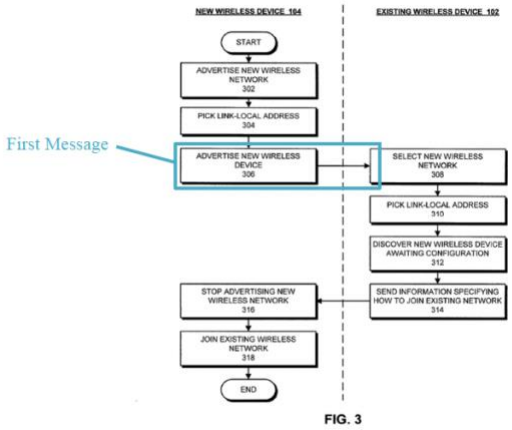
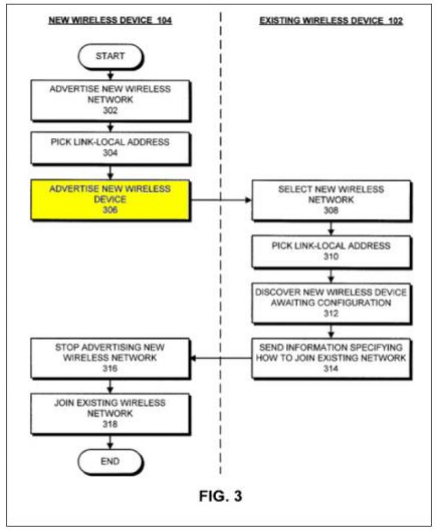
'883 Patent	'883 IPR Petition	Google Expert's Opinions on Cheshire in 1191 ITC Investigation (Ex.2113)
[1e.1] detecting a triggering event that causes the playback device to enter a setup mode in which the playback device transmits at least a first message indicating that the playback device is available for setup;	Pet., 14-15: Cheshire's new device 104 *transmits at least a first message indicating that it is available for setup*. EX1005, 4:20-25; EX1003, ¶¶112-113. In step 306, "new wireless device 104 … creates a service advertisement announcing the fact that it is listening and ready for wireless configuration." EX1005, 4:20-25, Fig. 3; EX1005, 4:7-15, 4:16-34.  FIG. 3 EX1005, Fig. 3 (annotated). A POSITA would have understood that Cheshire's "service advertisement …" is *a first message* because it is the first communication that is sent out to other devices from new device 104. EX1005, 4:20-23; EX1003, ¶¶112-113. Because the "service advertisement" is	Ex.2113, ¶1148, 1151, 1173: 1148. Cheshire discloses "receiving a first message indicating that a given playback device is available for setup." 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:  FIG. 3 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***

	announcing that "new wireless device 104 … [is] ready for wireless configuration," a POSITA would have understood that the announcement is an indication that new wireless device is *available for setup*. EX1005, 4:20-23; EX1003, ¶113.	***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]. 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.
[1e.2(a)] while in the setup mode, receiving a response to the first message that facilitates establishing an initial communication path with a computing device that is installed with an application for controlling the playback device,	Pet., 16-22 (modified figures excluded for simplicity): Cheshire discloses or at least suggests [1e.2(a)] because it teaches that existing device 102 is a device controller (EX1005, 3:3-10) and that new device 104's configuration process involves "receiving a request to join the new wireless network from the existing wireless device [and] allowing the existing wireless device to join the new wireless network" (EX1005, 2:4-10) or involves a discovery process before receiving configuration information for existing network 112. EX1005, 4:48-52; EX1003, ¶¶116-126. Cheshire describes or renders obvious that existing device 102 is a computing device installed with an application for controlling the playback device. EX1003, ¶¶117-118. Cheshire's "new wireless device 104 initially communicates with existing wireless device 102." EX1005, 3:30-35. As detailed above, Cheshire instructs that "[existing wireless device] 102 … can generally include any type of computer system" such as "a device controller." EX1005, 3:3-10. Cheshire thus teaches that existing device 102 is a computing device. Because Cheshire discloses that existing device 102 is a "device controller," a POSITA would have known or found it	Ex.2113, ¶1138, 1140, 1179-81, 1189: 1138. Cheshire also discloses "a graphical user interface (GUI) associated with an application for controlling one or more playback devices." 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 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.

	obvious that existing device 102 is installed with an application for controlling the playback device. EX1003, ¶118. A POSITA would have known that a device controller is configured or programed, installed with an application, to control another device because applications are programs with specific tasks. EX1003, ¶118. Cheshire describes that after new device 104 is advertised on new network 106, existing device 102 executes a series of steps (steps 308, 310, and 312) to join new network 106 and discover new device 104 awaiting configuration. EX1005, 4:35-52; EX1003, ¶119. Cheshire describes or renders obvious that new device 104 receives a response to the first message that facilitates establishing an initial communication path with existing device 102 in two separate ways. EX1003, ¶120. **First**, for "new wireless device 104 [to] initially communicate[] with existing wireless device 102," the two devices must first agree to communicate. EX1005, 3:30-35, 4:20-30; EX1003, ¶121. Cheshire describes that this agreement involves "receiving a request to join the new wireless network from the existing wireless device" and "allowing the existing wireless device to join the new wireless network." EX1005, 2:4-10; EX1003, ¶121.	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].

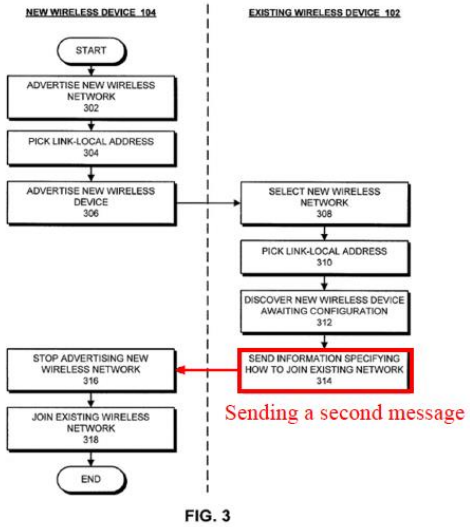
	A POSITA would have understood that the "request to join the new wireless network from the existing wireless device" is part of existing device 102 "select[ing] the new wireless network 106 (step 308)" and is a response to the advertisement of new device 104 because it only occurs after new device 104 is advertised. EX1005, 4:35-52, 2:4-10; EX1003, ¶¶122-123. A POSITA would have known that this response establishes an initial communication path between new device 104 and existing device 102 because Cheshire's devices "initially communicate[]" over new network 106 "to receive configuration information, which allows new wireless device 104 to join existing wireless network 112." EX1005, 3:30-35; EX1003, ¶124. In other words, Cheshire's new network 106 is used for communication between new device 104 and existing device 102 **before** new device 104 has access to existing network 112. EX1003, ¶124. **Second, and alternatively**, Cheshire describes that after new device 104 is advertised on new network 106, existing device 102 executes a series of steps (steps 308, 310, and 312) to discover new device 104. EX1005, 4:35-52, Fig. 3; EX1003, ¶¶125-126. In particular, in step 312, "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	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 response to the first message that facilitates establishing an initial communication path with New Wireless Device 106. Such a message

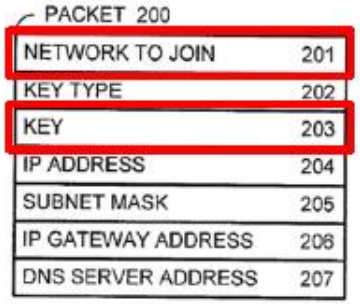
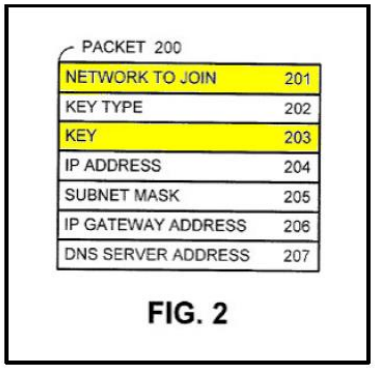
	wireless network 106 that are awaiting configuration information." EX1005, 4:35-52, Fig. 3. A POSITA would have known that "us[ing] DNS Service Discovery" involves the exchange of messages as depicted in Cheshire's annotated Figure 3 below, which a POSITA would have known or found obvious amounts to a response. Id.; EX1003, ¶125; EX1007, ¶¶93, 107, Figs. 17, 22, 23. Cheshire describes or renders obvious that the response to the advertisement occurs while new device 104 is in the setup mode. EX1003, ¶126. As described above, Cheshire's configuration process occurs when the device is in its setup mode, after power on but before configuration is complete. EX1003, ¶¶117-126.	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.
[1e.2(b)] wherein the computing device is operating on a secure wireless local area network (WLAN) that is defined by an access point,	Pet., 22-23: Cheshire discloses [1e.2(b)] because it teaches "an existing wireless network 112, which couples together an existing wireless device 102	Ex.2113, ¶1130-33: 1131. Cheshire discloses "operating on a secure wireless local area network (WLAN) that is defined by an access point."

	as well as other wireless devices." EX1005, 2:62-67; EX1003, ¶¶127-132. Cheshire's existing network 112 is a *secure WLAN*. As Cheshire describes, "[e]xisting wireless network 112 and new wireless network 106 can generally include … a local area wireless network." EX1005, 3:18-29. Cheshire discloses that the configuration of new device 104 involves sharing an "encryption key to facilitate secure communications across the existing wireless network." EX1005, 2:15-17, 3:45-56; EX1003, ¶¶128-129. A POSITA would have understood or found it obvious that existing network 112 is *defined by an access point* for two reasons. **First**, as Dr. Lipoff explains in his declaration, infrastructure-based (access point) networks are known forms of WLANs. EX1003, ¶¶130-131 (noting ad-hoc (computer-to-computer) networks as the alternative WLAN setup). A POSITA would have known that using an access point-based network was common and routine. EX1003, ¶¶130-131. Because access points are one of two network types, a POSITA would have understood or found it obvious that Cheshire's existing network 112 is defined by an access point. EX1003, ¶¶130-131. **Second**, Cheshire's existing device 102 "temporarily switch[es its] 'AirPort' connection to new wireless network 106." EX1005, 4:35-41; EX1003, ¶130. As Dr. Lipoff explains, "[a] POSITA would have understood	1130. …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]. 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

	that switching an AirPort connection indicates that existing wireless device 102 does not produce existing wireless network 112, rather it is connected to an AirPort device that is separate from a computing device," which would have been understood as an access point. EX1003, ¶130. Accordingly, a POSITA would have found it obvious that existing wireless network is defined by an access point. EX1003, ¶130.	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, an IEEE 802.11-based WLAN access point with security capability, which was sold by Apple in 2002.
[1e.2(c)] wherein the initial communication path with the computing device does not traverse the access point;	Pet., 23-24: Cheshire discloses [1e.2(c)] because it teaches "the new wireless network and the existing wireless network are different networks," and that "a user of the Mac OS™ [on existing device 102] can temporarily switch the 'AirPort' connection to new wireless network 106." EX1005, 4:35-41, 5:32-61; EX1003, ¶¶133-137. Because Cheshire's configuration process occurs on new network 106 and that existing device 102 is only connected to new network 106 during configuration, a POSITA would have understood that the initial communication path between new device 104 and existing device 102 (on new network 106) does not traverse the access point of existing network 112. EX1003, ¶¶135-136. Cheshire describes that new network 106 is the *initial communication path with the computing device*. EX1003, ¶135; EX1005, 3:30-35. A POSITA would have known or found it obvious that new network 106 is the i*nitial communication path* because it is how new	Ex.2113, ¶1182, 1185: 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]. 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

	device 104 and existing device 102 begin communicating or transmitting information between each other related to the configuration of new device 104. Section VII.B.7 ([1e.2(a)]); EX1003, ¶135. A POSITA would have understood or found it obvious that the communication between new device 104 and existing device 102 during configuration *does not traverse the access point*. EX1003, ¶136. As explained above, the initial communication between new device 104 and existing device 102 only occurs over new network 106. EX1005, 4:35-43. New device 104 does not even have access to existing network 112 until after it has been configured, confirming that the initial communication between new device 104 and existing device 102 takes place **without** traversing the access point. EX1003, ¶136.	between New Wireless Device 106 and Existing Wireless Device 102 over New Wireless Network 106.
[1e.3] receiving, from the computing device via the initial communication path, at least a second message containing network configuration parameters for the secure WLAN, wherein the network configuration parameters comprise an identifier of the secure WLAN and a security key for the secure WLAN;	Pet., 25-27: Cheshire discloses [1e.3] because it teaches that "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." EX1005, 4:53-58, Figs. 2, 3; EX1003, ¶¶138-142.	Ex.2113, ¶1189-93, : 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

	Referring back to Cheshire's Figure 3, in step 314, Cheshire describes that existing device 102 sends via the initial communication path a second message containing network configuration parameters for the secure WLAN to new device 104. EX1005, 4:53-58.  FIG. 3 EX1005, Fig. 3 (annotated). In step 314, existing wireless device sends "configuration information that allows new wireless device 104 to join existing wireless network 112." EX1005, 4:53-58. Because step 314 happens after step 312, a POSITA would have understood it to be a second message. EX1003, ¶140. Because existing device 102 sends this configuration information to new device 104, which uses this information to join existing network 112, new device 104 receives	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].  FIG. 3 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

	the information (second message). EX1003, ¶140. Cheshire provides that configuration information is sent in a message containing packet 200, which includes, among other information, the "name of a network to join 201" and an "encryption key 203." EX1005, 3:38-65.  FIG. 2	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 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].  FIG. 2 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].
[1e.4] using the network configuration parameters to connect to the secure WLAN that is defined by the access point; and	Pet., 27: Cheshire discloses [1e.4] because it teaches "[n]ew wireless device 104 … uses the information contained in packet 200 to ***join*** existing wireless network 112." EX1005, 4:66-5:2, Fig. 3; EX1003, ¶¶143-145.	Ex.2113, ¶1204: 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].
transitioning from communicating with the computing device via the initial communication path to communicating with the computing device via the secure WLAN that is defined by the access point.	Pet., 28-29: Cheshire discloses or at least suggests [1e.5] because it teaches that "new wireless device 104 stops advertising new wireless network 106 (step 316)" and "join[s] existing wireless network 112" (step 318). EX1005, 4:66-5:2, Fig. 3; EX1003, ¶¶146-149. A POSITA would have understood that steps 316 and 318 constitute a transition from communicating via new network	Ex.2113, ¶1204-5, 1208: 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

	106 to existing network 112 because new device 104 joins existing network 112. EX1003, ¶148. Cheshire describes that new device 104 transitions communications to existing network 112. EX1005, 4:66-5:2; EX1003, ¶148. Cheshire details that the purpose of configuring new device 104 with packet 200 is so that "new wireless device 104 can use [it] to communicate on existing wireless network 112." EX1005, 3:45-47. Based on these disclosures, a POSITA would have known that when new device 104 joins existing network 112, it does so to communicate on existing network 112. EX1003, ¶148.	information contained in packet 200 to join existing wireless network 112." Cheshire at 4:66-5:2; US 2003/0181203 at [0041]. 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 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]. 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 Wireless Network 112 is, of course, the purposes of adding New Wireless Device 104 to the network.