

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: IPR2025-00598

U.S. PATENT NO. 11,966,347

DECLARATION OF MICHAEL C. BROGIOLI, Ph.D.

TABLE OF CONTENTS

I. QUALIFICATIONS AND BACKGROUND..... 2

II. LEGAL STANDARD 7

 A. Claims..... 7

 B. Specification 8

 C. Prosecution History..... 9

 D. Burden of Proof 9

 E. Anticipation10

 F. Obviousness.....11

 i. *Analogous Art*12

 ii. *Reasonable Expectation of Success*13

 iii. *Motivation to Combine*13

 iv. *Hindsight*16

 v. *Secondary Considerations*16

III. LEVEL OF ORDINARY SKILL IN THE ART.....17

IV. SUMMARY OF THE '347 PATENT18

 A. Technical Overview18

 B. Claim Construction20

V. SUMMARY OF THE ART.....21

 A. Beel (Exhibit 1005).....21

 B. Dinka (Exhibit 1006)24

 C. Van de Laar (Exhibit 1007).....25

 D. Kaplan (Exhibit 1008).....26

 E. Christison (Exhibit 1011).....28

VI. OPINIONS.....29

 A. Ground 1: Dr. Almeroth Fails to Establish that the Combination of Beel,
 Dinka, and Christison Renders Obvious Any of the Challenged
 Claims.....29

 i. Dinka teaches away from the claimed subject matter of the '347 Patent.

31

- ii. A POSITA would not be motivated to combine Beel, Dinka, and Christison.....35
 - i. “at least one fixed or configurable endpoint of the functional device is exposed on the first peripheral device”38
 - ii. “the base unit being configured to transmit and the first peripheral device being configured to receive first processed video data over the communications network”41
 - iii. “the functional device being configured for first video data to flow into the base unit or first video data is captured in the base unit, the first video data being processed in the base unit to generate the first processed video data, wherein the first processed video data is sent to the first peripheral device,”44
 - iv. “the first peripheral device being configured to process the first processed video data received by the first peripheral device to generate second video data”47
 - v. “the operating system of the processing device being configured to capture the second video data and to make it available through a custom or standard driver to either the host application or a 3rd party application running on the processing device or to other processing devices,”48
 - vi. Dependent Claims.....49
- 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.....51
 - i. A POSITA would not be motivated to combine Kaplan, Van de Laar, and Christison53
 - ii. “first peripheral device being configured to be coupled to the processing device via a generic communications protocol”58
 - iii. “at least one fixed or configurable endpoint of the functional device is exposed on the first peripheral device,”62
 - iv. “the base unit being configured to transmit and the first peripheral device being configured to receive first processed video data over the communications network,”63
 - v. “the first peripheral device being configured to process the first

processed video data received by the first peripheral device to generate second video data”66

vi. “the operating system of the processing device being configured to capture the second video data and to make it available through a custom or standard driver to either the host application or a 3rd party application running on the processing device or to other processing devices”67

vii. “wherein third video data, received from the host application and/or from the 3rd party application running on the processing device, is sent to an endpoint of the first peripheral device via a standard generic driver,” 70

viii. “the first peripheral device receiving the third video data and processing the third video data to form second processed video data”71

ix. Dependent Claims.....72

C. The Barco System Embodies the Claims of the ’347 Patent.....74

i. The Barco System Practices Claim 1 of the ’347 Patent.....74

a. A method for connecting a processing device to a functional device, the functional device being connected to or in a base unit of a communications network, the processing device having a memory, a display and an operating system, wherein the processing device hosts a host application, further comprising:.....74

b. a first peripheral device being configured to be coupled to the processing device via a generic communications protocol, the base unit having a transmitter and the first peripheral device having a receiver and at least one fixed or configurable endpoint of the functional device is exposed on the first peripheral device, the method further comprising:
76

c. the base unit being configured to transmit and the first peripheral device being configured to receive first processed video data over the communications network,80

d. the functional device being configured for first video data to flow into the base unit or first video data is captured in the base unit, the first video data being processed in the base unit to generate the first processed video data, wherein the first processed video data is sent to the first peripheral device,.....80

e. the first peripheral device being configured to process the first processed video data received by the first peripheral device to generate

second video data, the first peripheral device being configured to make the second video data available through the at least one fixed or configurable endpoint of the first peripheral device,81

f. the operating system of the processing device being configured to capture the second video data and to make it available through a custom or standard driver to either the host application or a 3rd party application running on the processing device or to other processing devices,.....81

g. wherein third video data, received from the host application and/or from the 3rd party application running on the processing device, is sent to an endpoint of the first peripheral device via a standard generic driver, the first peripheral device receiving the third video data and processing the third video data to form second processed video data, and 82

h. wherein the base unit receives the second processed data, and decodes and/or enhances the second processed data and forwards it to a functional device which is connected or attached to the base unit through a serial connection.83

VII. RESERVATION OF RIGHTS84

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 31 (the “Challenged Claims”) of U.S. Patent No. 11,966,347 (the “’347 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 '347 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 (Ex. 2005) 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 approximate date Dr. Almeroth used as the priority date of the ’347 Patent. Ex. 1002, ¶34 (“I have been asked to initially consider that the time of the alleged invention of the ’347 patent is around December 17, 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 product. 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 ’347 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 '347 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 '347 Patent. I now consider myself an expert in the relevant field of technology for the '347 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 '347 PATENT

A. Technical Overview

49. The '347 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, 1:47-49. 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, 1:2-25, 1:47-52. So, the '347 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, 1:56-59.

50. An example implementation of the system disclosed in the specification of the '347 Patent is depicted below in Figure 5. Figure 5 shows four laptops 160-1, 160-2, 160-3, and 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, 19:8-21. 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, 19:15-18. 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, 18:39-51, 19:22-29.

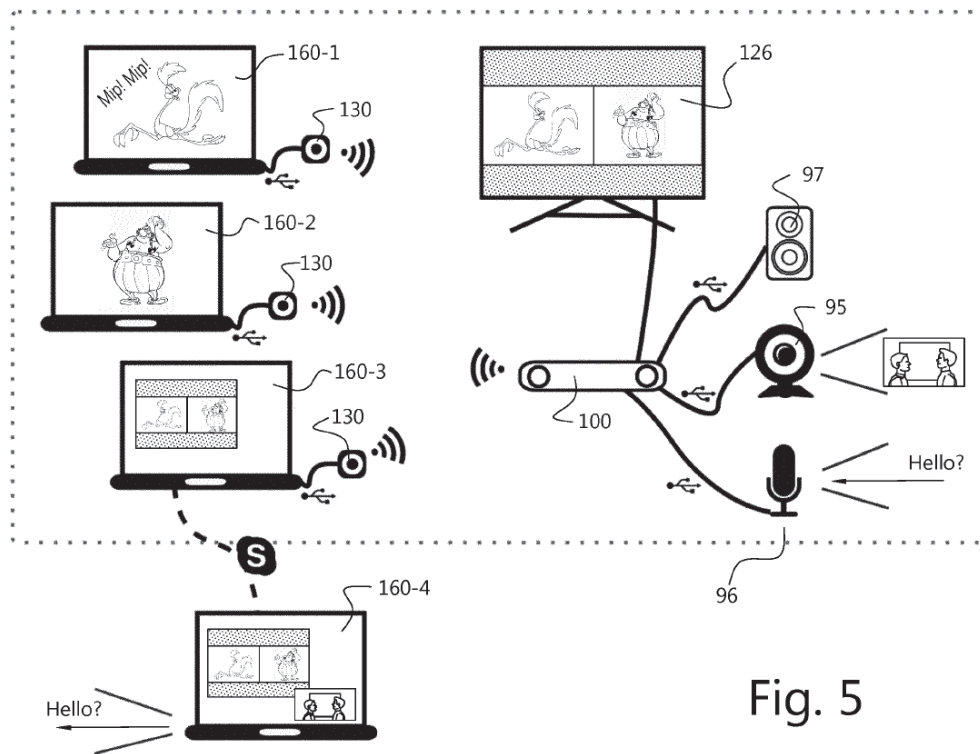


Fig. 5

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, 18:51-57. Advantageously, the functional devices connected to the base unit 100 are exposed natively through an endpoint on the peripheral device 130. Ex. 1001, 19:58-61.

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.

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 implementation, 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].

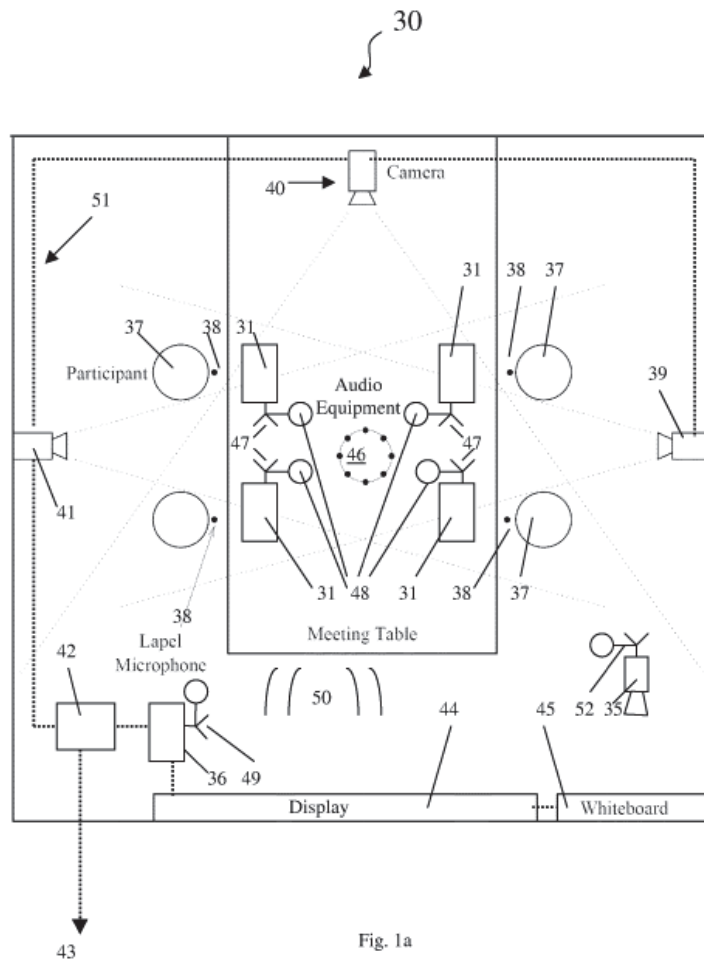


Fig. 1a

Ex. 1001, Figure 1a.

57. By connecting the peripheral device to the processing device, the user can also share audio data to the peripheral device's audio device, which can be streamed to the base node. Ex. 1005, [0316]. This sharing process is done using only standard drivers and does not require special software installation in or on the processing device. Ex. 1005, [0317]. Audio data is then transmitted over the communication network to the base node. Ex. 1005, [0317]. The audio data may then be shared from the base node. Ex. 1005, [0319].

58. Other optional components include cameras 39, 40, 41 and microphones 38. Ex. 1005, [0120]. These elements can be used to record meetings or lectures to provide an accurate sequence of events and to be reviewed at a later time. Ex. 1005, [0121]. The cameras 39, 40, 41 may be linked to the network via a router 42 or the base node 36 whereas the microphones 38 may be connected to the processing device 31 to transfer audio. Ex. 1005, [0120]. Alternatively, the microphones 38 may be connected to loud speakers attached to the base node 36 or part of the display 44. Ex. 1005, [0120].

59. 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)

60. 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 utilize the packet-based communications on a television set or set box plugged into a television instead. Ex. 1006, 2:1-4, 2:19-24.

61. 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)

62. 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].

63. 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].

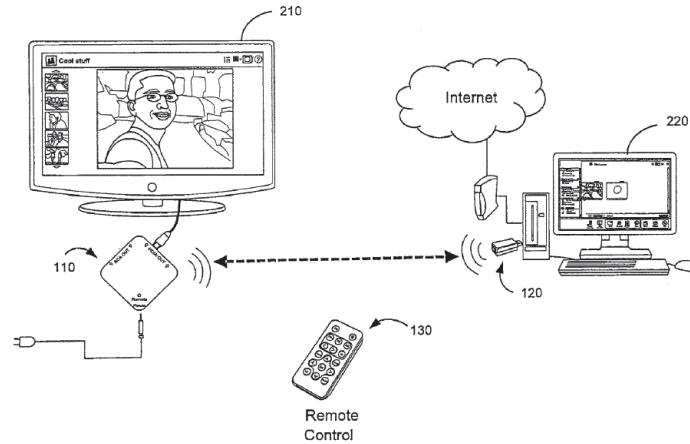
64. The docking process is arranged for docking a primary dockee device and a secondary dockee device. Ex. 1007, [0078]. The primary dockee and secondary dockee are given different access levels. A primary dockee is granted control to at least one peripheral, while the secondary dockee is not granted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

D. Kaplan (Exhibit 1008)

65. 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 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.

66. 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.

67. 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].

68. 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)

69. 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.

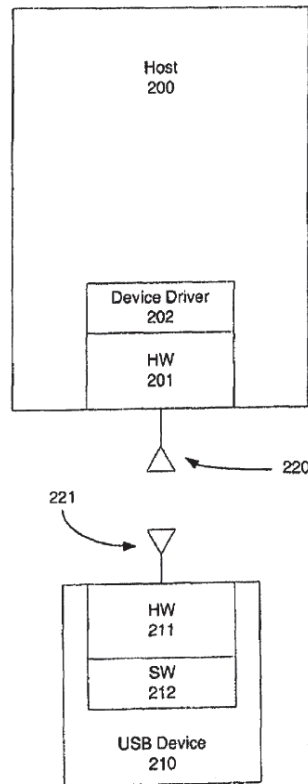


Fig. 2

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

70. Dr. Almeroth opines that Claims 1 to 31 of the '347 Patent are obvious over the combination of Beel, Dinka, and Christison. Ex. 1002, Section IX.A. I disagree with Dr. Almeroth for eight main reasons.

71. First, it is my opinion that Dr. Almeroth relies on a reference, Dinka, that teaches away from the claimed subject matter of the '347 Patent.

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

73. Third, it is my opinion that the combination of Beel, Dinka, and Christison does not teach the limitation that “at least one fixed or configurable endpoint of the functional device is exposed on the first peripheral device,” as required by Claims 1 and 12.

74. Fourth, it is my opinion that the combination of Beel, Dinka, and Christison does not teach the limitation that “the base unit being configured to transmit and the first peripheral device being configured to receive first processed video data over the communications network” as required by Claims 1, 12, 23 and 27.

75. Fifth, it is my opinion that the combination of Beel, Dinka, and Christison does not teach the limitation that “the functional device being configured for first video data to flow into the base unit or first video data is captured in the base unit, the first video data being processed in the base unit to generate the first processed video data, wherein the first processed video data is sent to the first peripheral device” as required by Claim 1 and 23, or the similar limitation of “the functional device being configured for first video data to flow into the base unit or

first video data to be captured in the base unit, the first video data being processed in the base unit to generate the first processed video data, wherein the first processed video data is sent to the first peripheral device” as required by Claims 12 and 27.

76. Sixth, it is my opinion that the combination of Beel, Dinka, and Christison does not teach the limitation “the first peripheral device being configured to process the first processed video data received by the first peripheral device to generate second video data” as required by Claims 1, 12, 23 and 27.

77. Seventh, it is my opinion that the combination of Beel, Dinka, and Christison does not teach the limitation that “the operating system of the processing device being configured to capture the second video data and to make it available through a custom or standard driver to either the host application or a 3rd party application running on the processing device or to other processing devices” as required by Claims 1, 12, 23 and 27.

78. Eighth, it is my opinion that the combination of Beel, Dinka, and Christison is also insufficient regarding multiple dependent claims, including claims 2, 3, 4, 5, 13, 15, and 16.

- i. Dinka teaches away from the claimed subject matter of the '347 Patent.

79. It is my opinion that Dinka teaches away from the subject matter claimed by the '347 Patent. Rather than lead a POSITA to construct a system which

provides functional devices of a base unit to a processing device directly over a wireless connection with a base unit, Dinka instead teaches to avoid using a processing device to host a unified communications call and instead, 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 if improved functional devices are desired.

80. The inventors of the '347 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, 1:22-25, 1:41-46, 1:47-52. To overcome this issue, the '347 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, 1:56-59, 10:39-51.

81. Rather than improve the functional devices available to a laptop (like the '347 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.

82. The '347 Patent claims are directed to “[a] method for connecting a processing device to a functional device, the functional device being connected to or in a base unit of a communications network[.]” Ex. 1001, Cl. 1. *see also*, Cl. 12, 23,

27. As disclosed in the '347 Patent, a processing device is a laptop, computer, PDA, smartphone or other similar devices. Ex. 1001, 8:54-59.

83. 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, 5:53-55. The unified communication call is shared between processing devices 160-3 and 160-4, with 160-4 being in a separate location. Ex. 1001, 19:22-29. 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, 19:31-37. 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, 1:22-25, 1:49-52, Cl. 1.

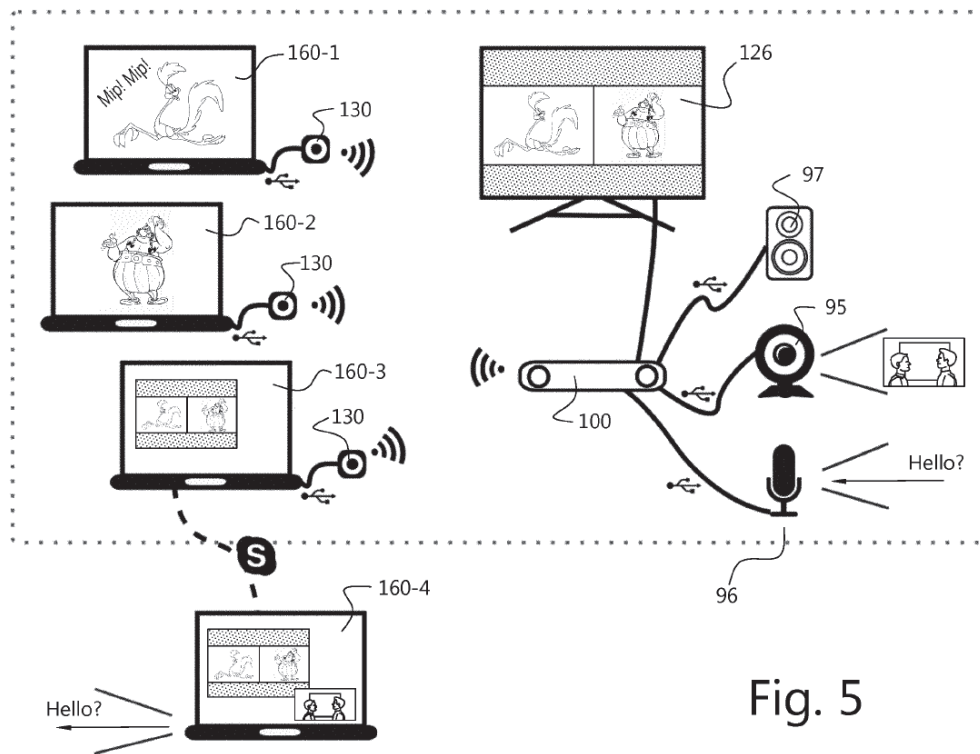


Fig. 5

Ex. 1001, Fig. 5.

84. In contrast, Dinka discredits this approach, and provides a competing solution. 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.

85. 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 rely on their own laptop. Ex. 1006, 7:17-21.

86. So, unlike the '347 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 '347 Patent based on the teachings of Dinka.

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

87. It is my opinion that a POSITA of the '347 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.

88. As I noted above in paragraphs 79-86, Dinka teaches away from systems that provide improved functional 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].

89. 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.

90. 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.

91. 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, ¶103. However, Dr. Almeroth does not articulate how Skype improves, Beel, a system which allegedly already acknowledges the existence of web conferencing systems as noted by Dr. Almeroth himself. Ex. 1002, ¶102 (citing Ex. 1005, [0085]-[0089]). Further, Dr. Almeroth does not say what is actually improved in Beel.

92. It is also my opinion that disclosure of Skype in the '347 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. In fact, Beel explains that electronic meeting systems are distinguishable from web conferencing systems. Ex. 1005, [0085].

93. 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, ¶104. 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.

94. 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, 63 (Heading). 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, ¶103.

95. I also note that Dr. Almeroth's motivation to combine in this proceeding is very similar to the motivation to combine in proceedings for other patents in the '347 Patent's family (such as the '346 Patent), which excludes use of a peripheral device for communication and instead requires direct communication between a processing device and base unit. Ex. 2020, ¶¶107-111 (Dr. Almeroth's declaration in IPR2025-00597). In my opinion, a POSITA would not combine the cited references to achieve two very different systems based on the same motivations to combine the cited references.

- i. “at least one fixed or configurable endpoint of the functional device is exposed on the first peripheral device”

96. It is my opinion that the combination of Beel, Dinka, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12, Claim 27, and Claim 27, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶153-166, 180-195, 199-210.

97. The '347 Patent explains that “fixed USB endpoints on the first peripheral device 130 are provided for the basic functionality.” Ex. 1001, 18:2-4. The '347 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 160 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, 18:10-20.

98. It is my opinion that Dr. Almeroth has not established that Beel teaches a peripheral device having an endpoint of the functional device. For example, the word endpoint does not appear in Beel. Ex. 1005. I also do not interpret Figure 4 of the '347 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 '347 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, 18:4-9. In fact, drivers, as shown in Figure 4, are components of the client PC, not the external USB device.

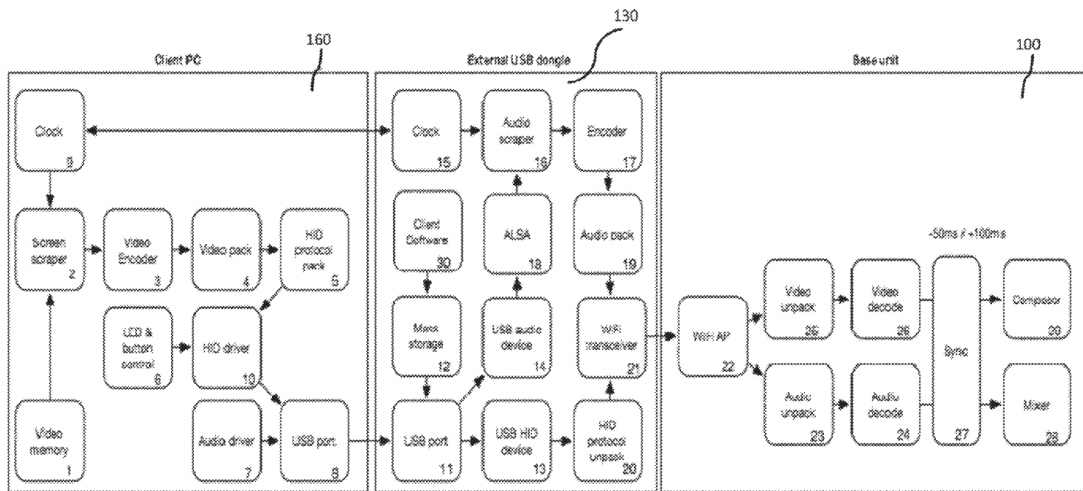


Fig. 4

Ex. 1001, Fig. 4.

99. Further, it is my opinion that Figure 4 of the '347 Patent is included in Beel for a different purpose. In the '347 Patent, it is used to described "Sending Data from the Processing Device to the Base Unit[.]" Ex. 1001, 17:18-19. 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 '347 Patent. Also, Beel does not disclose that any alleged endpoint is "of the functional device" but instead identifies when the peripheral device communicates data from the processing device to an audio out device, e.g., a speaker. Ex. 1005, ¶¶313, 315; Ex. 1002, ¶117.

100. 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 “natively exposed[.]” Ex. 1002, ¶¶119.

- ii. “the base unit being configured to transmit and the first peripheral device being configured to receive first processed video data over the communications network”

101. It is my opinion that the combination of Beel, Dinka, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12, Claim 27, and Claim 27, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶153-166, 180-195, 199-210.

102. It is my opinion that Beel is directed to a system which communicates data *from* a peripheral device *to* a base node. This contrasts with the claim limitation, where the base unit *transmits* data and the first peripheral device *receives* data. For example, Beel discloses that its embodiments present three main improvements: reducing the time taken to prepare for a meeting (i.e., providing “on-the-fly” presentations not linked in a particular software); reducing the time taken during a meeting; and providing an ability to record the course of a meeting. Ex. 1005, [0113]-[0116]. As summarized by the Beel itself in its description of Figure 1A “the present invention provides an electronic meeting to for communicating arbitrary media content between different users 37 (with their own processing devices 31, e.g.,

PC, mobile phone, or tablet) and one display or projector or multiple displays or projectors 44 in the meeting room 30.” Ex. 1005, [0122].

103. In the same way the peripheral device is used to transmit content from a processing device, the base node is designed to receive the transmitted content. The base node is a special processing device or host computer that couples to a display and is adapted to receive the user selected arbitrary media content. Ex. 1005, [0123]. The arbitrary media content is obtained from the portable application housed on the peripheral device (a plug-and-play connection unit) that is used to screen scrape content from a processing device which is later transmitted by the peripheral device. Ex. 1005, [0124], [0127]-[0128], [0208]-[0212]. In addition to presenting a screen, audio can also be presented via the peripheral device. Ex. 1005, [0313]-[0316].

104. Dr. Almeroth identifies a number of passages in Beel that allegedly disclose this limitation. Ex. 1002, ¶¶120-121 (citing Ex. 1005, [0050], [0056], [0071], [0075], [0093], [0118]-[0122], [0126], [0128], [0129], [0288], [0298], [0310]-[0311]). It is my opinion that Dr. Almeroth misinterprets or extends the teachings of these paragraphs beyond what they disclose.

105. For example, [0071] discloses “the peripheral device comprising a memory in which executable software code is stored... said executable software comprising... 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.” Ex. 1005, [0071]. However, it does not explicitly disclose whether it is the display of a processing device, or a display connected to the base node that displays the content in accordance with a set of rules. Ex. 1005, [0071].

106. Other portions, including portions Dr. Almeroth himself identifies in this section of his declaration (Ex. 1002, ¶121) suggest that it is the display of the base node that receives the content, not of the processing device. Ex. 1005, [0075], [0123], [0132], [0147]-[0157]. For example, Beel discloses a display “receiving media content from the communication network at the base node and displaying the media content on a display in accordance with a set of rules.” Ex. 1005, [0075]. Beel also notes that “the base node 36 can be adapted to display the received user selected arbitrary media content in accordance with a set of rules” and provides multiple example rules. Ex. 1005, [0123]. I also note that Dr. Almeroth cites Beel [0071] for communications in the opposing direction as well. Ex. 1002, ¶¶130 (limitation 11), 131 (limitation 1m).

107. The other portions Dr. Almeroth identifies do not support his conclusions that first processed video data is transmitted by the base node and received by the peripheral device of Beel. *See* Ex. 1005, [0050], [0056], [0075], [0093], [0118]-[0122], [0126], [0128], [0129], [0288], [0298], [0310]-[0311]. Dr. Almeroth identifies these passages, but fails to explain how they relate to this

specific limitation. Certain passages appear to references “a transceiver” or “transmitter/receiver” but in my view, that is insufficient to disclose the challenged limitation. Ex. 1005, [0288], [0311].

- iii. “the functional device being configured for first video data to flow into the base unit or first video data is captured in the base unit, the first video data being processed in the base unit to generate the first processed video data, wherein the first processed video data is sent to the first peripheral device,”

108. It is my opinion that the combination of Beel, Dinka, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12, Claim 27, and Claim 27, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶153-166, 180-195, 199-210.

109. Beel Figure 1a illustrates an example meeting room:

optional equipment, such as cameras 39, 40, 41 which are used to record meetings, and microphones 39 which are used to transfer audio either to the processing devices 31 or to the loud speakers connected to the base node. Ex. 1005, [0120].

111. These cameras 39, 40, 41 go to a key aspect of Beel of accurately recording the events of the meeting in order to keep a complete record. Ex. 1005, [0114], [0116], [0119], [0121].

112. Beel discloses that the cameras may be connected to the router 42 in the meeting room or the base node 36. Ex. 1005, [0120]. However, Beel does not disclose sharing data from these cameras over the communication network to a peripheral device. Dr. Almeroth alleges that Beel discloses video data being sent to the processing device at [0071], but this is incorrect for the reasons I identified at Paragraph 105. Likewise, Beel does not disclose that the data from these cameras is processed by the base node.

113. Dr. Almeroth also identifies optional camera 35 as allegedly teaching this limitation. Ex. 1002, ¶123 (citing Ex. 1005, [0119]). However, camera 35 is not even described as being connected to the base node, or for otherwise allowing data to “flow” into Beel’s base node. Ex. 1005, [0119]. So, this camera is also insufficient to teach the limitations of the ’347 Patent.

- iv. “the first peripheral device being configured to process the first processed video data received by the first peripheral device to generate second video data”

114. It is my opinion that the combination of Beel, Dinka, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12, Claim 27, and Claim 27, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶153-166, 180-195, 199-210.

115. Preliminarily, Dr. Almeroth cites to [0322] of Beel, but quotes content from [0321]. It is my opinion that neither passage teaches this limitation. First, [0322] recites features of the base node, not a peripheral device. Ex. 1005, [0322]. Second, regarding the quoted portion of [0321], Dr. Almeroth omits an important passage of the quoted portion. The full quote reads “[o]n the peripheral device 32 the video packets are received *at the corresponding plug and play port, e.g. the USB port 11*, read by the Human Interface Driver (HID) interface handler 13, unpacked to remove HID protocol headers in an unpacker 20 and then transmitted to the communications network by a transmitter 21.” In other words, the identified data is not the “first processed video data” because this data arrives over the port of the peripheral device connected to the processing device, not from the base node described in Beel.

- v. “the operating system of the processing device being configured to capture the second video data and to make it available through a custom or standard driver to either the host application or a 3rd party application running on the processing device or to other processing devices.”

116. It is my opinion that the combination of Beel, Dinka, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12, Claim 27, and Claim 27, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶153-166, 180-195, 199-210.

117. Dr. Almeroth identifies passages from Beel and Dinka to allege obviousness of this limitation. However, it is my opinion that neither Beel or Dinka render this limitation obvious. For example, as explained in paragraphs 101-107, Beel does not disclose video data being communicated *from* its base node *to* a peripheral device. Therefore, it does not teach the processing device capturing the video data that arrives at the peripheral device.

118. Dr. Almeroth opines that “Dinka also explains how video data is made available ‘to either the host application or a 3rd party application’ (e.g., a video engine) ‘running on the processing device or to other processing devices,’” but not for the other aspects of the claim limitation. So, a combination of Beel and Dinka still does not render this limitation obvious.

vi. Dependent Claims

119. It is my opinion that the combination of Beel, Dinka, and Christison does not disclose “wherein the first video data is interpreted and/or encoded in the base unit to form the first processed video data” as required by Claim 2 or the similar limitation of “wherein the base unit is configured to interpret and/or encode the first video data to form the first processed video data” as required by Claim 13. First, Dr. Almeroth identifies features of the peripheral device, not the base node of Beel. Ex. 1002, ¶137 (citing Ex. 1005, [0067], [0070]-[0072]). Further, while he states “a POSA would recognize and find it obvious to...move code for encoding/encrypting or [decoding]/decrypting from the peripheral device onto the base node” he has provided no reasons for doing so beyond merely concluding that it would be obvious. Ex. 1002, ¶138. Beyond features of the peripheral device, Dr. Almeroth identifies that the base node receives, decrypts, and decodes incoming content rather than interpret and/or encoding the first video data. Ex. 1005, [0155].

120. It is my opinion that the combination of Beel, Dinka, and Christison does not disclose “wherein the first video data is enhanced, mixed, multiplexed, and/or encrypted in the base unit” as required by Claim 3 or the similar limitation “wherein the base unit is configured to enhance, mix, multiplex, and/or encrypt the first video data” as required by Claim 14. First, Dr. Almeroth identifies features of the peripheral device, not the base node of Beel. Ex. 1002, ¶139 (citing Ex. 1005,

[0072]). Moreover, Dr. Almeroth concludes “auto-composing” is the same as mixing or multiplexing video data. Ex. 1002, ¶139. Moreover, Beel’s discussion of auto-composing pertains to “rendering of *composited image* on display” not the transmission of images. Ex. 1005, [0072]. In my opinion, auto-composing is different than mixing or multiplexing video data.

121. It is my opinion that the combination of Beel, Dinka, and Christison does not disclose “wherein the first processed video data is received by the first peripheral device, and the first peripheral device is configured to decode and/or interpret the first processed video data and to generate the second video data” as required by Claim 4 or the similar limitation “wherein the first peripheral device is configured to decode, and/or interpret the first processed video data received by the first peripheral device to generate the second video data” as required by Claim 15. Likewise, it is my opinion that the combination of Beel, Dinka, and Christison does not disclose “wherein the first peripheral device demultiplexes, and/or decrypts, the first processed video data received by the first peripheral device to generate the second video data” as required by Claim 5 or the similar limitation “wherein the first peripheral device is configured to demultiplex and/or decrypt, the first processed video data received by the first peripheral device” as required by Claim 16. First, as I explained in paragraphs 114-115, the first peripheral device does not receive the first processed video data. Second, it is my opinion that Dr. Almeroth has not

established that removing HID protocol headers renders obvious both “decode and/or interpret” or “demultiplexes and/or decrypts” the video data as he concludes.

Ex. 1002, ¶141-142.

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

122. Dr. Almeroth opines that Claims 1 to 31 of the '347 Patent are obvious over the combination of Kaplan, Van de Laar, and Christison. Ex. 1002, Section IX.B. I disagree with Dr. Almeroth for nine main reasons.

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

124. Second, it is my opinion that the combination of Kaplan, Van de Laar, and Christison do not teach the limitation that the “first peripheral device being configured to be coupled to the processing device via a generic communications protocol” as required by Claim 1, Claim 12, Claim 23 and Claim 27.

125. Third, it is my opinion that the combination of Kaplan, Van de Laar, and Christison do not teach the limitation that the “at least one fixed or configurable endpoint of the functional device is exposed on the first peripheral device” as required by Claim 1, Claim 12, Claim 23 and Claim 27.

126. Fourth, it is my opinion that the combination of Kaplan, Van de Laar, and Christison do not teach the limitation that the “the base unit being configured to

transmit and the first peripheral device being configured to receive first processed video data over the communications network” as required by Claim 1, Claim 12, Claim 23 and Claim 27.

127. Fifth, it is my opinion that the combination of Kaplan, Van de Laar, and Christison do not teach the limitation that the “the first peripheral device being configured to process the first processed video data received by the first peripheral device to generate second video data” as required by Claim 1, Claim 12, Claim 23 and Claim 27.

128. Sixth, it is my opinion that the combination of Kaplan, Van de Laar, and Christison do not teach the limitation that the “the operating system of the processing device being configured to capture the second video data and to make it available through a custom or standard driver to either the host application or a 3rd party application running on the processing device or to other processing devices” as required by Claim 1, Claim 12, Claim 23 and Claim 27.

129. Seventh, it is my opinion that the combination of Kaplan, Van de Laar, and Christison do not teach the limitation that the “wherein third video data, received from the host application and/or from the 3rd party application running on the processing device, is sent to an endpoint of the first peripheral device via a standard generic driver” as required by Claim 1 and Claim 23 and the similar limitation “wherein third video data, received from the host application and/or from the

3rd party application running on the processing device, are sent to an endpoint of the first peripheral device via a generic driver” of Claim 12.

130. Eighth, it is my opinion that the combination of Kaplan, Van de Laar, and Christison do not teach the limitation that the “the first peripheral device receiving the third video data and processing the third video data to form second processed video data” as required by Claim 1 and Claim 23 and the similar limitation “the first peripheral device being configured to receive the third video data and to process the third video data to form second processed video data” of Claim 12.

131. Ninth, it is my opinion that the combination of Kaplan, Van de Laar, and Christison is also insufficient regarding multiple dependent claims, including claims 2, 3, 5, 13, 14, 16, and 28.

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

132. It is my opinion that a POSITA would not be motivated to combine Kaplan, Van de Laar, and Christison. Kaplan and Van de Laar rely on very different protocols for wireless connectivity, so a POSITA would not consider the combination. Further, Dr. Almeroth does not address the difference in wireless communication between Kaplan and Van de Laar.

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

134. In Van de Laar, 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].

135. 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. There is no explanation for why a POSITA would 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.

136. 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.

137. 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.

138. 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.

139. 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.

140. For example, Dr. Almeroth opines that the combination of Van de Laar and Kaplan would have “the predictable result of using a unified communication system (such as Skype) wherein the system could utilize one or more connected functional devices’ capabilities.” Ex. 1002, ¶216. It is also my opinion that disclosure of Skype in the ’347 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. Instead, 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.

141. 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 136-138.

142. 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 "Kaplan, Van de Laar, and Christison could have been combined by using Christison's known technique of presenting a remote device as native to improve or suggest one way for Kaplan to implement its disclosed functional devices." Ex. 1002, ¶217. Dr. Almeroth provides no explanation of why a POSITA would be motivated to modify Kaplan or Van de Laar to use this method.

143. 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, ¶230. 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, ¶229.

ii. “first peripheral device being configured to be coupled to the processing device via a generic communications protocol”

144. It is my opinion that the combination of Kaplan, Van de Laar, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12, Claim 23, and Claim 27, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶259-272, 287-302, 306-317.

145. First, it is unclear to me based on Dr. Almeroth’s declaration whether he views the combination of *Kaplan* and *Van de Laar* as relying on a peripheral device to receive communications from the elements Dr. Almeroth relies on as the alleged base unit.

146. 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].

147. 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].

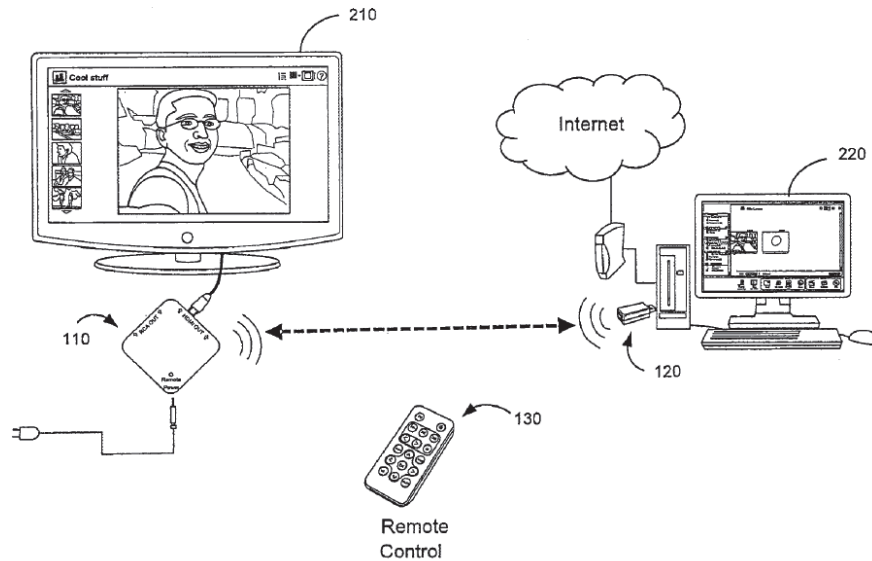


FIG. 2

Ex. 1008, Fig. 2.

148. In Van de Laar, wireless docking is enabled by utilizing multiple “dockees” which wirelessly 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].

149. 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].

150. Additionally, in *Van de Laar*, a peripheral device is not used to communicate to between a laptop to the wireless docking host. Instead a computer's integrated transmitter is used. Ex. 1007 [0076], Fig. 1.

151. Based on Dr. Almeroth's declaration it is unclear to me if Dr. Almeroth means that just the functions of the WDH would be implemented into the receiver described in Kaplan, or if the transmission system of Kaplan would be replaced with Van de Laar's Wi-Fi direct transmission system. For example, Dr. Almeroth states:

[t]he POSA would have understood that Van de Laar's system could leverage Kaplan's known technique of using a standard operating system and data transformations to improve a similar device in the same way and, therefore, motivated to *modify the transmission system of Kaplan with Van de Laar's WDH* because it would improve the useability of the system to *connect multiple wireless devices* to access and use connected functional devices in a unified communication call.

Ex. 1002, ¶215.

152. On the one hand, Dr. Almeroth seemingly relies on the USB transmitter of Kaplan. For example, Dr. Almeroth emphasizes the use of a USB protocol in

Christison, which would indicate a USB peripheral transmitter is used. Ex. 1002, ¶¶217. Similarly, Dr. Almeroth references Kaplan's USB transmitter as complying with the USB standard. Ex. 1002, ¶222. Also, while Dr. Almeroth indicates that a POSITA would modify Kaplan's receiver, Dr. Almeroth does not make any reference to Kaplan's USB transmitter. Ex. 1002, ¶215. This all suggests that *Kaplan's* USB transmitter is used.

153. On the other hand, Dr. Almeroth relies on transmissions techniques described in Van de Laar, such as Miracast and Wi-Fi Direct which are forms of wireless communications. *E.g.*, Ex. 1002, ¶¶227, 237, 239, 241. Further, Dr. Almeroth specifically relies on the "dockee communication unit" of Van de Laar throughout. Ex. 1002, ¶¶222, 224, 231, 233. This would suggest that Van de Laar's communication technique is used in the combination.

154. As Dr. Almeroth appears to rely on both communication techniques indiscriminately, it is my opinion that Dr. Almeroth has not established the '347 Patent is obvious. Further, irrespective of which communication technique Dr. Almeroth meant to elect, Dr. Almeroth has not provided any testimony why a POSITA would be motivated to modify Kaplan to use Van de Laar's transmission technique, or vice-versa.

155. The claims of the '347 Patent rely on a peripheral device. Ex. 1001, Cls. 1, 12, 23, 27. This would mean that reliance on the dockee communication unit

would not teach this limitation. I also understand that Dr. Almeroth relies on the same references with similar motivations to combine to challenge the validity of another patent related to the '347 Patent, and that exclude a peripheral device because and require direct communication between a processing device and base unit. Ex. 2021, ¶¶182-186. Accordingly, it is unclear to me what combination Dr. Almeroth is opining and relying on.

iii. “at least one fixed or configurable endpoint of the functional device is exposed on the first peripheral device,”

156. It is my opinion that the combination of Kaplan, Van de Laar, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12, Claim 23, and Claim 27, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶259-272, 287-302, 306-317.

157. Preliminarily, Dr. Almeroth does not rely on Kaplan for this limitation, and relies on Christison for limited purpose of and endpoint being “exposed.” Ex. 1002, ¶230. As Van de Laar has deficiencies with respect to other aspects of the limitation, Dr. Almeroth’s use of Christison does not correct these deficiencies.

158. 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. Ex.

1007 [0126]. However, these elements are mapped to the processing device and base unit respectively, not the peripheral device. Ex. 1007 [0126]. Also, Miracast is a protocol used to wirelessly screencast content. It is not a protocol used to communicate of a functional captures devices (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 '347 Patent. So, Dr. Almeroth has not proven that a peripheral device with at least one fixed or configurable endpoint is taught by Van de Laar.

- iv. “the base unit being configured to transmit and the first peripheral device being configured to receive first processed video data over the communications network,”

159. It is my opinion that the combination of Kaplan, Van de Laar, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12, Claim 23, and Claim 27, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶259-272, 287-302, 306-317.

160. Rather than identify a base unit that transmits data and a first peripheral device that receives data, Dr. Almeroth identifies a dockee (which is mapped to the

processing device) which transmits data to the wireless docking host (WDH, which is mapped to the base unit).

161. Van de Laar recognizes that “there’s a need to exchange information, collaboration, share meeting results such as meeting notes, presentations, whiteboard or smartboard contents” and “a need to easily switch presenters, conduct polls/surveys/exams, generate a presence list, share agenda’s etc.” Ex. 1007, [0080]. In other words, Van de Laar recognizes a need to improve the ability for systems to share or present content. Certain methods of accomplishing these presentation-based functions are also identified by Van de Laar, such as wired connection or Wi-Fi Miracast. Ex. 1007, [0080]. However, these systems provide different functions than the ’347 Patent—they, like Van de Laar, are directed to communicating content from a personal device (a “dockee”) to a central display or other users. This is the opposite path described in this limitation of the ’347 Patent.

162. Dr. Almeroth identifies a number of passages that allegedly disclose this limitation in Van de Laar. Ex. 1002, ¶¶231-232 (citing Ex. 1007, [0080], [0092], [0115], [0123]). However, each of these passages do not describe the WDH communicating data to the primary dockee. Instead, the primary dockee is a presenter, while the secondary dockees are attendees. Ex. 1007, [0092].

163. In my view, Dr. Almeroth inappropriately relies on description of features of the secondary dockee as features of the primary dockees. Van de Laar is

clear that the primary dockee and secondary dockee have distinct features. An exemplary use case is where “the primary dockee gets access to a display, whereas the secondary dockee is enabled to monitor the output of the display by receiving a video data stream of a peripheral similar to a camera function.” Ex. 1007, [0055]. In this way, the primary dockees and the secondary dockees are granted different access rights and peripheral functions. Ex. 1007, [0077]. In my view, Dr. Almeroth has not provided any justification or rationale in his declaration which would justify relying on features of both a primary dockee and secondary dockee for the processing device connected to the peripheral device claimed in the ’347 Patent.

164. I also note that Dr. Almeroth’s indiscriminate reference to both the primary dockees and secondary dockees is also an issue for other limitations he alleges are obvious. For example, Dr. Almeroth relies on features of the secondary dockee for at least this limitation and limitations i, k, and l but relies on features of the primary dockee for at least limitations l, m, and n. Ex. 1002, ¶¶232, 235, 239, 240, 242, 243.

165. Further, while Dr. Almeroth does not rely on Kaplan for this limitation, it is my opinion that Kaplan does not disclose this limitation either. Kaplan contemplates that its system could include transceivers rather than a transmitter and a receiver. However, Kaplan does not describe any communications that are received

by the peripheral-transmitter or that are transmitted by the display-receiver. Ex. 1008, [0017].

- v. “the first peripheral device being configured to process the first processed video data received by the first peripheral device to generate second video data”

166. It is my opinion that the combination of Kaplan, Van de Laar, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12, Claim 23, and Claim 27, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶259-272, 287-302, 306-317.

167. Dr. Almeroth identifies a portion of Van de Laar, but this portion does not disclose this limitation. Ex. 1002, ¶235 (citing Ex. 1007, [0056]). Here, Van de Laar explains that the host device (referring to the wireless docking host (WDH)) provides access to the primary dockee to write to at least one peripheral. Ex. 1007, [0056]. An example would be, the primary dockee can write display data to a display connected to the WDH. Then, the WDH provides “read access to the at least one peripheral for transferring at least part of the AV data to be rendered” to the secondary dockee. Ex. 1007, [0056]. In the example I described, this secondary dockee can read the display data and show the display data on the screen of the secondary dockee. The data received on the secondary dockee may be “the original, full resolution AV data, or ... a modified, e.g., scaled and/or transcoded,

representation of the primary AV data.” Ex. 1007, [0056]. However, even when the data is modified, these modifications occur in the WDH before it communicates the data to the secondary dockee, as the secondary dockee simply has read access. As Van de Laar does not even disclose a “peripheral device” that is recited in the claims of the ’347 Patent, Van de Laar cannot teach that this process occurs in the claimed peripheral device. This interpretation is also consistent with the other passages Dr. Almeroth identifies. Ex. 1007, [0093], [0115].

- vi. “the operating system of the processing device being configured to capture the second video data and to make it available through a custom or standard driver to either the host application or a 3rd party application running on the processing device or to other processing devices”

168. It is my opinion that the combination of Kaplan, Van de Laar, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12, Claim 23, and Claim 27, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶259-272, 287-302, 306-317.

169. It is my opinion that Van de Laar, does not teach using Skype to host a unified communication call between two or more processing devices. Van de Laar discloses a wireless docking station or host (WDH) which is connected to one or more peripheral devices locally and allows for dockee devices to communicate with

these peripherals. Ex. 1007, ¶6. An example communication structure of Van de Laar is depicted in Figure 3 below:

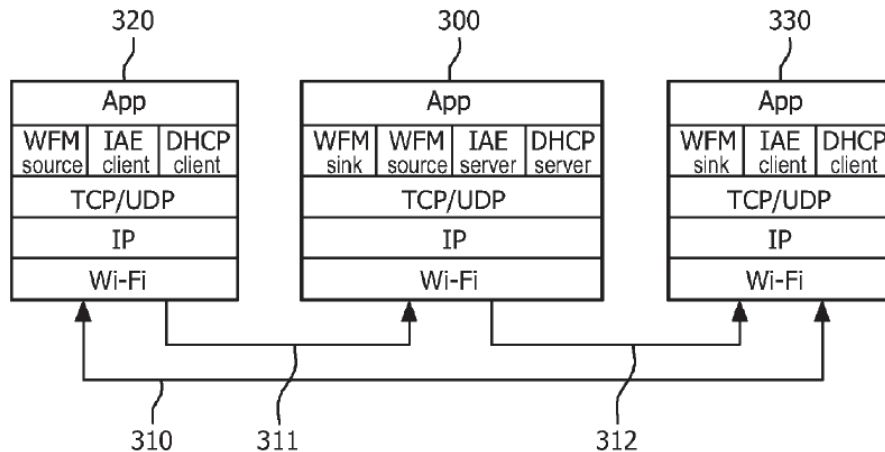


FIG. 3

Ex. 1007, Fig. 3.

170. The WDH 300 communicates wirelessly with the primary dockee 320 and a secondary dockee 330 via a unicast link 311 and broadcast link 312 respectively. Ex. 1007, [0124]. A Wi-Fi Miracast (WFM) sink, a WFM source, an interactive activity engine (IAE) server, and a DHCP server occupy a layer of the WFH 300. Ex. 1007, [0124]. The WFM sink receives data from the primary dockee’s 320 WFM source, and the WFM source provides data to the secondary dockee’s 330 WFM sink. Ex. 1007, [0124].

171. The WDH 300 shares data from the primary dockee 320 to the secondary dockee 330. A docking application is run on the primary dockee 320 using

WFM over IP and connects to the host. Ex. 1007, [0126]. The WDH receives the data and broadcasts the data as packets to the secondary dockee 330.

172. In addition to using Wi-Fi Miracast, Van de Laar teaches that “the WDH may enable primary dockees to provide output to the WDH and/or its audio peripherals through an audio stream between the dockee and the WDH.” Ex. 1007, [0128]. One example protocol to accomplish this is Skype. Ex. 1007, [0128].

173. Van de Laar provides no further articulation of how Skype is used in its system. More specifically, there is no disclosure of Skype being used to host unified communications between the primary dockee and the secondary dockee. Skype is only used for communication between the primary dockee and the WDH. Ex. 1007, [0128].

174. Further, it is my opinion that Van de Laar does not describe a system which uses both Miracast and Skype. Skype and Miracast are different protocols. In my opinion, Van de Laar references Skype as an alternative mechanism to achieve the functions of Miracast. Ex. 1007, [0128]. Dr. Almeroth relies on the Miracast in addition to Skype in its challenge. Ex. 1002, ¶¶227, 239, 241. Dr. Almeroth provides no explanation for how the system disclosed in Van de Laar would utilize both Miracast and Skype to perform the same communication functions. Ex. 1007, [0073], [0124], [0128].

175. Further, it is my opinion that Van de Laar does not provide teachings regarding any custom or standard drivers. Dr. Almeroth references drivers associated with Wi-Fi Miracast and a Wi-Fi serial bus. However, it is unclear to me how drivers from Wi-Fi Miracast and the Wi-Fi serial bus would make the video data to Skype, the relied on 3rd party or host application. More specifically, it is not my experience that Skype reads video data from the hardware associated with Wi-Fi Miracast or the Wi-Fi serial bus (i.e., transmitter or receiver). Instead, Skype is designed to read video data (with the assistance of drivers) from a video capture device such as a webcam.

- vii. “wherein third video data, received from the host application and/or from the 3rd party application running on the processing device, is sent to an endpoint of the first peripheral device via a standard generic driver.”

176. It is my opinion that the combination of Kaplan, Van de Laar, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12 and Claim 23, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶259-272, 287-302.

177. As I explained in paragraphs 169-174, it is my opinion that Van de Laar does not describe use of Skype in the way Dr. Almeroth relies on Skype, which is also true of this limitation. Further, I also note that Dr. Almeroth, despite explicitly

referencing a secondary dockee, relies on features of the primary dockee. Ex. 1002, ¶240 (citing Ex. 1007, [0059]). This is improper, as I opined in paragraphs 163-164. It is also unclear to me how a primary dockee and a secondary dockee can either (1) both be communicating via a peripheral device and (2) both be communicating over Skype.

- viii.** “the first peripheral device receiving the third video data and processing the third video data to form second processed video data”

178. It is my opinion that the combination of Kaplan, Van de Laar, and Christison does not teach this limitation. Also, as Dr. Almeroth relies on or incorporates his opinions for Claim 1 by reference for Claim 12 and Claim 23, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶¶259-272, 287-302.

179. Dr. Almeroth seemingly relies on the WFM packets that are generated as the second processed video data. Van de Laar discloses that “in order to allow the secondary dockee(s) to function as a WFM sink the WDH should forwards the WFM packets in broadcast mode.” Ex. 1007, [0126]. There is no other disclosure of the WFM packets, or that these WFM packets are the result of processing. To the extent there is processing of the WFM packets, it would seemingly occur in the WDH, as it is the WDH, not one of the dockees, that communicates the WDH to the secondary dockee in broadcast mode. Ex. 1007, [0126]. Further, I note that Dr. Almeroth relies

on the same argument for both this limitation and “wherein the first video data is interpreted and/or encoded *in the base unit* to form the first processed video data”

Ex. 1002, ¶245.

ix. Dependent Claims

180. It is my opinion that the combination of Kaplan, Van de Laar, and Christison does not teach “wherein the first video data is interpreted and/or encoded in the base unit to form the first processed video data” as required by Claim 2 or the similar limitation of “wherein the base unit is configured to interpret and/or encode the first video data to form the first processed video data” as required by Claim 13. For example, Dr. Almeroth does not explain how “video processing, buffering, storage, and the like, [] inherently or at least obvious include” interpreting or encoding the first video data. Ex. 1002, ¶224. Additionally, Dr. Almeroth also identifies the same argument to allege that “wherein the base unit is configured to interpret and/or encode the first video data to form the first processed video data” as required by Claim 4 (which depends from Claim 2). Ex. 1002, ¶246. Further, Kaplan explains that these aspects are divided between the computer, transmitter, and receiver. Ex. 1008, [0027]. In other words, the combination would not involve all of these features being performed in the claimed transmitter and the claimed base unit in the same system.

181. It is my opinion that the combination of Kaplan, Van de Laar, and Christison does not teach “wherein the first video data is enhanced, mixed, multiplexed, and/or encrypted in the base unit” as required by Claim 3 or the similar limitation “wherein the base unit is configured to enhance, mix, multiplex, and/or encrypt the first video data” as required by Claim 14. As Dr. Almeroth relies on or incorporates his opinions for Claim 2 and Claim 13 by reference for Claim 3 and Claim 14, his arguments with respect to these claims are insufficient for the same reasons. Ex. 1002, ¶246.

182. It is my opinion that the combination of Kaplan, Van de Laar, and Christison does not teach “wherein the first peripheral device demultiplexes, and/or decrypts, the first processed video data received by the first peripheral device to generate the second video data” as required by Claim 5, or the similar limitation “wherein the first peripheral device is configured to demultiplex and/or decrypt, the first processed video data received by the first peripheral device” as required by Claim 16. Dr. Almeroth incorrectly relates a video process task referred to as “video mixing” with multiplexing, which is a digital signal processing to combine multiple signals into a single signal. Ex. 1002, ¶249. Notably, Van de Laar is also describing “audio and video mixing” not simply “video mixing.” Ex. 1007, [0123].

183. It is my opinion that the combination of Kaplan, Van de Laar, and Christison does not teach “wherein third video data, received from the host

application and/or from the 3rd party application running on the processing device, are sent to an endpoint of the first peripheral device via a generic driver, the first peripheral device being configured to receive the third video data and to process the third video data to form second processed video data” as required for Claim 28 for the same reasons I explained in paragraphs 176-179.

C. The Barco System Embodies the Claims of the '347 Patent

184. I have been asked to analyze the Barco System and provide my opinion as to whether the Barco System embodies the claims of the '347 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 at least claims 1 of the '347 Patent.

i. The Barco System Practices Claim 1 of the '347 Patent

- a. A method for connecting a processing device to a functional device, the functional device being connected to or in a base unit of a communications network, the processing device having a memory, a display and an

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.

operating system, wherein the processing device hosts a host application, further comprising:

185. It is my opinion that the Barco System practices the claim limitation recited in the preceding heading.

186. For example, the Barco promotions material explains that the Barco System is a system which can be used to connect a processing device (e.g., a laptop) to a base unit (the Barco Base) that is connected to functional devices. This is shown in the following image:

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.

187. A laptop provides an example of a claimed processing devices. The laptop running windows that I used in my testing, like most laptops, includes a memory, a display, an operating system, and is capable of hosting applications such as a claimed host application. As shown in the image below, the Barco Base can be connected to a functional device, such as a webcam, and the data from the webcam

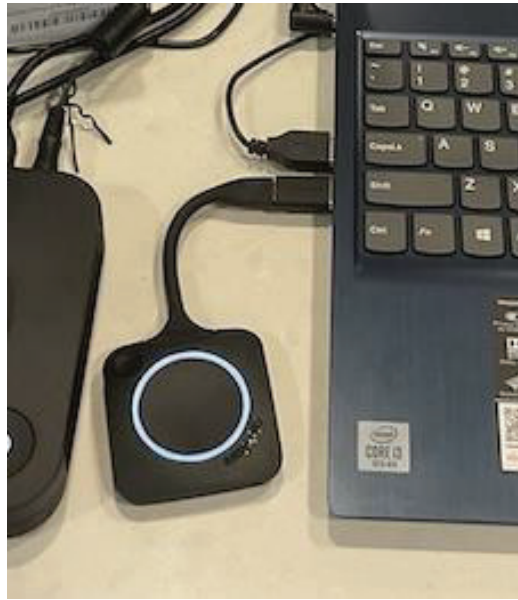
can be communicated to a communication network which the ClickShare Button also has access to:



- b. a first peripheral device being configured to be coupled to the processing device via a generic communications protocol, the base unit having a transmitter and the first peripheral device having a receiver and at least one fixed or configurable endpoint of the functional device is exposed on the first peripheral device, the method further comprising:

188. It is my opinion that the Barco System practices the claim limitation recited in the preceding heading.

189. For example, as shown in the image below, the ClickShare Button may be coupled to a processing device via a generic communications protocol (in this case, USB).



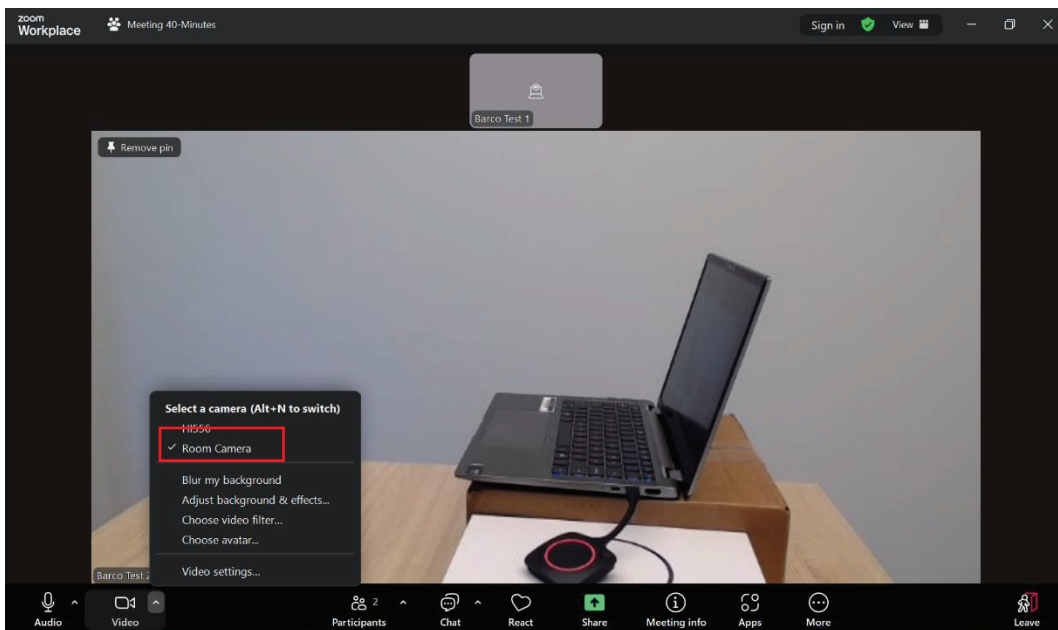
190. As identified below, ClickShare Button includes a USB-C Type connection. Additionally, ClickShare Button is also capable of transmitting data via its transceiver over the IEEE 802.11 a/b/g/n/ac protocol.

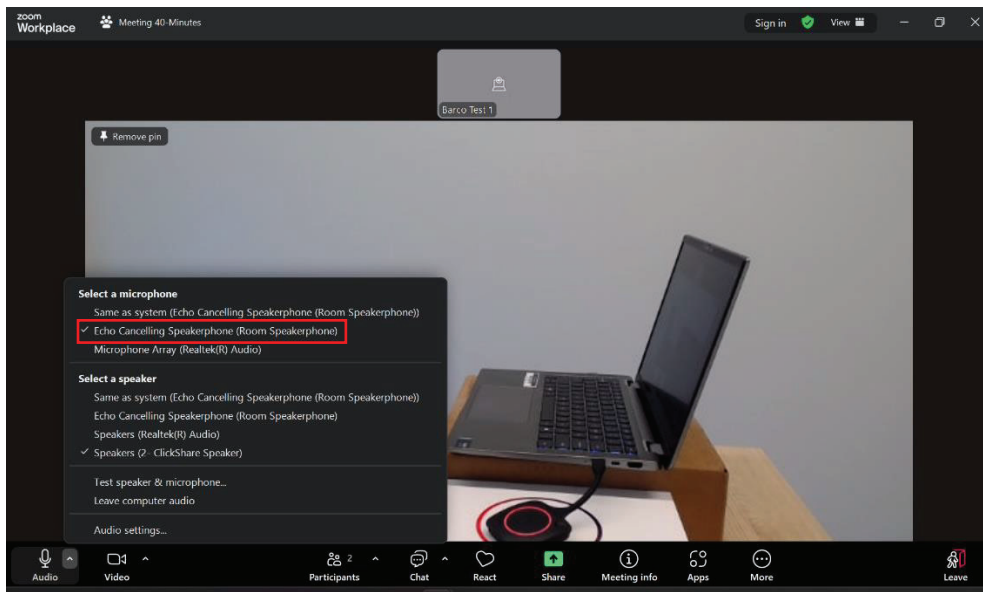
General specifications

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. The ClickShare Button also includes at least one fixed or configurable endpoint that is exposed. For example, as shown in the images below, when in use

the ClickShare Button exposes a configurable endpoints of a webcam or speakerphone that emits data. The image below are screenshots 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, and the microphone is the Echo Canceling Speakerphone connected to the Barco Base:





191. The Room Camera and Room Speakerphone are exposed over the USB connection of the ClickShare Button as shown in a screenshot from the USBDeview 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)		BTHUSB.sys	Intel(R) Wireless Bluetooth...	Yes
Port_#0009.Hub_#0001	Synaptics UWP WBDI		WUDFRid.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
0000.0014.0000.008.000.000.000...	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

192. The USBDeview is a free tool available from https://www.nirsoft.net/utills/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.

193. Additionally, the base unit includes a transceiver which is capable of transmitting over IEEE 802.11 a/g/n/ac and IEEE 802.15.1. Ex. 2025, 2.

- c. the base unit being configured to transmit and the first peripheral device being configured to receive first processed video data over the communications network,

194. It is my opinion that the Barco System practices the claim limitation recited in the preceding heading. As I explained in paragraphs 188-193, both the ClickShare Base and the Barco Button include transceivers that are capable of communicating data over a communications network.

- d. the functional device being configured for first video data to flow into the base unit or first video data is captured in the base unit, the first video data being processed in the base unit to generate the first processed video data, wherein the first processed video data is sent to the first peripheral device,

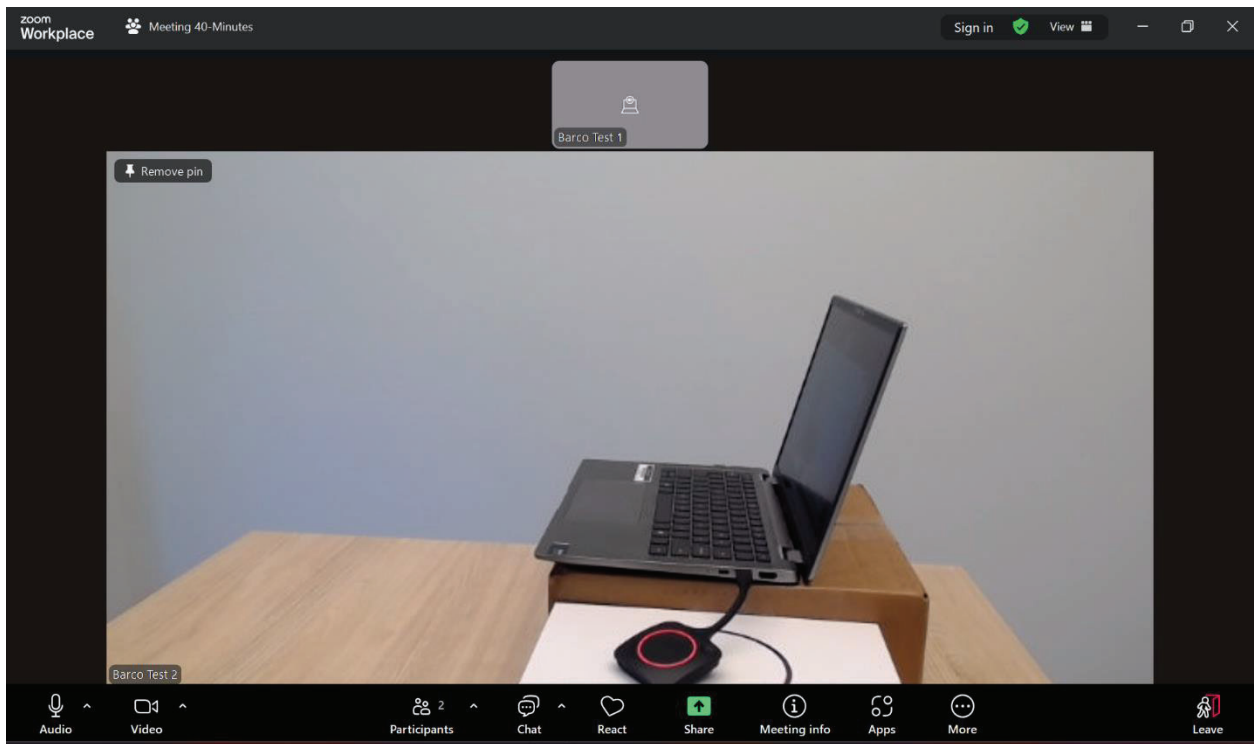
195. It is my opinion that the Barco System practices the claim limitation recited in the preceding heading. As I explained in paragraph 185-187, video data from a webcam connected to the Barco Base is made accessible on the ClickShare Button. This is achieved by the Barco Base sending data to ClickShare Button. Also, the Barco Base processes the video data, at least by the different authentication or encryption schemes that it uses. Ex. 2026, 10, 14.

- e. the first peripheral device being configured to process the first processed video data received by the first peripheral device to generate second video data, the first peripheral device being configured to make the second video data available through the at least one fixed or configurable endpoint of the first peripheral device,

196. It is my opinion that the Barco System practices the claim limitation recited in the preceding heading. For example, the ClickShare Button receives the encrypted data from the Barco Base and is able to decrypt the data. Ex. 2026, 10, 14. Further, the data is available on the webcam endpoint I identified in paragraphs 188-193 because if I disconnect from that endpoint on the Zoom meeting, that webcam data is no longer shown in my laptop computer.

- f. the operating system of the processing device being configured to capture the second video data and to make it available through a custom or standard driver to either the host application or a 3rd party application running on the processing device or to other processing devices,

197. It is my opinion that the Barco System practices the claim limitation recited in the preceding heading. The operating system of my laptop computer captures the webcam data (shown in the image below) through a standard driver (usbvideo.sys) and makes it available on the 3rd party application, Zoom, which runs on the laptop computer:



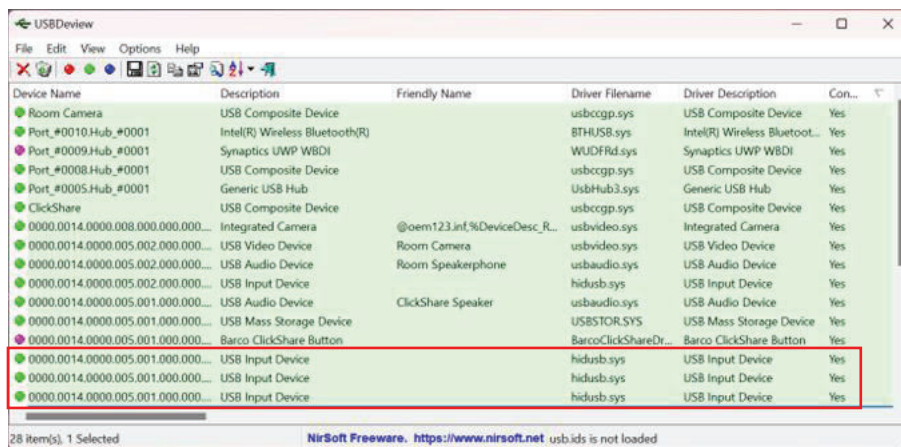
198. I know the data is made available through the usbvideo.sys driver based on USBDeview tool which I have reproduced and annotated below:

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)		BTHUSB.sys	Intel(R) Wireless Bluetooth...	Yes
Port_#0009.Hub_#0001	Synaptics UWP WBDI		WUDFRid.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
0000.0014.0000.008.000.000.000.000	Integrated Camera	@oem123.inf %DeviceDesc R	usbvideo.sys	Integrated Camera	Yes
0000.0014.0000.005.002.000.000.000	USB Video Device	Room Camera	usbvideo.sys	USB Video Device	Yes
0000.0014.0000.005.002.000.000.000	USB Audio Device	Room Speakerphone	usbaudio.sys	USB Audio Device	Yes
0000.0014.0000.005.002.000.000.000	USB Input Device		hidusb.sys	USB Input Device	Yes
0000.0014.0000.005.001.000.000.000	USB Audio Device	ClickShare Speaker	usbaudio.sys	USB Audio Device	Yes
0000.0014.0000.005.001.000.000.000	USB Mass Storage Device		USBSTOR.SYS	USB Mass Storage Device	Yes
0000.0014.0000.005.001.000.000.000	Barco ClickShare Button		BarcoClickShareDr...	Barco ClickShare Button	Yes
0000.0014.0000.005.001.000.000.000	USB Input Device		hidusb.sys	USB Input Device	Yes
0000.0014.0000.005.001.000.000.000	USB Input Device		hidusb.sys	USB Input Device	Yes
0000.0014.0000.005.001.000.000.000	USB Input Device		hidusb.sys	USB Input Device	Yes

- g. wherein third video data, received from the host application and/or from the 3rd party application running on the processing device, is sent to an endpoint of the first peripheral device via a standard generic driver, the first peripheral device receiving the third video data and

processing the third video data to form second processed video data, and

199. It is my opinion that the Barco System practices the claim limitation recited in the preceding heading. The ClickShare Button provides additional endpoints, which include human interface device endpoints (as I have annotated below). These endpoints utilize the standard generic driver, hidusb.sys., which can be used to communicate the screenscraped data of the Zoom application to the ClickShare Button.



200. The ClickShare Button also processes the screenscraped video data using encryption before it is shared back to the Barco Base. Ex. 2026, 10.

- h. wherein the base unit receives the second processed data, and decodes and/or enhances the second processed data and forwards it to a functional device which is connected or attached to the base unit through a serial connection.

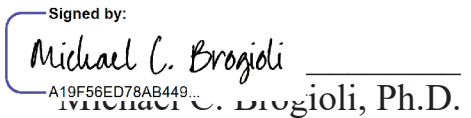
201. It is my opinion that the Barco System practices the claim limitation recited in the preceding heading. When the data is received at the Barco Base, it

decrypts the data and enhances the data before sharing it with a display. Ex. 2026, 10. A display is a functional device that connects to the base unit through an HDMI connection.

VII. RESERVATION OF RIGHTS

202. 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: 1/13/2026

By:  Signed by:
Michael C. Brogioli
A19F56ED78AB449...
MICHAEL C. BROGIOLI, Ph.D.