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: IPR2024-01437

U.S. PATENT NO. 10,762,237

DECLARATION OF MICHAEL C. BROGIOLI, Ph.D.

BARCO EXHIBIT 2004
Yealink v. Barco
IPR2024-01437

TABLE OF CONTENTS

I. QUALIFICATIONS AND BACKGROUND 2
II. LEGAL STANDARD 8
A. Claims 8
B. Specification 9
C. Prosecution History 9
D. Burden of Proof 10
E. Anticipation 10
F. Obviousness 12
i. *Analogous Art* 12
ii. *Reasonable Expectation of Success* 13
iii. *Motivation to Combine* 14
iv. *Hindsight* 16
v. *Secondary Considerations* 17
III. LEVEL OF ORDINARY SKILL IN THE ART 18
IV. SUMMARY OF THE ’237 PATENT 19
A. Overview 19
B. Claim Construction 22
V. SUMMARY OF THE ART 23
A. Mardiks (Exhibit 1026) 23
B. Kaplan (Exhibit 1027) 24
C. Maeda (Exhibit 1031) 26
D. Deforche (Exhibit 1030) 27
E. Device Drivers 28
VI. OPINIONS 31
A. Ground 1: Dr. Almeroth Fails to Establish that the Combination of Kaplan and Mardiks Renders Obvious Any of the Challenged Claims 31
i. Mardiks is not analogous to the ’237 Patent. 32

ii. A POSITA would not have been motivated to combine Kaplan and Mardiks 33

iii. Ground 1 fails to render obvious communicating audio or display data via the human interface device 34

B. Ground 2: Dr. Almeroth Fails to Establish that the Combination of Maeda and Deforche Renders Obvious Any of the Challenged Claims 36

i. A POSITA would not have been motivated to combine Maeda and Deforche with a Reasonable Expectation of Success 37

ii. Ground 2 fails to render obvious communicating audio or display data via the human interface device 39

C. The Barco System Embodies the Claims of the ’237 Patent 41

i. The Barco System practices Claim 1 of the ’237 Patent 41

a. The Barco System practices 1[pre] of the ’237 Patent 41

b. The Barco System practices 1[a] of the ’237 Patent 42

c. The Barco System practices 1[b] of the ’237 Patent 44

d. The Barco System practices 1[c] of the ’237 Patent 45

e. The Barco System practices 1[d] of the ’237 Patent 46

f. The Barco System practices 1[e] of the ’237 Patent 46

ii. The Barco System practices Claim 3 of the ’237 Patent 47

iii. The Barco System practices Claim 9 of the ’237 Patent 48

iv. The Barco System practices Claim 18 of the ’237 Patent 48

v. The Barco System practices Claim 19 of the ’237 Patent 48

VII. Conclusiona 48

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 3, 9, 18 and 19 (the "Challenged Claims") of U.S. Patent No. 11,403,237 (the "'237 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 2011 would have understood certain references, the industry as a whole, and what factors were driving innovation in this

space. Petitioner and Dr. Almeroth have not challenged the other claims of the ’237 Patent.

5. In preparing this declaration, I have analyzed the ’237 Patent (Ex. 1001), its file history (Ex. 1004), the declaration of Dr. Kevin C. Almeroth (Ex. 1002), and several prior art references, including Mardiks (Ex. 1026), Kaplan (Ex. 1027), Maeda (Ex. 1031), and Deforche (Ex. 1030). 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 September 14, 2011.

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. Over the course of my career, in both industry and academia, I have worked on a number of computer peripheral devices. This work has included hardware design of peripheral devices, software design of application devices, as well as custom interface software such as drivers like those discussed in this matter. These devices have included gaming consoles, computer peripherals and related development tools systems. I have also worked in the development and maintenance of drivers for various computer peripherals, including those that utilize USB interfaces for multicore processor software development in such areas as digital signal processing and telecommunications.

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

II. LEGAL STANDARD

20. 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

21. 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.

22. 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.

23. 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

24. 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.

25. 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

26. 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

27. 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

28. 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]

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

30. 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.

31. 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

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

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

32. 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*

33. 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.

[2] I understand that the Petition and Dr. Almeroth are advancing two "obviousness" theories with Grounds 1 and 2.

34. 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.

35. 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.

ii. *Reasonable Expectation of Success*

36. 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.

37. 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*

38. 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.

39. 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.

40. 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.

41. 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.

42. 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.

43. 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*

44. 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 September 14, 2011, and which I understand is the date Dr. Almeroth used as the priority date of the ’237 Patent. Ex. 1002, ¶21 (“I have been asked to initially consider that the time of the alleged invention of the ’237 patent is around September 14, 2011.”). 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*

45. 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.A.

III. LEVEL OF ORDINARY SKILL IN THE ART

46. I understand that Dr. Almeroth opines that a POSITA "in the field of art of the '237 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, ¶36. I understand that Dr. Almeroth has further opined that additional experience could substitute for professional experience. Ex. 1002, ¶37.

47. Given the disclosures of the '237 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.

48. 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.

49. I satisfied the definition of a POSITA before the filing date of the application leading to the '237 Patent. I now consider myself an expert in the relevant field of technology for the '237 Patent.

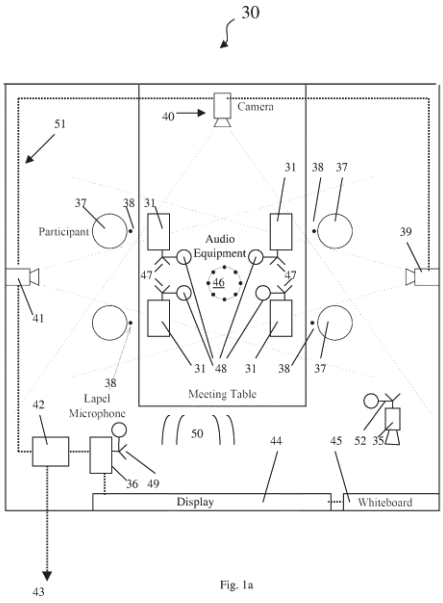
50. In forming my opinions for this declaration, I have used the perspective of one of ordinary skill in the art as defined above. My opinions, however, would not be affected if a POSITA is defined as someone who has slightly more or slightly less experience than described above.

IV. SUMMARY OF THE ’237 PATENT

A. Overview

51. The ’237 Patent provides “electronic tools for meetings with audio including methods or devices for providing connection to a communications network[.]” Ex. 1001, 1:15-18. As set out by the inventors, the electronic tools of the ’237 Patent improve the ability and ease of presenting content in a meeting setting. Ex. 1001, 3:21-5:5, 16:12-26. Unlike prior art systems that required cables, LAN connections, or specialized software, the ’237 Patent provides a system that “advantageously use the availability of a plug and play interface such as a USB interface.” Ex. 1001, 3:21-4:18, 30:56-63. This is beneficial because computers include standard built-in support for a USB device, and thus standard generic audio drivers are also available for use. Ex. 1001, 30:59-61. 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. 1001, 30:62-63.

52. In one example, Figure 1a "shows a meeting room that can be used with embodiments of the present invention." Ex. 1001, 14:61-65. As shown below, multiple participants 37 are in meeting room 30. Ex. 1001, 16:27-31. Each participant 37 has a processing device 31, which is a host device with a first connection unit 47 coupled to network 50. Ex. 1001, 16:27-33. Connection unit 47 is also coupled to input device 48. Ex. 1001, 16:25-37. Network 50 further includes base node 36 connected to display 44. Ex. 1001, 16:60-61. Thus, the base node, user processing devices, and connection units form a communication network that links with central display device 44. Ex. 1001, 18:29-33.



Ex. 1001, Figure 1a.

53. The connection unit, which is also referred to as a peripheral device, may include a plug and play interface, a processing engine, a wireless transmitter,

portable application, and a button. Ex. 1001, 23:65-24:19. To display media content, the central display connects the peripheral device to a USB port. Ex. 1001, 25:7-10. The peripheral device can present itself as a USB composite device, audio device, mass storage device, or human interface device. Ex. 1001, 6:55-62, 7:6-8, 30:62-63.

54. By connecting the peripheral device to the processing device, the user can share audio data to the peripheral device's audio device, which can be streamed to the base node. Ex. 1001, 31:31-34. This sharing process is done using only standard drivers and does not require special software installation in or on the processing device. Ex. 1001, 31:4-45. Audio data is then transmitted over the communication network to the base node. Ex. 1001, 31:47-49. Once received, the audio data can be shared from the base node. Ex. 1001, 32:19-25.

55. 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. 1001, 32:31-39. The software, then running on the processing device, captures the video data that is available on the processing device. Ex. 1001, 32:31-39. 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. 1001, 21:7-9; 32:49-52. The video encoder than encodes the video signal for a packetizer to packet and share to the peripheral device using another pre-

installed generic driver. Ex. 1001, 32:55-62. In an example, the pre-installed generic driver is a human interface device driver. Ex. 1001, 32:55-62. Once received at the plug and play port, the video data is unpacked and transmitted over the communications network with the audio data. Ex. 1001, 32:63-33:1.

56. Then, 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. 1001, 33:28-36. Notably, none of the cited references provide the same wireless content sharing over a peripheral device with pre-installed generic drivers. *See generally,* Ex. 1026; Ex. 1027; Ex. 1030; Ex. 1031.

B. Claim Construction

57. I do not provide an opinion on any claim construction issues in this matter. I have been asked by counsel to apply the following constructions as identified below. For any term not expressly identified below, I have applied the plain and ordinary meaning, as understood by a POSITA in view of the specification.[3]

[3] 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.

Term	Applied Construction
"couple" / "coupling"	"connect[ing] two devices, either directly or indirectly"
"means for… display data communication and audio communication"	Governed by 35 U.S.C. § 112 ¶ 6 **Function:** Provide audio communication between the peripheral device and the processing device **Structure:** "an interface using a generic communications protocol" As set forth in Ex. 2016, 10-13.

V. SUMMARY OF THE ART

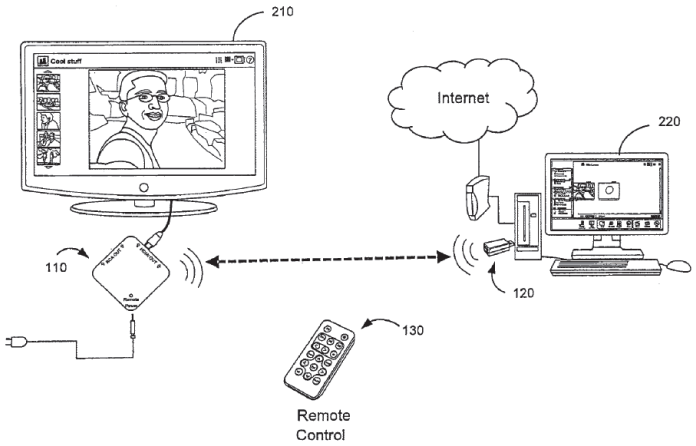
A. <u>Mardiks (Exhibit 1026)</u>

58. Mardiks describes a system with a USB peripheral device that automatically launches an application residing in its memory after it is connected to a host. Ex. 1026, Abstract. Likewise, the USB peripheral will automatically launch the application after restarting the host if the flash has already been connected. Ex. 1026, Abstract. The USB device accomplishes this by sending a stream of emulated keystrokes to the host causing the host to generate and execute a startup script. Ex. 1026, [0018]. In response to the startup script, the host computer executes an application hosted on the USB device. Ex. 1026, [0024]. Unlike the '237 Patent, Mardiks is not a system that enables wireless content sharing. Ex. 1026.

B. Kaplan (Exhibit 1027)

59. 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. 1027, Abstract. In an illustrative example, Figure 1 provides a communication system having transmitter 120 and receiver 110. Ex. 1027, 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. 1027, [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. 1027, [0017], Figure 1.

60. 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. 1027, [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. 1027, [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. 1027, Figure 2 (reproduced below).



Ex. 1027, Figure 2.

61. To access video footage stored on a computer and thereby display such footage on a display device, the transmitter includes software. Ex. 1027, [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. 1027, [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. 1027, [0022]. In this example, the software is automatically installed onto the computer. Ex. 1027, [0022].

62. In other embodiments, a user can download the software from the internet. Ex. 1027, [022]. In each embodiment, the software must be installed on the computer before the transmitter can access the footage stored on the computer. Without installation, a user would be unable to share the content on the display device. Ex. 1027, [0023] ("After the installation of software resident on the transmitter, typically only requiring an acceptance of a click-through license

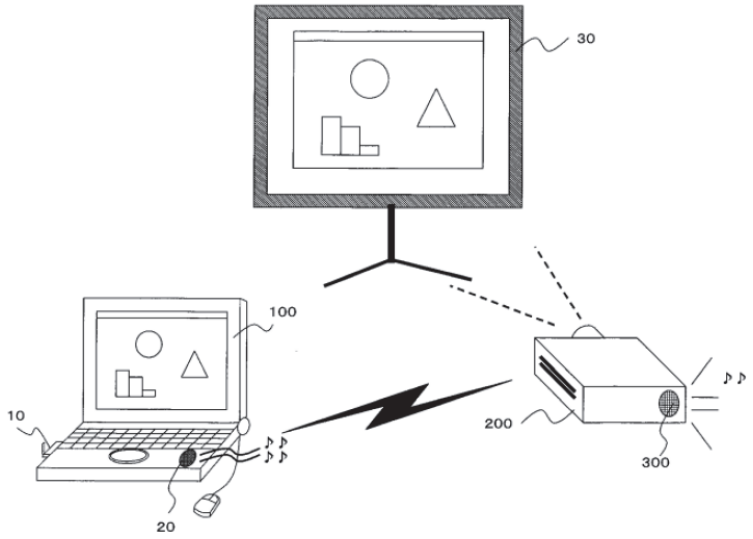
agreement by the family member, the family member is able to receive videos from the user and then watch them on their television.”).

63. In addition to describing its network components, Kaplan also explains the advantages to its system. Namely, because Kaplan’s system can access video content that is stored on the computer, the metadata associated with the video content stored on the computer is available, which can be used to manage and sort the content. Ex. 1027, [0029]. This differs from conventional media extenders in which only the video content is available. Ex. 1027, [0029]. Moreover, due to Kaplan’s use of “custom software solutions,” the system can access “proprietary features such as user-defined channels that are not available using conventional techniques.” Ex. 1027, [0029]. Again, without such software, the metadata associated with the video data and the user-defined channels are not available. Ex. 1027, [0029] (“The availability of this metadata contrasts with conventional media extenders in which only video content is available.”).

C. <u>Maeda (Exhibit 1031)</u>

64. Maeda provides systems and methods for “transmitting images and audio from an image generating device…to an image projection device such as a projector.” Ex. 1031, [0001]. Figure 1 illustrates an example of this transmission system, which uses a wireless LAN to transmit image and audio. Ex. 1031, Figure 1, [0015]. As shown below, Maeda’s system includes projector 200, speaker 300 for

the projector, screen 30, and wireless LAN card 10 having a wireless LAN chip attached to PC 100. Ex. 1031, Figure 1, [0017].



Ex. 1031, Figure 1.

65. Further, the PC includes various functional components: "a control unit 121, a screen generation unit 122, an image capture unit 123, an audio generation unit 124, an image output unit 125, an audio output unit 126, a PC communication unit 127, and an audio capture unit 128." Ex. 1031, [0022]. A POSITA would have understood that these functional components are software components.

D. <u>Deforche (Exhibit 1030)</u>

66. Deforche provides a system that has a wireless modem and specifically avoids the need to install proprietary or custom software and driver. Ex. 1030, [0004]. Deforche explains that users typically need to install proprietary drivers before they can use a USB network device. Ex. 1030, [0030]. To address this issue,

Deforche provides a "Zero-Footprint" system that avoids the need for the user to have, for example, administrator rights on the computer; thus, Deforche's system provides connectivity without interfering on the PC itself. Ex. 1030, [0028], [0029]. Deforche's disclosure is directed to connecting a computer device to a wireless communication network via a modem rather than specific methods or system for the transmission of audio or video data. Ex. 1030, [0006].

E. Device Drivers

67. As introduce in Section IV.A, the '237 Patent uses an operating system having a pre-installed generic driver. Ex. 1001, Cls. 1, 11, 21. While a pre-installed generic driver is considered software, these drivers significantly differ from computer applications and operating systems. Drivers act primarily as translators which allow different systems to communicate with one another.

68. Specifically, an operating system is a type of system level software that is used to manage the hardware and software resources on a computer. For example, the operating system is responsible for managing memory, file systems, computer networking functionality, and user interfaces, among other key functions. The operating system also provides the foundation for which computer applications can run. Example operating systems include Window, MacOS, Android, iOS, and Linux.

69. Software applications are specific computer programs that are designed to perform user oriented tasks. Common software applications include web browsers, media players, and productivity applications such as Microsoft Word.

70. Drivers, which may include generic drivers and pre-installed generic drivers, provide a special function. For example, drivers control hardware that is connected to a computer; this allows the operating system and computer applications to interact with the hardware. Ex. 2022. Drivers are translators for the underlying hardware and the software layers of the operating system and applications themselves. This is beneficial because the operating system and applications do not need to know that they are accessing one type of device over another (*e.g.*, a USB memory device rather than a memory disk). Ex. 2022. Instead, the driver is designed to translate commands to the specific device, and the operating system and application can be agnostic to the peripheral device it interacts with (e.g., a mouse, keyboard, USB memory) and instead treats them as a device in certain classes (e.g., human interface device or storage device).

71. Importantly, drivers are specific to an operating system. In other words, a driver must operate with and conform to the operating system's device driver architecture. Drivers may also be generic drivers if they are designed to work with a large variety of devices. Ex. 2022. Drivers that are available, and come by default, on commercial operating systems are commonly referred to as "pre-installed generic

drivers. USB drivers are common pre-installed generic drivers. *See* Ex. 2024. The USB standard includes different USB device classes. Ex. 2024, 1. These classes are made up of devices categorized based on their characteristics and the common functions they perform. Ex. 2024, 1. Common operating systems like Microsoft Windows for example, provide support for USB devices with their pre-installed drivers. Ex. 2024, 1. While Exhibit 2024 includes a list (pages 3-8) of drivers on the Windows operating system, other operating systems (E.g., iOS) will include a similar set of corresponding USB drivers.

72. When a device that is supported by the operating system is plugged into a port of the computer, it will automatically call the necessary class driver and the device will function without installation of additional drivers. The class drivers are designed with the purposes of the devices in the class in mind so that they can communicate the appropriate volume of data at the necessary speed. The different class drivers also provide different communications protocols and command structures as well.

73. If a device is plugged in that is not supported, or when certain capabilities of a device are not supported, a vendor may provide a custom or specific driver that may be installed on the computer to support the functionality not supported by the pre-installed generic drivers. Ex. 2024, 2. These "special purpose" drivers are often unique to the hardware they are supporting.

VI. OPINIONS

A. Ground 1: Dr. Almeroth Fails to Establish that the Combination of Kaplan and Mardiks Renders Obvious Any of the Challenged Claims

74. Dr. Almeroth opines that Claims 1, 3, 9, 18, and 19 of the ’237 Patent are obvious over the combination of Kaplan and Mardiks. Ex. 1002, Section IX.A. I disagree with Dr. Almeroth for three main reasons.

75. First, it is my opinion that Dr. Almeroth relies on a reference, Mardiks, which is not analogous to the ’237 Patent.

76. Second, it is my opinion that a POSITA would not be motivated to combine Kaplan and Mardiks. Mardiks provides a system which auto launches an application when housed on the USB device that is plugged into a computer. Likewise, Kaplan makes use of a command, autoplay.inf, which provides this feature. A POSITA would not consider modifying Kaplan, with Mardiks when Kaplan already includes the function achieved by Mardiks.

77. Third, it is my opinion that Kaplan and Mardiks, alone or in combination, do not teach communicating at least one of audio data and display data form the processing device to the external peripheral device via the human interface device. As this feature is required by Claim 1, 9, 18, and 19, Kaplan and Mardiks fail to teach all limitations of these Challenged Claims.

78. For these reasons, Dr. Almeroth's proposed combination in Ground 1 fails to render obvious the Challenged Claims.

i. Mardiks is not analogous to the '237 Patent.

79. It is my opinion that Mardiks is neither part of the same field of endeavor as the '237 Patent nor reasonably pertinent to the '237 Patent.

80. I understand the field of the '237 Patent to be wireless presentations systems. This is supported by my reading of the title, as well as the abstract, claims and specification. Ex. 1001, Title, Abstract, 1:24-5:5, Cls. 1, 9, 16, 21. Meanwhile, Mardiks identifies its field as the Universal Serial Bus, or USB standard, and its use to interface between a host computer and peripheral device. Ex. 1026, [0001]. I also understand the field of Mardiks to more specifically be concerned with addressing the use of USB flash drive devices. Ex. 1026, [0005]. Accordingly, I do not interpret Mardiks and the '237 Patent to be the same field.

81. I also understand Mardiks to be directed towards providing "a USB flash drive so that, upon connection to a host supporting the USB standard, or upon restarting the host if the USB flash drive were already connected, the USB flash drive would automatically launch an application residing in the memory." Ex. 1026, [0005]. Meanwhile, I understand the '237 Patent to be directed towards solving a number of problems not related to providing a USB flash drive that automatically launches when connected to a host. For example, the '237 Patent is focused on

providing a wireless meeting system, which (1) simplifies and improves upon the use of network-based presentation systems, (2) provides a means for audio communication over a wireless network without the need to install proprietary software, and (3) is compatible with existing corporate security measures. Ex. 1001, 4:45-5:4.

ii. A POSITA would not have been motivated to combine Kaplan and Mardiks

82. Dr. Almeroth opines that a POSITA would have been motivated to combine Kaplan and Mardiks so that Kaplan's system would automatically launch a stored application when Kaplan's transmitter was plugged in. Ex. 1002, Section IX.A. However, it is my opinion that Kaplan already provided this feature.

83. It is my opinion that Kaplan includes a transmitter which automatically launches an application when the transmitter is plugged in. Kaplan teaches that "when the transmitter 120 is plugged into the computer for the first time, the software may be uploaded to and installed to the computer (automatically in some embodiments)." Ex. 1027, [0022]. Additionally, Kaplan teaches that "[w]hen a connection between the transmitter 120 and the computer 220 is detected by the computer 220, an operating system executing on the computer may automatically execute the resident software application." Ex. 1027, [0047]. The way this feature is achieved is through an "autoplay.inf" file on the transmitter. Ex. 1027, [0047]. When

detected, "autoplay.inf" directs an operating system to execute the resident software application. Ex. 1027, [0047].

84. I understand that Dr. Almeroth and I agree regarding Kaplan's disclosure of the "autoplay.inf" file. Ex. 1002, ¶94.

85. It is my opinion that, because Kaplan's system already teaches a way to configure the transmitter to automatically launch a stored application when the transmitter is plugged in, a POSITA would not be motivated to implement teachings from Mardiks to provide this same feature.

86. As I understand, Kaplan itself does not teach presenting a transmitter as a human interface device, it is my opinion that Ground 1 fails at least with respect to claim 1, 9, 18, and 19, which each require this limitation. Ex. 1001, Cls. 1, 9, 18, 19.

iii. Ground 1 fails to render obvious communicating audio or display data via the human interface device

87. Claim 1 of the '237 Patent includes the limitation "communicating at least one of audio data and display data from the processing device to the external peripheral device via the human interface device[.]" Ex. 1001, Cl. 1. Claims 9, 18, and 19 also include similar limitations. Ex. 1001, Cls. 9, 18, 19. It is my opinion that Kaplan and Mardiks do not disclose this limitation.

88. It is my opinion that Kaplan does not describe communicating either display data or audio data via a human interface device. Kaplan explains that its transmitter identifies itself as a mass storage device. Ex. 1027, [0046]. However, there is no disclosure in Kaplan of the transmitter presenting as a human interface device. Therefore, Kaplan does not teach communicating audio data or display data via a human interface device.

89. It is my opinion that Mardiks also does not teach communicating audio data or display data via a human interface device. Mardiks does not disclose communication of audio data or display data. Instead, Mardiks is focused on a system to automatically launch an application stored on a USB device, which is achieved through emulated keystrokes. Ex. 1026, [0006], [0019]. Therefore, Mardiks does not teach communicating audio data or display data via a human interface device.

90. It is also my opinion that Kaplan and Mardiks, in combination, do not teach communicating audio data or display data via a human interface. Dr. Almeroth relies on disclosure of Kaplan to allege this limitation is taught. Ex. 1001, ¶101. However, as already noted, this does not describe a human interface device. Likewise, it is my opinion that even if Kaplan employed the system to automatically launch an application disclosed in Mardiks, there is still nothing that teaches communicating audio data or display data via the human interface device used to

emulate keystrokes. Therefore, it is my opinion that Ground 1 does not disclose these features.

B. Ground 2: Dr. Almeroth Fails to Establish that the Combination of Maeda and Deforche Renders Obvious Any of the Challenged Claims

91. Dr. Almeroth opines that Claims 1, 3, 9, 18, and 19 of the ’237 Patent are obvious over the combination of Maeda and Deforche. Ex. 1002, Section IX.A. I disagree with Dr. Almeroth for two main reasons.

92. First, Dr. Almeroth has not established that a POSITA would be motivated to combine Maeda and Deforche. It is my opinion that a POSITA would not be motivated to combine Maeda, a system which requires software to be installed, with Deforche, a system that avoids the installation of software.

93. Second, it is my opinion that Maeda and Deforche, alone or in combination, do not teach communicating at least one of audio data and display data form the processing device to the external peripheral device via the human interface device. As this feature is required by Claim 1, 9, 18, and 19, Maeda and Deforche fail to teach all limitations of these Challenged Claims.

94. For these reasons, Dr. Almeroth’s proposed combination in Ground 2 fails to render obvious the Challenged Claims.

i. A POSITA would not have been motivated to combine Maeda and Deforche with a Reasonable Expectation of Success

95. Dr. Almeroth opines that a POSITA would have been motivated to combine Maeda and Deforche. Ex. 1002, Section IX.B. However, Maeda requires the installation of specific on its system. Deforche, in contrast, discourages the installation of software. Based on this fundamental difference, a POSITA would not have been motivated to combine Maeda and Deforche.

96. Existing wireless modem devices cannot be used by foreign computer device when "the user has no administrator rights and installation of the appropriate driver is not allowed." Ex. 1030, [0003]. Recognizing this disadvantage, Deforche set out "to achieve USB (or other interface) modem functionality in any computer (Operating system independent) without leaving a footprint (Zero-Footprint)." Ex. 1030, [0028]. Deforche provides a wireless modem device while avoiding the need to install drivers or software application on the computer. Ex. 1030, [0040], [0028].

97. Specifically, Deforche uses a pre-installed generic driver, which "has the advantage that a user can use the wireless modem device on a computer device on which he has no administrator rights, *i.e.* a computer device on which his user rights are restricted so that he cannot install a specific driver for the wireless modem device." Ex. 1030, [0009]. This embodiment of Deforche requires (and specifically

avoids) the installation of specialized drivers, which is the sole embodiment that Dr. Almeroth relies on in his Ground 2 combination.

98. As Deforche explains, a switching mechanism allows its device to present itself as a USB modem device, which includes a mass storage device (*i.e.*, UMS) and a human interface device (*i.e.*, HID). Ex. 1030, [0036]. Deforche also explains that, in some embodiments, the system relies on "portable applications which run from the modem device without the need to install anything on the host." Ex. 1030, [0015], [0050]. In each embodiment, a POSITA would have understood that Deforche specifically designed its system to avoid the need to install proprietary or custom software and drivers. Ex. 1030, [0004], [0028]. For this reason, a POSITA would not have been motivated to combine Deforche with a system that requires the installation of software or special drivers to function.

99. Maeda, however, provides systems and methods for "transmitting images and audio from an image generating device…to an image projection device such as a projector." Ex. 1031, [0001]. Maeda's system is not a zero-footprint system because Maeda implements "functional components" as software rather than hardware. In an example, Maeda's system has a functional configuration that constitutes the image transmission system. Ex. 1031, [0021]. The system includes "a control unit 121, a screen generation unit 122, an image capture unit 123, an audio generation unit 124, an image output unit 125, an audio output unit 126, a PC

communication unit 127, and an audio capture unit 128 as functional components." Ex. 1031, [0022].

100. A POSITA would have understood Maeda's functional components as software implementations because they are "*applied* to a system that transmits images and audio from an image generation device such as a PC to an image projection device such as a projector." Ex. 1031, [0078]. In other words, Maeda's functional components must be installed on the PC. Moreover, Maeda does not provide any disclosure that its functional components are available on a generic computer. Accordingly, a POSITA would have understood Maeda's functional components as software that need to be installed. A POSITA would not combine Deforche with Maeda because these systems require the installation of software or drivers, which Deforche specifically sought to avoid.

ii. Ground 2 fails to render obvious communicating audio or display data via the human interface device

101. Claim 1 of the '237 Patent includes the limitation "communicating at least one of audio data and display data from the processing device to the external peripheral device via the human interface device[.]" Ex. 1001, Cl. 1. Claims 9, 18, and 19 also include similar limitations. Ex. 1001, Cls. 9, 18, 19. It is my opinion that Maeda and Deforche do not disclose this limitation.

102. It is my opinion that Maeda does not teach communicating either audio or display data via a human interface device. There is no disclosure of a human interface device in Maeda. Instead, Maeda describes using a specific, special purpose drivers and software. Ex. 1031, [0022]. As Maeda does not describe communications of audio data or display data via a human interface device. Indeed, Dr. Almeroth has not presented evidence that Maeda's system would be capable of performing its described function over a human interface device.

103. It is my opinion that Deforche does not teach communicating either audio or display data via a human interface device. Deforche does not mention display data or audio data. Instead, the purpose of Deforche is to provide a wireless modem device which does not require installation of additional drivers. Ex. 1030, [0004]. Therefore, Deforche does not teach communicating audio data or display data over a human interface device. Additionally, Deforche does not motivate a POSITA to modify Maeda to include a human interface device. *See* Section VI.B.i.

104. It is also my opinion that Maeda and Deforche, in combination, do not teach communicating audio data or display data via a human interface. Dr. Almeroth relies on disclosure from Maeda to allege this limitation was obvious. Ex. 1002, ¶146. However, as already noted, this does not describe a human interface device. As Deforche does not describe communications of audio or display data, there is no evidence that a POSITA could implement a human interface device to function in

Maeda's system with a reasonable expectation of success. Therefore, it is my opinion that Ground 2 does not disclose these features.

C. The Barco System Embodies the Claims of the '237 Patent

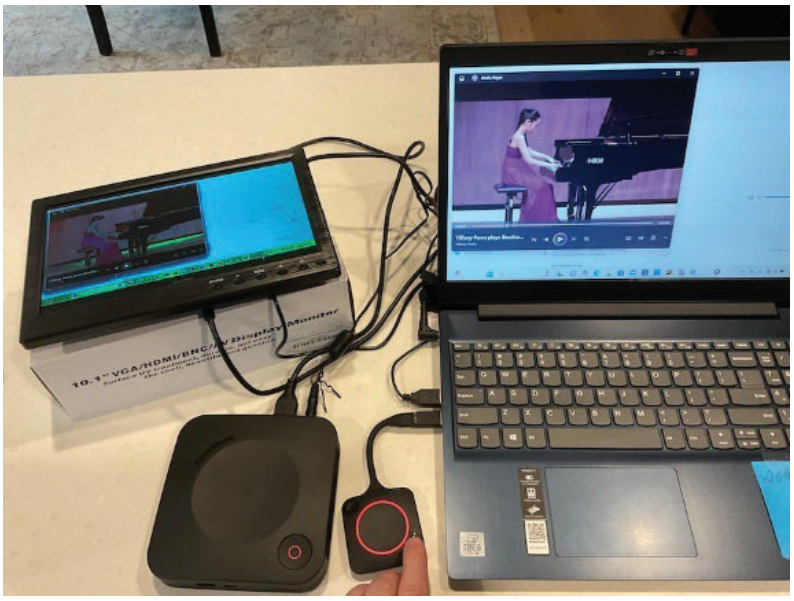
105. I have been asked to analyze the Barco System and provide my opinion as to whether the Barco System embodies the claims of the '237 Patent. The Barco System refers to the combination of the ClickShare Button and a ClickShare Base. The ClickShare Base include at least the C-5, C-10, CX-20, CX-30, CX-50, CX-50 Gen2, CB Core, and CB Pro. As detailed herein, it is my opinion that the Barco System embodies at least claims 1, 3, 9, 18, and 19 of the '237 Patent.

i. The Barco System practices Claim 1 of the '237 Patent

a. The Barco System practices 1[pre] of the '237 Patent

106. The Barco System practices 1[pre], which recites: "A method for connecting a processing device to a communications network, the processing device having a memory, a display, an operating system and communication between processing device and a class of peripheral devices."

107. The Barco System includes the ClickShare Button that connects to a processing device (such as a laptop) to communicate audio and display data as depicted in the example shown below:



108. A laptop, as the processing device, includes a memory, display, and operating systems with pre-installed generic drivers. Moreover, the laptop communicates with a class of peripheral devices. The peripheral devices can be a USB device as a standard class of peripheral devices driven by pre-installed generic drivers.

b. The Barco System practices 1[a] of the ’237 Patent

109. The Barco System practices claim element 1[a], which recites: “a) coupling an external peripheral device physically to a port of the processing device, the external peripheral device having a transceiver and a connector configured to couple to the port of the processing device, and presenting the external peripheral device to the processing device as a human interface device.”

110. The Barco System includes ClickShare Button, which is an external peripheral device. This device is capable of coupling physically to a port of the processing device (*i.e.*, the laptop). In the example shown below, the Clickshare Button includes a USB interface which plugs into a laptop as the processing device.

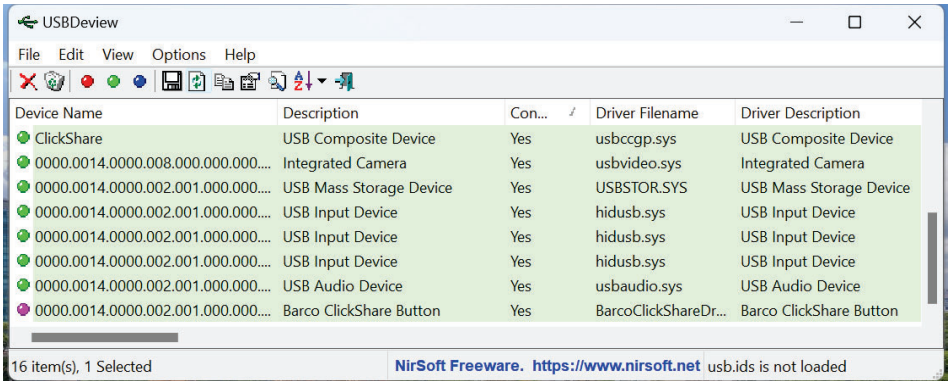
111. Additionally, Clickshare Button includes both a wireless transceiver and a connector configured to couple to the port of the processing device. For example, ClickShare Button's wireless transceiver includes Wi-Fi (IEEE 802.11 a/b/g/n/ac) capabilities as its transmission protocol, and ClickShare Button's connector includes a USB interface.

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.

112. As shown in the example from the USBDeview tool, ClickShare Button presents itself to the processing device as a number of device, one of which being a human interface device:



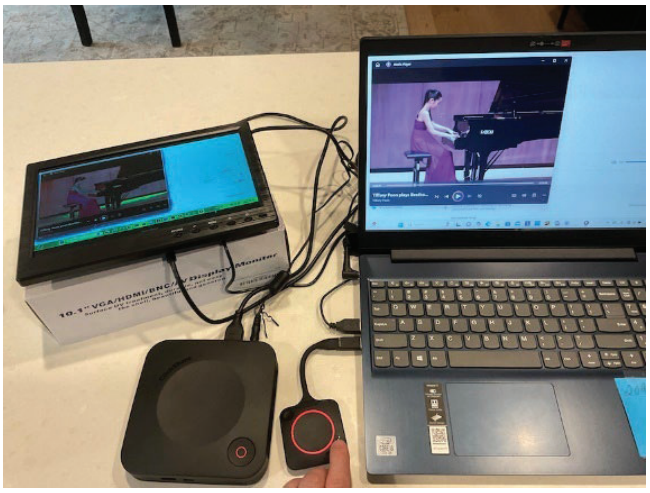
Device Name	Description	Con...	Driver Filename	Driver Description
ClickShare	USB Composite Device	Yes	usbccgp.sys	USB Composite Device
0000.0014.0000.008.000.000.000....	Integrated Camera	Yes	usbvideo.sys	Integrated Camera
0000.0014.0000.002.001.000.000....	USB Mass Storage Device	Yes	USBSTOR.SYS	USB Mass Storage Device
0000.0014.0000.002.001.000.000....	USB Input Device	Yes	hidusb.sys	USB Input Device
0000.0014.0000.002.001.000.000....	USB Input Device	Yes	hidusb.sys	USB Input Device
0000.0014.0000.002.001.000.000....	USB Input Device	Yes	hidusb.sys	USB Input Device
0000.0014.0000.002.001.000.000....	USB Audio Device	Yes	usbaudio.sys	USB Audio Device
0000.0014.0000.002.001.000.000....	Barco ClickShare Button	Yes	BarcoClickShareDr...	Barco ClickShare Button

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

c. The Barco System practices 1[b] of the ’237 Patent

114. The Barco System practices claim element 1[b], which recites: “b) communicating at least one of audio data and display data from the processing device to the external peripheral device via the human interface device.”

115. As shown in the example below, the Barco system communicates both audio data and display data from the processing device to the external peripheral device:



116. I have also confirmed that the ClickShare Button communicates display data using the human interface device identified in ¶112. For example, using the USBDeview tool, I disabled the audio device and mass storage device exposed by the ClickShare Button and the display data was still communicated to the display connected to the Barco Base. However, when I disabled an input device using the USBDeview tool, the display was no longer shared to the display connected to the Barco Base.

d. The Barco System practices 1[c] of the ’237 Patent

117. The Barco System practices claim element 1[c], which recites: “c) reading the audio data from the port”

118. The Barco System reads audio data from the port as apparent from the example image show in ¶115.

e. The Barco System practices 1[d] of the ’237 Patent

119. The Barco System practices claim element 1[d], which recites: “c) connecting the processing device to a communications network via the transceiver.”

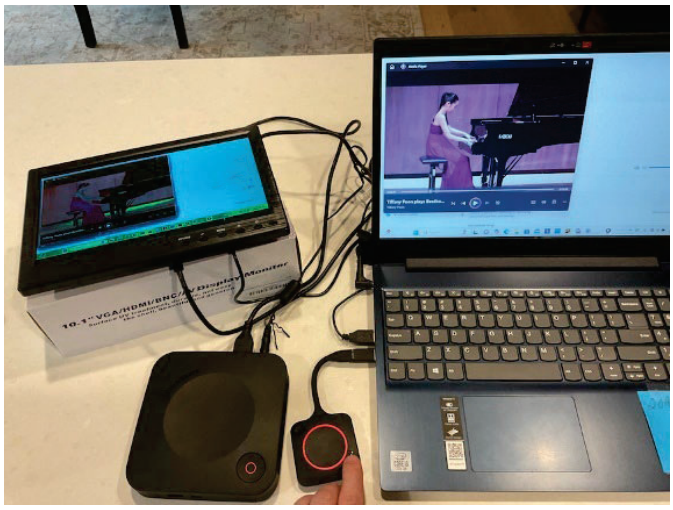
120. The processing device is connected to the communications network via the transceiver as shown by its ability to communicate content to the Barco Base.

121. Further, content is communicated to the Barco Base even when the processing device is not connected to any other networks, which is evidence that the processing device is connected to the communications network via the transceiver.

f. The Barco System practices 1[e] of the ’237 Patent

122. The Barco System practices claim element 1[e], which recites: “e) display data and audio data being routed between the processing device and the communication network via the transceiver and further to a base node.”

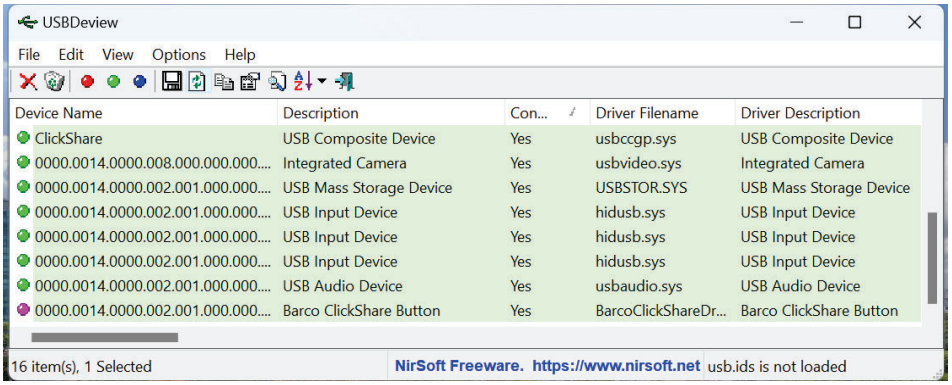
123. In the example shown below, the display data and audio data has been routed to the Barco Base from the processing device over the communications network via the transceiver:



ii. <u>The Barco System practices Claim 3 of the ’237 Patent</u>

124. The Barco System practices claim 3, which recites: “The method of claim 1, further comprising presenting the external peripheral device to the processing device as any of the following: a mass storage device; and a composite device.”

125. In the example of the USBDeview tool shown below, ClickShare Button presents as both a mass storage device and a composite device:



USBDeview

File Edit View Options Help

Device Name	Description	Con...	Driver Filename	Driver Description
ClickShare	USB Composite Device	Yes	usbccgp.sys	USB Composite Device
0000.0014.0000.008.000.000.000....	Integrated Camera	Yes	usbvideo.sys	Integrated Camera
0000.0014.0000.002.001.000.000....	USB Mass Storage Device	Yes	USBSTOR.SYS	USB Mass Storage Device
0000.0014.0000.002.001.000.000....	USB Input Device	Yes	hidusb.sys	USB Input Device
0000.0014.0000.002.001.000.000....	USB Input Device	Yes	hidusb.sys	USB Input Device
0000.0014.0000.002.001.000.000....	USB Input Device	Yes	hidusb.sys	USB Input Device
0000.0014.0000.002.001.000.000....	USB Audio Device	Yes	usbaudio.sys	USB Audio Device
0000.0014.0000.002.001.000.000....	Barco ClickShare Button	Yes	BarcoClickShareDr...	Barco ClickShare Button

16 item(s), 1 Selected NirSoft Freeware. https://www.nirsoft.net usb.ids is not loaded

iii. The Barco System practices Claim 9 of the ’237 Patent

126. The Barco System practices claim 9 for the same reasons as discussed in ¶¶ 106 to 123.

iv. The Barco System practices Claim 18 of the ’237 Patent

127. The Barco System practices claim 18 for the same reasons as discussed in ¶¶ 106 to 123.

v. The Barco System practices Claim 19 of the ’237 Patent

128. The Barco System practices claim 19 for the same reasons as discussed in ¶¶ 106 to 123.

VII. CONCLUSION

129. 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: 7/16/2025

By: Signed by: Michael C. Brogioli A19F56ED78AB449...

Michael C. Brogioli, Ph.D.