

**CONTAINS CONFIDENTIAL BUSINESS INFORMATION SUBJECT TO PROTECTIVE ORDER
UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

**Before the Honorable Charles E. Bullock
Chief Administrative Law Judge**

In the Matter of

**CERTAIN AUDIO PLAYERS AND
CONTROLLERS, COMPONENTS
THEREOF, AND PRODUCTS
CONTAINING THE SAME**

Inv. No. 337-TA-1191

**EXPERT REPORT OF MATTHEW B. SHOEMAKE, PH.D.
REGARDING VALIDITY OF U.S. PATENT NO. 10,439,896**

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1	Curriculum Vitae of Matthew B. Shoemaker, Ph.D.
2	List of Materials Considered
A	Citations to Additional Evidence Relevant to Linksys
B	Citations to Additional Evidence Relevant to SMC
C	Citations to Additional Evidence Relevant to Creative
D	Citations to Additional Evidence Relevant to Cd3o

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computer, and provide network configuration parameters (e.g., SSID and WEP key) for the user's secure WLAN using the cd3o Control Center. The cd3o player would then reset and join the secure WLAN using the received network configuration parameters.

F. Cheshire

287. U.S. Patent No. 7,532,862 ("Cheshire") (GOOG-SONOSITC-PA-00013481) is a patent titled Method and Apparatus for Configuring a Wireless Device Through Reverse Advertising.

288. In the Background section, Cheshire discloses the benefits of using a wireless network instead of wire-based networks.

Wireless networks provide an attractive alternative to convention wire-based computer networks. It is presently possible to equip a computing device with a low-cost wireless transceiver that enables the computing device to communicate through a wireless network. This avoids the expense and delay involved in running cable through a building to connect the computing device to a wire-based network. Moreover, the computing device can be easily moved to a new location within the building without having to reconfigure the network connection. Furthermore, a wireless network can be used to connect a portable computing device, such as a laptop computer or a personal organizer, to a computer network, without having to plug the portable computing device into a cable.

Cheshire at 1:15-27; US 2003/0181203 at [0004].

289. Like the '896 patent that came after Cheshire, Cheshire describes alleged challenges in configuring computing devices to join wireless networks.

However, in order to communicate across a wireless network, a computing device must somehow be configured to join the wireless network. This can be a challenge because there may exist many wireless networks within transceiver range that a computing device can potentially join. The computing device can simply join the network with the strongest signal strength, but if there are lots of wireless networks within transceiver range, the computing device is likely to join the wrong network.

Furthermore, if the wireless network makes use of an encryption key for security purposes, the wireless device must somehow obtain the encryption key. It is not a problem to manually type in the encryption key if the computing device is a laptop computer with a keyboard and a display. However, if the computing device is a

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peripheral device, such as a printer, there may be no easy way to enter an encryption key (or other configuration information) into the computing device.

Hence, what is needed is a method and apparatus for configuring a computing device to join a wireless network without the above-described problems.

Cheshire at 1:28-48; US 2003/0181203 at [0005]-[0007].

290. Cheshire discloses a set up process to add new devices to a wireless network. “The present invention relates to wireless networks for computer systems. More specifically, the present invention relates to a method and an apparatus that uses reverse advertising to configure a new wireless device to join an existing wireless network.” Cheshire at 1:8-12; US 2003/0181203 at [0002].

291. Cheshire’s setup process can be applied to “any type of computer system, peripheral device or network appliance that can reside on a wireless computer network.” Cheshire at 3:4-6; US 2003/0181203 at [0021]. This includes “peripheral devices, such as printers or storage devices, as well as input devices, such as cameras, microphones, keyboards or pointing devices, *as well as output devices, such as displays or audio output devices,*” which include speakers. Cheshire at 3:13-14; US 2003/0181203 at [0021] (emphasis added).

G. Yamaha

292. Yamaha’s MusicCast system (consisting of a MusicCAST server and at least one MusicCAST client) (“Yamaha”) was disclosed to the public by at least January 9, 2003. *See* Detroit Free Press, “All-in-One Audio, Video Devices Will Be Next Big Thing” (Jan. 9, 2003) (GOOG-SONOSITC-PA-00012387). Yamaha let users wirelessly stream audio from the server to Yamaha clients.

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does not require any specific level of synchronization—there is no discussion of specific timing requirements—and that playing “an identical playlist or tracks” meets this claim limitation. Moreover, any other interpretation to require a specific level of synchronization would render this a subjective inquiry and require evaluating a continuum of levels of synchronization without any objective guidance. Mr. Hainsworth’s deposition testimony further illustrates the slippery nature of this interpretation: he began arguing that “[t]here’s different levels of doing synchronization” and ended up agreeing that “synchronization doesn’t necessarily have an objective standard, but you know it when you hear it” (Hainsworth Tr. at 103:19-105:21)—the quintessential example of subjectivity and indefiniteness. Accordingly, importing a specific level of synchronization or other timing requirements into claim 12 beyond just playing back “an identical playlist or tracks” is not warranted by the claim language of the remaining intrinsic evidence and would render claim 12 invalid for indefiniteness.

1095. For obviousness based on other prior art references, Sonos merely states “Google ... does not describe its alleged modifications,” “provide any motivation for a person of ordinary skill in the art to have modified [cd3o] to add the elements of claim 12,” or “address the evidence of secondary considerations of non-obviousness.” *See* Sonos Validity Chart for Cd3o (Ex. 896-4). Because Sonos has not provided any details on its position, I reserve the right to address any new arguments Sonos may attempt to raise, and further incorporate my opinions set forth in Section XV.K (“Additional Opinions on Claim 12”) below by reference.

G. Cheshire Anticipates or Renders Obvious the Asserted Claims of the '896 Patent

1. Prior Art Status

1096. U.S. Patent No. 7,532,862 (“Cheshire”) (GOOG-SONOSITC-PA-00013481) issued on May 12, 2009. The application for Cheshire was filed on March 19, 2002 and was

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published as U.S. Patent Application Publication No. 2003/01812031 on September 25, 2003.
March 19, 2002 and September 25, 2003 both predate the March 11, 2004 alleged conception date
of the '896 Patent.

1097. It is my opinion and understanding that Cheshire qualifies as prior art to the '896
patent under 35 U.S.C. § 102(a), (e), and (f).

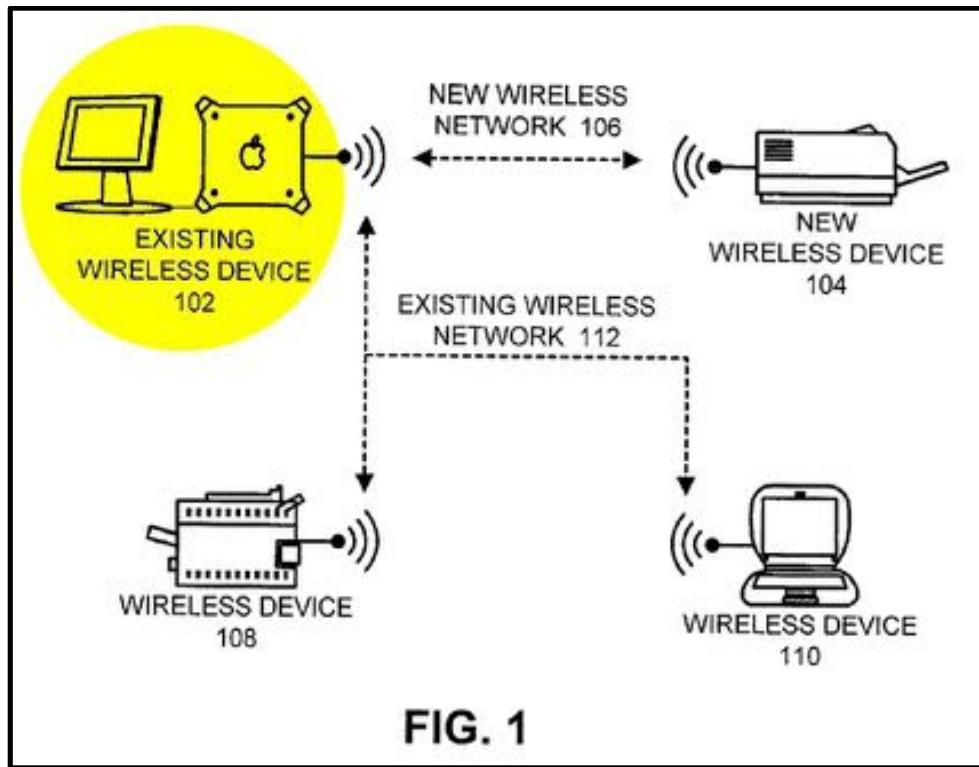
1098. Note that for my opinions related to Cheshire, I provide citations to both the
Cheshire patent and the published application (U.S. Patent Application Publication No.
2003/01812031) for completeness. To be clear, however, the disclosures between the two are the
same and each one, by itself, invalidates the '896 patent.

2. Invalidity of Claim 1

(a) "A computing device comprising:"

1099. Cheshire discloses this preamble.

1100. For example, Cheshire discloses a computing device in the form of a wireless
devices that already exist on an existing wireless network. An example of one such device is
"Existing Wireless Device 102" shown in Figure 1 of Cheshire below:



1101. “FIG. 1 illustrates an existing wireless network 112, which couples together an existing wireless device 102 as well as other wireless devices 108 and 110.” Cheshire at 2:62-64; US 2003/0181203 at [0020]. “In the embodiment of the present invention illustrated in FIG. 1, *existing wireless devices 102 is a personal computer*, new wireless device 104 and wireless device 108 are printers, and wireless device 110 is a portable computer.” Cheshire at 3:14-17; US 2003/0181203 at [0021] (emphasis added).

1102. Cheshire further discloses:

Wireless devices 102, 104, 108 and 110 can generally include any type of computer system, peripheral device or network appliance that can reside on a wireless computer network. They can include a computer system based on a microprocessor, a mainframe computer, a digital signal processor, a portable computing device, a personal organizer, a device controller, or a computational engine within an appliance. They can also include also peripheral devices, such as printers or storage devices, as well as input devices, such as cameras, microphones, keyboards or pointing devices, as well as output devices, such as displays or audio output devices. *In the embodiment of the present invention illustrated in FIG. 1,*

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existing wireless devices 102 is a personal computer, new wireless device 104 and wireless device 108 are printers, and wireless device 110 is a portable computer.

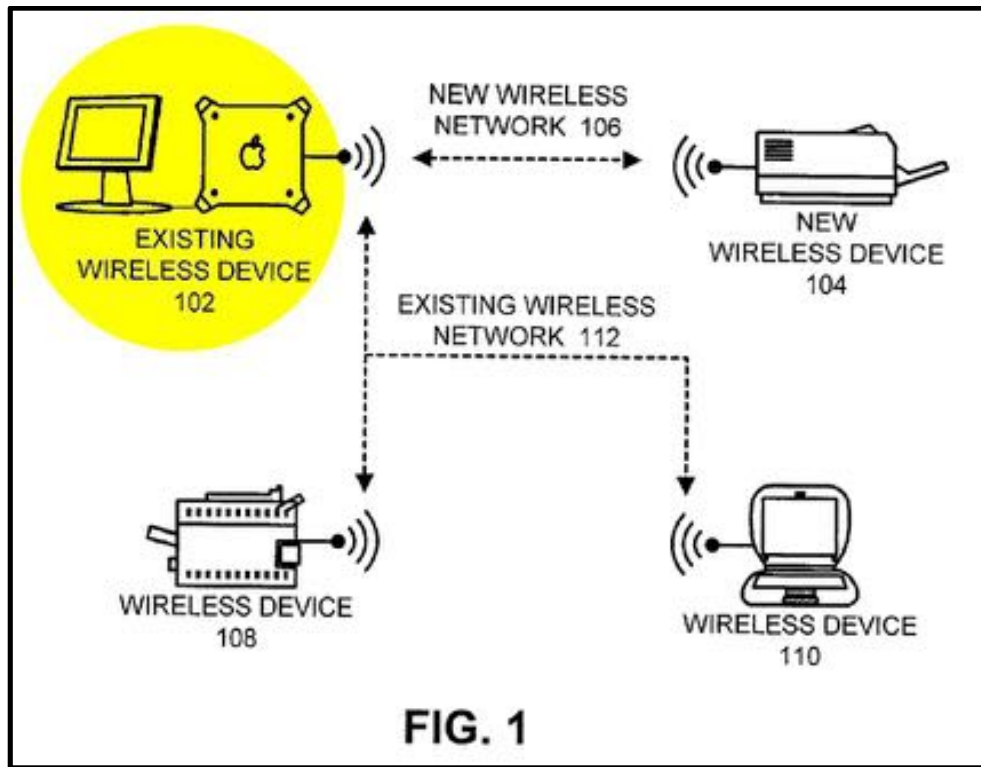
Cheshire at 3:3-18; US 2003/0181203 at [0021] (emphasis added).

1103. Based on my review of Sonos's validity contentions, I understand that Sonos does *not* dispute Cheshire discloses this limitation. See Sonos Validity Chart for Cheshire (Ex. 896-5).

(b) "a user interface;"

1104. Cheshire discloses this limitation.

1105. For example, Existing Wireless Device 102 shown in Figure 1 of Cheshire is a "personal computer" (in this case an Apple computer), which comprises a "user interface" because it incorporates and/or connects to a monitor, a keyboard, and/or a mouse. Cheshire discloses that Existing Wireless Device 102 can use the "Mac OS," which refers to the Apple operating system. Cheshire at 4:39-41; US 2003/0181203 at [0036]. The operating systems on Apple computers are graphical operating systems that rely on displaying graphical user interfaces to allow a user to interface with applications installed on the system.



1106. Cheshire, for example, discloses that “existing wireless device 102 selects the new wireless network 106 (step 308). Note that this process can involve *allowing a user of existing wireless device 102 to browse through available wireless networks before selecting new wireless network 106*. For example, a user of the Mac OS™ can temporarily switch the “AirPort” connection to new wireless network 106. (The terms “Macintosh” and “Mac OS” are trademarks or registered trademarks of Apple Computer, Inc. in the United States and other countries.)” Cheshire at 4:35-43; US 2003/0181203 at [0036]. The network browsing disclosed by Cheshire would be through a user interface on Existing Wireless Device 102.

1107. Claim 28 of Cheshire also discloses that “*a user interface for the existing wireless device* that is configured to allow a user of the existing wireless device to select the new wireless network from a list of available wireless networks prior to sending the request to join the new wireless network.” Cheshire at Claim 28; *see also* US 2003/0181203 at Claim 34.

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1108. Based on my review of Sonos’s validity contentions, I understand that Sonos does *not* dispute Cheshire discloses this limitation. *See* Sonos Validity Chart for Cheshire (Ex. 896-5).

(c) “a network interface;”

1109. The parties agreed the term “network interface” should be construed to require a “physical component of a device that provides an interconnection with a data network.”

1110. Cheshire discloses this limitation.

1111. For example, Existing Wireless Device 102 shown in Figure 1 of Cheshire is a “personal computer” (in this case an Apple computer). Cheshire discloses that the Existing Wireless Device 102 can connected to any type of wireless data network. Cheshire states:

Existing wireless network 112 and new wireless network 106 can generally include any type of wireless communication channel through which computing devices can communicate. For example, they can include wireless networks that transmit information through infrared signals or radio frequency signals. Moreover, existing wireless network 112 and new wireless network 106 can include, but are not limited to, a local area wireless network, a wide area wireless network, or a combination of networks. In one embodiment of the present invention, existing wireless network 112 and new wireless network 106 can be used to communicate with the Internet.

Cheshire at 3:18-29; US 2003/0181203 at [0022].

1112. Cheshire further states that “Wireless devices 102 ... can generally include any type of computer system ... that can reside on a wireless computer network.” Cheshire at 3:3-6; US 2003/0181203 at[0021].

1113. Cheshire also discloses the computing device communicates data over the network. For example, Cheshire discloses sending data, like packet 200, from Existing Wireless Device 102, which can contain different types of data, including network configuration information and standard information related to an IP address:

Packet 200 includes a number of pieces of information that new wireless device 104 can use to communicate on existing wireless network 112. More specifically, packet 200 contains *the name of a network to join 201*. In the example illustrated in FIG. 1, this name identifies existing wireless network 112.

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Packet 200 also includes a key type field 202, which identifies *the type of encryption key used by the network*. For example, the key type can specify that the encryption key is a Wired Equivalent Privacy (WEP) key or some other type of encryption key. Packet 200 also includes *the encryption key 203 to be used in communicating on existing wireless network 112*.

Packet 200 may additionally include *standard information related to an Internet Protocol (IP) address for new wireless device 104*. This information may include IP address 204, subnet mask 205, IP gateway address 206 and DNS server address 207. In the absence of such explicit IP configuration information, new wireless device 104 will typically use an IPv4 link-local address, or use a Dynamic Host Configuration Protocol (DHCP) server to obtain the necessary IP configuration information, or use the equivalent IPv6 capabilities.

Cheshire at 3:45-65; US 2003/0181203 at [0026]-[0028] (emphasis added).

1114. Thus, the computing device in Cheshire comprises a “network interface.”

1115. Based on my review of Sonos’s validity contentions, I understand that Sonos does *not* dispute Cheshire discloses this limitation. *See* Sonos Validity Chart for Cheshire (Ex. 896-5).

(d) “at least one processor;”

1116. Cheshire discloses this limitation.

1117. For example, Existing Wireless Device 102 shown in Figure 1 of Cheshire is a “personal computer” (in this case an Apple computer). Such a computer comprises “at least one processor” because it includes a CPU. Moreover, Cheshire discloses that Existing Wireless Device 102 “can generally include any type of computer system They can include a computer system based on a microprocessor” or “a digital signal processor.” Cheshire at 3:3-8; US 2003/0181203 at [0021].

1118. Based on my review of Sonos’s validity contentions, I understand that Sonos does *not* dispute Cheshire discloses this limitation. *See* Sonos Validity Chart for Cheshire (Ex. 896-5).

(e) “a non-transitory computer-readable medium; and”

1119. Cheshire discloses this limitation.

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1120. For example, Existing Wireless Device 102 shown in Figure 1 of Cheshire is a “personal computer” (in this case an Apple computer). Such a computer comprises “non-transitory computer-readable medium,” as Cheshire states:

The data structures and code described in this detailed description are typically stored on *a computer readable storage medium, which may be any device or medium that can store code and/or data for use by a computer system*. This includes, but is not limited to, magnetic and optical storage devices such as disk drives, magnetic tape, CDs (compact discs) and DVDs (digital versatile discs or digital video discs), and computer instruction signals embodied in a transmission medium (with or without a carrier wave upon which the signals are modulated). For example, the transmission medium may include a communications network, such as the Internet.

Cheshire at 2:48-59; US 2003/0181203 at [0018] (emphasis added).

1121. Independent claims 1 and 18 of Cheshire (and their associated dependent claims), also disclose a “computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for using reverse advertising to configure a new wireless device to join an existing wireless network.” Cheshire at Claims 1 and 18; *see also* US 2003/0181203 at Claims 13 and 21.

1122. Based on my review of Sonos’s validity contentions, I understand that Sonos does *not* dispute Cheshire discloses this limitation. *See* Sonos Validity Chart for Cheshire (Ex. 896-5).

(f) “program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the computing device to perform functions comprising:”

1123. Cheshire discloses this limitation.

1124. For example, Existing Wireless Device 102 shown in Figure 1 of Cheshire is a “personal computer” (in this case an Apple computer). Such a computer comprises “non-transitory computer-readable medium” that “cause the computing device to perform functions,” as Cheshire states:

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The data structures and code described in this detailed description are typically stored on *a computer readable storage medium, which may be any device or medium that can store code and/or data for use by a computer system*. This includes, but is not limited to, magnetic and optical storage devices such as disk drives, magnetic tape, CDs (compact discs) and DVDs (digital versatile discs or digital video discs), and computer instruction signals embodied in a transmission medium (with or without a carrier wave upon which the signals are modulated). For example, the transmission medium may include a communications network, such as the Internet.

Cheshire at 2:48-59; US 2003/0181203 at [0018] (emphasis added).

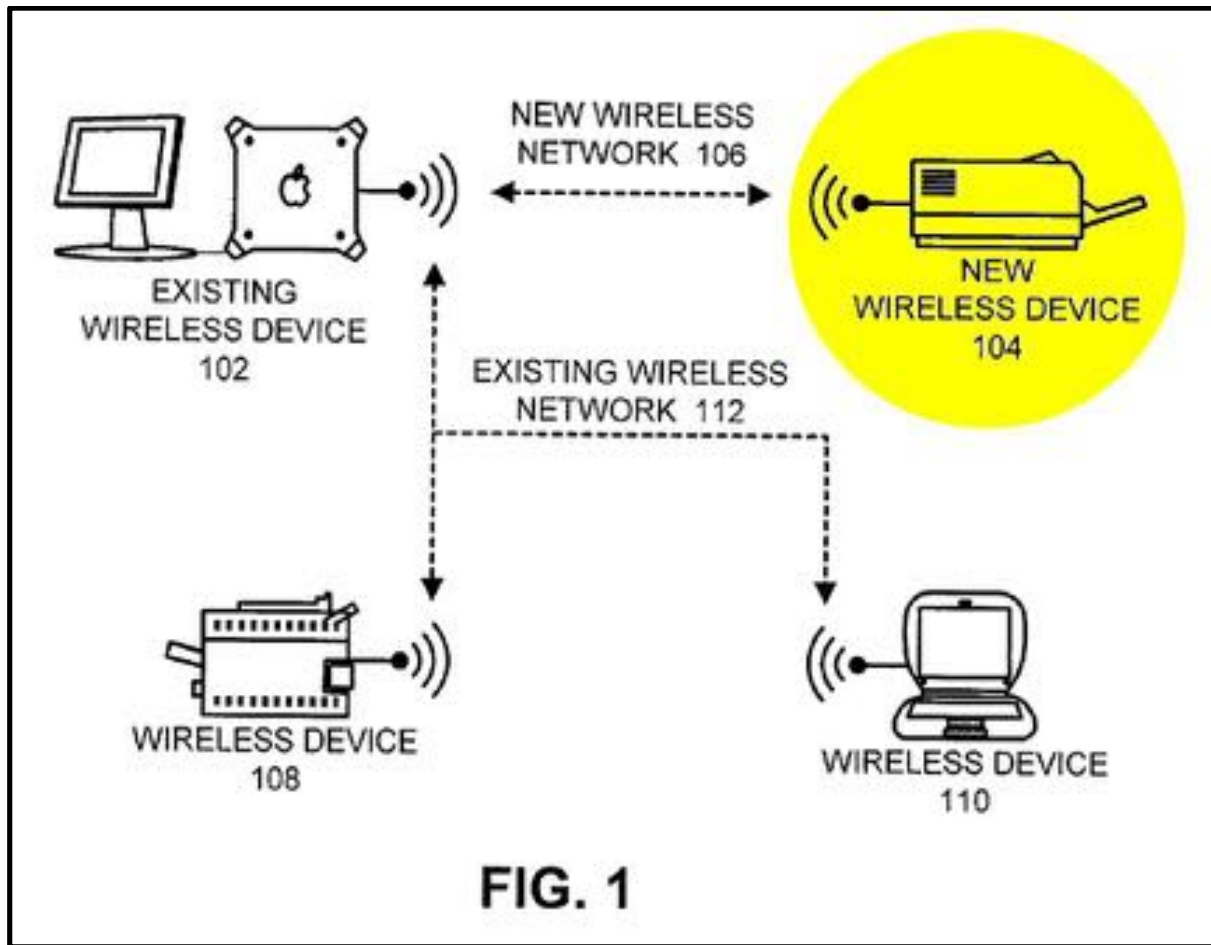
1125. Independent claims 1 and 18 of Cheshire (and their associated dependent claims), also disclose a “computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for using reverse advertising to configure a new wireless device to join an existing wireless network.” Cheshire at Claims 1 and 18; *see also* US 2003/0181203 at Claims 13 and 21.

1126. Based on my review of Sonos’s validity contentions, I understand that Sonos does *not* dispute Cheshire discloses this limitation. *See* Sonos Validity Chart for Cheshire (Ex. 896-5).

- (g) **“while operating on a secure wireless local area network (WLAN) that is defined by an access point, (a) receiving, via a graphical user interface (GUI) associated with an application for controlling one or more playback devices, user input indicating that a user wishes to set up a playback device to operate on the secure WLAN and (b) receiving a first message indicating that a given playback device is available for setup;”**

1127. Cheshire discloses or renders obvious this limitation.

1128. The parties agreed the term “playback device” should be construed to require a “data network device configured to process and output audio.” Cheshire discloses New Wireless Device 104 in Figure 1 that qualifies as a “playback device” under the parties’ agreed construction because it can communicate over Existing Wireless Network 112 and can process output.



1129. Figure 1 of Cheshire uses a printer as an example of New Wireless Device 104. Cheshire discloses that New Wireless Device 104 can also be an audio output device: “*Wireless devices* 102, 104, 108 and 110 can generally include any type of computer system They can also include ... *output devices*, such as displays or *audio output devices*.” Cheshire at 3:3-14; US 2003/0181203 at [0021] (emphasis added). As an audio output device on the network, New Wireless Device 104 would be capable of processing and outputting audio.

1130. The CALJ also construed the term “wireless local area network (WLAN)” to require “a wireless data communications network spanning a limited geographical area, such as an office, an entire building, or industrial park.” Cheshire also discloses a WLAN, such as Existing Wireless Network 112 in Figure 1. Cheshire discloses that “[e]xisting wireless network 112 and

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new wireless network 106 can generally include any type of wireless communication channel through which computing devices can communicate [E]xisting wireless network 112 and new wireless network 106 can include, but are not limited to, *a local area wireless network*, a wide area wireless network, or a combination of networks.” Cheshire at 3:18-26; US 2003/0181203 at [0022] (emphasis added). Existing Wireless Network 112 is secure because, as Cheshire discloses, Existing Wireless Network 112 can use WEP security: “Packet 200 also includes a key type field 202, which identifies the type of encryption key used by the network. For example, the key type can specify that the encryption key is a Wired Equivalent Privacy (WEP) key or some other type of encryption key. Packet 200 also includes the encryption key 203 to be used in communicating on existing wireless network 112.” Cheshire at 3:50-56; US 2003/0181203 at [0027].

i. Anticipation

1131. Cheshire discloses “operating on a secure wireless local area network (WLAN) that is defined by an access point.”

1132. Cheshire discloses a WLAN, such as Existing Wireless Network 112 in Figure 1. Cheshire discloses that “[e]xisting wireless network 112 and new wireless network 106 can generally include any type of wireless communication channel through which computing devices can communicate [E]xisting wireless network 112 and new wireless network 106 can include, but are not limited to, *a local area wireless network*, a wide area wireless network, or a combination of networks.” Cheshire at 3:18-26; US 2003/0181203 at [0022] (emphasis added). This disclosure, to a POSITA, would include WLANs defined by access points.

1133. Cheshire further discloses that Existing Wireless Network 112 can be the “Airport” wireless network. “For example, a user of the Mac OS™ can temporarily switch the ‘*AirPort*’ *connection* to new wireless network 106. (The terms “Macintosh” and ‘Mac OS’ are trademarks or registered trademarks of Apple Computer, Inc. in the United States and other countries.)”

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Cheshire at 4:39-43; US 2003/0181203 at [0036]. As would be known by a POSITA, the “Airport” network refers to a network defined by an Apple Airport base station, an IEEE 802.11-based WLAN access point with security capability, which was sold by Apple in 2002.

1134. Further, Cheshire expressly discloses using Wired Equivalent Privacy (WEP), which is a security algorithm for IEEE 802.11 wireless networks. 802.11 WLAN’s defined by access points were well-known to a POSITA when Cheshire was filed.

1135. Cheshire further discloses “*while* operating on a secure wireless local area network (WLAN) that is defined by an access point.” For example, Cheshire discloses that “[*d*]uring *operation*, the new wireless device broadcasts an advertisement for itself. In response to the advertisement, the new wireless device receives information from *an existing wireless device on the existing wireless network*. This information specifies how to join the existing wireless network.” Cheshire at 1:53-67; *see also* US 2003/0181203 at [0008]. Claim 1 of Cheshire also discloses that “broadcasting a service advertisement from the new wireless device on a new wireless network, wherein the service advertisement can be received by *more than one device on the existing wireless network*.” Cheshire at Claim 1; *see also* US 2003/0181203 at Claim 1.

1136. Claim 26 (as well as the other independent claims) of Cheshire disclose the same concept:

26. An apparatus that uses reverse advertising to configure a new wireless device to join an existing wireless network, comprising:

an existing wireless device on the existing wireless network;

a receiving mechanism within the existing wireless device that is configured to receive a service advertisement broadcast from the new wireless device on a new wireless network, wherein *the service advertisement can be received by more than one device on the existing wireless network*;

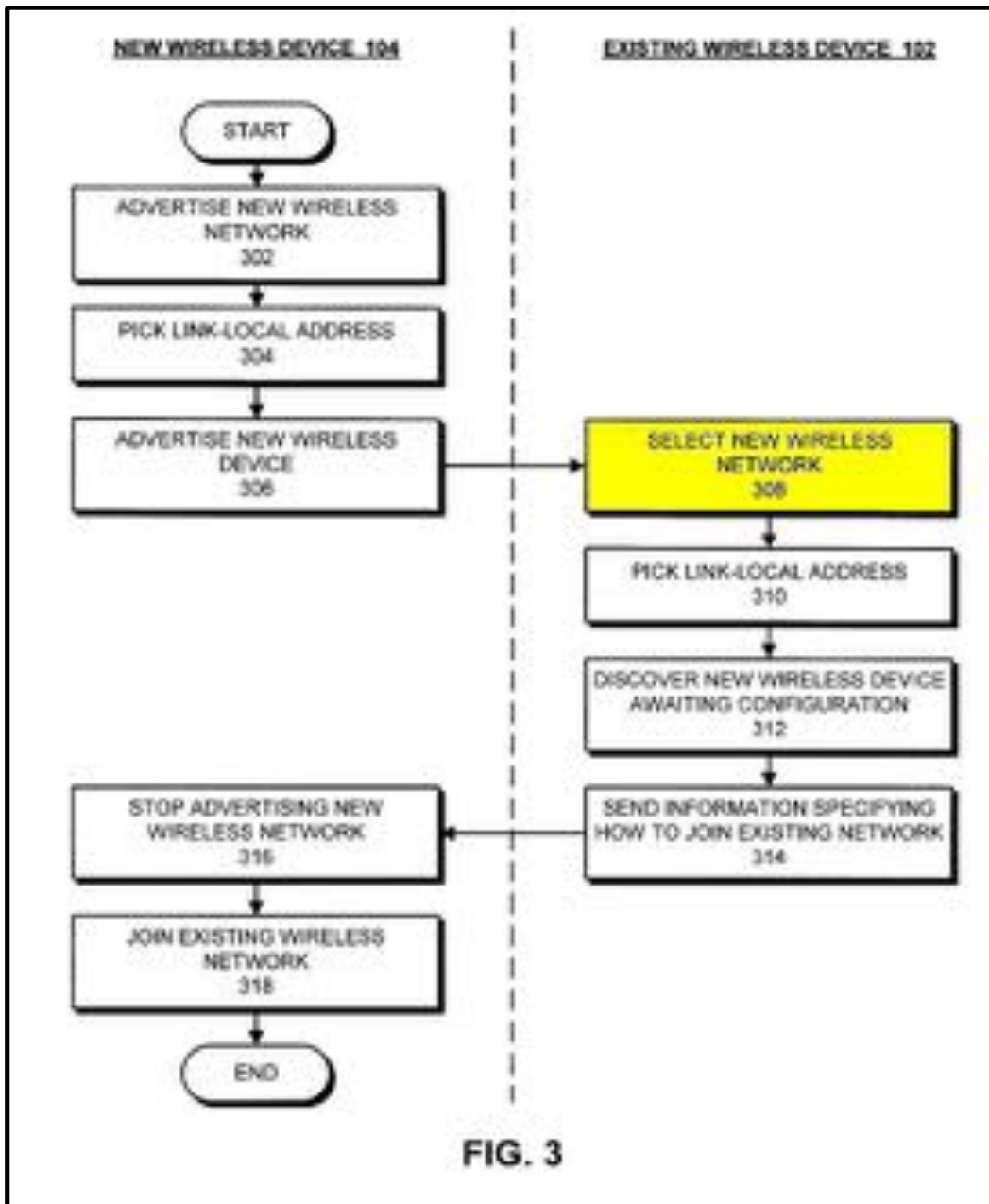
a sending mechanism configured to send a request to the new wireless device to join the new wireless network in response to receiving the service advertisement;

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an allowance-receiving mechanism, wherein upon receiving an allowance from the

....

1137. In Figure 3 of Cheshire (below), Cheshire discloses that, in addition to staying on Existing Wireless Network 112 after selecting New Wireless Network 106, the Existing Wireless Device 102 can also switch to the New Wireless Network 106. “For example, a user of the Mac OS™ can *temporarily switch the ‘AirPort’ connection to new wireless network 106*. (The terms “Macintosh” and ‘Mac OS’ are trademarks or registered trademarks of Apple Computer, Inc. in the United States and other countries.)” Cheshire at 4:39-43; US 2003/0181203 at [0036].

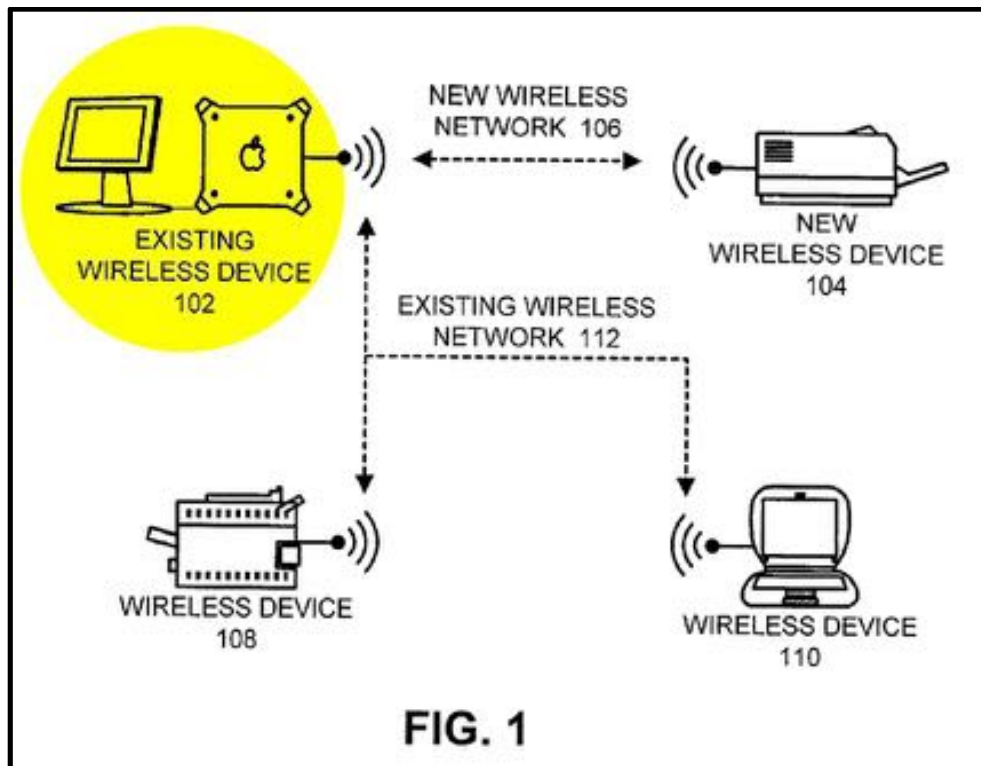


1138. Cheshire also discloses “a graphical user interface (GUI) associated with an application for controlling one or more playback devices.”

1139. Cheshire discloses a graphical user interface for Existing Wireless Device 102. For example, Existing Wireless Device 102 shown in Figure 1 of Cheshire is a “personal computer” (in this case an Apple computer), which comprises a “user interface” because it incorporates and/or

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connects to a monitor, a keyboard, and/or a mouse. For example, the '896 patent explains “[t]he user interface for the controller 240 includes a screen 242 (e.g., a LCD screen) and a set of functional buttons.” ’896 patent at 7:46-47. Cheshire discloses that Existing Wireless Device 102 can use the “Mac OS,” which refers to the Apple operating system. Cheshire at 4:39-43; US 2003/0181203 at [0036]. The operating systems on Apple computers are graphical operating systems that rely on displaying graphical user interfaces to allow a user to interface with applications installed on the system.



1140. Cheshire also discloses that Existing Wireless Device 102 can also comprise “a device controller” (Cheshire at 3:3-9; US 2003/0181203 at [0021]) and that New Wireless Device 104 can be “output devices” such as “audio output devices” (Cheshire at 3:3-16; US 2003/0181203 at [0021]). A POSITA would understand that Cheshire discloses that the Existing Wireless Device 102 can control and use the New Wireless Device 104 as an audio output device to play audio. A

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POSITA would further understand that a computer, like the Apple computer in Cheshire, would use a software application to control the audio device and Apple computer would include a GUI associated with that application.

1141. Note that the phrase cannot be read to require that the same executable must both generate the “GUI” and “control[]” the playback device because the claim uses the broad word “associated” and because the ’896 patent discloses that “a GUI is provided for a handheld or a computer.” ’896 patent at 16:16. Thus, even if the ’896 patent’s controller has multiple applications running thereon (*see* ’896 patent at 8:29-32 (discussing “one *or more* application modules 284”)), the controller nonetheless has only one “GUI” for that controller.

1142. Cheshire discloses that, while the computing device is on the secure WLAN, “*receiving*, via a graphical user interface (GUI) associated with an application for controlling one or more playback devices, *user input indicating that a user wishes to set up a playback device to operate on the secure WLAN,*” under at least Sonos’s apparent interpretation of that term.

1143. As shown in the preceding paragraphs, the Existing Wireless Device 102 stays on Existing Wireless Network 112. During this time, Cheshire discloses that the Existing Wireless Device 102 receives input from the user to select the available new wireless network to connect to proceed with setting up New Wireless Device 104. In particular, “existing wireless device 102 selects the new wireless network 106 (step 308). Note that this process can involve *allowing a user of existing wireless device 102 to browse through available wireless networks before selecting new wireless network 106.*” Cheshire at 4:36-39; US 2003/0181203 at [0036]. Cheshire then states that “*For example*, a user of the Mac OS™ *can* temporarily switch the “AirPort” connection to new wireless network 106. (The terms “Macintosh” and “Mac OS” are trademarks or registered trademarks of Apple Computer, Inc. in the United States and other countries.)”

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Cheshire at 4:39-43; US 2003/0181203 at [0036]. Thus, Cheshire discloses either staying connected to the existing wireless network or temporarily switching off that network. This is illustrated with annotated Figure 3 of Cheshire below.

1144. Claim 28 of Cheshire also discloses that “a user interface for the existing wireless device that is configured to allow a user of the existing wireless device to select the new wireless network from a list of available wireless networks prior to sending the request to join the new wireless network.” Cheshire at Claim 28; see also US 2003/0181203 at 34. Thus, Cheshire discloses that this user input happens while Existing Wireless Device 104 is on Existing Wireless Network 112.

1145. As I discuss above, Sonos’ apparent construction of this limitation (based on its infringement contentions) does not require a “user input indicating that a user wishes to set up a playback device to operate on the secure WLAN” but instead can be a user input that is merely involved with the setting up a playback device to operate on a secure WLAN. Cheshire’s disclosed user input more than satisfies this limitation under Sonos’ apparent interpretation.

1146. First, by joining New Wireless Network 112, a user in Cheshire indicates that it wishes to use this new network for setting up New Wireless Device 114. This user input in Cheshire is an indication that a user wishes to set up a playback device because that is the only reason disclosed by Cheshire for joining the new wireless network in these embodiments. Second, this user input in Cheshire also indicates that a user wishes to set up a playback device to operate on “*the secure WLAN*” because there is only one secure WLAN to join in the embodiments of 1, 2, and 3, namely, Existing Wireless Network 112 to which the Existing Wireless Device 102 is already connected. As Cheshire discloses:

- “In response to the advertisement, the new wireless device receives information from *an existing wireless device on the existing wireless network.* *This information specifies*

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how to join the existing wireless network. Next, the new wireless device uses the information to configure itself *to join the existing wireless network*” Cheshire at Abstract; US 2003/0181203 at Abstract.

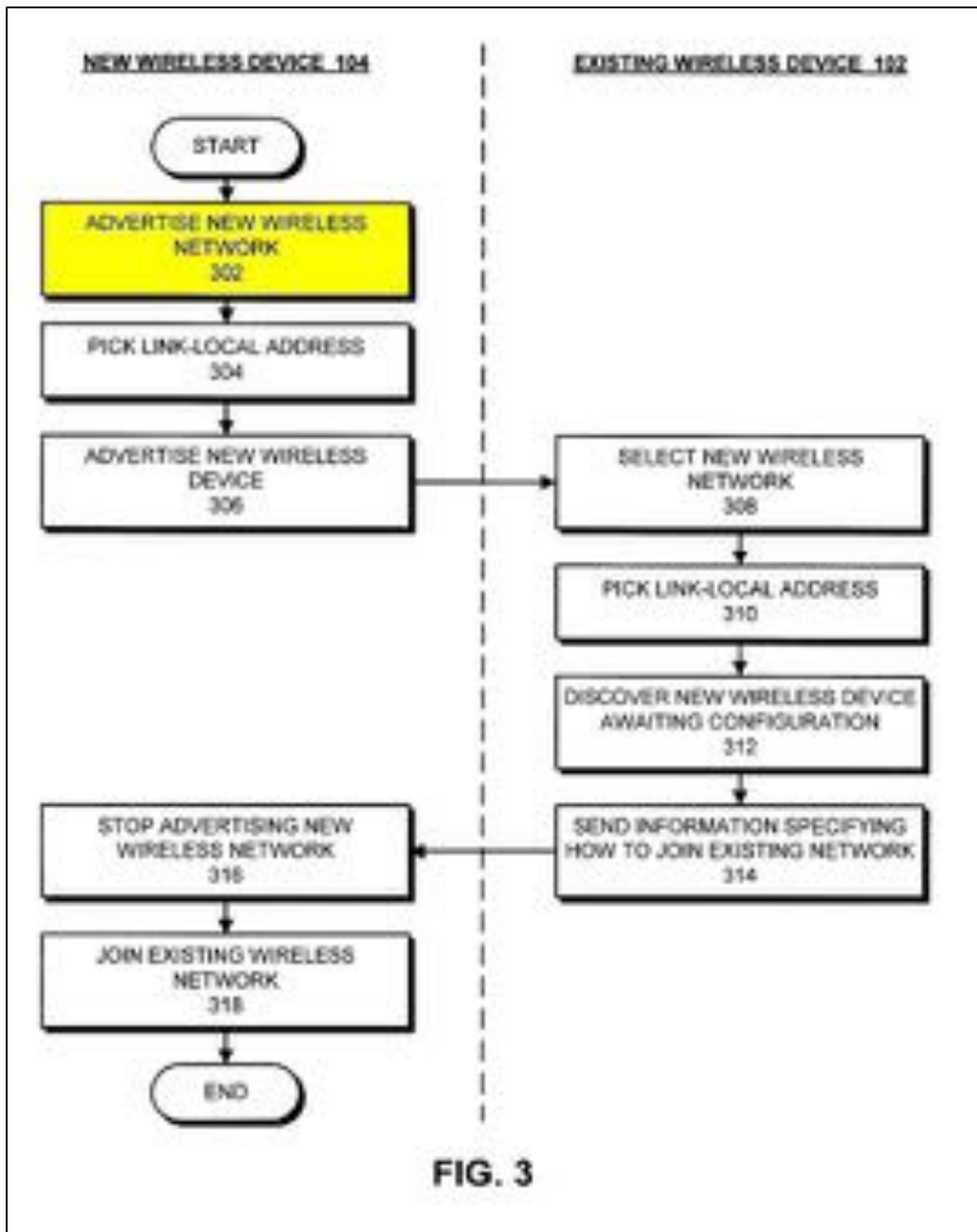
- “In a variation on this embodiment, receiving the information from *the existing wireless device on the existing wireless network* involves: receiving a request to join the new wireless network from the existing wireless device; allowing the existing wireless device to join the new wireless network; and then receiving information from the existing wireless device specifying *how to join the existing wireless network*.” Cheshire at 2:4-10; US 2003/0181203 at [0011].
- “During operation, new wireless device 104 initially communicates with existing wireless device 102 through new wireless network 106 in order to receive configuration information, which allows new wireless device 104 to *join existing wireless network 112* as is described below with reference to FIGS. 2 and 3.” Cheshire at 3:30-35; US 2003/0181203 at [0023].
- “FIG. 2 illustrates a packet 200 containing configuration information to be used in configuring new wireless device 104 to *join existing wireless network 112* in accordance with an embodiment of the present invention.” Cheshire at 3:37-40; US 2003/0181203 at [0025].
- “FIG. 3 presents a flow chart illustrating how new wireless device 104 *joins existing wireless network 112*.” Cheshire at 4:7-9; US 2003/0181203 at [0031].
- “in response to the service advertisement, the new wireless device receiving information *from an existing wireless device* that is on the existing wireless network, wherein receiving the information *from the existing wireless device* involves ... receiving information from the existing wireless device specifying how *to join the existing wireless network* ... wherein the information specifies how to *join the existing wireless network* and includes a packet which is associated with one or more of: *the name of the existing wireless network*” Cheshire at Claim 1; *see also* US 2003/0181203 at Claim 1.

1147. So, Cheshire’s setup process is directed to the case where a user wishes to setup a new wireless device on Existing Wireless Network 112, and not some other existing wireless network. That means that the user input selecting New Wireless Network 106 is an indication that the user wishes to setup New Wireless Device 104 on Existing Wireless Network 106.

1148. Cheshire discloses “receiving a first message indicating that a given playback device is available for setup.”

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1149. Cheshire discloses two such messages. One message is the message sent by New Wireless Device 104 that advertises New Wireless Network 106: “This process starts, for example, when a new wireless device 104, such as a printer, powers up. *First, new wireless device 104 advertises a new wireless network 106 (step 302).* In one embodiment of the present invention, new wireless device 104 offers a computer-to-computer (Independent Basic Service Set (IBSS)) network.” Cheshire at 4:10-15; US 2003/0181203 at [0032]. This new wireless network message indicates that a given playback device is available for setup because it advertises the new wireless network available for setting up the new playback device. This first message is shown at step 302 in Figure 3.

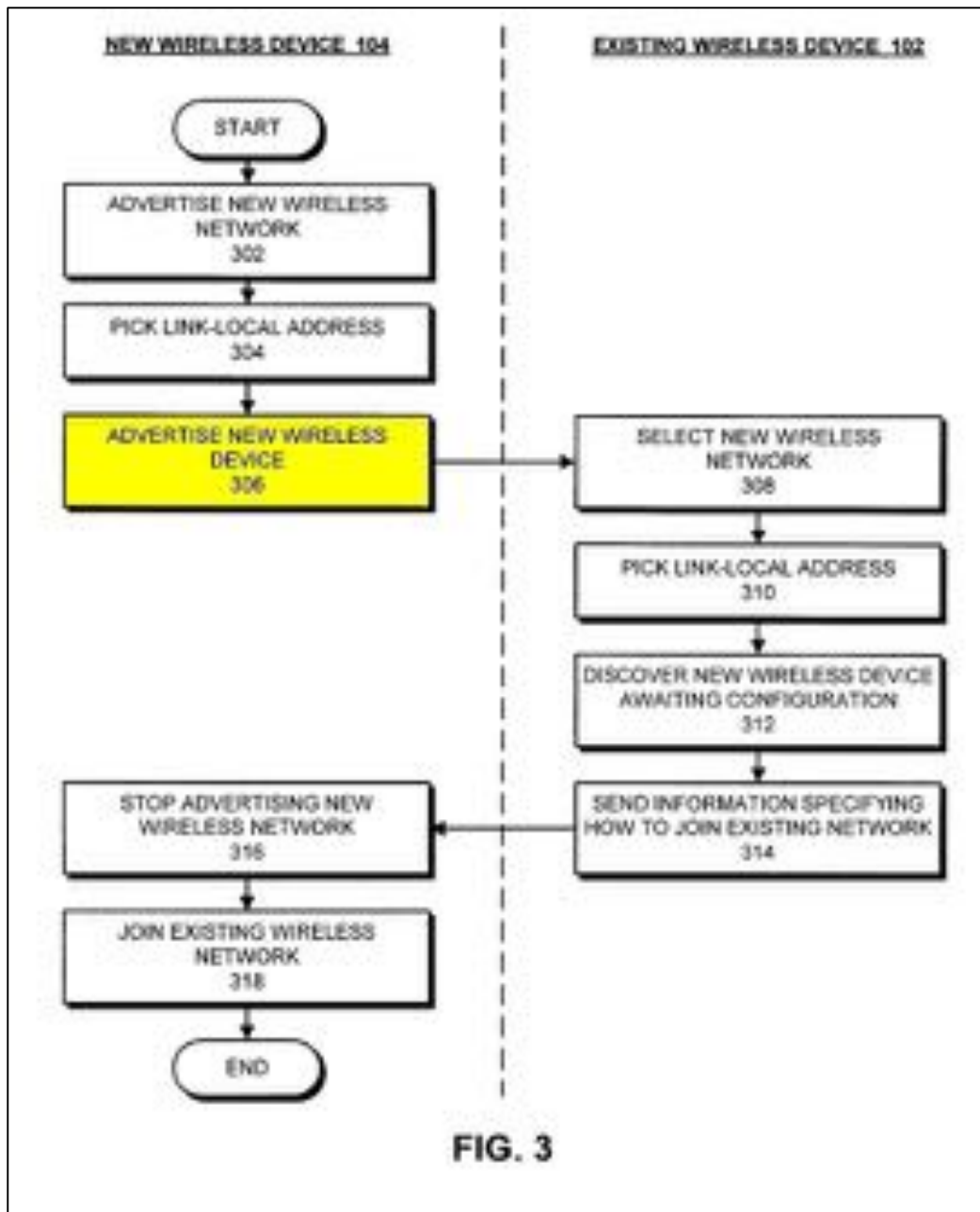


1150. This message is then received by Existing Wireless Device 102 such that the user can select this new network at step 308. “At this point, existing wireless device 102 selects the new wireless network 106 (step 308).” Cheshire at 4:35-36; US 2003/0181203 at [0036]. Note that a POSITA would understand that this first message would have to be received while Existing

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Wireless Device 102 was still operating on the secure WLAN because Cheshire discloses the user learns about New Wireless Network 106 while still on the existing network.

1151. Alternatively, Cheshire also discloses another message that indicates that a given playback device is available for setup. This message is the message sent by New Wireless Device 106 indicating that it is available for setup in Step 306 in Figure 3:



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Next, *new wireless device 104* begins listening for incoming configuration packets, and *creates a service advertisement announcing the fact that it is listening and ready for wireless configuration. This announcement can be made using DNS Service Discovery*, or any other Service Discovery protocol known to those skilled in the art. If the announcement is made using DNS Service Discovery, and the official IANA name of the configuration protocol were “nwdcp” (for “new wireless device configuration protocol”), then new wireless device 104 would advertise a named instance of the service called “_nwdcp._udp.local.arpa.”

New wireless device 104 may use its model number, serial number, or some other identifier, to differentiate new wireless device 104 from other wireless devices that may be seeking configuration information at the same moment in time.

Cheshire at 4:20-34; US 2003/0181203 at [0034]-[0035].

1152. Then, at step 312 in Figure 3, Cheshire discloses receiving the message sent at step 306 indicating that a given playback device is available for setup. “Next, existing wireless device 102 uses DNS Service Discovery (or another appropriate Service Discovery protocol known to those skilled in the art) to discover the list of entities on new wireless network 106 that are awaiting configuration information (step 312).” Cheshire at 4:48-52; US 2003/0181203 at [0038]. A POSITA would understand that DNS Service Discovery (or another appropriate Service Discovery protocol known to those skilled in the art) would including receiving a message at the existing wireless device that indicated that a new wireless device was available for setup.

1153. For example, the “DNS-Based Service Discovery” standard authored by Stuart Cheshire and published on December 20, 2002 states that one of the “Design Goals” of the standard is “(i) The ability to query for services of a certain type in a certain logical domain and *receive in response* a list of named instances (network browsing, or “Service Instance Enumeration”).” <https://tools.ietf.org/html/draft-cheshire-dnsext-dns-sd-00> at 3. In the DNS-Based Service Discovery standard, named instances can include the new devices to be discovered, such as printers: “(iii) Instance names should be relatively persistent. If a user selects their default printer from a list of available choices today, then tomorrow they should still be able to print on that printer.” *Id.*

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In the context of Cheshire, the named instance would be New Wireless Device 104. DNS was well known to POSITA, as even the DNS-Based Service Discovery Standard states: “It makes more sense to use the existing software that every network needs already [*i.e.*, DNS], instead of deploying an entire parallel system just for service discovery.” *Id.* at 20.

1154. Note that Cheshire discloses that this message can be received by Existing Wireless Device 102 while it is operating on *or* off the existing wireless network. In one embodiment, the existing wireless device temporarily switches to the new wireless network after the user selects the new wireless network. “*For example*, a user of the Mac OS™ *can temporarily switch* the “AirPort” connection to new wireless network 106. (The terms “Macintosh” and “Mac OS” are trademarks or registered trademarks of Apple Computer, Inc. in the United States and other countries.)” Cheshire at 4:39-43; US 2003/0181203 at [0036]. This is only one embodiment (as indicated by the use of permissive terms like “for example” and “can temporarily switch”). In other embodiments, the existing wireless device remains on the existing wireless network all the way through sending the configuration information to the new wireless device (which happens after the existing wireless device receives the message sent in step 306).

- “In response to the advertisement, the new wireless device receives information from *an existing wireless device on the existing wireless network*. *This information specifies how to join the existing wireless network*. Next, the new wireless device uses the information to configure itself *to join the existing wireless network*” Cheshire at Abstract; US 2003/0181203 at Abstract.
- “In a variation on this embodiment, receiving the information from *the existing wireless device on the existing wireless network* involves: receiving a request to join the new wireless network from the existing wireless device; allowing the existing wireless device to join the new wireless network; and then receiving information from the existing wireless device specifying *how to join the existing wireless network*.” Cheshire at 2:4-10; US 2003/0181203 at [0011].

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ii. Obviousness

1155. To the extent the CALJ finds that Cheshire does not disclose this limitation, Cheshire at a minimum renders this limitation obvious.

1156. *First*, to the extent that Cheshire does not disclose that the existing wireless network is defined by an access point, it would have been at least obvious that the existing wireless network could be one defined by an access point. These types of networks were well known to POSITA and one of the primary types of Wi-Fi WLAN networks at the time. Cheshire makes several references to these types of networks, acknowledging that a POSITA would have been aware of networks defined by access points that that these networks could be the existing wireless network in the disclosed setup process in Cheshire. For example, Cheshire discloses that “[e]xisting wireless network 112 and new wireless network 106 can generally include any type of wireless communication channel through which computing devices can communicate [E]xisting wireless network 112 and new wireless network 106 can include, but are not limited to, *a local area wireless network*, a wide area wireless network, or a combination of networks.” Cheshire at 3:18-26; US 2003/0181203 at [0022] (emphasis added).

1157. Cheshire further discloses that Existing Wireless Network 112 can be the “Airport” wireless network. “For example, a user of the Mac OS™ can temporarily switch the ‘*AirPort connection*’ to new wireless network 106. (The terms “Macintosh” and ‘Mac OS’ are trademarks or registered trademarks of Apple Computer, Inc. in the United States and other countries.)” Cheshire at 4:39-43; US 2003/0181203 at [0036]. As would be known by a POSITA, the “Airport” network refers to a network defined by an Apple Airport base station, which was sold by Apple in 2002.

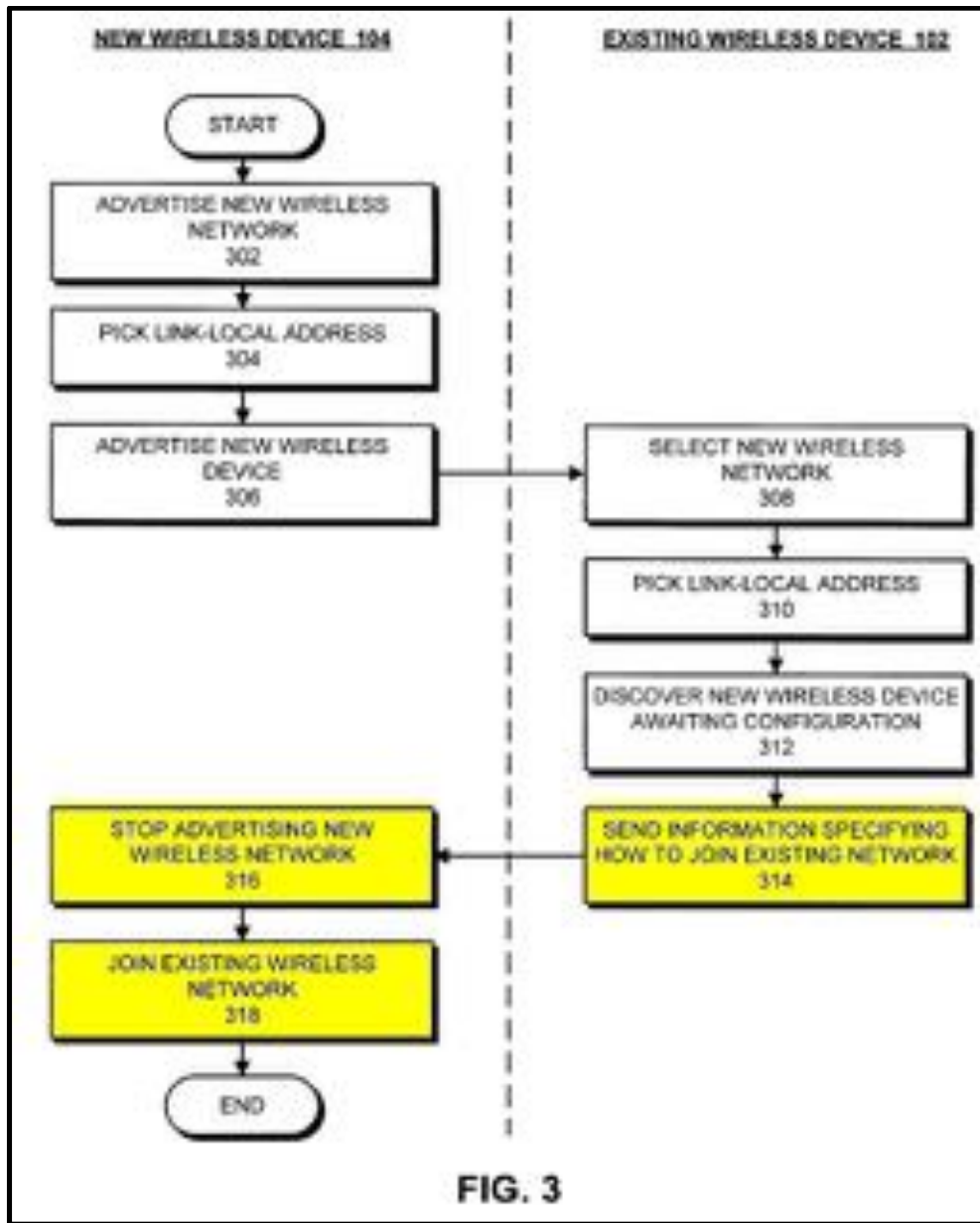
1158. Further, Cheshire expressly discloses using Wired Equivalent Privacy (WEP), which is a security algorithm for IEEE 802.11 wireless networks. WEP was widely used in access

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points for security at the time Cheshire (and the '896 patent) was filed. By disclosing WEP, it would have at least been obvious to a POSITA that the existing wireless network could be one defined by an access point. This limitation would be even more obvious under Sonos's apparent interpretation of this limitation, which broadly expands an access point to include a zone player.

1159. *Second*, to the extent that Cheshire does not disclose "a graphical user interface (GUI) associated with an application for controlling one or more playback devices," it would have been at least obvious in light of Cheshire. Cheshire discloses using Existing Wireless Device 102 to control the audio output device, and particularly, for setting up the audio output device on Existing Network 104. Existing Wireless Device 102 also includes a graphical user interface and applications associated with personal computers at the time.

1160. Sonos argues, in its validity contentions, that "there is no disclosure in Cheshire of a 'computing device' (e.g., "existing wireless device 102") being used to control one or more other devices (e.g., 'new wireless device Cheshire (Ex. 896-5) 104') other than to merely configure a new wireless device to join an existing wireless network. However, an application that merely allows for configuration of a device to join a network is not 'an application for controlling one or more playback devices.'" I disagree. Cheshire discloses that Existing Wireless Device 102 controls New Wireless Device 106 by configuring New Existing Device 106 with specific configuration information to join Existing Wireless Network 106. Indeed, in response to Existing Wireless Device 102 sending information specifying how to join Existing Wireless Network 106, New Wireless Device 104 stops advertising the new wireless network and joins Existing Wireless Network 106.



1161. Sonos fails to provide an explanation or support for why “an application for controlling one or more playback devices” should be construed to exclude this control. But to the extent the CALJ decides to adopt Sonos construction, it would have been obvious that the application used to setup a Cheshire’s audio output device would also be the application used control the audio output device. It would have been well-known to a POSITA that a personal computer, like an Apple computer, would be able to play music to audio output devices. For

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example, the operating system and other applications installed on the operating system (e.g., iTunes, Winamp, Windows media player, cd3o, Yamaha, etc.) all allowed for controlling audio output devices. It would have been obvious to a POSITA that time to use any of features in each of the application with the set up software of Cheshire to further control the playback of audio on Cheshire's audio output devices.

1162. Indeed, Apple itself filed U.S. Patent No. 8,797,926 ("Kearney") on June 4, 2004, only a couple years after Cheshire was filed and one day before the earliest application was filed in the priority chain for the '896 patent.

1163. Kearney incorporates by reference Cheshire's setup process into a system that a played wireless music, for example, in different rooms of a home.

Interface between the personal computer 205 and portable media station 100 over the network (e.g., wireless network 206) is initiated *through a discovery process*. One example of such a discovery process uses Rendezvous, which is a technology that enables automatic discovery of computers, devices, and services on IP networks. Also known as Zero Configuration Networking, Rendezvous uses standard IP protocols to allow devices to automatically find each other without the need for a user to enter IP addresses or configure DNS servers. Various aspects of Rendezvous are generally known to those skilled in the art, and are disclosed in the white paper entitled "Rendezvous" dated October, 2003, and published by Apple Computer, which is hereby incorporated by reference in its entirety. *Additional implementation details may be found in the following co-pending patent applications, commonly owned with the present application, which are hereby incorporated by reference in their entirety: "Method and Apparatus for Configuring a Wireless Device Through Reverse Advertising," Ser. No. 10/102,321, filed Mar. 19, 2002*

Kearney at 7:27-49.

1164. Kearney discloses that in that time period:

With the increasing capacity and capability of personal computers, as well as improved multimedia interfaces for these computers, *it has become popular to use personal computers as a repository for multimedia content, such as songs, movies, etc. Particularly with music, the increased popularity of storing multimedia information on a personal computer has resulted in a variety of products and services to serve this industry.*

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....

These products and services have resulted in an environment where *many consumers use their personal computer as a primary vehicle for obtaining, storing, and accessing multimedia information*. One drawback to such a system is that although the quality of multimedia playback systems for computers, e.g., displays, speakers, etc. have improved dramatically in the last several years, these systems still lag behind typical entertainment devices, e.g., stereos, televisions, projection systems, etc. in terms of performance, fidelity, and usability for the typical consumer.

Kearney at 1:5-30 (emphasis added).

1165. Kearney further provides the motivation for why a POSITA would have found it obvious to modify Cheshire to disclose this limitation (and any others that are found to be missing in Cheshire).

[I]t would be *beneficial* to provide a mechanism whereby a consumer *could easily obtain, store, and access multimedia content using a personal computer*, while also being able to *listen, view or otherwise access this content using conventional entertainment devices*, such as stereo equipment, televisions, home theatre systems, etc. Because of the increasing use of personal computers and related peripherals in the home, it would also be *advantageous* to integrate such a mechanism with a home networking to provide an *integrated electronic environment for the consumer*.

Kearney at 1:33-41 (emphasis added).

1166. This further demonstrates that a POSITA would have found “a graphical user interface (GUI) associated with an application for controlling one or more playback devices” obvious in light of Cheshire. Kearney recognizes that systems, while “closed,” already existed that enable home networking systems and audio speaker systems that allowed for computer-controlled switching of music from one location to another:

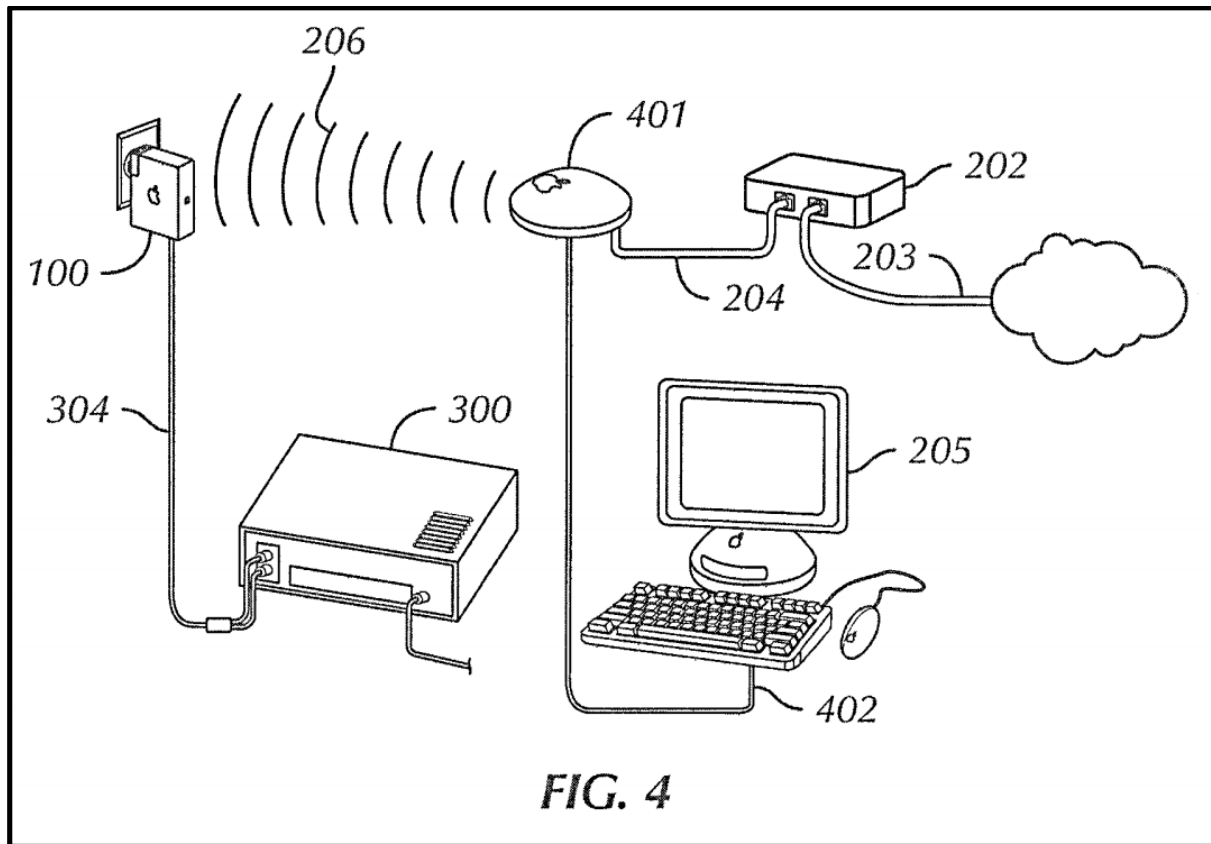
[T]here is also *increasing interest* in the field of home networking, which involves *allowing disparate devices in the home or workplace to recognize each other and exchange data*, perhaps under the control of some central hub. *To date a number of solutions in this area have involved closed systems* that required the purchase of disparate components from the same vendor. For example, *audio speaker systems that allow computer-controlled switching of music from one location to another may be purchased as a system from a single vendor*, but they may be

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expensive and/or may limit the consumer's ability to mix and match components of a home network from different vendors according to her own preferences. Thus it would be beneficial to provide a mechanism by which various home networking components from differing vendors can nonetheless interact in a home network environment.

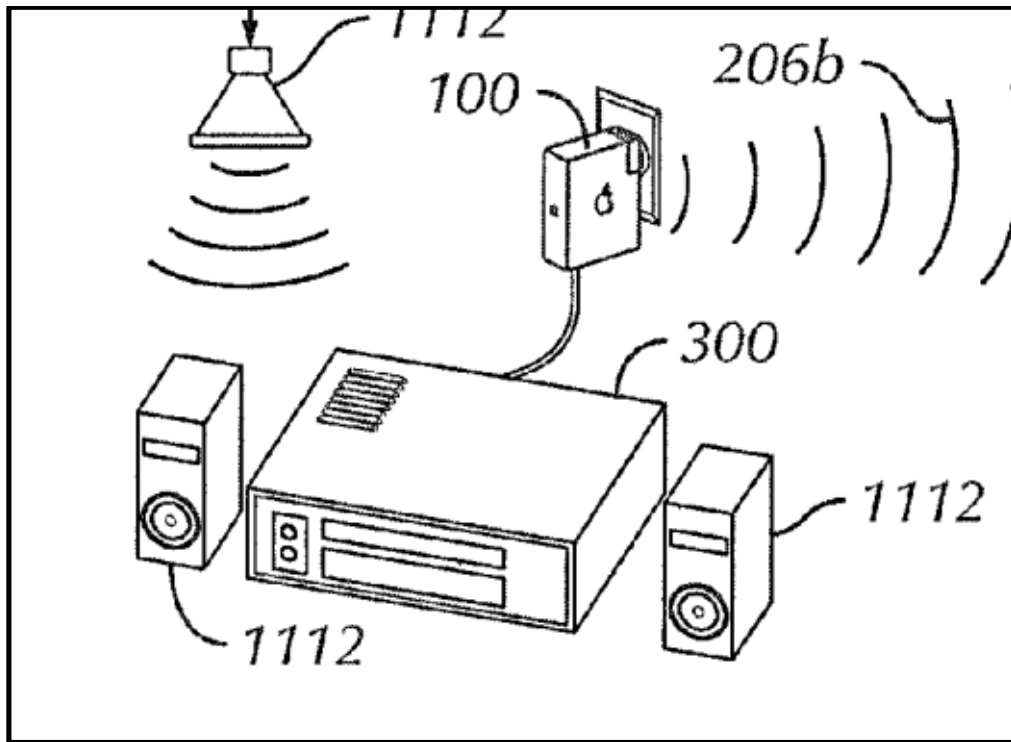
Kearney at 1:42-57 (emphasis added).

1167. Kearney discloses in Figure 4 a configuration with computer 205 with a graphical user interface associated with controlling one or more playback devices 300.



1168. In Figure 4 of Kearney, network 206 is defined by access point 401 (a “base station”). “Using such a system, *multimedia files stored on computer 205 may be played using stereo receiver 300*, which is connected to networked media station using the audio interface. Communication between computer 205 and the networked media station 100 connected to stereo receiver 300 is via a wired network segment (illustrated schematically by connection 402) and a

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wireless network segment 206.” Kearney at 6:16-23. Kearney discloses using the setup process of Cheshire to setup networked media station 100, which is connected to the stereo receiver 300, which itself includes speakers, such as speakers 1112 in Figure 11.



1169. Kearney discloses using the user interface for iTunes to control music playback:

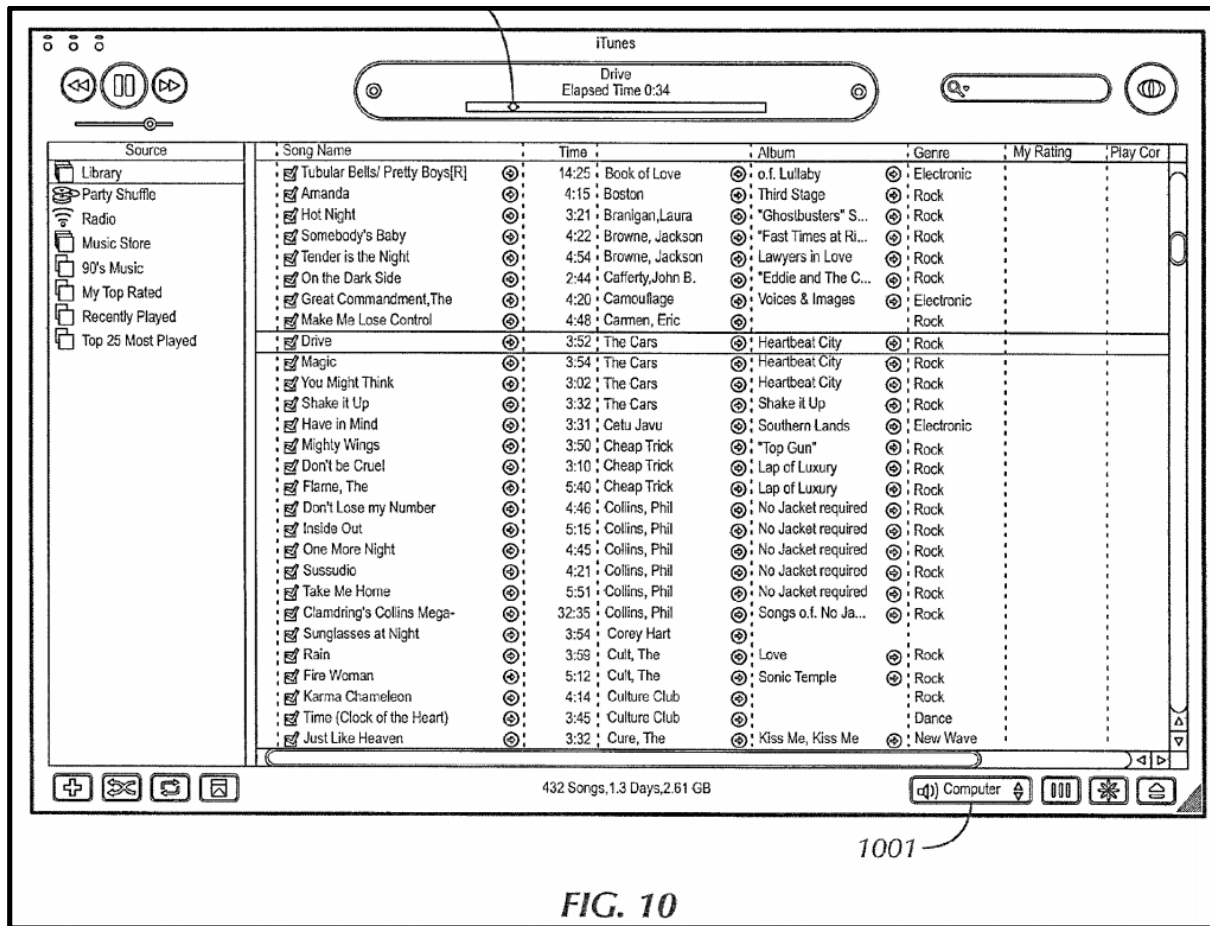


FIG. 10

1170. A POSITA would be motivated in 2003-2004 to minimize the number of applications by combining features of related applications designed to work in concert with each other. And Cheshire and Apple were also working on applications for controlling playback devices and setting up these devices, as Sonos' own documents cited above for 102(f) show.

1171. Additionally, it would have been obvious to combine Cheshire with each of cd3o, UPnP—as taught by, e.g., UPnP AV Architecture or Weast—or Creative. Cheshire, UPnP AV Architecture, Weast, cd3o, and Creative each fall within the same field of art (setting up new devices on a wireless network) and each are directed to systems for adding new devices (such as audio playback device) to secure wireless networks. Each of Cheshire, UPnP AV Architecture, Weast, cd3o, and Creative are designed to make it easy for users to setup new devices on wireless

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networks and eliminate the need for unnecessary cables and wiring. Adding the graphical user interfaces of UPnP AV Architecture, Weast, cd3o, or Creative to Cheshire would have added to these goals and dovetailed nicely with the disclosure in Cheshire. A POSITA would have appreciated that the graphical user interfaces disclosed in UPnP AV Architecture, Weast, cd3o, or Creative could be implemented on Existing Wireless Device 102 and it would have well within the ability of a POSITA to do so. The substantive similarity in the set up process of Cheshire, UPnP AV Architecture, Weast, cd3o, or Creative would further motivate a POSITA to combine their teachings. For example, each of these prior art references disclose transmitting a network identifier and security key over a new wireless network to a new wireless device. Modifying Cheshire to use the graphical user interfaces to control the new device being added would simply entail the use of known solutions to improve Cheshire. Also, a POSITA would be motivated in 2003-2004 to minimize the number of applications by combining features of related applications designed to work in concert with each other. Doing so would have made installation easier (fewer applications to install), finding the right feature easier (user only has to go to a single application for all interactions with the new wireless device), and use faster (user does not have to switch between applications). This is especially true at the relevant time (2004) when installing and launching applications was generally slower due to slower processors. Moreover, allocating functionalities to a single application instead of dividing them between multiple applications would have been a simple design choice, as one of ordinary skill would understand that the same or similar code would be used, regardless of whether features are implemented in two different applications or a single application. A POSITA would have been motivated to combine the teachings of Cheshire with either cd3o or Yamaha in such a manner to achieve additional ease of use for end users.

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1172. It would have been obvious to combine Cheshire with cd3o, UPnP—as taught by, e.g., UPnP AV Architecture or Weast—or Creative for the additional reason that each of these related to playing music wirelessly. UPnP AV Architecture, Weast, cd3o, and Creative each include commands for playback as well for, e.g., selecting songs and starting and stopping play on Existing Wireless Device 102. UPnP software—as taught by, e.g., UPnP AV Architecture or Weast—could be integrated into existing player software on Existing Wireless Device 102. Using UPnP in this manner was well known even before the priority and/or conception date of the '896 Patent and incorporating a UPnP control point into Existing Wireless Device 102 to setup and provide media to Cheshire's audio output devices would have been obvious. Such UPnP control point software would qualify as “an application for controlling one or more playback devices” even under Sonos's narrow interpretation of that term. Similarly, it would have been obvious to combine Cheshire with cd3o or Creative to arrive at this claim limitation even under Sonos's narrow interpretation. I further incorporate herein by reference my opinions set forth in Section XIV (“Additional Opinions on the “Controlling” Limitation of Claim 1 and on Claims 3, 5, 6, and 12”) below.

1173. *Third*, to the extent that Cheshire does not disclose “receiving a first message indicating that a given playback device is available for setup” while Existing Wireless Device 102 is operating on the secure WLAN, it would have been at least obvious in light of Cheshire. As I explain above, Cheshire discloses two such messages. One type is the message that advertises that the new wireless device is available. Cheshire discloses that the existing wireless device sends the configuration parameters to the new wireless device. It would have been at least obvious that existing wireless device would have received a message indicating that the new wireless device was available for setup before sending these configuration parameters. A POSITA would have

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been motivated to implement it this way because the existing wireless device would need to know what new device is and what it needs to send configuration information to before the user goes through the process of switching the connection to the new wireless network. Doing so would minimize interrupting the user in case the user decides against sending network configuration parameters to the new wireless device. Otherwise, the existing wireless device would have to disconnect from the existing wireless network, receive the message regarding the availability of the new wireless device, and then reconnect to the existing wireless network if the user decides against adding the new wireless device to the existing wireless network.

1174. Moreover, even if Cheshire is interpreted to always require that the new device advertisement message be received after disconnecting from the existing wireless network—it does not—it would have been obvious to a POSITA to modify Cheshire to receive the message advertising the new wireless device before disconnecting from the existing wireless network. A person of ordinary skill would understand that IEEE 802.11 compliant devices (e.g., user computers) routinely scan other available channels and networks even while the device remains connected to a particular existing wireless network by, for example, receiving and processing beacon frames from other networks. This allows the device to, e.g., populate a list of available networks without disconnecting from the current similarly. Similarly, it would have been obvious for Cheshire's existing wireless device to scan for Cheshire's "service advertisement[s]" while continuing to operate on Cheshire's existing wireless network.

iii. Response to Sonos's Validity Arguments

1175. Based on my review of Sonos's validity contentions, I understand that Sonos disputes Cheshire discloses this limitation. *See* Sonos Validity Chart for Cheshire (Ex. 896-5). I have already addressed some of these arguments above in the obviousness section. I address the remaining argument below.

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1176. Sonos argues that “Cheshire does not mention an ‘access point,’ let alone describe a computing device (e.g., ‘existing wireless device 102’) that is operating on a secure WLAN that is defined by an access point.” This is incorrect. As I explain above, Cheshire discloses the “AirPort” network defined by an Apple AirPort base station. *See* Sonos Validity Chart for Cheshire (Ex. 896-5).

- (h) “after receiving the user input and receiving the first message, transmitting a response to the first message that facilitates establishing an initial communication path with the given playback device, wherein the initial communication path with the given playback device does not traverse the access point;”**

1177. Cheshire discloses or renders obvious this limitation.

i. Anticipation

1178. Cheshire discloses “after receiving the user input and receiving the first message, transmitting a response to the first message that facilitates establishing an initial communication path with the given playback device.”

1179. Cheshire discloses that after the Existing Wireless Device 102 receives the user input and message advertising the availability of a new wireless network, Existing Wireless Device 102 uses DNS Service Discovery to find and the New Wireless Device 104 and create an initial communication path between the two devices. “Since there is no DHCP server on new wireless network 106, existing wireless device 102 picks itself a link-local address on new wireless network 106 (step 310).” Cheshire at 4:44-47; US 2003/0181203 at [0037]. “Next, existing wireless device 102 uses DNS Service Discovery (or another appropriate Service Discovery protocol known to those skilled in the art) to discover the list of entities on new wireless network 106 that are awaiting configuration information (step 312).” Cheshire at 4:47-52; US 2003/0181203 at [0038].

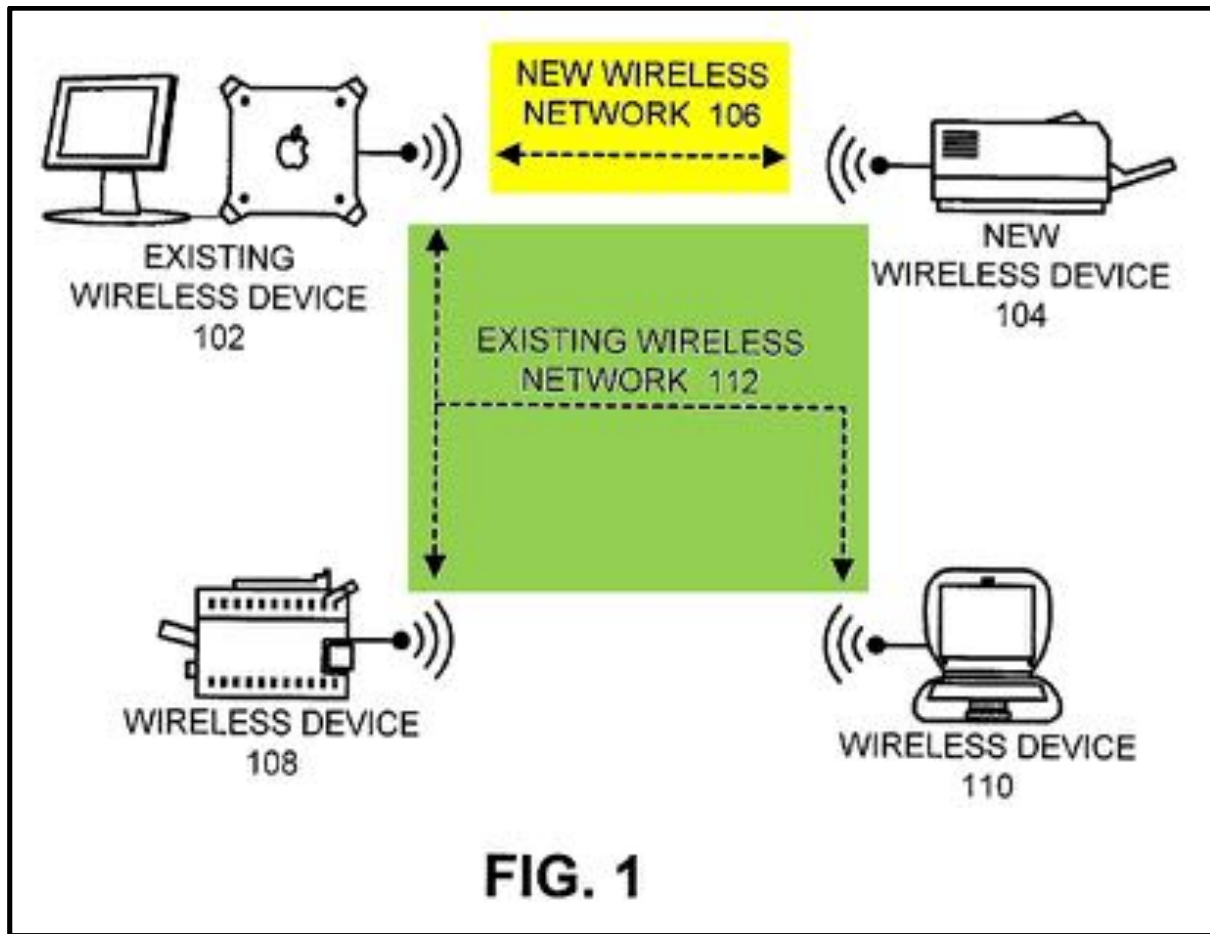
1180. A POSITA would understand that DNS Service Discovery (or another appropriate Service Discovery protocol known to those skilled in the art) would including transmitting a

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response to the first message that facilitates establishing an initial communication path with New Wireless Device 106. Such a message would include the query for services in the DNS Service Discovery that Existing Wireless Device 102 uses to discovery New Wireless Device 104. For example, the “DNS-Based Service Discovery” standard authored by Stuart Cheshire and published on December 20, 2002 states that one of the “Design Goals” of the standard is “(i) The ability to *query for services of a certain type in a certain logical domain* and receive in response a list of named instances (network browsing, or “Service Instance Enumeration”).” <https://tools.ietf.org/html/draft-cheshire-dnsext-dns-sd-00> at 3. “Service discovery requires a query protocol” “DNS already has one: It’s called DNS.” *Id.* at 20. DNS was well known to POSITA, as even the DNS-Based Service Discovery Standard states: “It makes more sense to use the existing software that every network needs already [*i.e.*, DNS], instead of deploying an entire parallel system just for service discovery.” *Id.*

1181. The DNS messages facilitate establishing an initial communication path with New Wireless Device 104 in Cheshire because that is the purposes of sending DNS messages in Cheshire and without DNS Service Discovery in Cheshire, there would be no initial communication path established on New Wireless Network.

1182. The initial communication path established over New Wireless Network 106 does not traverse Existing Wireless Network 112. For example, Figure 1 shows that these networks are separate: “FIG. 1 illustrates an existing wireless network 112, which couples together an existing wireless device 102 as well as other wireless devices 108 and 110. FIG. 1 also illustrates a new wireless network 106, which couples together new wireless device 104 and existing wireless device 102.” Cheshire at 2:64-3:2; US 2003/0181203 at [0020].



1183. Cheshire also discloses that “[i]n one embodiment of the present invention, new wireless device 104 offers *a computer-to-computer (Independent Basic Service Set (IBSS)) network.*” Cheshire at 4:13-15; US 2003/0181203 at [0032]. Such a network would not traverse the existing wireless network because it is a network directly between the existing wireless device to the new wireless device. “An Independent Basic Service Set or ad hoc network is the simplest of all IEEE 802.11 networks in that no network infrastructure is required. As such, an IBSS is simply comprised of one or more Stations which communicate directly with each other.” <https://www.mpirical.com/glossary/ibss-independent-basic-service-set>.

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1184. Cheshire further discloses that Existing Wireless Network 112 can include a DHCP server while New Wireless Network 106 might not. This further shows that a communication path over New Wireless Network 106 does not traverse Existing Network 112.

ii. Obviousness

1185. To the extent Cheshire does not disclose “transmitting a response to the first message that facilitates establishing an initial communication path with the given playback device,” such a response would have been obvious to a POSITA. Even if not expressly disclosed, a POSITA would understand that, in line with standard practices for network communications, there would be some message that is sent by New Wireless Device 104 that facilitates establishing the connection of a communication path between New Wireless Device 106 and Existing Wireless Device 102 over New Wireless Network 106.

iii. Response to Sonos’s Validity Arguments

1186. Based on my review of Sonos’s validity contentions, I understand that Sonos disputes Cheshire discloses this limitation but provides no explanation. *See* Sonos Validity Chart for Cheshire (Ex. 896-5). Because Sonos has not provided any details on its position, I reserve the right to address any new arguments Sonos may attempt to raise.

- (i) **“transmitting, to the given playback device via the initial communication path, at least a second message containing network configuration parameters, wherein the network configuration parameters comprise an identifier of the secure WLAN and a security key for the secure WLAN;”**

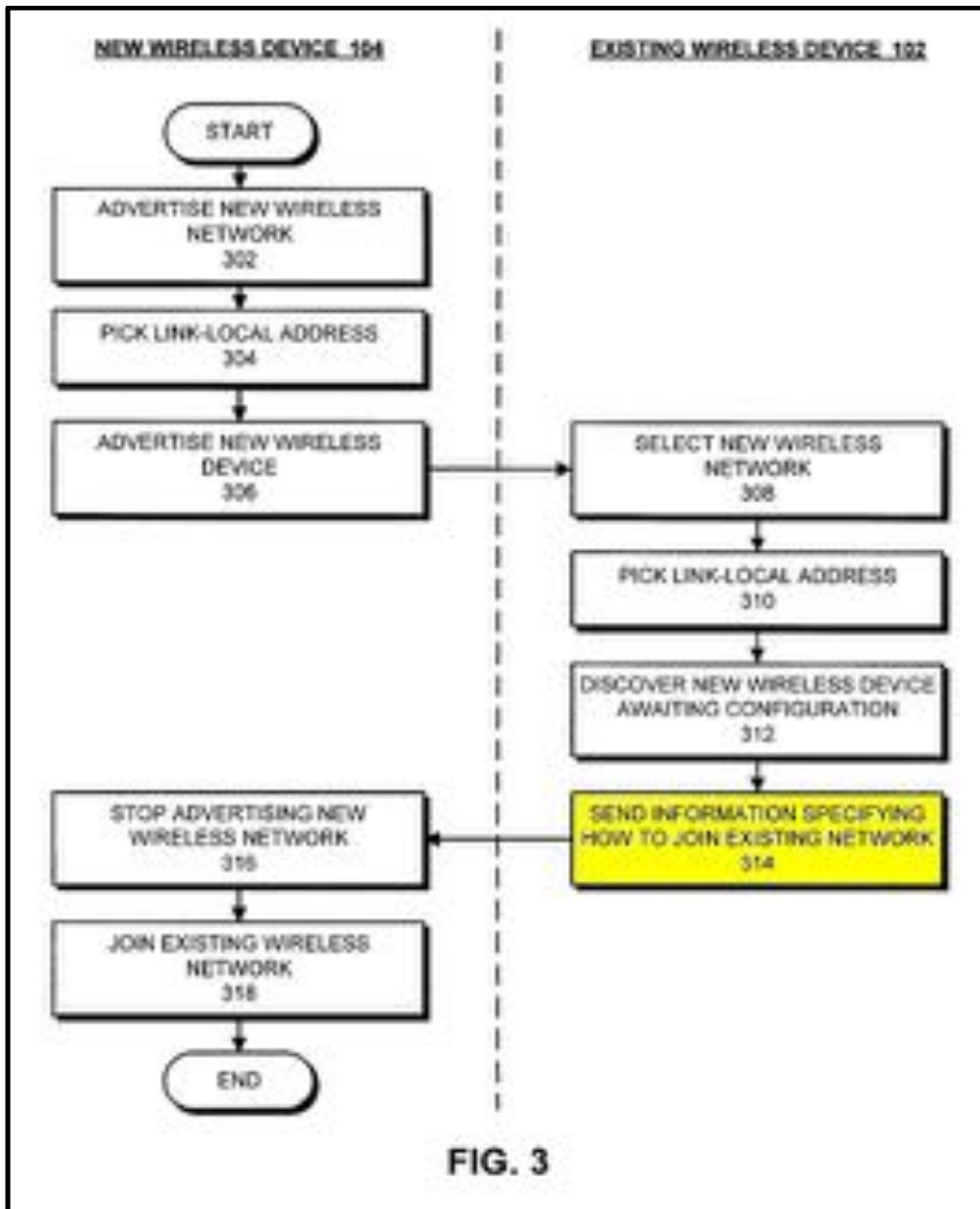
1187. Cheshire discloses this limitation.

1188. The CALJ construed this limitation to require “at least *one* second message containing network configuration parameters, wherein the network configuration parameters comprise an identifier of the secure WLAN and a security key for the secure WLAN” (emphasis added).

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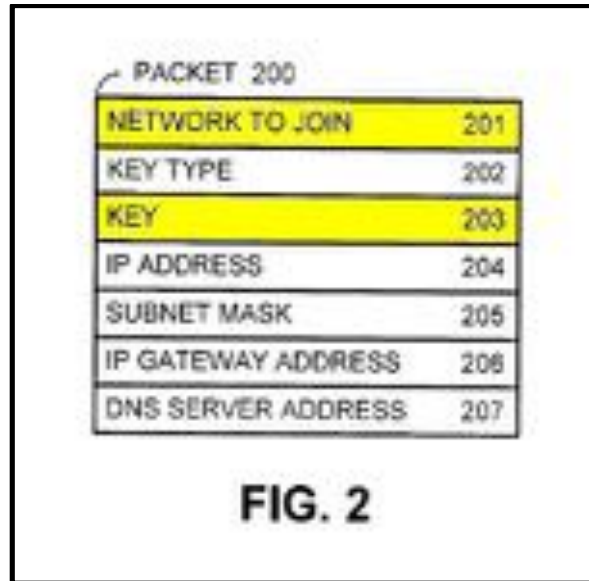
1189. Cheshire discloses sending—from Existing Wireless Device 102 to New Wireless Device 104—both the identifier of the secure WLAN and a security key for the secure WLAN in the same message. “During operation, *new wireless device 104 initially communicates with existing wireless device 102 through new wireless network 106 in order to receive configuration information*, which allows new wireless device 104 to join existing wireless network 112 as is described below with reference to FIGS. 2 and 3.” Cheshire at 3:30-35; US 2003/0181203 at [0023].

1190. In Figure 3, this happens at step 314. “In order to provide this configuration information, *existing wireless device 102 sends packet 200* (illustrated in FIG. 2) to new wireless device 104 *through new wireless network 106* (step 314). Recall that packet 200 contains configuration information that allows new wireless device 104 to join existing wireless network 112.” Cheshire at 4:53-58; US 2003/0181203 at [0039].



1191. Figure 2 shows a single message, Packet 200, that contains both pieces of information. “FIG. 2 illustrates a packet 200 containing configuration information to be used in configuring new wireless device 104 to join existing wireless network 112 in accordance with an embodiment of the present invention. Note that packet 200 is sent by existing wireless device 102

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to new wireless device 104 through new wireless network 106 as is discussed below with reference to FIG. 3.” Cheshire at 3:38-44; US 2003/0181203 at [0025].



1192. “Packet 200 includes a number of pieces of information that new wireless device 104 can use to communicate on existing wireless network 112. More specifically, *packet 200 contains the name of a network to join 201*. In the example illustrated in FIG. 1, *this name identifies existing wireless network 112*.” Cheshire at 3:45-49; US 2003/0181203 at [0026].

1193. “Packet 200 also includes a key type field 202, which identifies the type of encryption key used by the network. For example, *the key type can specify that the encryption key is a Wired Equivalent Privacy (WEP) key or some other type of encryption key*. Packet 200 also includes the encryption key 203 to be used in communicating on existing wireless network 112.” Cheshire at 3:50-56; US 2003/0181203 at [0027].

1194. Based on my review of Sonos’s validity contentions, I understand that Sonos does *not* dispute Cheshire discloses this limitation. See Sonos Validity Chart for Cheshire (Ex. 896-5).

- (j) **“after transmitting at least the second message containing the network configuration parameters, detecting an indication that**

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the given playback device has successfully received the network configuration parameters; and”

1195. Cheshire discloses or renders obvious this limitation.

i. Anticipation

1196. For example, Cheshire discloses that “[u]pon receiving packet 200, new wireless device 104 stops advertising new wireless network 106 (step 316).” Prior to this, New Wireless Device 104 had been sending out messages advertising the new wireless network. These messages were detected by Existing Wireless Device 102, for example, leading up to step 308 in Figure 3. By no longer receiving the advertisements for the new wireless network, Existing Wireless Device 102 detects an indication that New Wireless Device 106 has successfully received packet 200.

ii. Obviousness

1197. To the extent Cheshire does not disclose detecting an indication that the network configuration parameters, such a detection would have been obvious. It was standard practice at the time in many communication protocols to use acknowledgement messages (sometimes called “acks”) to signal when transmitted messages were successfully received. A POSITA would have been motivated to use this technique to increase reliability. It would have been obvious to a POSITA to wait until detecting the successful receipt of the configuration parameters before switching communications back to the existing wireless network because that would ensure that the new wireless device could successfully connect to the existing wireless network. If successful reception was not detected, the existing wireless device could simply resend the configuration information. This would avoid the situation where the existing wireless device tried to communicate with the new wireless device on the existing wireless network but the new wireless device could not connect to the network. A POSITA would have been motivated to make this simple technique in Cheshire to improve user experience (one of the goals of the Cheshire). As

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demonstrated by SMC, Linksys, and Creative, those in the industry were already using such messages when sending configuration parameters for new devices being added to an existing wireless network.

1198. Using acknowledge messages would have been within the capabilities of a POSITA. As recognized by Cheshire, a POSITA would have an understanding of networking technology, and explicitly mentions things like the Apple Airport, DNS Service Discovery, Deffie-Hellman key exchange, Independent Basic Service Set (IBSS), WEP encryption, Dynamic Host Configuration Protocol, IPv4, and IPv6. Cheshire mentions the Internet and the Internet's Transmission Control Protocol (TCP) is another example of an acknowledgement-based protocol. When computers communicate via TCP, received packets are acknowledged by sending back a packet with an ACK bit set. The TCP protocol allows these acknowledgements to be included with data that is sent in the opposite direction. Simple and basic knowledge of using acknowledgement messages to detect successful received of configuration parameters would be well known (and used) by POSITA.

1199. Moreover, it would have been obvious to implement Cheshire's new wireless network using IEEE 802.11 (to the extent Cheshire does not already use), and in IEEE 802.11, every transmitted frame that has been successfully received would trigger a positive acknowledgement. Thus, if Cheshire is implemented using IEEE 802.11 (which would be obvious given the ubiquity of this technology for use in wireless communication), then the existing wireless device would receive an acknowledgement indicating that the network configuration parameters were successfully received. *See* IEEE 802.11-1999 (GOOG-SONOSITC-PA-00010523) at Section 9.2.2:

9.2.2 MAC-Level acknowledgments

The reception of some frames, as described in 9.7, 9.2.8, and 9.3.3.4, requires the receiving STA to respond with an acknowledgment, generally an ACK frame, if the FCS of the received frame is correct. This technique is known as positive acknowledgment.

Lack of reception of an expected ACK frame indicates to the source STA that an error has occurred. Note, however, that the destination STA may have received the frame correctly, and that the error may have occurred in the reception of the ACK frame. To the initiator of the frame exchange, this condition is indistinguishable from an error occurring in the initial frame.

1200. Further, it would have been obvious to combine Cheshire with each of Linksys, SMC, and Creative. As described above, Cheshire, Linksys, SMC, and Creative each fall within the same field of art (setting up new devices on a wireless network) and each are directed to systems for adding new devices (such as audio playback device) to secure wireless networks. Each of Cheshire, Linksys, SMC, and Creative are designed to make it easy for users to setup new devices on wireless networks and eliminate the need for unnecessary cables and wiring. All of these prior art references also transmitted configuration information from one device to another over an initial communication path. A POSITA would have appreciated that ways the existing wireless device detected successful receipt of these configuration parameters disclosed in Linksys, SMC, and Creative could be implemented on Existing Wireless Device 102 in Cheshire and it would have well within the ability of a POSITA to do so. The substantive similarity in the set up process of Cheshire, Linksys, SMC, and Creative would further motivate a POSITA to combine their teachings. For example, each of these prior art references disclose transmitting a network identifier and security key over a new wireless network to a new wireless device. Modifying Cheshire in such a way would simply entail the use of known solutions to improve Cheshire.

iii. Response to Sonos's Validity Arguments

1201. Based on my review of Sonos's validity contentions, I understand that Sonos disputes Cheshire discloses this limitation for the reason below, which is not valid. *See* Sonos Validity Chart for Cheshire (Ex. 896-5).

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1202. In particular, Sonos argues that “Google fails to identify program instructions for ‘detecting an indication that the given playback device has successfully received the network configuration parameters.’” *See* Sonos Validity Chart for Cheshire (Ex. 896-5). As I explain above, the claimed “detecting” is disclosed by Cheshire (or at least rendered obvious by Cheshire) to a POSITA. To the extent that Sonos is arguing that Cheshire fails to disclose this limitation because it has not provided “program instructions,” I disagree. But disclosing the functionality and capability of the claimed “detecting” on an existing wireless device (such as a personal computer), Cheshire discloses that the claimed “detecting” would be implemented by program instructions.

- (k) **“after detecting the indication, transitioning from communicating with the given playback device via the initial communication path to communicating with the given playback device via the secure WLAN that is defined by the access point.”**

1203. Cheshire discloses or renders obvious this limitation.

i. Anticipation

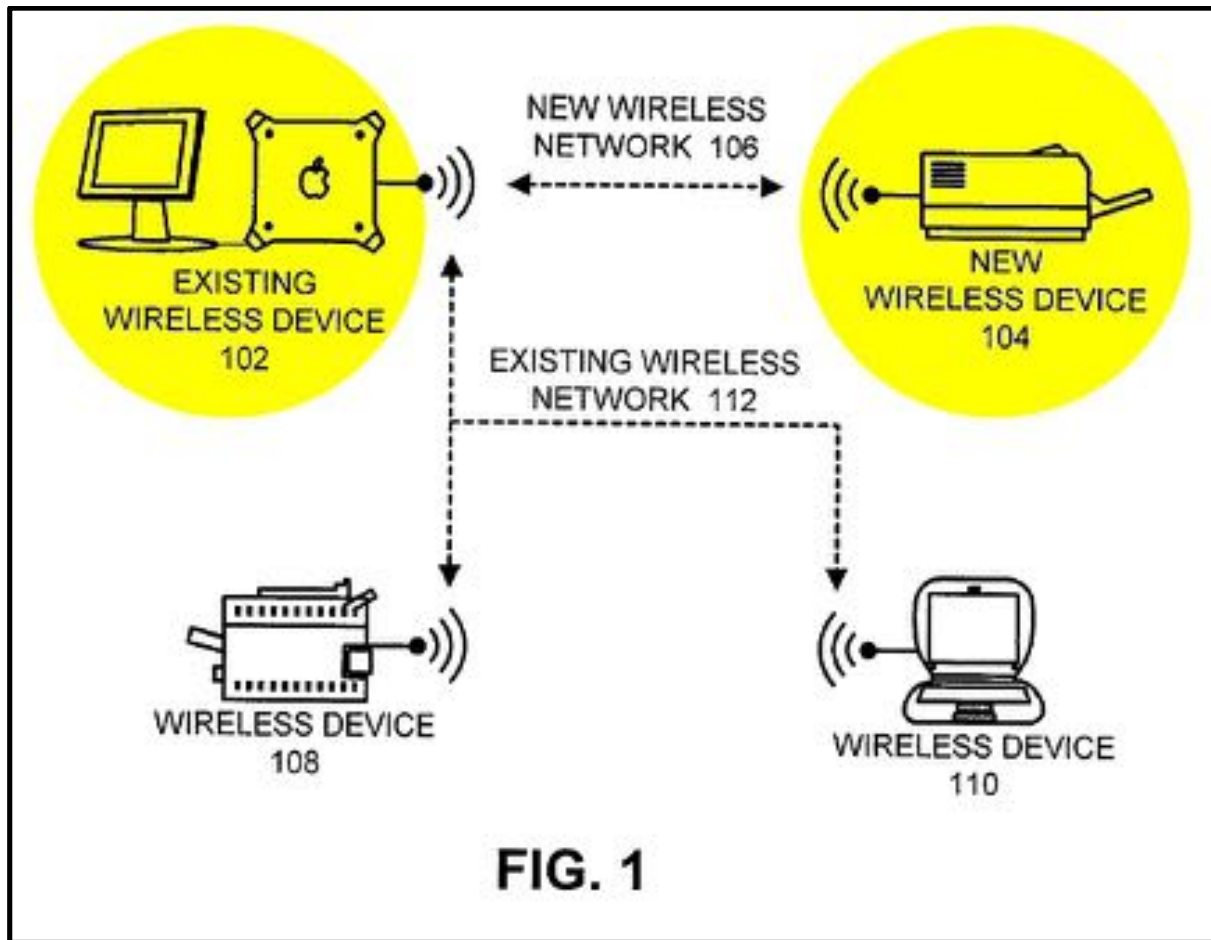
1204. As explained above, Cheshire discloses detecting an indication in the form of detecting that New Wireless Device 104 has stopped advertising the new wireless network or the pressing of reset switch. Cheshire discloses that after that, New Wireless Device 104 joins Existing Wireless Network 112. “Upon receiving packet 200, new wireless device 104 stops advertising new wireless network 106 (step 316). New wireless device 104 also uses the information contained in packet 200 to join existing wireless network 112.” Cheshire at 4:66-5:2; US 2003/0181203 at [0041].

1205. Once New Wireless Device 104 joins Existing Wireless Network 112, it then has the ability to communicate with Existing Wireless Device 102 on Existing Wireless Network 112. Allowing New Wireless Device the ability to communicate with other devices on Existing

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Wireless Network 112 is, of course, the purposes of adding New Wireless Device 104 to the network. Cheshire discloses that “[i]t is presently possible to equip a computing device with a low-cost wireless transceiver *that enables the computing device to communicate through a wireless network*.... Furthermore, a wireless network can be used to connect a portable computing device, ... to a computer network, without having to plug the portable computing device into a cable. However, *in order to communicate across a wireless network*, a computing device must somehow be configured to join the wireless network” Cheshire at 1:16-30; US 2003/0181203 at [0004]-[0005] (emphasis added). “Packet 200 also includes the encryption key 203 *to be used in communicating on existing wireless network 112.*” Cheshire at 3:54-56; US 2003/0181203 at [0027].

1206. Figure 1 further shows that Cheshire discloses this limitation. After New Wireless Device 104 joins Existing Wireless Network 112, Existing Wireless Device 102 can then communicate with New Wireless Device 104 (e.g., a printer) to print.



1207. Cheshire discloses that printers and audio output devices are “peripheral devices” and a POSITA would understand Figure 1 to disclose that Existing Wireless Device 102 communicates over Existing Wireless Network 112 to communicate with these peripheral devices after setup.

1208. Cheshire discloses that while “new wireless device 104 initially communicates with existing wireless device 102 through new wireless network 106 in order to receive configuration information” it then switches to Existing Wireless Network 112 for future communications. Cheshire at 3:30-34; US 2003/0181203 at [0023]. The purpose of the configuration information is to enable communication on the existing wireless network: “Packet 200 includes a number of

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pieces of information that new wireless device *104 can use to communicate on existing wireless network 112.*” Cheshire at 3:45-47; US 2003/0181203 at [0026].

ii. Obviousness

1209. To the extent that Cheshire does not disclose “after detecting the indication, transitioning from communicating with the given playback device via the initial communication path to communicating with the given playback device via the secure WLAN that is defined by the access point,” it would have been obvious in light of Cheshire.

1210. As I explain above in the previous limitation, it was standard practice at the time in many communication protocols to use acknowledgement messages (sometimes called “acks”) to signal when transmitted messages were successfully received. It would have been obvious to a POSITA to wait until detecting the successful receipt of the configuration parameters before switching communications back to the existing wireless network because that would ensure that the new wireless device could successfully connect to the existing wireless network. If successful reception was not detected, the existing wireless device could simply resend the configuration information. This would avoid the situation where the existing wireless device tried to communicate with the new wireless device on the existing wireless network but the new wireless device could not connect to the network. A POSITA would have been motivated to make this simple technique in Cheshire to improve user experience (one of the goals of the Cheshire). As demonstrated by SMC, Linksys, and Creative, those in the industry were already using such messages when sending configuration parameters for new devices being added to an existing wireless network.

1211. Communicating with the new wireless device after detecting an indication that the parameters were successfully sent would have been within the capabilities of a POSITA. As Cheshire already discloses communication between an existing wireless device and the new

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wireless device over the existing wireless network, this modification would simply be to wait for an acknowledgement message before doing so. Simple and basic knowledge of using acknowledgement messages to detect successful received of configuration parameters would be well known (and used) by a POSITA.

1212. Further, to the extent that Cheshire does not disclose the existing wireless device communicating with the given playback device via the secure WLAN that is defined by the access point,” Cheshire renders that limitation obvious. As I already explain in the anticipation section, a POSITA would under understood that the end result of Cheshire’s setup process would be that the new and existing wireless devices would communicate over the existing wireless network. Those same discloses (incorporated here) would also make it at least obvious for the two devices to communicate of the existing wireless network after setup is complete. Indeed, that would be the entire point of adding a peripheral, like a printer or audio output device, to a user’s existing wireless LAN.

1213. Further, it would have been obvious to combine Cheshire with each of Linksys, SMC, and Creative. As described above, Cheshire, Linksys, SMC, and Creative each fall within the same field of art (setting up new devices on a wireless network) and each are directed to systems for adding new devices (such as audio playback device) to secure wireless networks. Each of Cheshire, Linksys, SMC, and Creative are designed to make it easy for users to setup new devices on wireless networks and eliminate the need for unnecessary cables and wiring. All of these prior art references also transmitted configuration information from one device to another over an initial communication path. A POSITA would have appreciated that ways the existing wireless device detected successful receipt of these configuration parameters disclosed in Linksys, SMC, and Creative could be implemented on Existing Wireless Device 102 in Cheshire and it

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would have well within the ability of a POSITA to do so. The substantive similarity in the set up process of Cheshire, Linksys, SMC, and Creative would further motivate a POSITA to combine their teachings. For example, each of these prior art references disclose transmitting a network identifier and security key over a new wireless network to a new wireless device. Modifying Cheshire in such a way would simply entail the use of known solutions to improve Cheshire.

iii. Response to Sonos's Validity Arguments

1214. Based on my review of Sonos's validity contentions, I understand that Sonos disputes Cheshire discloses this limitation for several reasons, none of which are valid. *See* Sonos Validity Chart for Cheshire (Ex. 896-5).

1215. First, Sonos argues that "Because Cheshire lacks the claimed 'detecting,' it necessarily follows that it does not disclose this limitation either." *See* Sonos Validity Chart for Cheshire (Ex. 896-5). As I explain above, the claimed "detecting" is disclosed by Cheshire (or at least rendered obvious by Cheshire) to a POSITA.

1216. Second, Sonos argues that "nothing in Cheshire indicates that the 'existing wireless device 102' communicates with the 'new wireless device 104' once the 'new wireless device 104' joins the 'existing wireless network 112.'" *See* Sonos Validity Chart for Cheshire (Ex. 896-5). As I explained above, that is incorrect. Cheshire discloses such communication to a POSITA.

1217. Third, Sonos argues that "there is no express disclosure in Cheshire that the 'existing wireless network 112' is defined by an 'access point.'" *See* Sonos Validity Chart for Cheshire (Ex. 896-5). As I explained above, this is also incorrect. Cheshire discloses such communication to a POSITA.

3. Invalidity of Claim 3

(a) “The computing device of claim 1,”

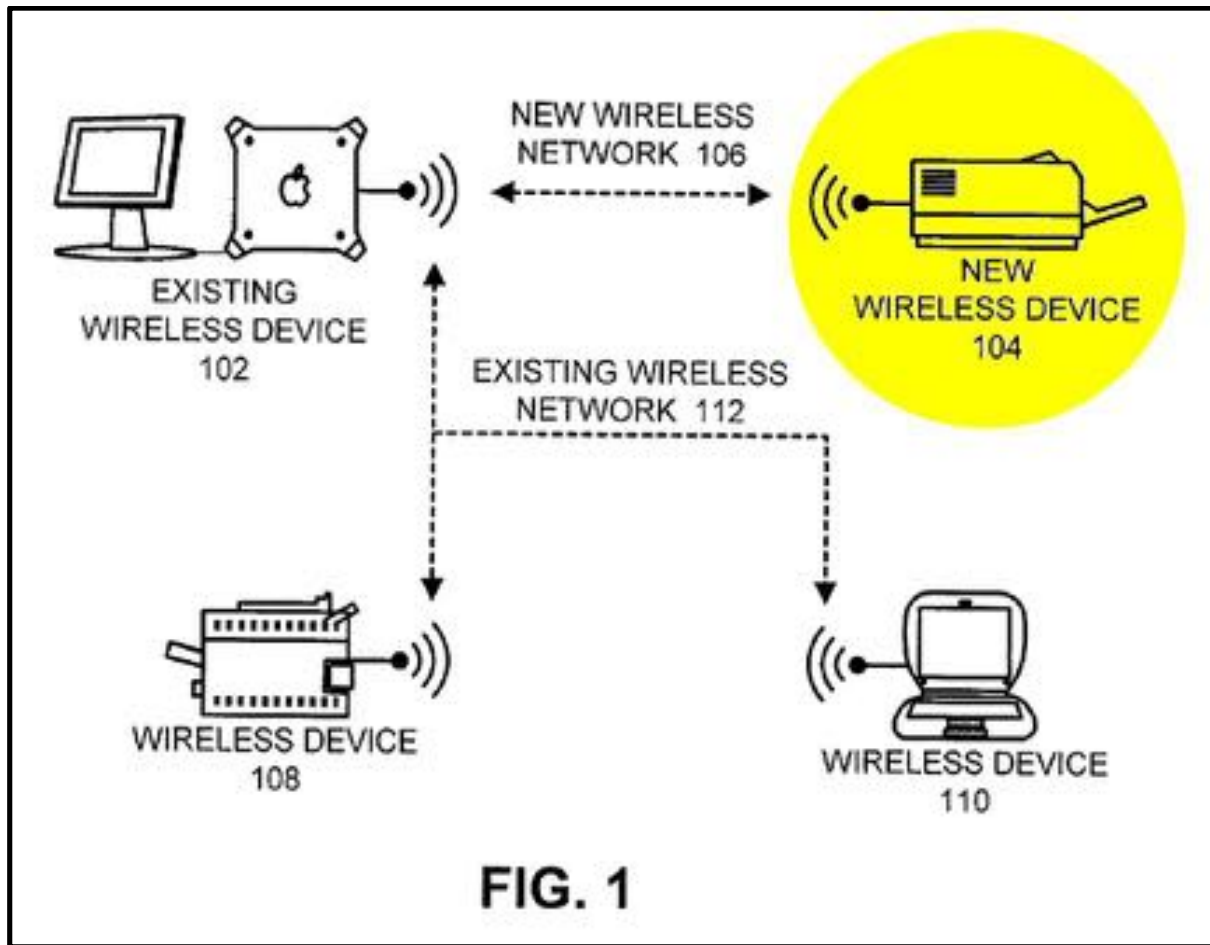
1218. As explained above, Cheshire discloses or renders obvious each and every limitation of claim 1 of the '896 Patent and thus discloses or renders obvious “[t]he computing device of claim 1.”

(b) “wherein the given playback device comprises a first playback device of a new networked audio system.”

1219. Cheshire discloses or renders obvious this limitation.

i. Anticipation

1220. The parties agreed the term “playback device” should be construed to require a “data network device configured to process and output audio.” Cheshire discloses New Wireless Device 104 in Figure 1 that qualifies as a “playback device” under the parties’ agreed construction because it can communicate over Existing Wireless Network 112 and can process output.



1221. Figure 1 of Cheshire uses a printer as an example of New Wireless Device 104. Cheshire discloses that New Wireless Device 104 can also be an audio output device: “*Wireless devices* 102, **104**, 108 and 110 can generally include any type of computer system They can also include ... *output devices*, such as displays or *audio output devices*.” Cheshire at 3:3-13; US 2003/0181203 at [0021] (emphasis added). As an audio output device on the network, New Wireless Device 104 would be capable of processing and outputting audio.

1222. Once the audio output device joins Existing Wireless Network 112, Existing Wireless Network 112 comprises “a new networked audio system” because a user can communicate audio from Existing Wireless Device 102 (for example) to the peripheral audio

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output device. Thus, Cheshire discloses “wherein the given playback device comprises a first playback device of a new networked audio system.”

ii. Obviousness

1223. To the extent Cheshire does not disclose “wherein the given playback device comprises a first playback device of a new networked audio system,” it would have been obvious in light of Cheshire. Cheshire discloses that “[e]xisting wireless network 112 ... can generally include any type of wireless communication channel through which computing devices can communicate.” Networked audio systems were well known to a POSITA. For example, Linksys, cd3o, Yamaha, Creative, SMC, and Airport Express were all commercial networked audio systems that existed around the time. It would have been obvious to a POSITA to apply the setup process of Cheshire to add new playback devices to networked audio systems because Cheshire itself states that its setup process can be applied to “any computer system, peripheral device, or network appliance that can reside on a wireless computer network” and that the existing wireless network “can generally include any type of wireless communication channel.” Cheshire at 3:6-22; US 2003/0181203 at [0021]-[0022].

1224. In fact, Kearney (which I explain in more detail above) confirms that it would have been obvious to apply Cheshire to a networked audio system because Kearney does exactly that. Kearney incorporates by reference the setup process of Cheshire into a networked audio system discussed in Kearney.

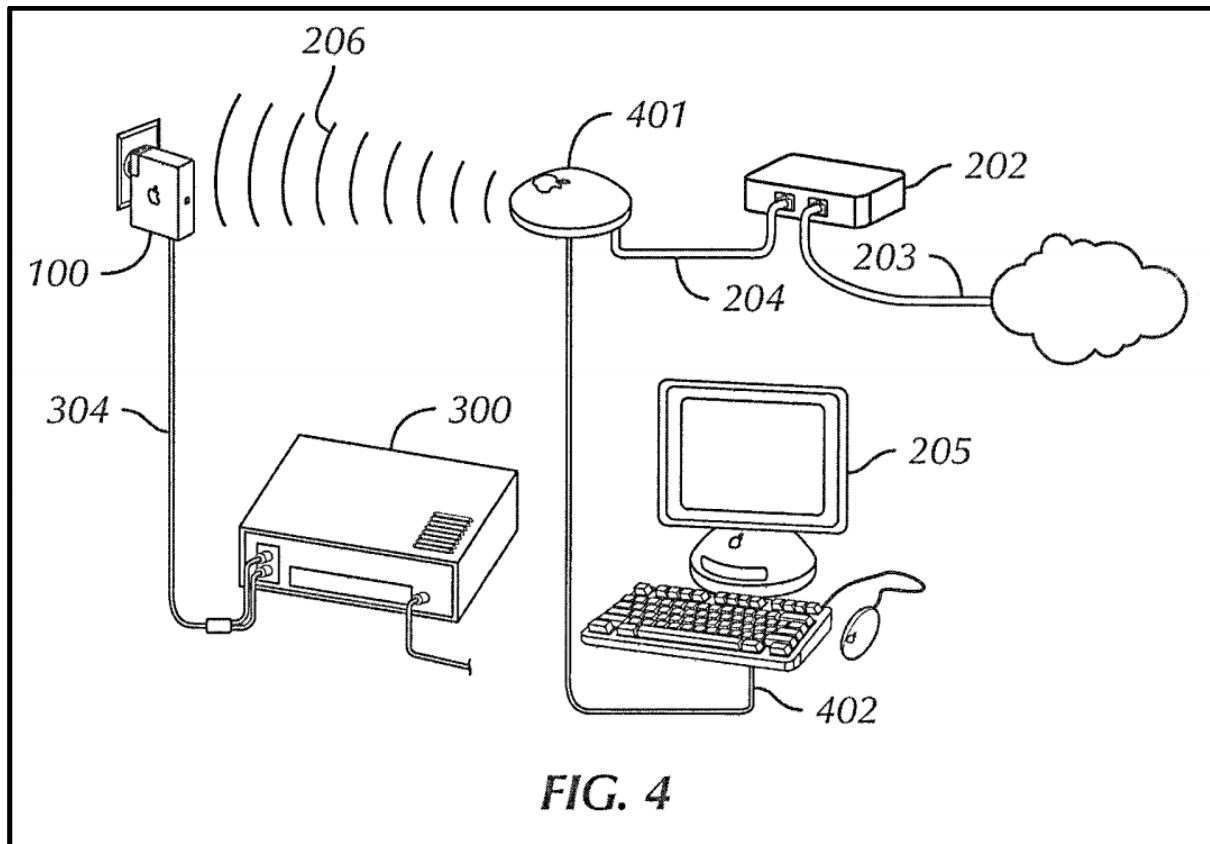


FIG. 4

1225. And Cheshire and Apple were also working on applications for controlling playback devices and setting up these devices on networked audio systems, as Sonos' own documents cited above for 102(f) show.

1226. Additionally, Cheshire in combination with each of Linksys, cd3o, Yamaha, Creative, SMC, or Kearney render this limitation obvious. As described above, Cheshire, Linksys, cd3o, Yamaha, Creative, SMC, and Kearney each fall within the same field of art (setting up new devices on a wireless network) and each are directed to systems for adding new devices (such as audio playback device) to secure wireless networks. Each of Cheshire, Linksys, cd3o, Yamaha, Creative, SMC, and Kearney are designed to make it easy for users to setup new devices on wireless networks and eliminate the need for unnecessary cables and wiring. Including the networked audio systems of each of these systems with Cheshire would have furthered that goal.

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A POSITA would have appreciated that the setup process in Cheshire could be applied wireless audio output devices of Linksys, cd3o, Yamaha, Creative, SMC, or Kearney and it would have well within the ability of a POSITA to do so. The substantive similarity in the set up process of Cheshire, Linksys, cd3o, Yamaha, Creative, SMC, and Kearney would further motivate a POSITA to combine their teachings and also confirms that it would be within the ability of a POSITA. Indeed, as Kearney confirms, a POSITA would have applied Cheshire to networked audio systems. And Cheshire and Apple were also working on applications for controlling playback devices and setting up these devices on networked audio systems, as Sonos' own documents cited above for 102(f) show.

1227. I further incorporate herein by reference my opinions set forth in Section XIV (“Additional Opinions on the “Controlling” Limitation of Claim 1 and on Claims 3, 5, 6, and 12”) below.

iii. Response to Sonos’s Validity Arguments

1228. Based on my review of Sonos’s validity contentions, I understand that Sonos disputes Cheshire discloses this limitation because Cheshire allegedly does not qualify as “a new networked audio system.” *See* Sonos Validity Chart for Cheshire (Ex. 896-5). Sonos, however, does not provide any explanation. As I explain directly above, Cheshire discloses (or at least renders obvious) a new networked audio system.

4. Invalidity of Claim 5

(a) “The computing device of claim 1,”

1229. As explained above, Cheshire discloses or renders obvious each and every limitation of claim 1 of the '896 Patent and thus discloses or renders obvious “[t]he computing device of claim 1.”

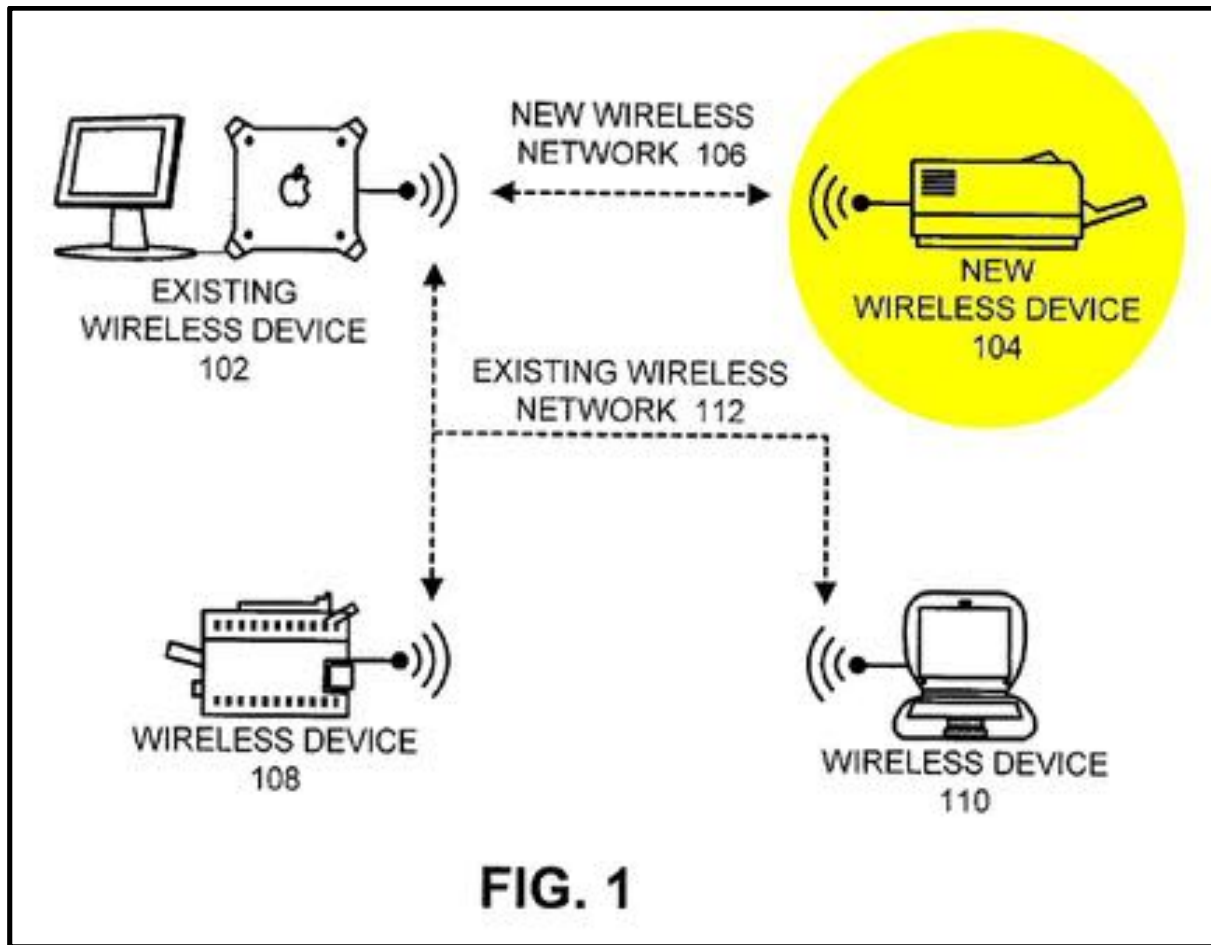
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- (b) “wherein communicating with the given playback device via the secure WLAN comprises transmitting a command to the given playback device related to playback of audio content.”**

1230. Cheshire discloses and renders obvious this limitation.

i. Anticipation

1231. Cheshire discloses that New Wireless Device 104 can be a peripheral device such as an “audio output devices.” Cheshire at 3:13; US 2003/0181203 at [0021]. As an audio output device on the network, a POSITA would understand that New Wireless Device 104 would be capable of receiving a command from Existing Wireless Device 102 related to playback of audio content (such as starting and stopping audio content playback, volume control, or playing the next song). Such commands would be basic commands for audio output devices and go hand in hand with audio output.



ii. Obviousness

1232. To the extent the CALJ finds that Cheshire does not disclose this limitation, Cheshire at a minimum renders this limitation obvious. As an audio output device on the network, a POSITA would understand that New Wireless Device 104 would be capable of receiving a command from Existing Wireless Device 102 related to playback of audio content (such as starting and stopping audio content playback, volume control, or playing the next song). Such commands would be basic commands for audio output devices and go hand in hand with audio output.

1233. Additionally, Cheshire in combination with each of cd3o, UPnP—as taught by, e.g., UPnP AV Architecture or Weast—Creative, or Kearney render this limitation obvious. As described above, Cheshire, cd3o, Creative, and Kearney each fall within the same field of art

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(setting up new devices on a wireless network) and each are directed to systems for adding new devices (such as audio playback device) to secure wireless networks. Each of Cheshire, cd3o, Creative, and Kearney are designed to make it easy for users to setup new devices on wireless networks and eliminate the need for unnecessary cables and wiring. Including the networked audio systems of each of these systems with Cheshire would have furthered that goal. A POSITA would have appreciated that the setup process in Cheshire could be applied wireless audio output devices of cd3o, Creative, or Kearney and it would have well within the ability of a POSITA to do so. The substantive similarity in the set up process of Cheshire, cd3o, Creative, and Kearney would further motivate a POSITA to combine their teachings and also confirms that it would be within the ability of a POSITA. Indeed, as Kearney confirms, a POSITA would have applied Cheshire to networked audio systems to send commands for playing back music because that's what Kearney discloses (as explained in more details above).

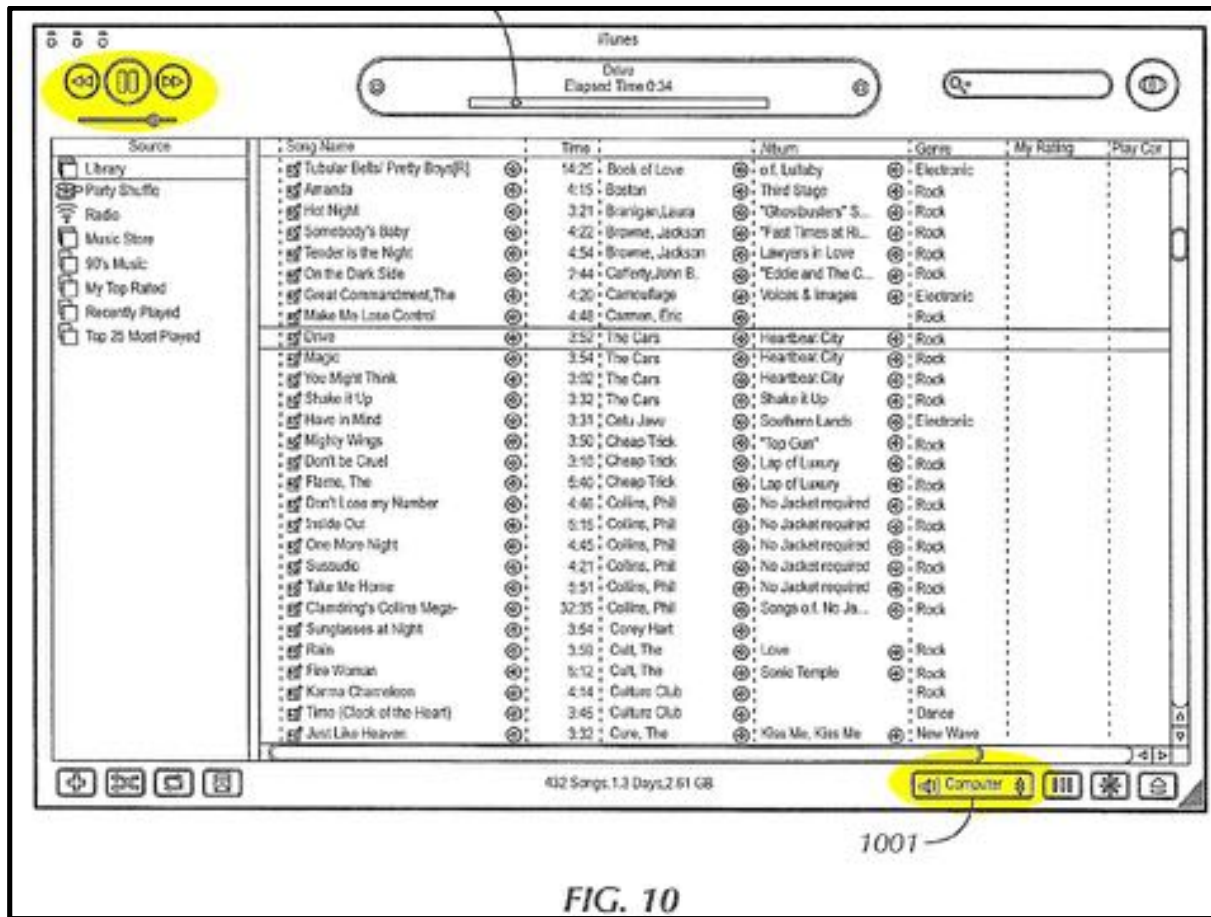


FIG. 10

1234. And Cheshire and Apple were also working on applications for controlling playback devices and setting up these devices on networked audio systems, as Sonos' own documents cited above for 102(f) show.

1235. It would have been obvious to combine Cheshire with use UPnP software (sometimes referred to as a "Control Point")—as taught by, e.g., UPnP AV Architecture or Weast—for, e.g., selecting songs and starting and stopping play on Cheshire. It would have been straight forward to integrate UPnP into existing wireless device. Using UPnP in this manner was well known even before the priority and/or conception date of the '896 Patent and incorporating a UPnP control point into the computer used to setup and provide media to the new wireless device would have been obvious. Such UPnP control point software would "transmit[] a command to the

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given playback device related to playback of audio content” even under Sonos’s narrow interpretation of that term. It would also have been obvious to combine Cheshire with the teachings of cd3o or Creative. I further incorporate herein by reference my opinions set forth in Section XIV (“Additional Opinions on the “Controlling” Limitation of Claim 1 and on Claims 3, 5, 6, and 12”) below.

iii. Response to Sonos’s Validity Arguments

1236. Based on my review of Sonos’s validity contentions, I understand that Sonos disputes Cheshire discloses this limitation for several reasons, none of which are valid. *See* Sonos Validity Chart for Cheshire (Ex. 896-5).

1237. First, Sonos argues that “[t]he only interactions disclosed in Cheshire between ‘existing wireless device 102’ and ‘new wireless device 104’ relate to configuring the ‘new wireless device 104’ to join ‘existing wireless network’ 112—not commands related to the playback of audio.” Sonos is incorrect. *See* Sonos Validity Chart for Cheshire (Ex. 896-5). As explained above, Sonos discloses (or at least renders obvious) sending commands to the audio output device related to playback of audio.

1238. Second, Sonos argues that the disclosure of “a ‘peripheral device’ that may be an ‘audio output device’” in “no way discloses” the claimed command. *See* Sonos Validity Chart for Cheshire (Ex. 896-5). As I explained above, the complete disclosure of Cheshire discloses (or at least renders obvious) claim 5.

5. Invalidity of Claim 6

(a) “The computing device of claim 5,”

1239. As explained above, Cheshire discloses or renders obvious each and every limitation of claims 1 and 5 of the ’896 Patent and thus discloses or renders obvious “[t]he computing device of claim 5.”

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- (b) “wherein the command comprises a command to retrieve audio content for playback from an audio source that is accessible via a communication path that includes the secure WLAN.”**

1240. Cheshire renders obvious this limitation.

i. Obviousness

1241. To the extent the CALJ finds that Cheshire does not disclose this limitation, Cheshire at a minimum renders this limitation obvious. Cheshire discloses “audio content” through the disclosure of a “audio output device” for playing such audio. Cheshire also discloses an “accessible via a communication path that includes the secure WLAN” because it discloses that the audio output peripheral is for the existing wireless device to output audio. The existing wireless device is accessible on the secure WLAN.

1242. Cheshire, however, is silent as to a command to retrieve audio content from the claimed audio source. Cheshire in combination with each of cd3o, UPnP—as taught by, e.g., UPnP AV Architecture or Weast—or Creative render this limitation obvious. As described above, Cheshire, cd3o, and Creative each fall within the same field of art (setting up new devices on a wireless network) and each are directed to systems for adding new devices (such as audio playback device) to secure wireless networks. Each of Cheshire, cd3o, and Creative are designed to make it easy for users to setup new devices on wireless networks and eliminate the need for unnecessary cables and wiring. Including the ability to retrieve audio content for playback from an audio source that is accessible via the existing wireless network of each of these systems with Cheshire would have furthered that goal. A POSITA would have appreciated that the setup process in Cheshire could be applied wireless audio output devices of cd3o, and Creative and it would have well within the ability of a POSITA to do so. The substantive similarity in the set up process of Cheshire,

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cd3o, and Creative would further motivate a POSITA to combine their teachings and also confirms that it would be within the ability of a POSITA.

1243. It would have been obvious to combine Cheshire with use UPnP software (sometimes referred to as a “Control Point”)—as, e.g., taught by UPnP AV Architecture of Weast—for, e.g., play songs retrieve from an audio source accessible via the secure WLAN. It would have been straight forward to integrate UPnP into existing wireless device. Using UPnP in this manner was well known even before the priority and/or conception date of the '896 Patent and incorporating a UPnP control point into the computer used to setup and provide media to the new wireless device would have been obvious.

1244. My opinion that it would have been obvious to combine Cheshire with cd3o, Creative, or UPnP—as taught by, e.g., UPnP AV Architecture or Weast—is further supported by the fact that Kearney actually disclosing this limitation.

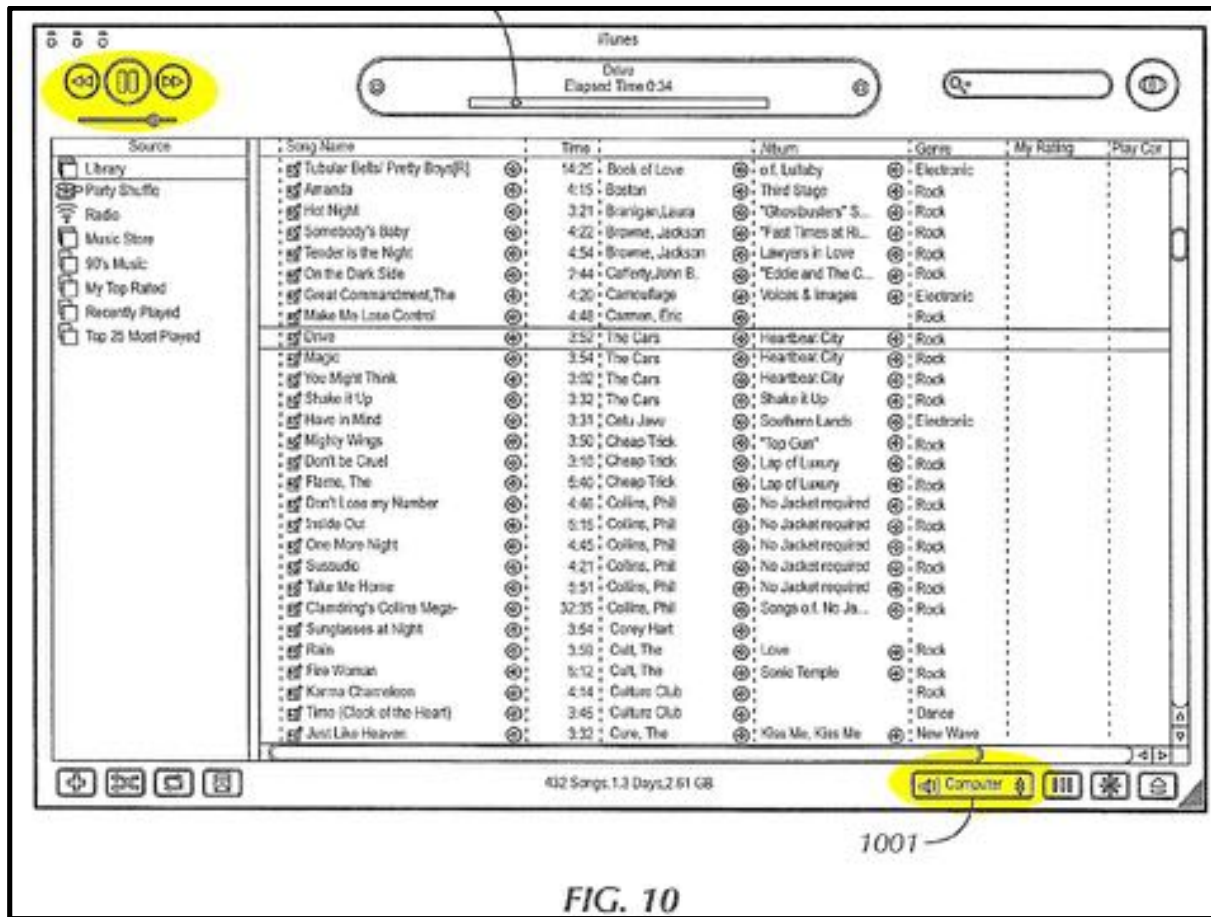


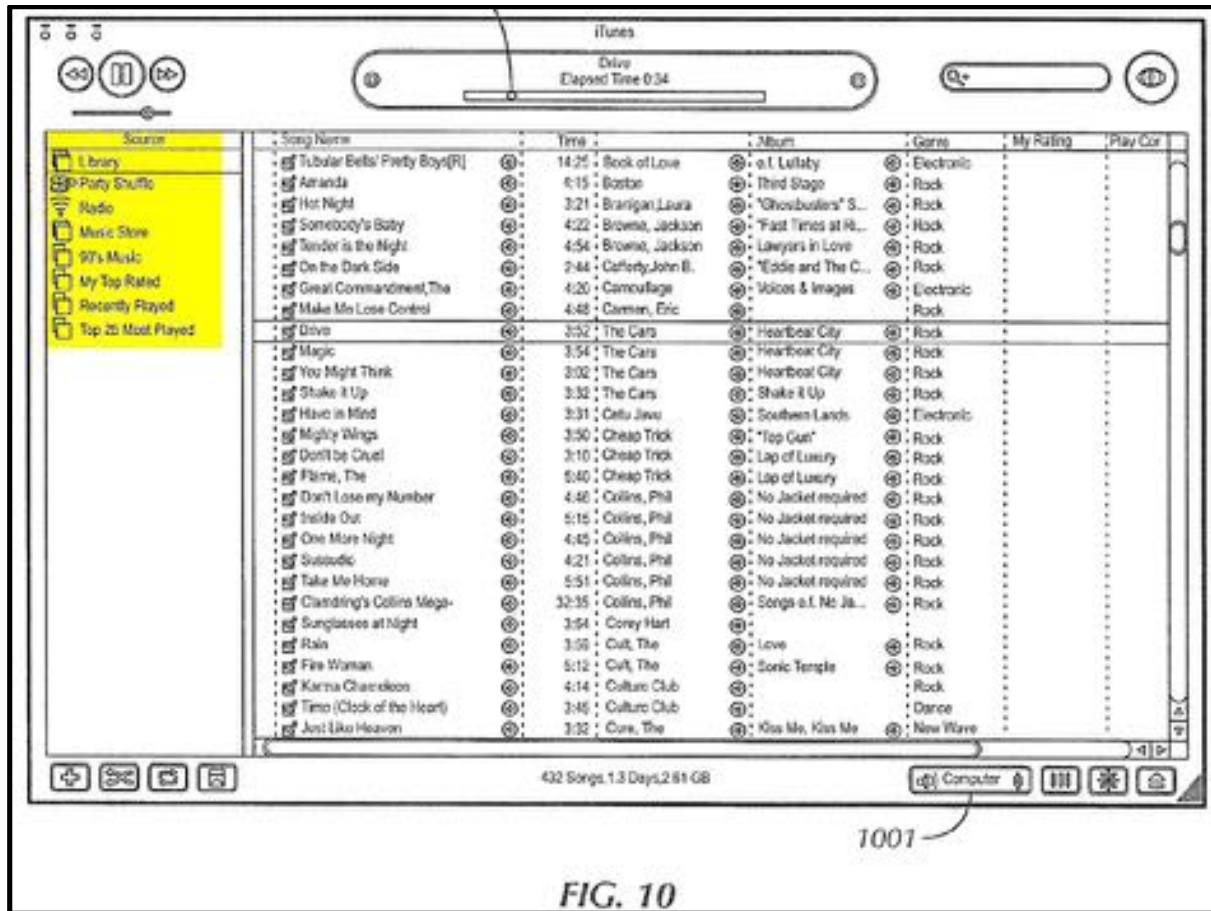
FIG. 10

1245. Kearney discloses that the computing device that has iTunes can be the audio source for the networked audio output device. “To provide a relatively simple and user friendly interface to the media sharing features of networked media station 100, it is advantageous to provide access to the device from a media application running on the personal computer 205, which is also preferably the application normally used to create, manipulate, or otherwise access the particular type of media file. In one exemplary embodiment, this could be the iTunes software for music file management and playback produced by Apple Computer. In the iTunes interface screen 1000, illustrated in FIG. 10, the networked media station may be selected as a destination for media playback using icon 1001.” Kearney at 7:10-26. “The media software running on personal computer 205, e.g., iTunes, will discover the networked media station 100 via the Rendezvous

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records, will recognize this device as a destination for audio data, and will automatically provide the particular device as a selectable destination within the user interface. (See FIG. 10, reference numeral 1001.).” Kearney at 8:30-35.

1246. Figure 10 shows several networked sources of audio content that can be retrieved, including from the radio.



1247. It would have also been obvious to combine Cheshire with the teachings of cd3o or Creative to arrive at this claim limitation.

1248. I further incorporate herein by reference my opinions set forth in Section XIV (“Additional Opinions on the “Controlling” Limitation of Claim 1 and on Claims 3, 5, 6, and 12”) below.

ii. Response to Sonos's Validity Arguments

1249. Based on my review of Sonos's validity contentions, I understand that Sonos disputes Cheshire discloses this limitation for several reasons, none of which are valid. *See* Sonos Validity Chart for Cheshire (Ex. 896-5).

1250. First, Sonos argues that "Google fails to identify any commands transmitted by the 'existing wireless device 102' to the 'new wireless device 104' over 'existing wireless network 112,' let alone a command 'related to the playback of audio content.'" *See* Sonos Validity Chart for Cheshire (Ex. 896-5). Sonos is incorrect. As explained above for claim 5, Sonos discloses (or at least renders obvious) sending commands to the audio output device related to playback of audio.

1251. Second, Sonos argues that "Cheshire does not disclose any 'audio content' or an 'audio source,' let alone one that 'accessible via a communication path that includes the secure WLAN.'" *See* Sonos Validity Chart for Cheshire (Ex. 896-5). Sonos is mistaken. Cheshire discloses "audio content" through the disclosure of a "audio output device" for playing such audio. Cheshire also discloses an "accessible via a communication path that includes the secure WLAN" because it discloses that the audio output peripheral is for the existing wireless device to output audio. The existing wireless device is accessible on the secure WLAN.

6. Invalidity of Claim 12

(a) "The computing device of claim 1,"

1252. As explained above, Cheshire discloses or renders obvious each and every limitation of claims 1 of the '896 Patent and thus discloses or renders obvious "[t]he computing device of claim 1."

(b) "further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by

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the at least one processor, cause the computing device to perform functions comprising:”

1253. Cheshire discloses this limitation.

1254. As explained above in connection with the “program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the computing device to perform functions” limitation of claim 1, Cheshire discloses this limitation of claim 12.

(c) “after transitioning to communicating with the given playback device via the secure WLAN, transmitting a command to the given playback device to form a group with at least a first playback device of a networked audio system such that the given playback device is configured to play back audio content in synchrony with at least the first playback device.”

1255. Cheshire renders obvious this limitation.

i. Obviousness

1256. To the extent the CALJ finds that Cheshire does not disclose this limitation, Cheshire at a minimum renders this limitation obvious.

1257. First, as explained above in connection with claims 1, 5, and 6, it would have been obvious to implement a UPnP ControlPoint—as taught by, e.g., UPnP AV Architecture or Weast—on the user computer as taught by Cheshire. It would have been further obvious to modify the UI used in connection with the UPnP ControlPoint to allow the user to select two or more or all available players and then “transmit[] a command to the given playback device to form a group with at least a first playback device of a networked audio system such that the given playback device is configured to play back audio content in synchrony with at least the first playback device” even under Sonos’s narrow interpretation of that term. Cd3o Control Center, or Creative Music Console also meet or render obvious this limitation, and it would have been obvious to integrate their functionality into Cheshire. I incorporate herein by reference my opinions set forth in Section

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XV.J (“Additional Opinions on the “Controlling” Limitation of Claim 1 and on Claims 3, 5, 6, and 12”) below.

1258. Second, it would have been obvious to incorporate the teachings of various other prior art references (e.g., Isely or Squeezebox) into Cheshire to arrive at the claimed “transmitting a command to the given playback device to form a group with at least a first playback device of a networked audio system such that the given playback device is configured to play back audio content in synchrony with at least the first playback device” even under Sonos’s narrow interpretation of that term. I incorporate herein by reference my opinions set forth in Section XV.K (“Additional Obviousness Opinions on Claim 12”) below.

ii. Response to Sonos’s Validity Arguments

1259. First, Sonos argues that “Google fails to identify any commands transmitted by the ‘existing wireless device 102’ to the ‘new wireless device 104’ over ‘existing wireless network 112.’ It necessarily follows, therefore, that Cheshire also does not disclose” the claimed command. Sonos is incorrect. *See* Sonos Validity Chart for Cheshire (Ex. 896-5). As explained above for claim 5, Sonos discloses (or at least renders obvious) sending commands to the audio output device related to playback of audio.

1260. Sonos also challenges obviousness but fails to provide any specific rebuttals. *See* Sonos Validity Chart for Cheshire (Ex. 896-5).

H. Yamaha Renders Obvious the Asserted Claims of the ’896 Patent

1. Prior Art Status

1261. Based on my review of documentation for the Yamaha MusicCast (“Yamaha”), which includes documents produced by Yamaha in this Investigation, as well as articles published during the relevant time period, it is my opinion Yamaha was released before the March 11, 2004 alleged conception date of the ’896 patent.

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1514. Mr. Hainsworth's testing, his admissions regarding the Creative's disclosure, and the timing of when he first proposed the setup sequence used by Sonos (i.e., using an "initial non-WEP mode" to transfer parameters) are all evidence that Mr. Hainsworth did not conceive of the "establishing an initial communication path with the given playback device, wherein the initial communication path with the given playback device does not traverse the access point" limitation of claim 1 of the '896 patent. The evidence shows, instead, that this limitation was conceived by Creative Labs and, more specifically, the Creative Labs engineers who first designed Creative product's use of an initial USB path to transmit network configuration parameters, or other engineers that inspired Creative to pursue this solution.

XIX. CONCLUSION

1515. If called upon to testify, I expect to do so consistent with the statements and opinions contained in this declaration. My opinions are subject to change based on additional opinions that Hillman's experts may present and information I may receive in the future or additional work I may perform. With this in mind, based on the analysis I have conducted and for the reasons set forth below, I have reached the conclusions and opinions in this report.

1516. In connection with my anticipated testimony in this action, I may use as exhibits various documents produced in this case that refer or relate to the matters discussed in this report. I have not yet selected the particular exhibits that might be used. In addition, I may create or assist in the creation of certain demonstrative evidence to assist me in testifying, and I reserve the right to do so, such as working computer systems or code highlighting to further support the positions in this report.

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I, Matthew B. Shoemake, declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

Date: October 23, 2020

A handwritten signature in black ink, appearing to read "Matthew B. Shoemake", written over a horizontal line.

Matthew B. Shoemake, Ph.D.