Ex. 1008, Abstract. Kaplan discloses the transmitter as using a USB connector to connect to a port of a processing device. Ex. 1008, [0017]. The receiver connects to a display with one or more video and audio outputs, like HDMI for example. Ex. 1008, [0016]. Further, a remote controller controls the playback of video footage on the display device. Ex. 1008, [0019]. With

the transmitter, receiver, and remote, a user can provide video footage from a computer to a display device. Ex. 1008, [0019].

113. Figure 2 of Kaplan (reproduced below) shows a transmitter 110 connected to a computer 220, the remote control 130, and receiver 110 connected to a display device 210. Ex. 1008, [0021].

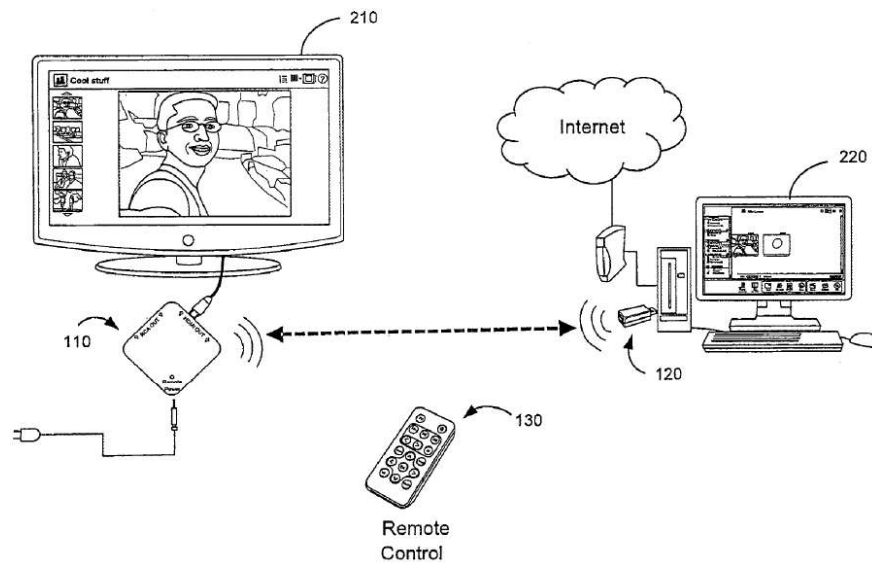


FIG. 2

Ex. 1008, Fig. 2.

114. Kaplan's system utilizes a "walled garden approach" where one receiver is matched to one transmitter. Ex. 1008, [0053]. This system is beneficial for a number of reasons. Ex. 1008, [0053]. First, these devices are pre-paired before shipment, so a user is not require to configure the devices themselves providing a streamlined approach. Ex. 1008, [0021]. For example, the user simply plugs in the devices to operate them. Ex. 1008, [0021]. In fact, this solution is more much user

friendly, and “contrasts sharply” than the primary and secondary dockee systems described in Van de Laar. *See* Ex. 1007, [0078], [0082]; Ex. 1008, [0021].

115. In Van de Laar, wireless docking is enabled by utilizing multiple “dockees” which wireless dock to a host device to enable shared usage of peripherals. Ex. 1007, [0009]. The dockee may be a laptop, phone, tablet, portal media player, camera, electronic watch, or other mobile device. Ex. 1007, [0006], [0072]. The wireless docking station includes a wireless docking host (WDH), a number of peripherals which render audio and video data, and a host device that communicates to the dockee devices. Ex. 1007, [0072], [0074].

116. The docking station can connect to a primary dockee and a secondary dockee. Ex. 1007, [0078]. Primary dockees are able to control at least one peripheral device that renders AV data, whereas the secondary dockees do not gain control but instead just receive the rendered AV data. Ex. 1007, [0078], [0082].

117. The WDH communicates with the dockees through Wi-Fi direct, where the WDH is the Wi-Fi Direct Group Owner (GO). Ex. 1007, [0111]. Wi-Fi direct is a conventional wireless networking system that “contrasts sharply” with the system described in Kaplan. Ex. 1008, [0021]. For example, this system requires a user pairing process for new Wi-Fi Direct connections, like when a new dockee is being used. Ex. 1007, [0116]. This is very different from the pre-paired transmitter peripheral Kaplan uses. Ex. 1008, [0053].

118. It is my opinion that a POSITA would not be motivated to combine Kaplan's receiver with Van de Laar's WDH because of these differences. A POSITA would not combine Kaplan's system with Van de Laar's system, which does not include a peripheral device, but instead uses a dockee device with integrated Wi-Fi or Bluetooth capabilities. Ex. 1007, [0076], [0111], Fig. 1. To the extent that Dr. Almeroth alleges Kaplan is improved by Van de Laar, the very "improvements" are already available in Van de Laar without use of the transmitter dongle. Van de Laar's WDH renders the dongle superfluous, and POSITA would not modify WDH to communicate with a dongle absent the hindsight attempt to reconstruct the claims.

119. Further, Kaplan's transmitter and receiver have a 1-to-1 pairing, walled garden, approach. Ex. 1008 [0018], [0021]. Kaplan does not discuss using more than one transmitter. Ex. 1008. There is no evidence that Kaplan could manage multiple transmitters given its pre-paired requirements. Further, there is no basis to conclude that Kaplan could facilitate the primary and secondary dockee classes while still using the transmitter dongle. Based on this teaching, to utilize more than one transmitter, more than one receiver would be required which would *significantly impair* usability. This is not compatible with Van de Laar's system that uses Wi-Fi direct to flexibly pair new dockees to the WDH. Ex. 1007, [0116]. These differences are irreconcilable.

120. Additionally, Van de Laar is designed to operate in a lecture or classroom environment where many different dockees may connect to the WDH at any time. Ex. 1007, [0053]. Use of multiple transmitter dongles in this context would be impractical because one dongle would be needed for each dockee used at any given time, irrespective of whether it was a primary or secondary dockee.

121. In summary, any combination between Kaplan and Van de Laar would require abandoning the “walled-garden” approach, an approach that is specifically designed to streamline user experience. Ex. 1008, [0021]. Likewise, the proposed combination would also require using a peripheral transmitter, which is unnecessary since Van de Laar performs such functions through direct connection between the dockee and WDH. Rather than improve useability, the proposed modification of Kaplan based on Van de Laar hampers usability and is only arrived at based on hindsight.

122. It is also my opinion that the supposed motivations provided by Dr. Almeroth are also unpersuasive, and would not actually motivate a POSITA to combine the teachings of the cited references.

123. For example, Dr. Almeroth opines that the combination of Van de Laar and Kaplan would provide a “predictable result in a unified system of client processing devices and functional devices used in a Skype unified conferencing call.” Ex. 1002, ¶183. However, this is merely a conclusion based on a hindsight

driven analysis to construct a system which performs a certain function. A POSITA would not be motivated to construct the system absent such hindsight. Skype's alleged status of "well known" does not show that a POSITA would combine the references.

124. Further, because of the difference in communication protocol, these systems could not be predictably combined. Also, as I articulated above, it is my opinion that a modification of Kaplan by Van de Laar does not improve usability as Dr. Almeroth opines. Ex. 1002, ¶186; *see supra* Paragraph 119-121.

125. It is also my opinion that disclosure of Skype in the '972 Patent as a unified communications system or tool does not suggest such combination. The mere existence of Skype does not motivate a POSITA to combine two very different systems. *Compare* Ex. 1005, [0039] ("electronic tools with audio for meeting as well as providing connections to a communications network"); Ex. 1006, 1:13-15 ("a television apparatus having an embedded processing apparatus for conducting voice or video calls via a packet-based network"). While Beel makes use of a peripheral device to communicate content, Dinka's television participates in VoIP communications without even relying on a processing device that the peripheral device connects to. Ex. 1005, [0041]; Ex. 1006, 7:17-21.

126. It is also my opinion that Dr. Almeroth's motivation to combine Christison with Beel and Dinka is also insufficient. For example, Dr. Almeroth

concludes that “A POSA would have recognized that Christison’s method of presenting wireless USB devices as “native” devices provides an effective way to implement Beel’s virtual devices.” Ex. 1002, ¶110. Dr. Almeroth provides no explanation of why a POSITA would be motivated to modify Beel to use this method over any teachings already disclosed in Beel.

127. Lastly, it is my opinion that Dr. Almeroth fails to provide a coherent combination, but instead simply relies on separate elements from different cited references. For example, Dr. Almeroth relies “optionally” on the teachings of Christison. Ex. 1002, ¶112. Further, Dr. Almeroth’s identification of aspects of the references as allegedly “well-known” does not indicate why a POSITA would combine the cited references. E.g., Ex. 1002, ¶136.

- ii. “the first peripheral device having... at least one fixed or a configurable endpoint, where the at least one fixed or a configurable endpoint is a data source or a data sink which is able to store or emit data, of the functional device exposed or made available on the first peripheral device”

128. It is my opinion that the cited references, neither alone or in combination, render “the first peripheral device having... at least one fixed or a configurable endpoint, where the at least one fixed or a configurable endpoint is a data source or a data sink which is able to store or emit data, of the functional device exposed or made available on the first peripheral device” obvious.

129. Preliminarily, Dr. Almeroth relies on Christison for the same limited purpose as with Ground 1 for allegedly teaching “exposed or made available.” Ex. 1002, ¶¶205-208. However, as Kaplan and Van de Laar have deficiencies with respect to other aspects of the limitation, Dr. Almeroth’s use of Christison does not correct these deficiencies.

130. It is my opinion that Kaplan does not disclose a peripheral device having at least one endpoint. First, Kaplan’s alleged teachings of an endpoint of a functional device are irrelevant, as the claim requires the endpoint exist in the peripheral device. Ex. 1001, Cl. 1.; Ex. 1002, ¶200.

131. Further, the cited portions of Kaplan by Dr. Almeroth do not teach an endpoint of the peripheral device. For example, Dr. Almeroth cites to [0046], and [0050]-[0052]. Ex. 1002, ¶200. It is my opinion that these portions do not teach the limitation. Rather, these passages explain that the transmitter may present as a mass storage device, and a dual purpose use transmitter. Ex. 1008, [0046], [0050]-[0052]. There is no additional explanation in Dr. Almeroth’s declaration as to how these portions supposedly render the limitations obvious.

132. Additionally, it is my opinion that Kaplan does not disclose “where the at least one fixed or configurable endpoint... is able to store or emit data, of the functional device exposed or made available on the first peripheral device[.]” Rather, the data is video content of the processing device (not a functional device)

sent from the transmitter to the receiver so that the data may be displayed on the display device. Ex. 1008, [0061].

133. Similarly, it is my opinion that Van de Laar does not teach an endpoint of the peripheral device. Van de Laar teaches that, when Miracast is used, the dockee functions as a source and the wireless docking host serves as a sink or a source. However, these elements are mapped to the processing device and base unit respectively, not the peripheral device. Also, Miracast is a protocol used to wirelessly screencast content. It is not a protocol used to communicate of a functional device (like data from a webcam or microphone) back to a computer, and I do not find any disclosures of using Miracast to communicate data from a functional device in *Van de Laar*. Likewise, devices communicating using Miracast are not communicating through a wired generic communication protocol as in Claim 1 of the '972 Patent. Accordingly, Van de Laar does not teach that the endpoint of the peripheral device acting as a “data source or data sink which is able to store or emit data of the functional device[.]” Ex. 1001, Cl. 1.

- iii. “the base unit and the first peripheral device being adapted to transmit and receive data respectively over the communications network from the functional device to the processing device via the at least one fixed or configurable endpoint using the generic

communications protocol for communication between the processing device and the first peripheral device”

134. It is my opinion that the cited references, neither alone or in combination, render “the base unit and the first peripheral device being adapted to transmit and receive data respectively over the communications network from the functional device to the processing device via the at least one fixed or configurable endpoint using the generic communications protocol for communication between the processing device and the first peripheral device” obvious.

135. For “the base unit and the first peripheral device being adapted to transmit and receive data respectively over the communications network from the functional device to the processing device[,]” Dr. Almeroth only relies on teachings from Van de Laar. Ex. 1002, ¶212. However, Dr. Almeroth identifies communications in the opposite direction without argument as to why they show the claimed communications.

136. For example, Van de Laar discloses that the “WDH device is further configured to create and provide a video and/or audio stream representing the video and/or audio output that *is sent by the primary dockee* to the one or more display and or/audio peripherals.” Ex. 1007, [0096]; *see also* Ex. 1007, [0055], [0103]. Additionally, while the secondary dockee (which is not relied on as the processing device) is designed to receive data, but data that originates from the primary dockee,

not the functional devices attached to the WDH. Ex. 1007, [0056], [0096], [0103]. This discloses, at best, that the secondary dockee is capable of reading data written to a peripheral device, but this data originates from the primary dockee, it is not functional data from a functional device. Ex. 1007, [0056].

137. Dr. Almeroth provides the same arguments for Claim 9 and Claim 15 as for Claim 1. Accordingly, it is my opinion that his arguments fails with respect to Claim 9 and Claim 15 for the same reasons.

C. The Barco System Embodies the Claims of the '972 Patent

138. I have been asked to analyze the Barco System and provide my opinion as to whether the Barco System embodies the claims of the '972 Patent. The Barco System refers to the combination of the ClickShare Button and a ClickShare Base. The ClickShare Base include at least the CX-20, CX-30, CX-50, CX-50 Gen2, CB Core, and CB Pro.³ As detailed herein, it is my opinion that the Barco System embodies claims 1 to 18 of the '972 Patent.

³ I was asked by Counsel for Patent Owner to test the CX-30 which came with two ClickShare Buttons. Using the CX-30 and ClickShare Buttons assisted me in forming these opinions.

i. The Barco System Practices Claim 1 of the '972 Patent

a. The Barco System Practices 1[pre] of the '951 Patent

139. It is my opinion that the Barco System practices 1[pre], which recites “A system for connecting a processing device to a functional device connected to or in a base unit of a communications network, the processing device having a memory, a display and an operating system, the system comprising...” For example, the Barco promotional materials explains that the ClickShare system “connects your laptop to the audio and video equipment of your conference room” as shown in the image reproduced below.

What is ClickShare?

ClickShare is an award-winning wireless meeting room system for easy video conferencing, collaboration and presentation. It connects your laptop to the audio and video equipment of your conference room, so you can start your meeting in under 7 seconds with one click via the ClickShare Button or App.

Ex. 2013. Additionally, as shown in the image below, the ClickShare Button can connect a functional device, such as the depicted webcam that is connected to the Barco Base, to a laptop computer. This is evident from the fact that the laptop obtains image data from the soda can in view of the webcam connected to the Barco Base:



b. The Barco System Practices 1[a] of the '951 Patent

140. It is my opinion that the Barco System practices 1[a], which recites “a first peripheral device being adapted to be coupled to the processing device via a generic communications protocol[.]” For example, the ClickShare Button may be coupled to a processing device as shown in the image below:



141. Further, the ClickShare Button includes a USB-C type connector, as shown in the image reproduced below. USB-C is an example of a generic communications protocol.

General specifications	
Connectors	USB-C type
Authentication protocol	WPA2-PSK in stand alone mode WPA2-PSK or IEEE 802.1X in network integration mode
Wireless transmission protocol	IEEE 802.11 a/b/g/n/ac
Frequency band	2.4 GHZ and 5 GHz

Ex. 2014.

c. The Barco System Practices 1[b] of the '951 Patent

142. It is my opinion that the Barco System practices 1[b], which recites “the base unit having a transmitter and the first peripheral device having a receiver and at least one fixed or a configurable endpoint, where the at least one fixed or a configurable endpoint is a data source or a data sink which is able to store or emit data, of the functional device exposed or made available on the first peripheral device[.]” The Barco Base includes a transceiver capable of IEEE 802.11 a/g/n/ac and IEEE 802.15.1:

Maximum sources simultaneously on screen	2
Noise Level	Max. 25dBA @ 0-30°C Max. 30dBA @ 30-40°C
Authentication protocol	WPA2-PSK in stand alone mode WPA2-PSK or IEEE 802.1X using the ClickShare Button in network integration mode
Wireless transmission protocol	IEEE 802.11 a/g/n/ac and IEEE 802.15.1
Reach	Max. 30m (100 ft) between ClickShare Button and ClickShare Base Unit Frequency band 2.4 GHz and 5 GHz (DFS)
Frequency band	2.4 GHz and 5 GHz (DFS channels supported in select number of countries)

Ex. 2025.

143. Likewise, the ClickShare Button include a transceiver capable of communicating with the Barco Base on IEEE 802.11 a/g/n/ac:

General specifications

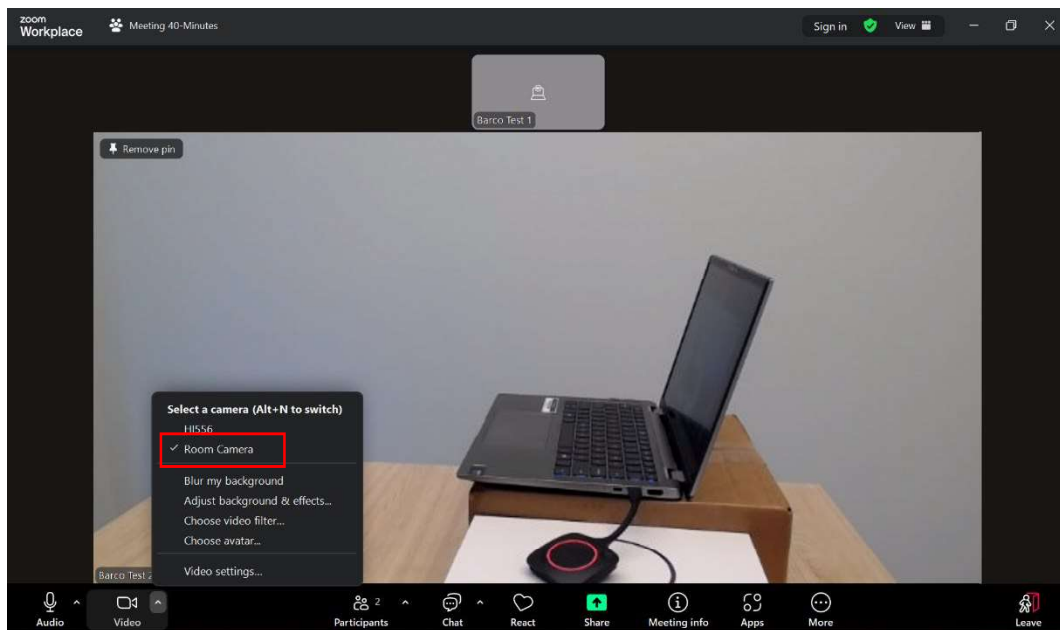
Connectors	USB-C type
Authentication protocol	WPA2-PSK in stand alone mode WPA2-PSK or IEEE 802.1X in network integration mode
Wireless transmission protocol	IEEE 802.11 a/b/g/n/ac
Frequency band	2.4 GHz and 5 GHz

Ex. 2014.

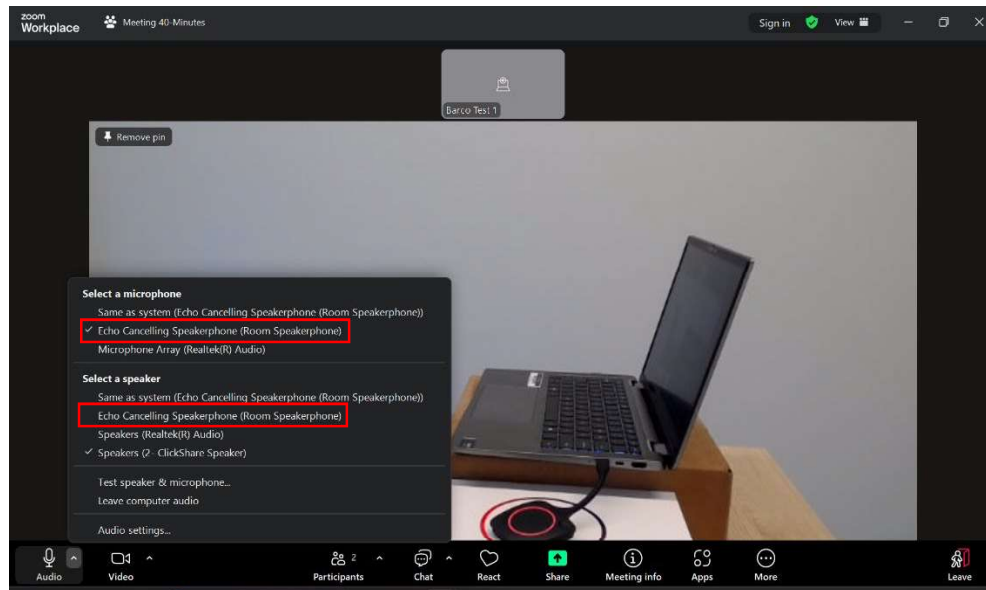
144. In addition, the ClickShare Button provides at least one fixed or a configurable endpoint, where the at least one fixed or a configurable endpoint is exposed or made available on the first peripheral device. For example, when used, the ClickShare Button provides a configurable endpoint of a data source which emits data of a functional device, like a webcam. This is shown in the image below:



The image below is a screenshot of the Zoom Application where the Room Camera (connected to the Barco Base) captures a video of the host processing device connected to the ClickShare Button. The screenshot was taken on the processing device in the image using a wireless keyboard connected to the processing device. As annotated in red, the video input is the Room Camera from the Barco Base.



145. The room audio equipment is also available from the Barco Base. For example, the Echo Cancelling Speakerphone is connected to the Barco Base. The Echo Cancelling Speakerphone is available on the processing device connected to the ClickShare Button. Each of these endpoints are annotated in red.



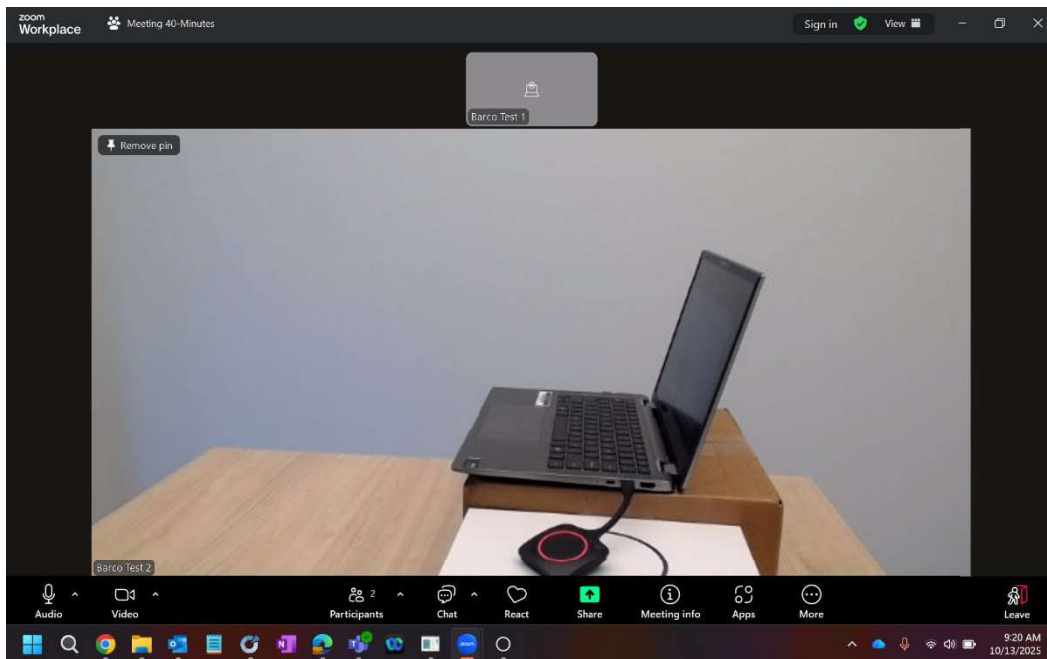
146. The room camera and audio equipment are presented over the USB connection of the ClickShare Button as shown from the screenshot of the USBDevice tool below.

Device Name	Description	Friendly Name	Driver Filename	Driver Description	Con...
Room Camera	USB Composite Device		usbccgp.sys	USB Composite Device	Yes
Port_#0010.Hub_#0001	Intel(R) Wireless Bluetooth(R)		BTUSB.sys	Intel(R) Wireless Bluetooth	Yes
Port_#0009.Hub_#0001	Synaptics UWP WBDI		WUOFrd.sys	Synaptics UWP WBDI	Yes
Port_#0008.Hub_#0001	USB Composite Device		usbccgp.sys	USB Composite Device	Yes
Port_#0005.Hub_#0001	Generic USB Hub		UsbHub3.sys	Generic USB Hub	Yes
ClickShare	USB Composite Device		usbccgp.sys	USB Composite Device	Yes
0000.0014.0000.000.000.000...	Integrated Camera	@oem123.inf.%DeviceDesc R...	usbvideo.sys	Integrated Camera	Yes
0000.0014.0000.005.002.000.000...	USB Video Device	Room Camera	usbvideo.sys	USB Video Device	Yes
0000.0014.0000.005.002.000.000...	USB Audio Device	Room Speakerphone	usbaudio.sys	USB Audio Device	Yes
0000.0014.0000.005.002.000.000...	USB Input Device		hidusb.sys	USB Input Device	Yes
0000.0014.0000.005.001.000.000...	USB Audio Device	ClickShare Speaker	usbaudio.sys	USB Audio Device	Yes
0000.0014.0000.005.001.000.000...	USB Mass Storage Device		USBSTOR.SYS	USB Mass Storage Device	Yes
0000.0014.0000.005.001.000.000...	Barco ClickShare Button		BarcoClickShareDr...	Barco ClickShare Button	Yes
0000.0014.0000.005.001.000.000...	USB Input Device		hidusb.sys	USB Input Device	Yes
0000.0014.0000.005.001.000.000...	USB Input Device		hidusb.sys	USB Input Device	Yes
0000.0014.0000.005.001.000.000...	USB Input Device		hidusb.sys	USB Input Device	Yes

147. The USBDeview is a free tool available from https://www.nirsoft.net/utils/usb_devices_view.html. I downloaded this tool and used it to inspect devices connected to my laptop computer. For each USB device, I am able to see the device name/description, device type, drivers, as well as some other related information.

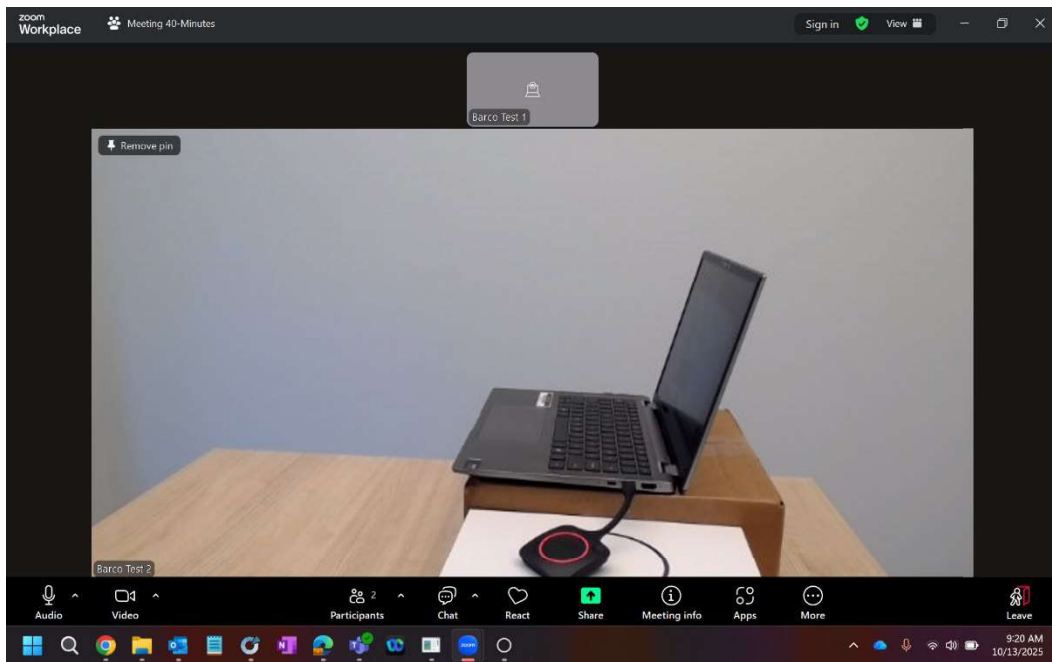
d. The Barco System Practices 1[c] of the '951 Patent

148. It is my opinion that the Barco System practices 1[c], which recites “the base unit and the first peripheral device being adapted to transmit and receive data respectively over the communications network from the functional device to the processing device via the at least one fixed or configurable endpoint using the generic communications protocol for communication between the processing device and the first peripheral device[.]” As depicted in the image below, the webcam connected to the Barco Base captures data which is received over the communications network by the processing device via the configurable endpoint using a USB communications protocol between the processing device and ClickShare Button:



e. The Barco System Practices 1[d] of the '951 Patent.

149. It is my opinion that the Barco System practices 1[d], which recites “wherein the processing device is adapted to host a unified communication between two or more processing devices[.]” The image below shows a screenshot from the processing device hosting a Zoom Call, which is a type of unified communication. The Zoom call provides unified communications to two devices, (Barco Test 1 and Barco Test 2).



ii. The Barco System Practices Claim 2 of the '972 Patent

150. It is my opinion that the Barco System practices this Claim. As shown in paragraphs 142 to 148, the Barco System includes a webcam as well as a microphone and speaker. The system is also capable of connecting to other functional devices. Ex. 2013.

iii. The Barco System Practices Claim 3 of the '972 Patent

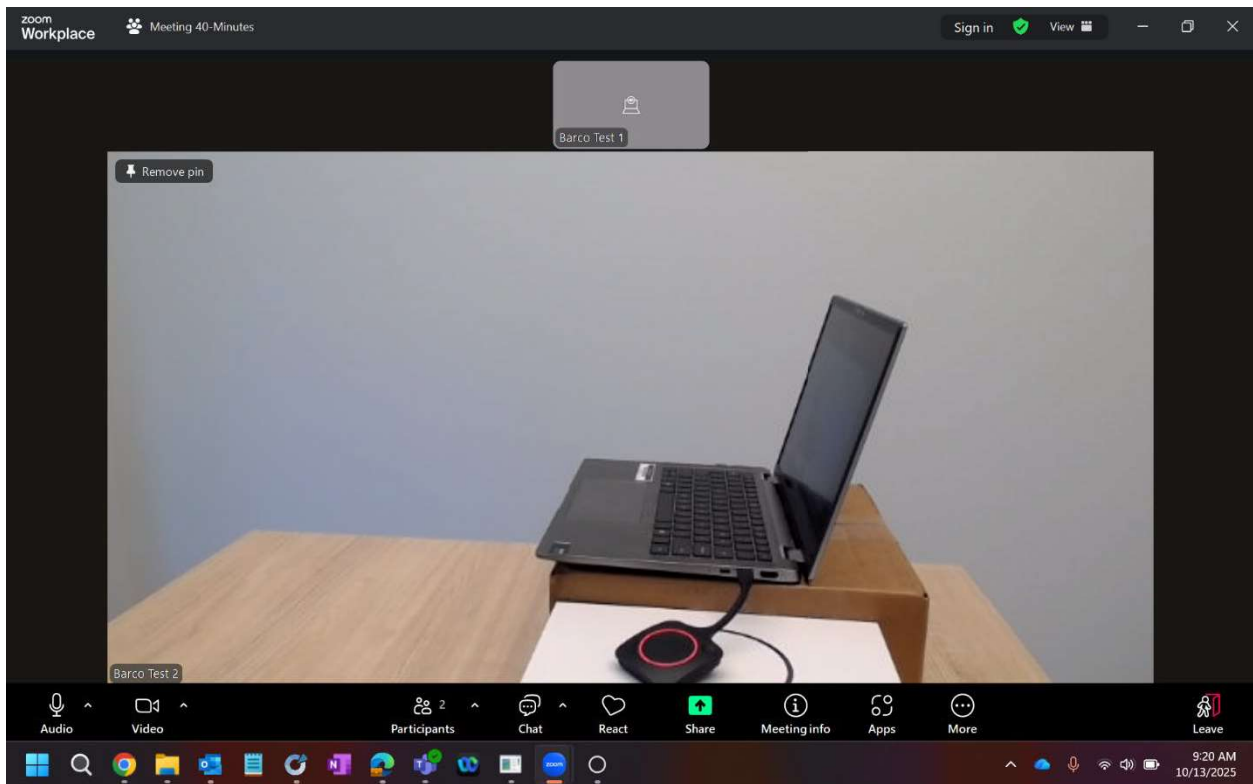
151. It is my opinion that the Barco System practices this Claim for the same reasons discussed in paragraphs 142 to 148.

iv. The Barco System Practices Claim 4 of the '972 Patent

152. It is my opinion that the Barco System practices this Claim. For example, the Barco System utilizes the PA2-PSK authentication protocol. Ex. 2025. This involves encoding data.

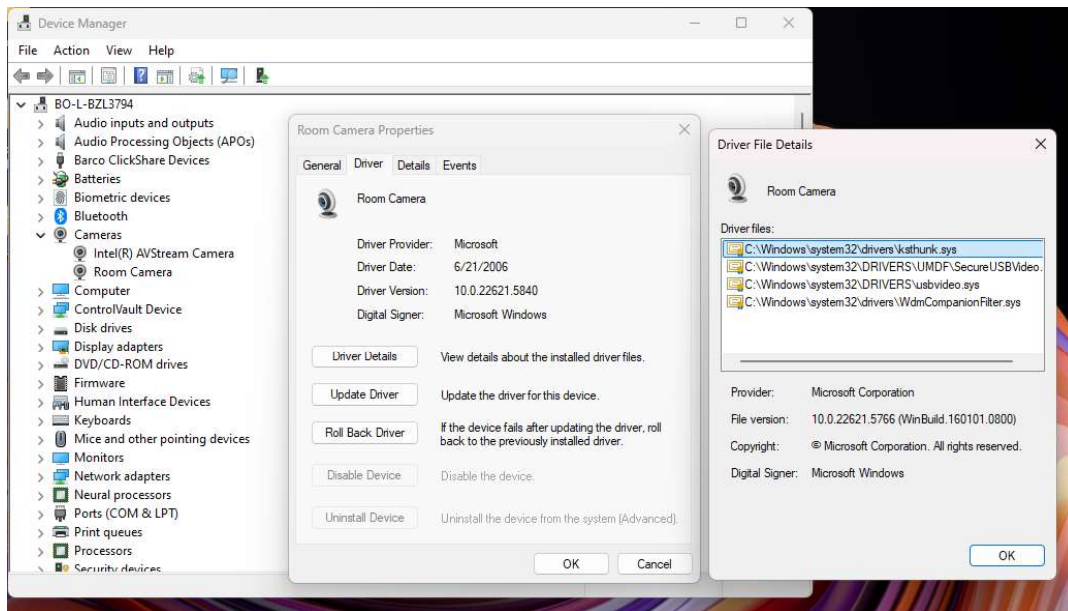
v. The Barco System Practices Claim 5 of the '972 Patent

153. It is my opinion that the Barco System practices this Claim. For example, as shown below the functional device (e.g., webcam) can be used on a unified communication (e.g., Zoom) between two or more devices (Barco Test 1 and Barco Test 2).



vi. The Barco System Practices Claim 6 of the '972 Patent

154. It is my opinion that the Barco System practices this Claim. As shown below, the webcam used with the Barco System is exposed to the processing device via the usbvideo.sys driver which is a driver used with webcams.



vii. The Barco System Practices Claim 7 of the '972 Patent

155. It is my opinion that the Barco System practices this Claim for the same reasons discussed in paragraph 148.

viii. The Barco System Practices Claim 8 of the '972 Patent

156. It is my opinion that the Barco System practices this Claim for the same reasons discussed in paragraph 148.

ix. The Barco System Practices Claim 9 of the '972 Patent

a. The Barco System Practices 9[pre] of the '951 Patent

157. It is my opinion that the Barco System practices 9[pre], which recites “A method for connecting a processing device to a functional device connected to or in a base unit of a communications network, the processing device having a memory, a display and an operating system, the base unit having a transmitter and

the first peripheral device having a receiver the method comprising...” for the same reasons discussed in paragraphs 139.

a. The Barco System Practices 9[a] of the '951 Patent

158. It is my opinion that the Barco System practices 9[a], which recites “coupling a first peripheral device to the processing device via a generic communications protocol,” for the same reasons discussed in paragraphs 140 to 141.

b. The Barco System Practices 9[b] of the '951 Patent

159. It is my opinion that the Barco System practices 9[b], which recites “providing at least one fixed or a configurable endpoint, where the at least one fixed or a configurable endpoint is a data source or a data sink which is able to store or emit data, of the functional device exposed or made available on the first peripheral device[,]” for the same reasons discussed in paragraphs 142 to 147.

c. The Barco System Practices 9[c] of the '951 Patent

160. It is my opinion that the Barco System practices 9[c], which recites “transmitting data from the base unit and receiving the data at the first peripheral device over the communications network from the functional device to the processing device via the at least one fixed or configurable endpoint using the generic communications protocol for communication between the processing device and the first peripheral device,” for the same reasons discussed in paragraph 148.

d. The Barco System Practices 9[d] of the '951 Patent

161. It is my opinion that the Barco System practices 9[d] which recites “further comprising hosting a unified communication between two or more processing devices on the processing device[,]” for the same reasons discussed in paragraph 149.

x. The Barco System Practices Claim 10 of the '972 Patent

162. It is my opinion that the Barco System practices this Claim for the same reasons discussed in paragraph 150.

xi. The Barco System Practices Claim 11 of the '972 Patent

163. It is my opinion that the Barco System practices this Claim for the same reasons discussed in paragraph 151.

xii. The Barco System Practices Claim 12 of the '972 Patent

164. It is my opinion that the Barco System practices this Claim for the same reasons discussed in paragraph 152.

xiii. The Barco System Practices Claim 13 of the '972 Patent

165. It is my opinion that the Barco System practices this Claim for the same reasons discussed in paragraph 153.

xiv. The Barco System Practices Claim 14 of the '972 Patent

166. It is my opinion that the Barco System practices this Claim for the same reasons discussed in paragraph 154.

xv. The Barco System Practices Claim 15 of the '972 Patent

a. The Barco System Practices 15[pre] of the '951 Patent

167. It is my opinion that the Barco System practices 15[pre], which recites “A peripheral device adapted to be coupled to a processing device via a generic communications protocol, the peripheral device having a receiver and at least one fixed or a configurable endpoint, where the at least one fixed or a configurable endpoint is a data source or a data sink which is able to store or emit data, of a functional device exposed or made available on the first peripheral device” for the same reasons discussed in paragraphs 140 to 147.

b. The Barco System Practices 15[a] of the '951 Patent

168. It is my opinion that the Barco System practices limitation 15[a] which recites “the receiver of the first peripheral device being adapted to receive data over the communications network from the functional device and for sending the data to the processing device via the at least one fixed or configurable endpoint using the generic communications protocol for communication between the processing device and the peripheral device,” for the same reasons discussed in paragraph 148.

c. The Barco System Practices 15[b] of the '951 Patent

169. It is my opinion that the Barco System practices 15[b], which recites “wherein the peripheral device is configured to present the processing device to host

a unified communication between two or more processing devices[.]” for the same reasons discussed in paragraph 149.

xvi. The Barco System Practices Claim 16 of the ’972 Patent

170. It is my opinion that the Barco System practices this Claim for the same reasons discussed in paragraph 151.

xvii. The Barco System Practices Claim 17 of the ’972 Patent

171. It is my opinion that the Barco System practices this Claim. One method step of claim 9 performed by the Barco System based on instructions of a computer program stored in a non-transitory signal storage is, for example, “providing at least one fixed or a configurable endpoint, where the at least one fixed or a configurable endpoint is a data source or a data sink which is able to store or emit data, of the functional device exposed or made available on the first peripheral device[.]”

xviii. The Barco System Practices Claim 18 of the ’972 Patent

172. It is my opinion that the Barco System practices this Claim. For example webcam data on the peripheral device described in paragraphs 148 are transferred in one direct.

VII. RESERVATION OF RIGHTS

173. I declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true. I also declare that these statements were made with the knowledge that willful false

statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001. I declare under the penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Dated: 10/21/2025

By:

Signed by:

A19F56ED78AB449
Michael C. Brogioli, Ph.D.