

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

SONOS, INC.,
Patent Owner.

Case No. IPR2025-01213
Patent 10,541,883

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT 10,541,883**

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Exhibit List

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1001	U.S. Patent No. 10,541,883 B2 to Millington et al. (“the ’883 patent”)
1002	Prosecution History of U.S. Patent No. 10,541,883
1003	Declaration of Stuart J. Lipoff
1004	CV of Stuart J. Lipoff
1005	U.S. Patent No. 7,532,862 B2 to Cheshire (“Cheshire”)
1006	U.S. Patent No. 7,313,384 B1 to Meenan et al. (“Meenan”)
1007	U.S. Patent Application Publication No. US 2002/0174243 A1 to Spurgat et al. (“Spurgat”)
1008	U.S. Patent No. 10,439,896 B2 to Millington et al.
1009	<i>Certain Audio Players and Controllers, Components Thereof, and Products Containing Same</i> , Inv. No. 337-TA-1191, Order 20: Construing the Terms of the Asserted Claims of the Patents at Issue (ITC Sept. 25, 2020)
1010	U.S. Patent Application Publication No. 2003/0083024 A1 to Richenstein et al. (“Richenstein”)
1011	U.S. Patent No. 5,386,552 to Garney
1012	U.S. Patent No. 6,642,852 B2 to Dresti et al.
1013	U.S. Patent Application Publication No. US 2004/0168081 A1 to Ladas et al. (“Ladas”)
1014	Reserved
1015	International Publication No. WO 03/093950 A2 to Goldberg et al.
1016	U.S. Patent Application Publication No. US 2003/0187985 A1 to Rohling et al.

Exhibit	Description
1017	Rich Warren, “Remote Controls,” <i>Stereo Review</i> , (June 1991)
1018	U.S. Patent No. 6,489,986 B1 to Allen
1019	U.S. Patent No. 5,182,552 to Paynting
1020	U.S. Patent Application Publication No. US 2002/0072816 A1 to Shdema et al. (“Shdema”)
1021	U.S. Patent Application Publication No. US 2003/0212802 A1 to Rector et al. (“Rector”)

List of Challenged Claims

Claim 1

[1Pre]	A playback device comprising:
[1a]	a network interface that is configured to provide an interconnection with at least one data network;
[1b]	at least one processor;
[1c]	a non-transitory computer-readable medium; and
[1d]	program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the playback device to perform functions comprising:
[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;
[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,
[1e.2(b)]	wherein the computing device is operating on a secure wireless local area network (WLAN) that is defined by an access point,
[1e.2(c)]	wherein the initial communication path with the computing device does not traverse the access point;
[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;
[1e.4]	using the network configuration parameters to connect to the secure WLAN that is defined by the access point; and
[1e.5]	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.

Claim 2

2.	The playback device of claim 1, wherein the triggering event comprises one of (a) powering on the playback device or (b) receiving user input via a physical interface of the playback device.
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Claim 3

3.	The playback device of claim 1, wherein the computing device comprises a controller device of a networked audio system.
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Claim 4

4.	The playback device of claim 1, further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the playback device to perform functions comprising: after receiving the second message, providing an indication that the playback device has successfully received the network configuration parameters for the secure WLAN.
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Claim 5

5.	The playback device of claim 4, wherein providing the indication comprises transmitting, to the computing device via the initial communication path, at least a third message indicating that the playback device has successfully received the network configuration parameters.
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Claim 6

6.	The playback device of claim 4, wherein providing the indication comprises providing an indication that the playback device has successfully connected to the secure WLAN using the network configuration parameters.
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Claim 7

7.	The playback device of claim 1, further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the playback device to perform functions comprising: after connecting to the secure WLAN, establishing a new networked audio system on the secure WLAN.
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Claim 8

8.	The playback device of claim 1, further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the playback device to perform functions comprising: after connecting to the secure WLAN, joining an existing networked audio system operating on the secure WLAN.
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Claim 9

9.	The playback device of claim 1, further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the playback device to perform functions comprising: receiving, from the computing device, a command to assign a name to the playback device.
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Claim 10

10.	The playback device of claim 1, wherein communicating with the computing device via the secure WLAN comprises receiving a command related to playback of audio content.
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Claim 11

11.	The playback device of claim 10, 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, and wherein the playback device further comprises program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the playback device to perform functions comprising: in response to receiving the command, retrieving the audio content from the audio source via the communication path that includes the secure WLAN.
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Claim 12

12.	The playback device of claim 1, wherein the second message comprises a command for the playback device to adopt the network configuration parameters.
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Claim 13

13.	The computing device of claim 1, further comprising 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: after transitioning to communicating with computing device via the secure WLAN, receiving, from the computing device, a command to form a group with at least a first playback device of a networked audio system such that the playback device is configured to play back audio content in synchrony with at least the first playback device.
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Claim 14

[14Pre]	A non-transitory, computer-readable storage medium, wherein the non-transitory computer-readable storage medium is provisioned with program instructions that are executable to cause a playback device to perform functions comprising:
[14a]	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;
[14b]	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, wherein the computing device is operating on a secure wireless local area network (WLAN) that is defined by an access point, wherein the initial communication path with the computing device does not traverse the access point;
[14c]	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;
[14d]	using the network configuration parameters to connect to the secure WLAN that is defined by the access point; and
[14e]	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.

Claim 15

15.	The non-transitory, computer-readable storage medium of claim 14, wherein the triggering event comprises one of (a) powering on the playback device or (b) receiving user input via a physical interface of the playback device.
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Claim 16

16.	The non-transitory, computer-readable storage medium of claim 14, wherein the non-transitory computer-readable medium is also provisioned with program instructions that are executable to cause the playback device to perform functions comprising: after receiving the second message, providing an indication that the playback device has successfully received the network configuration parameters for the secure WLAN.
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Claim 17

17.	The non-transitory, computer-readable storage medium of claim 16, wherein providing the indication comprises transmitting, to the computing device via the initial communication path, at least a third message indicating that the playback device has successfully received the network configuration parameters.
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Claim 18

18.	The non-transitory, computer-readable storage medium of claim 16, wherein providing the indication comprises providing an indication that the playback device has successfully connected to the secure WLAN using the network configuration parameters.
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Claim 19

19.	The non-transitory, computer-readable storage medium of claim 14, wherein communicating with the computing device via the secure WLAN comprises receiving a command to retrieve audio content for playback from an audio source that is accessible via a communication path that includes the secure WLAN, and wherein the non-transitory computer-readable medium is also provisioned with program instructions that are executable to cause the playback device to perform functions comprising: in response to receiving the command, retrieving the audio content from the audio source via the communication path that includes the secure WLAN.
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Claim 20

[20Pre]	A method comprising:
[20a]	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;
[20b]	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, wherein the computing device is operating on a secure wireless local area network (WLAN) that is defined by an access point, wherein the initial communication path with the computing device does not traverse the access point;
[20c]	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;
[20d]	using the network configuration parameters to connect to the secure WLAN that is defined by the access point; and
[20e]	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.

I. Introduction

Google LLC requests *inter partes* review and cancellation of claims 1-20 of U.S. Patent No. 10,541,883 (EX1001), assigned to Sonos, Inc.

II. Standing

The '883 patent is available for IPR. Petitioner is not barred or estopped from requesting IPR challenging the claims.

III. Relief Requested

Petitioner relies on the following prior art and grounds to challenge claims 1-20 of the '883 patent:

Exhibit	Prior Art	Filed	Published	Prior Art Status at least under pre-AIA 35 U.S.C.
EX1005	U.S. 7,532,862 ("Cheshire")	3/19/2002	5/12/2009	§102(e)
EX1006	U.S. 7,313,384 ("Meenan")	10/31/2002	12/25/2007	§102(e)
EX1007	U.S. Patent Publication No. 2002/0174243 ("Spurgat")	5/16/2001	11/21/2002	§102(a), (b), (e)

Grounds	Claims	Basis	Prior Art
1	1-3, 7-8, 10, 12, 14-15, 20	§103	Cheshire in view of the knowledge of a POSITA
2	1-10, 12, 14-18, 20	§103	Cheshire, Meenan
3A	1-3, 7-8, 10-15, 19	§103	Cheshire, Spurgat

Grounds	Claims	Basis	Prior Art
3B	1-19	§103	Cheshire, Meenan, and Spurgat

IV. The '883 Patent

The '883 patent discloses “automatically configuring necessary parameters of a device to be coupled to a network with minimum human intervention.”

EX1001, 4:65-67. The '883 patent's earliest priority date is June 5, 2004.¹

EX1001, cover page.

Adding a new device onto an existing network can be complicated for most consumers because the new device's settings must first be configured to connect to the network. EX1001, 1:36-49, 2:1-4. The '883 patent purportedly simplifies the configuration process but does so using steps that were already well known.

EX1001, 2:16-29. The '883 patent describes its simple process in three steps:

1. Establishing a rudimentary communication path between a “first device” that already exists on a home network and a new “second device”;
2. Providing “necessary parameters” over the rudimentary communication path to the second device so that the second device can connect to the home network; and

¹ Petitioner does not concede that the claims are entitled to this priority date.

3. Connecting the second device to the home network.

EX1001, 2:16-63.

V. Level of Ordinary Skill in the Art

A POSITA at the time of the invention would have had at least a bachelor's degree in computer science, electrical engineering, or a related field, and at least two years of work or research experience in the field of connected consumer electronics, networked engineering, or the equivalent. Additional work or research experience could substitute for education, and further education could substitute for work or research experience. EX1003, ¶57.

VI. Claim Construction

The Board construes claims per *Phillips v. AWH Corp.* 415 F.3d 1303 (Fed. Cir. 2005) and “only to the extent necessary to resolve a controversy.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). No construction is necessary here, so all claim terms should take their plain and ordinary meaning.²

² A related patent (U.S.10,439,896, EX1008) was in *Certain Audio Players and Controllers, Components Thereof, and Products Containing the Same*, Inv. No. 337-TA-1191 (ITC Jan. 7, 2020). The ITC construed the following terms: “playback device,” “network interface,” “local area network,” “while operating ...

VII. Ground 1: Cheshire in View of the Knowledge of a POSITA Renders Obvious Claims 1-3, 7-8, 10, 12, 14-15, and 20

A. Overview of Cheshire

Cheshire relates to solving challenges in configuring a new device to join a wireless network. EX1005, 1:28-45. For example, a user may not know which network to join and, for certain “peripheral device[s],” there “may be no easy way to enter an encryption key (or other configuration information).” Cheshire’s solution “uses reverse advertising to configure a new wireless device to join an existing wireless network.” EX1005, 1:10-13, Fig. 1.

after receiving ...,” “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,” and “security key.” EX1009, 15-20, 26-40. These constructions are unnecessary to resolve the dispute here. Petitioner will respond to any claim construction positions Patent Owner advances, and reserves the right to assert certain limitations are indefinite and/or require construction to resolve controversies in other forums.

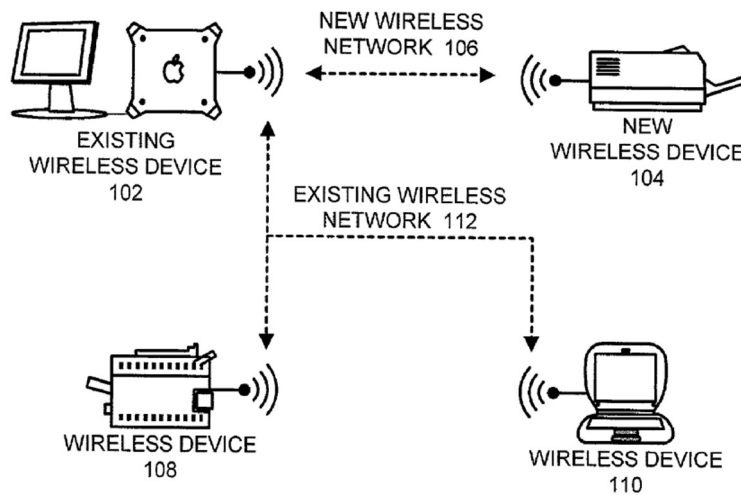


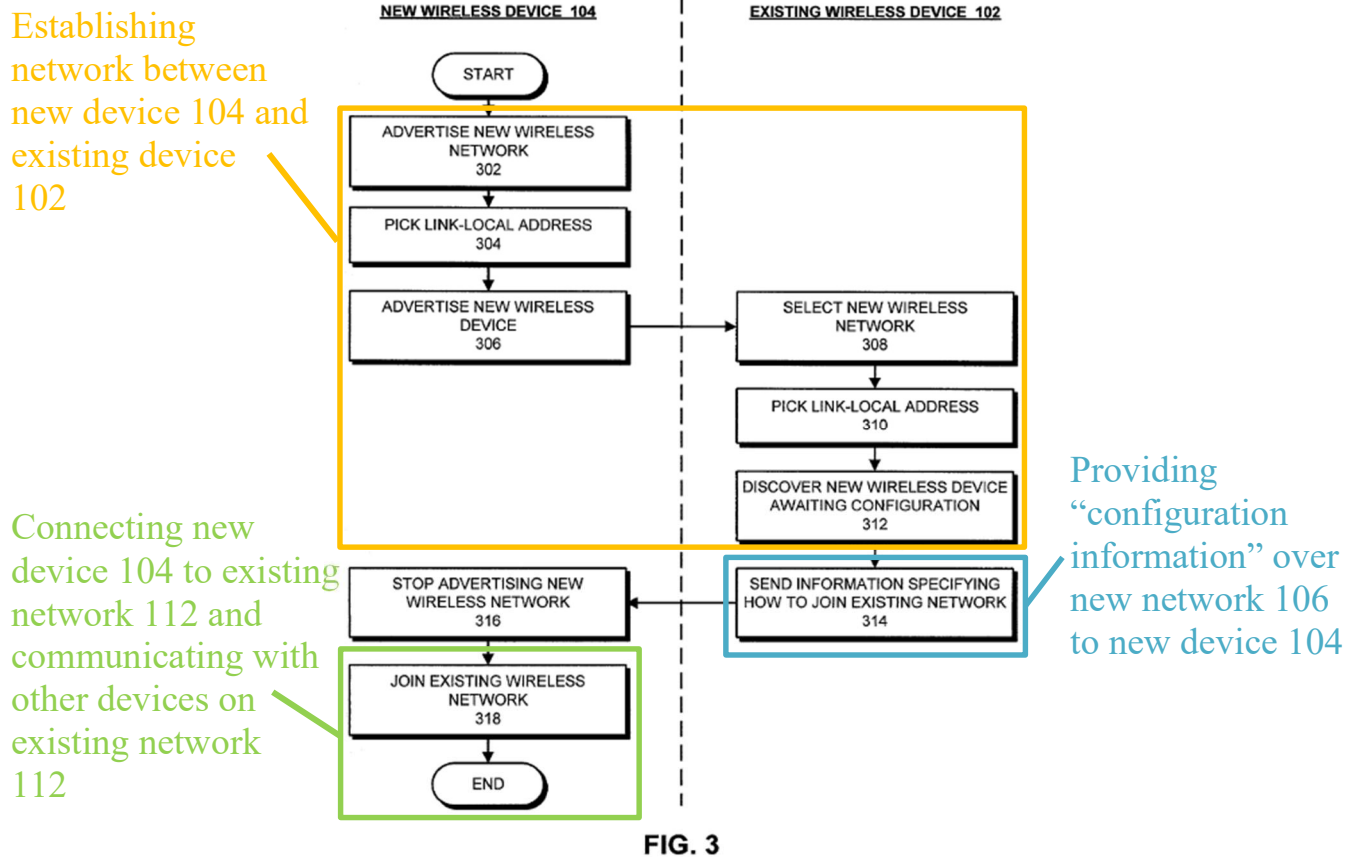
FIG. 1

EX1005, Fig. 1.

Cheshire's configuration process contains the same basic steps as the '883 patent:

1. Establishing "new wireless network 106"—"a computer-to-computer (Independent Basic Service Set (IBSS)) network"—between a "new wireless device 104" and "existing wireless device 102," wherein "existing wireless device 102" is on "existing wireless network 112";
2. Providing "configuration information" over new network 106 to new device 104 so that it can join existing network 112; and
3. Connecting new device 104 to existing network 112.

EX1005, 4:6-5:2, 2:15-20, 3:45-56.



EX1005, Fig. 3 (annotated).

B. Claim 1

1. [1Pre]: A playback device comprising:

Cheshire discloses or renders obvious [1Pre] because it teaches configuring “[w]ireless devices” that include “audio output devices” to join an existing wireless network. EX1005, 1:53-55, 3:3-14, 4:6-5:2, Figs. 1 and 3; EX1003, ¶¶85-88. A POSITA would have understood Cheshire’s audio output device to be a *playback device* because audio output devices were known to be configured to process and output audio, and a POSITA would have selected an audio output device to be new

device 104 as it was an option expressly disclosed in Cheshire and because audio output devices had been previously connected to networks. EX1003, ¶¶86-87 (citing EX1007, ¶¶3, 34, 69-86; EX1015, 46:7-9).

2. [1a]: a network interface that is configured to provide an interconnection with at least one data network;

Cheshire discloses or at least suggests [1a] because it teaches that “new wireless device 104” “can reside on a wireless computer network.” EX1005, 2:67-3:14; EX1003, ¶¶89-92. A POSITA would have understood or found it obvious that new device 104 includes *a network interface* because a network interface is how devices communicate over a wireless network as done in Cheshire. EX1003, ¶¶90-92; EX1005, 1:16-19, 1:28-36, 2:67-3:29.

Cheshire describes how new device 104 contains *a network interface that is configured to provide an interconnection with at least one data network*.

Cheshire’s “new wireless device 104 advertises a new wireless network 106 (step 302).” EX1005, 4:7-12, Fig. 3; EX1003, ¶90. “[N]ew wireless network 106 ... couples together new wireless device 104 and existing wireless device 102” (EX1005, 2:67-3:2) and allows new device 104 and existing device 102 to “initially communicate[]” (EX1005, 3:30-35). Cheshire’s new network 106 and existing network 112 can “communicate with the Internet.” EX1005, 3:23-29. Cheshire details that a “wireless transceiver” is the component that “enables the computing device to communicate through a wireless network.” EX1005, 1:16-19.

These disclosures match the '883 patent's description that a *network interface* “functions by a wireless means for the zone player 200 to communicate with other devices in accordance with a communication protocol (such as the wireless standard IEEE 802.11a, 802.11b[,] or 802.119).” EX1001, 6:36-61. Because Cheshire describes how its device connects to and communicates over wireless networks, Cheshire discloses [1a]. EX1003, ¶¶90, 92 (citing EX1005, 1:16-19, 1:28-36, 2:67-3:29, 6:36-61; EX1007, ¶¶41, 72; EX1013, ¶¶11, 23).

To the extent that Patent Owner disputes that Cheshire discloses [1a], a POSITA would have found it obvious that Cheshire's new device 104 contains [1a] because new device 104 was configured to communicate on a network as described above. EX1003, ¶¶89-92.

3. [1b]: at least one processor;

Cheshire discloses or at least suggests [1b] because it teaches “new wireless device 104 initially communicates with existing wireless device 102 through new wireless network 106 in order to receive configuration information.” EX1005, 3:30-35; EX1003, ¶¶93-98. A POSITA would have understood or found it obvious that new device 104 contains *at least one processor* because a processor is an important component for a device to communicate with other devices. EX1003, ¶¶95-97; EX1005, 1:16-19, 1:28-36, 3:3-10.

Cheshire's new device 104 includes a *processor*. EX1003, ¶94. Cheshire's new device 104 "advertises a new wireless network 106 (step 302)," "picks itself a link-local address on new wireless network 106 (step 304)," and then "announc[es] the fact that it is listening and ready for wireless configuration [step 306]." EX1005, 4:11-25, Fig. 3.

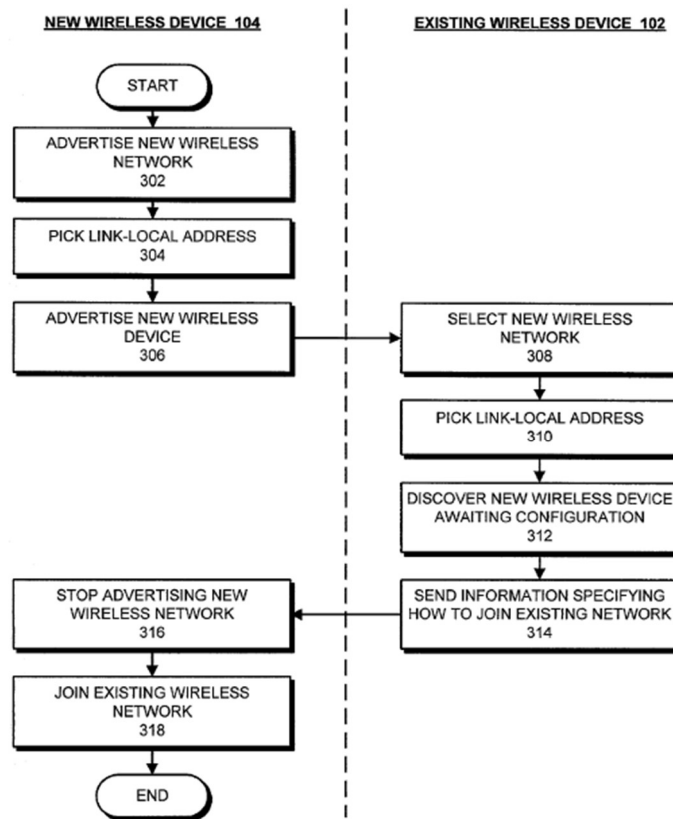


FIG. 3

EX1005, Fig. 3. A POSITA would have known that new device 104 includes a processor to execute steps 302, 304, and 306 because this was a common function of a processor. EX1003, ¶¶94-95; EX1007, ¶72; EX1013, ¶¶11, 23; EX1001, 7:2-4. No computing device can exist without a processor. EX1003, ¶¶95-96.

To the extent Patent Owner disputes that Cheshire discloses [1b], a POSITA would have found it obvious that new device 104 contains *at least one processor* because Cheshire depicts that new device 104 executes a configuration process. EX1003, ¶97.

4. [1c]: a non-transitory computer-readable medium; and

Cheshire discloses or at least suggests [1c] because it teaches “a computer readable storage medium.” EX1005, 2:48-59; EX1003, ¶¶99-103. A POSITA would have known that new device 104 contains this “computer readable storage medium” because Cheshire’s configuration process must be stored on new device 104 to be executed. EX1003, ¶¶100-102.

Cheshire’s new device 104 includes *a non-transitory computer-readable medium*. EX1003, ¶100. Cheshire describes steps that new device 104 executes to advertise a network and itself. Section VII.B.3 ([1b]). Storage of these steps must be available for new device 104 to implement them. EX1003, ¶102. Cheshire discloses that “data structures and code ... are ... 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,” such as a “disk drive.” EX1005, 2:48-57. A POSITA would have known that storage mediums like disk drives are non-transitory storage because they are permanent forms of memory (unlike RAM). EX1003, ¶¶100-101; EX1007, ¶72; EX1013, ¶¶11, 23-25; EX1001, 7:4-6.

To the extent Patent Owner disputes that Cheshire discloses [1c], a POSITA would have found it obvious that Cheshire's new device 104 includes this limitation. EX1005, 2:48-59, 4:11-25, Fig. 3; EX1003, ¶¶100-102. Cheshire even claims a "computer-readable storage medium" to execute its method. EX1005, 6:62-8:39 (claims 11-20). It was also known in the art that wireless networking devices relied on non-transitory storage or memory components to operate. EX1003, ¶102.

5. [1d]: program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the playback device to perform functions comprising:

Cheshire discloses or at least suggests [1d] because it teaches a "computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method." EX1005, 6:62-7:29 (claim 11), 2:48-51; EX1003, ¶¶104-107.

A POSITA would have understood the "computer-readable storage medium" in Cheshire's new device 104 to store the steps that new device 104 implements to join an existing wireless network. Section VII.B.4 ([1c]); EX1003, ¶¶100-106. And a POSITA would have known that a processor executes the stored steps because that is a routine function of the processor. Sections VII.B.3-4 ([1b]-[1c]); EX1003, ¶106.

6. **[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;**

Cheshire discloses or at least suggests [1e.1] because it teaches “new wireless device 104 ... powers up” (*detecting a triggering event*), “advertises a new wireless network 106 (step 302),” and then “creates a service advertisement announcing the fact that it is listening and ready for wireless configuration” (*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*). EX1005, 4:7-15, 4:20-25; EX1003, ¶¶108-115. A POSITA would have understood that new device 104 *detects* a “power up” as *a triggering event that causes it to enter a setup mode* because, upon turning on, new device 104 begins its configuration process, evidenced by the device automatically proceeding to step 302 and advertising new network 106 upon power up. EX1003, ¶¶110-111, 114. Cheshire’s disclosure thus matches the specific embodiment of a “triggering event” recited in dependent claim 2 of the ’883 patent, which specifies that “the triggering event comprises ... powering on the playback device.” EX1001, 18:30-34. Furthermore, a POSITA would have understood the “service advertisement” to be *a first message indicating that new device 104 is available for setup* because it is a signal that new device 104 is awaiting configuration. EX1003, ¶¶112-113.

Figure 3 of Cheshire illustrates the configuration process “starts, for example, when a new wireless device 104 ... powers up.” EX1005, 4:7-11.

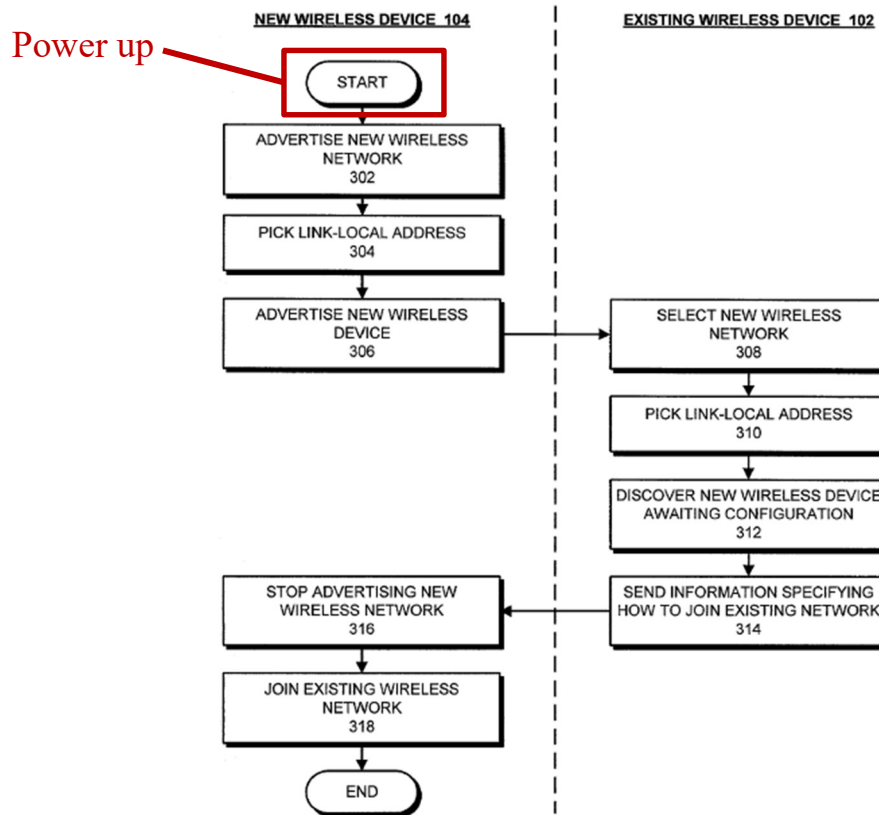


FIG. 3

EX1005, Fig. 3 (annotated).

A POSITA would have understood that new device 104 detects a power up as a triggering event that causes it to enter a setup mode. EX1003, ¶¶109-110 (citing EX1006, 17:62-20:48, EX1016, ¶¶30-33, 50, EX1021, ¶¶7-9). In the context of networking, a POSITA would have understood a triggering event to be a signal that causes another action. EX1003, ¶¶110-111 (discussing EX1011, 3:61-66); EX1001, 12:25-32, 12:67-13:4. A POSITA would have known that common

ways to force a device to enter such a state would include pressing a specific button, powering the device on, or having the user select a search mode. EX1003, ¶¶110-111 (describing EX1005, 4:7-15; EX1013, ¶38; EX1012, 1:38-51, 9:18-39). Because Cheshire's new device 104 begins its configuration process after being turned on, a POSITA would have understood or found it obvious that it detects the power on. EX1003, ¶111.

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.

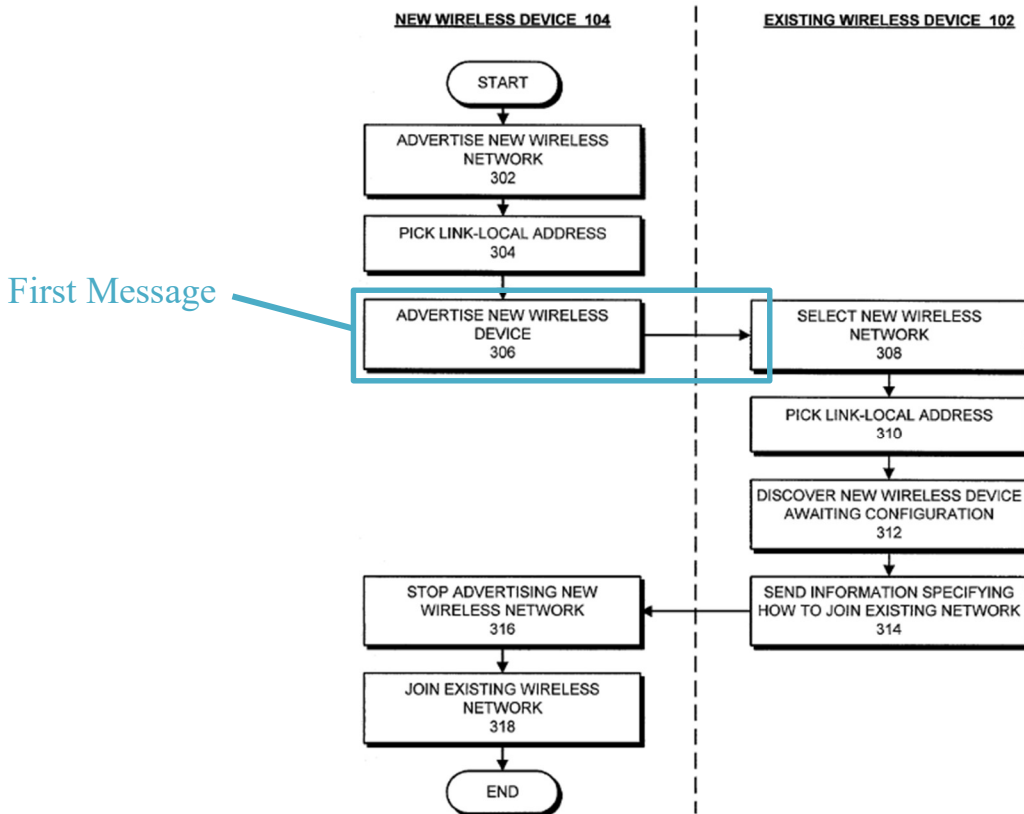


FIG. 3

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 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.

7. **[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,**

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 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 programmed, *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.

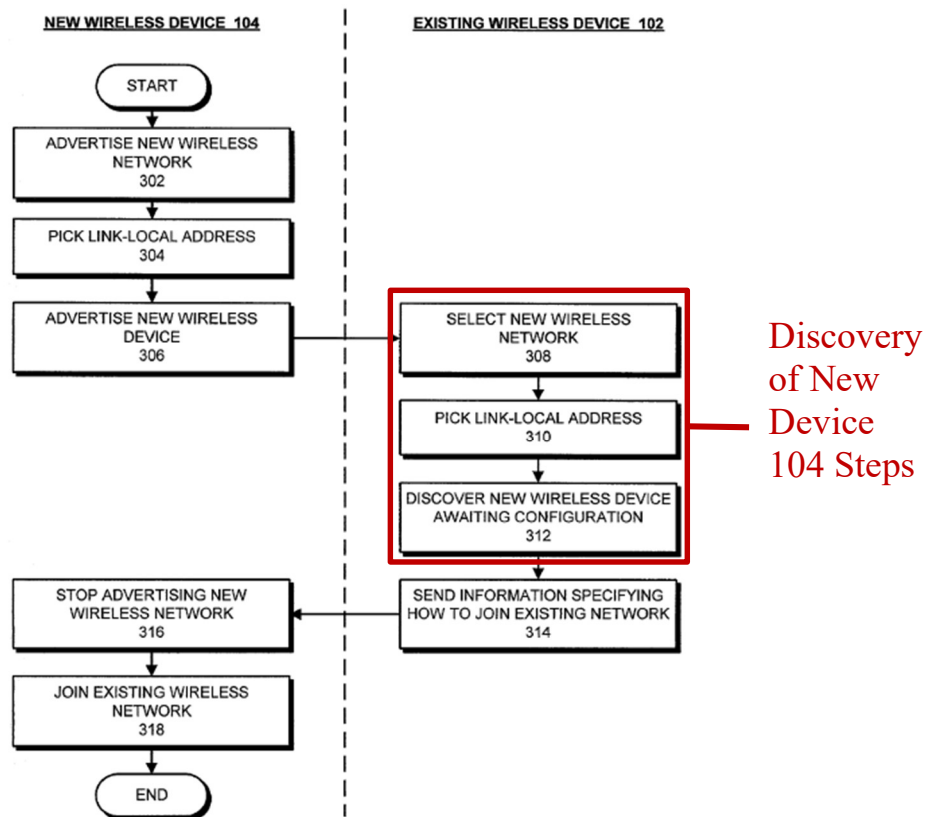


FIG. 3

EX1005, Fig. 3 (annotated).

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.

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.

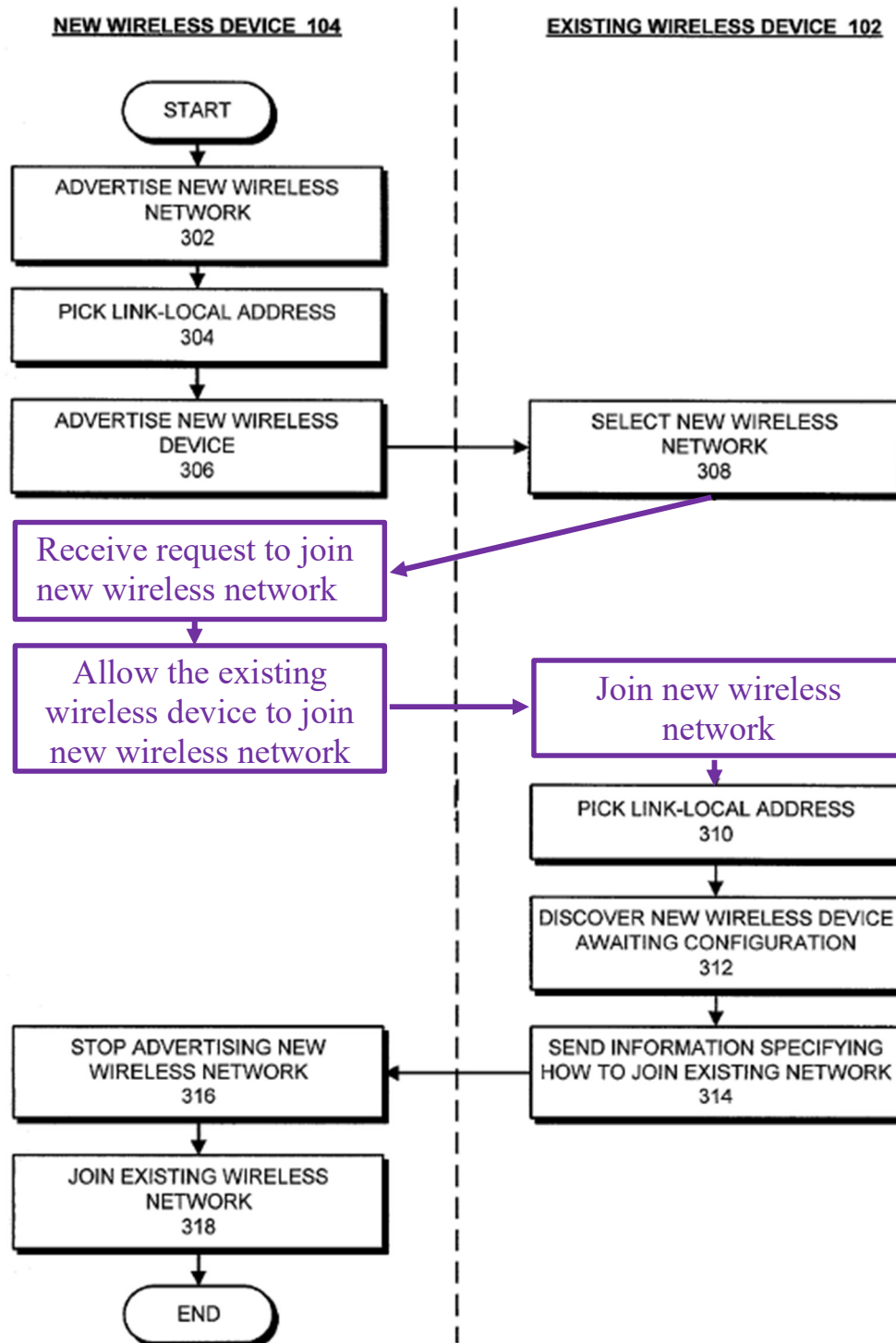


FIG. 3

EX1005, Fig. 3 (modified; annotated).

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 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.

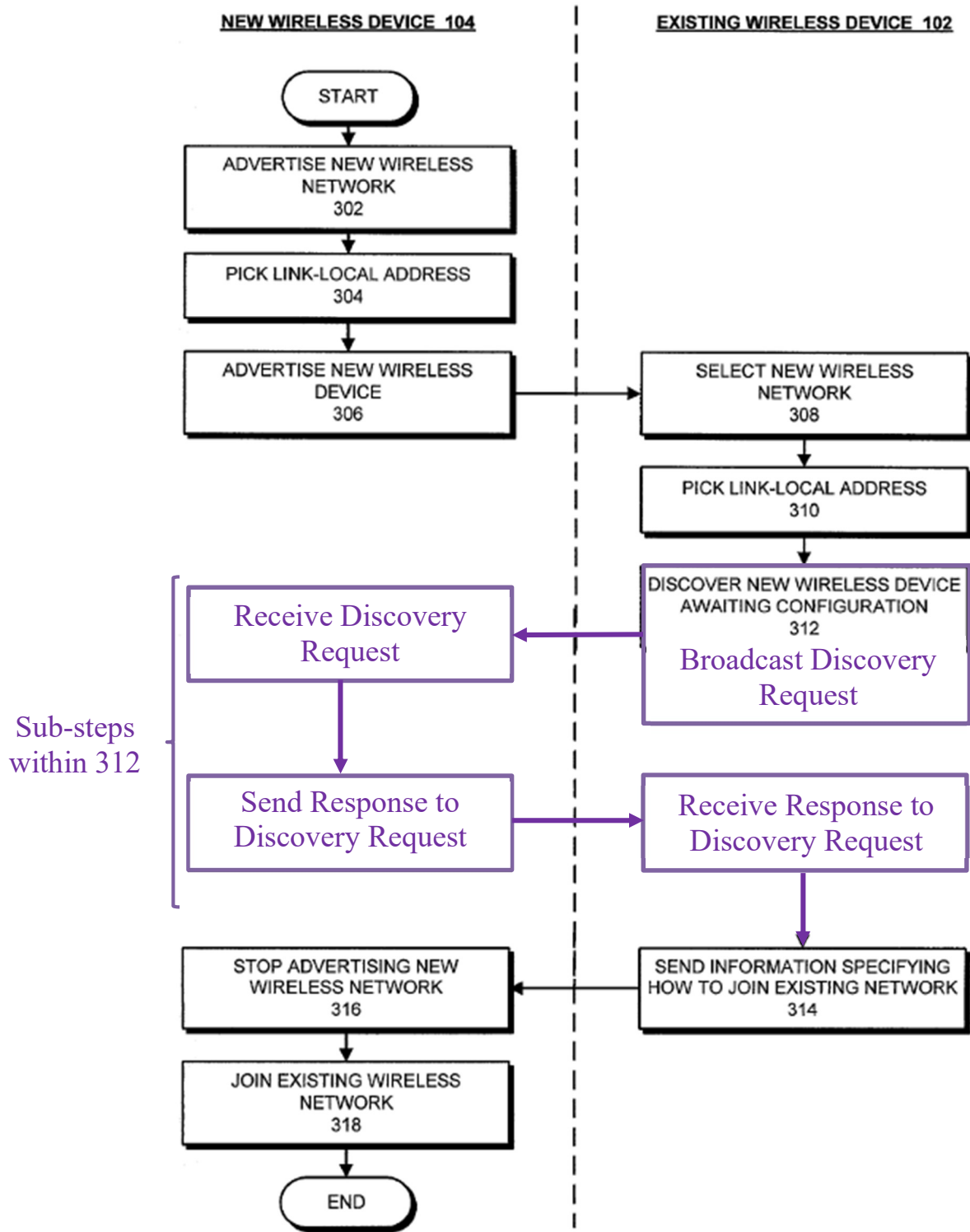


FIG. 3

EX1005, Fig. 3 (modified; annotated); EX1003, ¶125.

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.

8. [1e.2(b)]: wherein the computing device is operating on a secure wireless local area network (WLAN) that is defined by an access point,

Cheshire discloses [1e.2(b)] because it teaches “an existing wireless network 112, which couples together an existing wireless device 102 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 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.

9. [1e.2(c)]: wherein the initial communication path with the computing device does not traverse the access point;

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 *initial communication path* because it is how new 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.

10. **[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;**

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.

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.

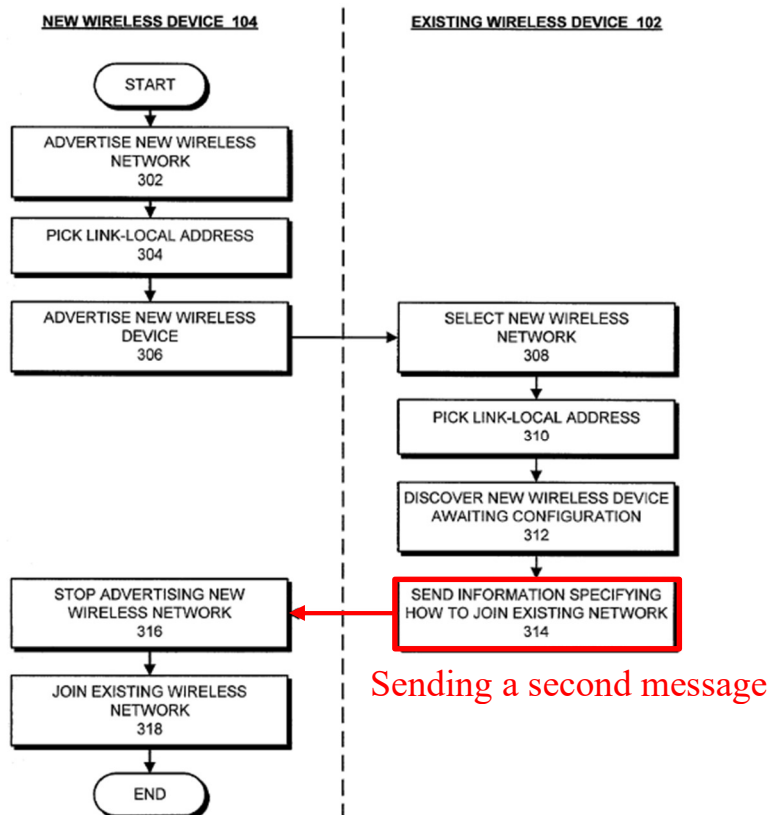
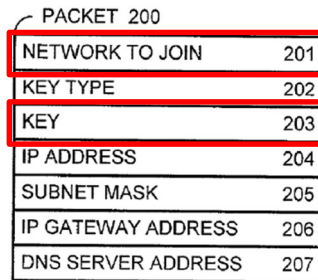


FIG. 3

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 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.



The diagram shows a table representing the structure of Packet 200. The table has two columns: the first column lists the fields and the second column lists their corresponding IDs. The fields are: NETWORK TO JOIN (201), KEY TYPE (202), KEY (203), IP ADDRESS (204), SUBNET MASK (205), IP GATEWAY ADDRESS (206), and DNS SERVER ADDRESS (207). The rows for NETWORK TO JOIN (201), KEY TYPE (202), and KEY (203) are highlighted with a red border. A bracket labeled 'PACKET 200' is positioned to the left of the first three rows.

PACKET 200	
NETWORK TO JOIN	201
KEY TYPE	202
KEY	203
IP ADDRESS	204
SUBNET MASK	205
IP GATEWAY ADDRESS	206
DNS SERVER ADDRESS	207

FIG. 2

EX1005, Fig. 2 (annotated); EX1003, ¶141.

11. **[1e.4]: using the network configuration parameters to connect to the secure WLAN that is defined by the access point; and**

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.

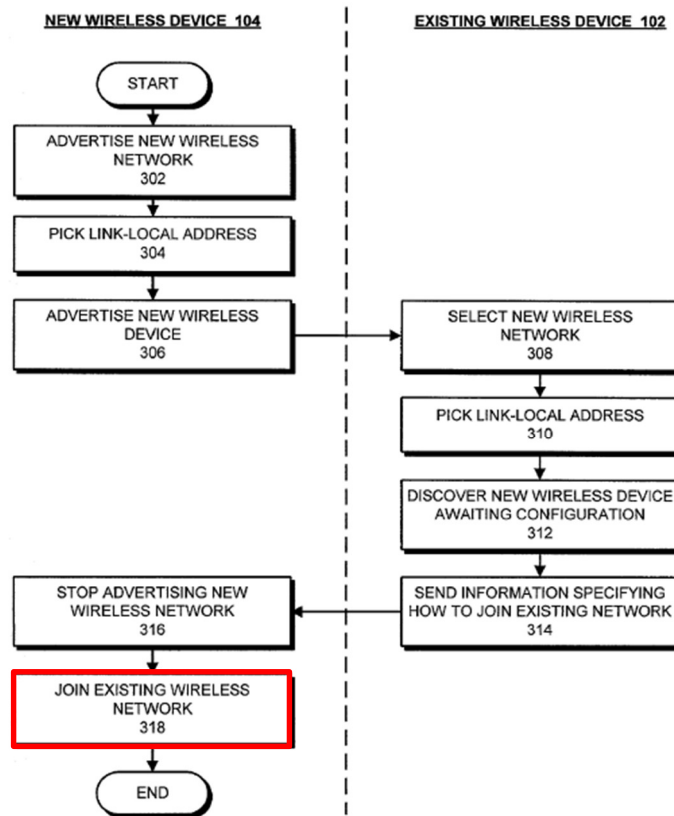


FIG. 3

EX1005, Fig. 3 (annotated).

12. [1e.5]: 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.

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 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.

C. Dependent Claims 2-3, 7-8, 10, and 12

- 1. Claim 2: wherein the triggering event comprises one of (a) powering on the playback device or (b) receiving user input via a physical interface of the playback device.**

As discussed for [1e.1], Cheshire discloses or renders obvious claim 2 because it teaches “new wireless device 104 ... powers up.” EX1005, 4:7-15; EX1005, 4:20-25; EX1003, ¶¶150-152; Section VII.B.6. A POSITA would have found claim 2 obvious for the same reasons as [1e.1] because powering up new device 104 begins its configuration process. Section VII.B.6; EX1003, ¶152.

- 2. Claim 3: wherein the computing device comprises a controller device of a networked audio system.**

Cheshire discloses or renders obvious claim 3 because it teaches that “[existing] [w]ireless device[] 102 ... can generally include any type of computer system ...,” such as “a device controller.” EX1005, 3:3-10; EX1003, ¶¶153-156. Because Cheshire’s new device 104 is an “audio output device[],” a POSITA

would have understood or found it obvious that existing device 102 as “a device controller” would be *a controller device of a networked audio system*. EX1003, ¶154; EX1005, 3:3-14. A POSITA would have understood that an “audio output device” connected to “a device controller” constitutes *a networked audio system* because the two devices are connected over a network. EX1003, ¶155.

To the extent Patent Owner disputes that Cheshire discloses claim 3, a POSITA would have found it obvious over Cheshire’s teachings described above. EX1005, 3:3-14; EX1003, ¶156. Because Cheshire’s new device 104 is an audio output device and existing device 102 is a device controller, a POSITA would have found it obvious to configure new device 104 to be controlled by existing device 102 over existing network 112 because remote controlling audio devices were known and common. EX1003, ¶156. Making a networked audio system with an audio output device and a controller would have made controlling the audio device simpler and improved the user experience because a user could control the audio device from a distance. EX1003, ¶156.

3. **Claims 7 and 8: further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the playback device to perform functions comprising: after connecting to the secure WLAN, [claim 7: establishing a new networked audio system on the secure WLAN.] [claim 8: joining an existing networked audio system operating on the secure WLAN.]**

Claims 7 and 8 recite well-known alternatives when adding new audio devices onto a network—*establishing a new networked audio system* (claim 7) and *joining an existing networked audio system* (claim 8). EX1003, ¶¶157-162. A POSITA would have understood that claims 7 and 8 collectively recite two alternatives for audio systems—new or existing. When adding a device to a network, a POSITA would have understood that the network would either have a first device in a system (new system) or with others already connected in a system (existing system). Claim 7 and 8 collectively recite both well-known alternatives. EX1003, ¶¶157-162.

Cheshire renders obvious claim 7 because it teaches connecting an “audio output device” (new device 104) to “a device controller” (existing device 102) over existing network 112. Section VII.C.2 (claim 3); EX1005, 3:3-14; EX1003, ¶¶154-156, 158-160. After existing device 102 is used to configure new device 104, the two devices are intended to “communicate across a wireless network,” which creates an audio system. EX1005, 1:28-30, 2:15-17, 3:3-14, 3:45-47; EX1003, ¶159. A POSITA would have found it obvious that this communication establishes

a *new networked audio system* when the new device 104 is the first audio output device on the network. EX1003, ¶160. It would have been obvious to a POSITA to make or to try to make a *new networked audio system* because there are limited design options when connecting an audio device to a network—either new or existing. EX1003, ¶160. Selecting one of these options was within the level of skill at the time of invention and would not have involved any exploration of new technology. EX1003, ¶160.

Cheshire renders obvious claim 8. EX1003, ¶¶161-162. Additionally, Cheshire describes that other wireless devices may exist on existing network 112, which include other audio output devices. EX1005, 2:64-3:14. A POSITA would have found it obvious that adding new device 104 to existing network 112 that already has other audio output devices on the network constitutes joining an existing networked audio system. EX1003, ¶162. It would have been obvious to establish or obvious to try to establish such a system for the same reasons it would have been obvious to create a new networked audio system. EX1003, ¶¶159-160, 162.

4. Claim 10: wherein communicating with the computing device via the secure WLAN comprises receiving a command related to playback of audio content.

Cheshire renders obvious claim 10 because it teaches that “audio output device[]” (new device 104) is configured to “communicate across a wireless

network” with “a device controller” (existing device 102) over existing network

112. Section VII.C.3 (claims 7-8); EX1005, 1:28-30, 3:3-14, 2:15-17, 3:45-47; EX1003, ¶¶157-169. A POSITA would have known or found it obvious that communication between new device 104 and existing device 102 would have included *receiving a command related to playback of audio content* because the purpose of existing device 102 would have been to control the output of audio from new device 104. EX1003, ¶¶164-168.

A POSITA would have known or found it obvious that the purpose of an “audio output device” was to play sound (audio content) because an audio output device releases or produces audio. Section VII.B.1 ([1Pre]); EX1003, ¶¶86-87, 164. A POSITA would have understood that “audio content” is the actual sound that comes from an “audio source” because “audio source” is defined as a digital file. EX1001, 19:15-25 (claim 11) (“retrieve audio content for playback from an audio source”), 5:51-54, 6:6-20, 7:63-65, 9:15-22; EX1003, ¶164.

A POSITA would have understood that existing device 102 (device controller) *commands* new device 104 over existing network 112 because that would have been the common purpose of a controller. EX1003, ¶¶165-166 (citing EX1017, 62; EX1018, 4:18-21, 6:12-17; EX1019, 10:34-47). Wireless device controllers were well-known within the art for sending commands to audio devices. EX1003, ¶¶166-167. Controllers were used to select, play, pause, fast

forward, rewind, skip, and stop audio content (music). EX1003, ¶167. Controllers were also used to change settings on audio devices, such as volume. EX1003, ¶166. A POSITA would have understood that these examples constituted *commands related to playback of audio content* because changing a song or turning up the volume on a device affects the audio coming out of new device 104 (new device 104 *receives* the command). EX1003, ¶167.

5. Claim 12: wherein the second message comprises a command for the playback device to adopt the network configuration parameters.

Cheshire renders obvious claim 12 because it teaches that existing device 102 sends a message with “packet 200 [that] contains configuration information that allows new wireless device 104 to join existing wireless network 112.” EX1005, 4:53-58; EX1003, ¶¶170-173; Section VII.B.10 ([1e.3]). As discussed for [1e.3], Cheshire describes and renders obvious that existing device 102 sends *a second message containing network configuration parameters for the secure WLAN* to new device 104. EX1005, 4:53-58; Section VII.B.10; EX1003, ¶¶153-156, 171. A POSITA would have found it obvious that the message containing packet 200 includes a *command to adopt the network configuration parameters* because new device 104 would not implement the parameters without instructions to do so. EX1005, 4:66-5:2, EX1003, ¶172.

D. Claim 14

Cheshire discloses or renders obvious claim 14 for the reasons in claim 1.

Section VII.B. EX1003, ¶¶174-188. Cheshire explicitly teaches and claims “a computer-readable storage medium.” EX1005, 2:48-59, 6:62-8:39 (claims 11-20); Sections VII.B.1-VII.B.5 ([1Pre]-[1d]); EX1003, ¶¶175-178, 99-103. Claim 14 includes the word “storage” in “computer-readable *storage* medium” while claim 1 does not include “storage.” A POSITA would have understood that these terms are directed to the same type of medium because the subsequent claim elements are identical and are both related to storage of program instructions. EX1003, ¶¶176-177. Nevertheless, a POSITA would have found Cheshire’s teachings of “a computer-readable storage medium” applicable in both instances. EX1003, ¶¶176-177. The program instructions claimed in claims 1 and 14 match as outlined below. EX1003, ¶¶175-188.

Claim 1	Claim 14
[1Pre]	
[1a]	
[1b]	
[1c]	[14Pre] A non-transitory, computer-readable storage medium, Section VII.B.4.

Claim 1	Claim 14
[1d]	[14Pre] wherein the non-transitory computer-readable storage medium is provisioned with program instructions that are executable to cause a playback device to perform functions comprising: Section VII.B.5.
[1e.1]	[14a] 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; Section VII.B.6.
[1e.2(a)]	[14b] 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, Section VII.B.7.
[1e.2(b)]	[14b] wherein the computing device is operating on a secure wireless local area network (WLAN) that is defined by an access point, Section VII.B.8.

Claim 1	Claim 14
[1e.2(c)]	[14b] wherein the initial communication path with the computing device does not traverse the access point; Section VII.B.9.
[1e.3]	[14c] 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; Section VII.B.10.
[1e.4]	[14d] using the network configuration parameters to connect to the secure WLAN that is defined by the access point; and Section VII.B.11.
[1e.5]	[14e] 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. Section VII.B.12.

Therefore, a POSITA would have found claim 14 obvious for the reasons in claim

1. EX1003, ¶¶175-188, 99-149.

E. Claim 15: wherein the triggering event comprises one of (a) powering on the playback device or (b) receiving user input via a physical interface of the playback device.

As discussed for [1e.1] and claim 2 above, Cheshire discloses or renders obvious claim 15. EX1005, 4:7-15, 4:20-25; EX1003, ¶¶189-191, 108-115, 151-152; Sections VII.B.6, VII.C.1.

F. Claim 20

Cheshire discloses or renders obvious claim 20 (method) for the reasons in claim 1 (device). Section VII.B; EX1003, ¶192. The program instructions in claim 1 match the method limitations in claim 20. EX1003, ¶¶193-204.

Claim 1	Claim 20
[1d]	[20Pre] A method comprising:
[1e.1]	[20a] 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; Section VII.B.6.
[1e.2(a)]	[20b] while in the setup mode, receiving a response to the first message that facilitates establishing an initial

Claim 1	Claim 20
	communication path with a computing device that is installed with an application for controlling the playback device, Section VII.B.7.
[1e.2(b)]	[20b] wherein the computing device is operating on a secure wireless local area network (WLAN) that is defined by an access point, Section VII.B.8.
[1e.2(c)]	[20b] wherein the initial communication path with the computing device does not traverse the access point; Section VII.B.9.
[1e.3]	[20c] 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; Section VII.B.10.
[1e.4]	[20d] using the network configuration parameters to connect to the secure WLAN that is defined by the access point; and

Claim 1	Claim 20
	Section VII.B.11.
[1e.5]	[20e] 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. Section VII.B.12.

A POSITA would have understood that the playback device of claim 1 implements the method recited in claim 20 because of their matching language. EX1003, ¶¶192-204.

Therefore, a POSITA would have found claim 20 obvious for the reasons in claim 1. EX1003, ¶¶192-204, 108-149.

VIII. Ground 2: Cheshire and Meenan Render Obvious Claims 1-10, 12, 14-18, and 20

A. Overview of Meenan

Meenan relates to “the configuration of a home network of computing devices.” EX1006, 1:5-6. Figure 1 of Meenan depicts a home-networking system 100 that comprises devices 112 (“computers,” “a stereo system,” and “a wireless access point (WAP) 112h”), a home-networking gateway 115, and a communication device 119, among other components. EX1006, 3:28-58; EX1006, 2:49-54, Fig. 1.

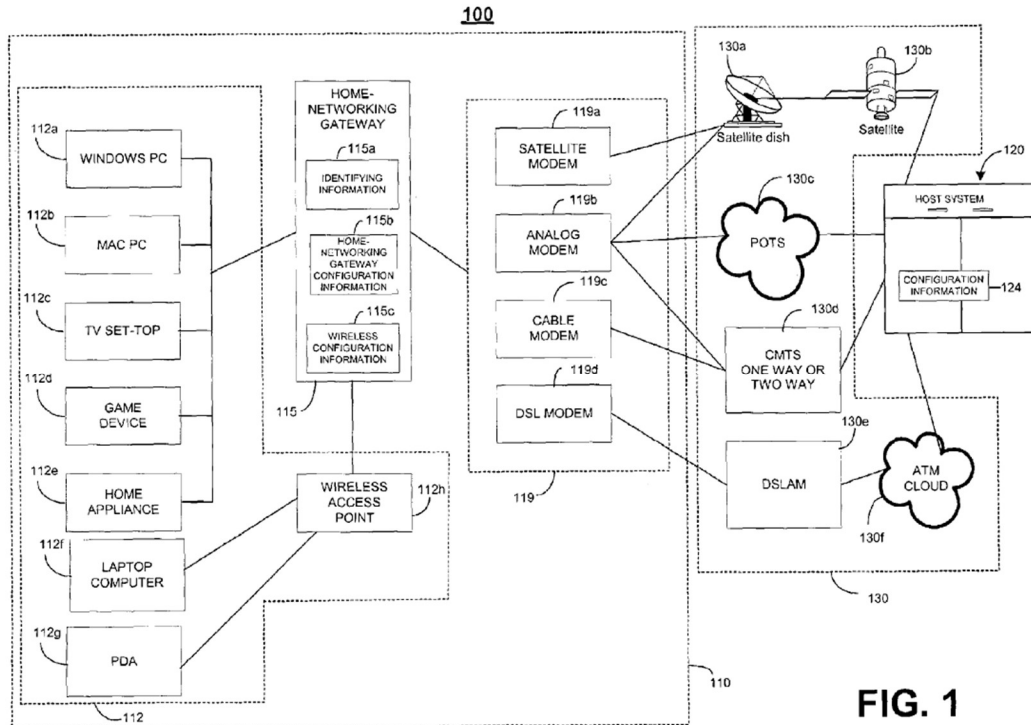


FIG. 1

EX1006, Fig. 1.

Meenan teaches a method of configuring wireless devices similar to the '883 patent's method. EX1006, 15:19-20:51. Meenan describes:

1. Establishing "process 700 begins when the wireless device 710 establishes communications over the wired communications pathway with the home-networking gateway 715 (step 730w)";
2. Providing "configuration information" to "wireless device 710" so that it can join "a home network"; and
3. Connecting "wireless device 710" to the home network.

EX1006, 17:62-20:51, Fig. 7.

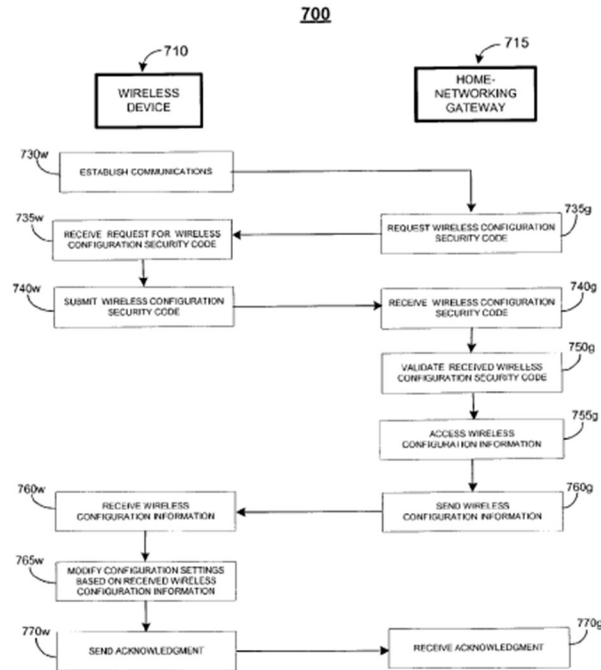


FIG. 7

EX1006, Fig. 7.

B. Motivation to Combine with a Reasonable Expectation of Success

Cheshire and Meenan are analogous art to the '883 patent because they are in the same field of endeavor: wireless device configuration. *Compare*, EX1005, 1:7-2:20, and EX1006, 1:5-21, *with* EX1001, 1:25-32, 2:16-4:24; EX1003, ¶¶66, 72. Cheshire and Meenan share a common goal with the '883 patent: improving wireless devices. *Compare*, EX1005, 1:28-48, and EX1006, 1:25-50, 20:43-48, *with* EX1001, 2:1-4; EX1003, ¶¶66, 72.

Cheshire and Meenan both describe wireless devices with similar functions and uses. EX1003, ¶213. Cheshire and Meenan disclose wireless devices that

obtain configuration information from another device. *Compare* EX1005, 4:6-5:2, Fig. 3, *with* EX1006, 17:62-20:51, Fig. 7. Cheshire and Meenan detail that their configuration methods are used when setting up different wireless devices, including audio output devices (Cheshire) and stereo systems (Meenan). *Compare* EX1005, 3:3-14, *with* EX1006, 3:28-42. Cheshire and Meenan also both rely on configuration processes that occur over a secure connection. *Compare* EX1005, 4:59-65, *with* EX1006, 19:7-46; EX1003, ¶213. And both references include a WEP key in their respective configuration methods. *Compare* EX1005, 3:50-56, *with* EX1006, 19:36-40.

Given Cheshire and Meenan's similarities, a POSITA would have been motivated with a reasonable expectation of success to consider their combined teachings. EX1003, ¶¶213-217, 221-224. Combining the references would have been no more than a simple substitution of one known element—i.e., the secure wireless network disclosed in Cheshire—for another—i.e., the secure WLAN in Meenan, using known techniques. EX1003, ¶¶217, 224. And doing so would have yielded predictable results because the outcome of Cheshire would not have changed. *Id.* Additional rationales for the combination are provided below for specific claim limitations.

C. Claim 1

1. [1Pre]-[1e.2(a)]

Cheshire discloses or renders obvious [1Pre]-[1e.2(a)] for the reasons in Ground 1. Sections VII.B.1-VII.B.7; EX1003, ¶¶225, 85-126.

2. [1e.2(b)]

Cheshire discloses or renders obvious [1e.2(b)] for the reasons in Ground 1. Section VII.B.8; EX1003, ¶¶127-132.

To the extent that Patent Owner disputes that Cheshire discloses or renders obvious [1e.2(b)], Cheshire and Meenan render obvious [1e.2(b)] because Meenan similarly discloses a process of configuring “wireless devices” using a “home-networking gateway” on a secure wireless local area network defined by a “wireless access point 112*h* [that] is connected to home-networking gateway 115 through the wired network and [that] transmits communications received from wireless devices to the home-networking gateway 115.” EX1006, 4:1-6; EX1006, 1:26-50; EX1005, 3:18-26, 3:50-56; EX1003, ¶¶206-217.

Meenan discloses a *secure WLAN*. Meenan describes that “[t]he devices 112, the home-networking gateway 115, and the communication device 119 may be included in a home network 110 physically located in a personal residence.” EX1006, 2:58-62. A POSITA would have understood that home network 110, which connects Meenan’s devices, is a WLAN because it is a network that connects wireless devices within a defined space. EX1003, ¶¶207-211; EX1006,

4:9-20. A POSITA would have understood that network 110 has a wireless component because (1) the purpose of Meenan is to provide wireless configuration and (2) Meenan describes how at least “[s]ome of the other devices ... communicate with the home-networking gateway 115 using a wireless access point 112*h*.” EX1006, 3:59-61; EX1006, 1:24-35; EX1003, ¶209. Meenan provides that a “wireless communications pathway may use various protocols to communicate from a wireless devices [sic] to a wireless access point 112*h*,” listing IEEE 802.11. EX1006, 4:9-20. A POSITA would have understood that Meenan’s home network 110 is *a secure WLAN* because its wireless configuration information includes a “security key” that is needed to join the network. EX1003, ¶210; EX1006, 17:62-20:51, Fig. 7.

Meenan’s home network 110 is *defined by an access point*. EX1003, ¶211. Meenan teaches that communications over the network happen through wireless access point 112*h*, rather than through device-to-device communications. EX1006, 2:55-3:2, 3:59-4:8. Meenan provides that wireless device 710 “is capable of communicating with a home network, for example, by communicating with a wireless access point ... 112*h* ... or with a home-networking gateway that includes wireless communication capabilities.” EX1006, 18:46-51, 17:62-20:51 (describing process of wireless device 710 configuration). Because Meenan describes how

network traffic is directed through wireless access point 112*h*, it discloses *a secure WLAN defined by an access point*. EX1003, ¶211.

a. Rationale to Combine

As described above, Cheshire discloses or renders obvious that existing device 102 operates on existing network 112, a “local area wireless network.” EX1005, 3:18-26, 2:64-67; Section VII.B.8 ([1e.2(b)]); EX1003, ¶¶212-217, 127-132. A POSITA would have understood that existing network 112 is a secure WLAN because packet 200 includes an encryption key that new device 104 needs to join and communicate over existing network 112. EX1003, ¶¶127-132. To the extent that Patent Owner disputes that Cheshire’s WLAN is defined by an access point, a POSITA would have found this limitation obvious over Meenan’s express disclosures defining a typical WLAN, which would have been easily understood by a POSITA. EX1003, ¶¶212-217.

A POSITA would have been motivated to supplement Cheshire’s WLAN disclosure with Meenan’s express disclosure that a WLAN uses an access point because both references describe similar networks and provide methods of configuring devices to join those networks. EX1003, ¶¶213-216. Meenan merely provides additional implementation details and descriptions of WLANs, all of which would have been known and readily understood in the art at the time. EX1003, ¶215; EX1006, 4:9-20, 17:62-20:48.

A POSITA would have been motivated to specifically use Cheshire's devices on a secure WLAN defined by an access point, as disclosed expressly by Meenan. In addition to the motivation to select a WLAN, a POSITA would have been motivated to use an infrastructure-based WLAN, as there are two ways to form a WLAN: ad-hoc (computer-to-computer) and infrastructure (access point). EX1003, ¶216. It would have at least been obvious to try operating Cheshire's device on Meenan's WLAN, expressly defined by an access point, at least because (1) Cheshire already suggests using a WLAN and doing so would have been one of only two well-known options, and (2) the modification does not explore new technology. EX1003, ¶216. A POSITA would have been motivated to use a secure WLAN defined by an access point because they were common types of networks. EX1003, ¶216.

A POSITA would have had a reasonable expectation of success in supplementing Cheshire's system with Meenan's express recitation of a WLAN defined by an access point because doing so would have been routine and only required routine skill in the art to do so. EX1003, ¶217. A POSITA would have understood that operating a computing device on a secure WLAN defined by an access point was common knowledge and already suggested by Cheshire. EX1003, ¶217; Sections VII.B.8-VII.B.9 ([1e.2(b)]-[1e.2(c)]) (discussing Cheshire's WLAN). A POSITA would have had a reasonable expectation of success because

the modification would have been no more than a simple substitution of one known element—i.e., the secure wireless network disclosed in Cheshire—for another—i.e., the secure WLAN in Meenan—to yield predictable results. A POSITA would also reasonably expect success in using a known technique—i.e., networking using an access point—to improve similar devices—i.e., Cheshire’s device/network in the same way. EX1003, ¶217.

3. [1e.2(c)]

Cheshire discloses or renders obvious [1e.2(c)] for the reasons in Ground 1. Section VII.B.9.

To the extent that Patent Owner disputes that Cheshire discloses or renders obvious [1e.2(c)], Cheshire and Meenan render obvious [1e.2(c)] because Meenan discloses a process 700 that “begins when the wireless device 710 establishes communications over the wired communications pathway with the home-networking gateway 715 (step 730_w).” EX1006, 18:64-67; EX1003, ¶¶218-224. A POSITA would have understood that the configuration process that occurs over Meenan’s wired communications pathway *does not traverse the access point* because Meenan differentiates between embodiments that involve an access point and those that do not—and process 700 does not involve an access point. EX1003, ¶¶219-220; EX1006, 19:2-6, 20:49-51.

a. Rationale to Combine

As applied to Cheshire's device and configuration process, a POSITA would have implemented Cheshire's wireless configuration method without traversing an access point as in Meenan. EX1003, ¶¶221-222. A POSITA would have been motivated to not traverse an access point because both references teach that their configuration processes occur on networks that are separate from the ones that their devices are joining. EX1003, ¶222. A POSITA would have avoided transversing an access point during configuration because doing so keeps unsecured communications off the network. *Id.* Although Meenan describes that the initial communication occurs over a wired connection, a POSITA still would have found these teachings applicable to Cheshire's configuration process because, the art was moving away from wired connections to wireless ones, wireless connections can be configured to accomplish the same goal as wired connections, and wireless technologies were well known. EX1003, ¶223.

A POSITA would have had a reasonable expectation of success in the implementation. EX1003, ¶224. Such a combination would have been an expected success because, as Meenan and Cheshire describe, it was known that device configuration can occur on one network and then be moved to another. EX1003, ¶224; EX1005, 4:6-5:2; EX1006, 17:62-20:51; EX1021, ¶¶22-30; EX1013, ¶¶38-45. The combination does not require any physical modifications to Cheshire's

audio output device or require any special skills beyond those routinely used by skilled artisans at the time of invention. EX1003, ¶224. It would have been no more than the use of a known technique—device configuration on an independent network—to improve similar devices—Cheshire’s device/network—in the same way. *Id.*

4. [1e.3]-[1e.5]

Cheshire discloses or renders obvious [1e.3]-[1e.5] for the reasons in Ground 1. Sections VII.B.10-VII.B.12; EX1003, ¶¶138-149, 225.

D. Dependent Claims 2-10 and 12

1. Claims 2-3, 7-8, 10, and 12

Cheshire and Meenan render obvious claims 2-3, 7-8, 10, and 12 for the reasons in Ground 1. Sections VII.B, VII.C; EX1003, ¶¶150-174, 226.

2. Claim 4: further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the playback device to perform functions comprising: after receiving the second message, providing an indication that the playback device has successfully received the network configuration parameters for the secure WLAN.

Cheshire and Meenan render obvious claim 4 because Meenan’s “wireless device 710 sends to the home-networking gateway 715 an acknowledgment that the wireless configuration settings have been modified (step 770_w). The home-networking gateway 615 receives the acknowledgment (step 770_g).” EX1006, 19:41-20:2; EX1003, ¶¶227-230. A POSITA would have modified Cheshire’s

configuration process to include Meenan's acknowledgment step after new device 104 received packet 200 and before step 316. EX1003, ¶229. A POSITA would have done so at least because providing the acknowledgment would inform existing device 102 that it does not need to keep sending packets 200 to new device 104, that it can reconnect to existing network 112, and that it should begin to look for new device 104 on existing network 112. *Id.*

As modified and depicted below, Meenan's acknowledgment step is added to Cheshire's configuration process after new device 104 receives the configuration information and before step 316.

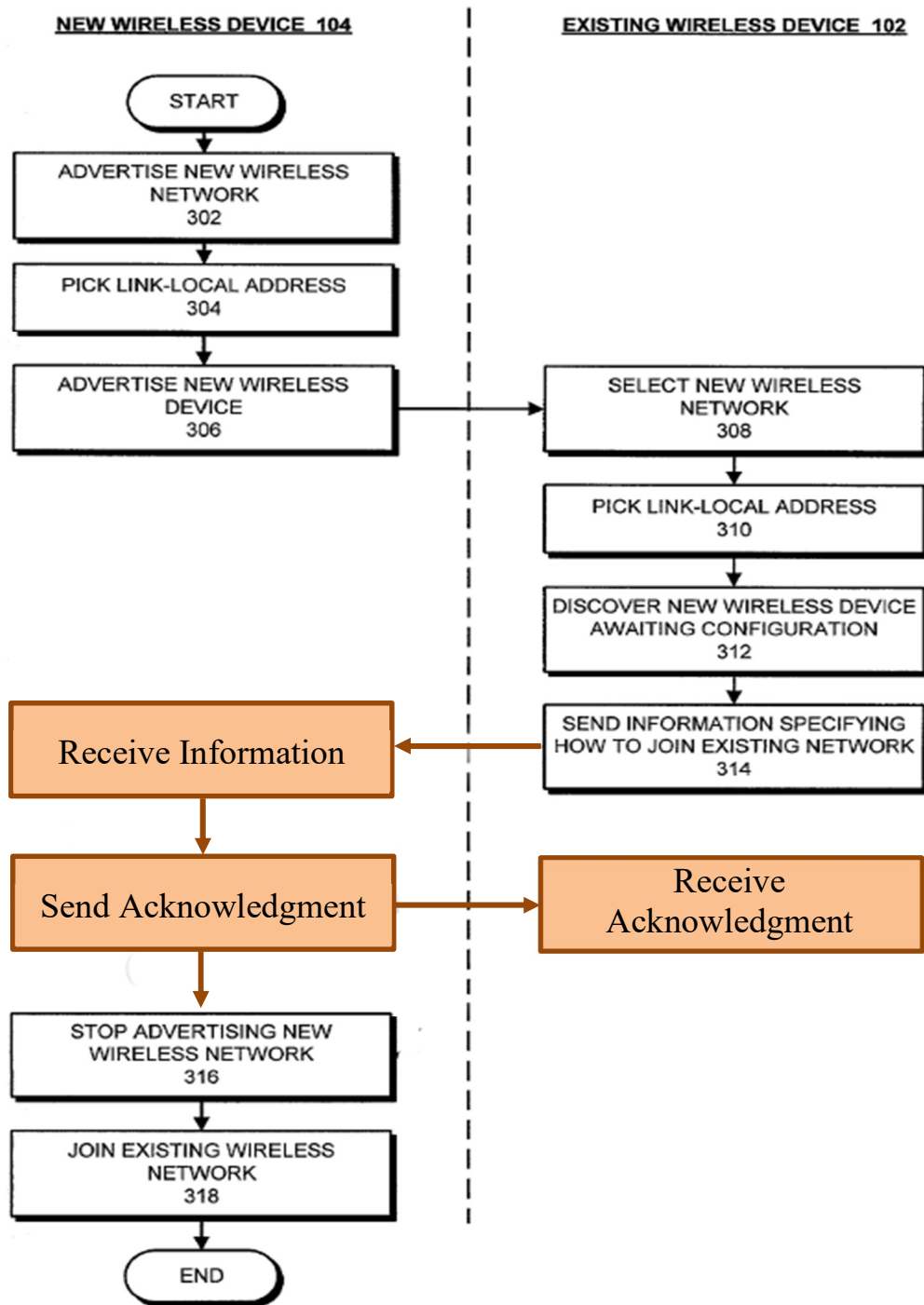


FIG. 3

EX1005, Fig. 3 (modified; annotated). A POSITA would have implemented the acknowledgment step before terminating the advertisement of new network 106 because the devices still require new network 106 to communicate as new device

104 has not yet joined existing network 112. EX1003, ¶229 (describing how acknowledgment steps were known in the art). A POSITA would have sent the acknowledgment over new network 106 because doing so would provide existing device 102 with an alert to switch back to existing network 112 and to look for new device 104 on existing network 112. *Id.*

A POSITA would have interpreted Meenan's acknowledgment step as an *indication that the playback device has successfully received the network configuration parameters* because the purpose of the acknowledgment step is to alert gateway 715 "that the wireless configuration settings have been modified." EX1006, 19:65-67; EX1003, ¶230. Meenan instructs that if "gateway 715 does not receive an acknowledgment, ... gateway 715 may take one of several actions, such as re-sending the wireless configuration information to the wireless device 710 or sending an electronic mail message to a user account to notify the user that an acknowledgment was not received." EX1006, 20:2-7. Based on this disclosure, a POSITA would have understood that the acknowledgment step provides device 715 (Cheshire's existing device 102) with a signal indicating that it does not need to continue to send the configuration information (Cheshire's packet 200). EX1003, ¶230.

a. Rationale to Combine

A POSITA would have been motivated to implement Meenan's acknowledgment step in Cheshire's configuration process because doing so would have provided existing device 102 with confirmation that new device 104 successfully received packet 200. EX1003, ¶231. Such a step would have been implemented because it provides existing device 102 with a signal to stop sending configuration packets and to reconnect to existing network 112. *Id.* The acknowledgment would instruct existing device 102 that it should look for and begin communicating with new device 104 on existing network 112. The indication provides existing device 102 with an opportunity to take additional action or re-send the packet if it was not successfully received, as Meenan instructs. *Id.*; EX1006, 20:2-7.

A POSITA would have had a reasonable expectation of success and have appreciated that supplementing Cheshire with Meenan would yield predictable results. EX1003, ¶232. Cheshire and Meenan both disclose similar wireless devices and provide methods of configuration that occur over a secure connection. *Id.*; Sections VIII.A-B. Cheshire and Meenan both describe configuration processes that result in a wireless device joining a secure WLAN. EX1003, ¶232. Adding the acknowledgment step to Cheshire would have resulted in a predictable outcome as

it does not change how new device 104 joins existing network 112. *Id.* The use of acknowledgment steps in network communications was routine. *Id.*

In other words, the combination would have involved the mere application of a known technique—Meenan’s acknowledgment step—to a piece of prior art—Cheshire’s configuration process—ready for the improvement. And the result would have been a predictable variation, as Meenan’s method would merely have improved similar devices—Cheshire’s new device 104—in the same way. There would have been a reasonable expectation of success in this combination because the use of acknowledgment steps was known and would have been routine for a POSITA to include. EX1003, ¶232.

3. Claim 5: wherein providing the indication comprises transmitting, to the computing device via the initial communication path, at least a third message indicating that the playback device has successfully received the network configuration parameters.

Cheshire and Meenan renders obvious claim 5 for the reasons in Ground 2, claim 4. Section VIII.D.2. A POSITA would have interpreted Meenan’s acknowledgment (step 770w) as a *third message via the initial communication path* because, as implemented in Cheshire, it is a communication between new device 104 and existing device 102 that occurs after the receipt of the packet 200 and **before** new device 104 stops advertising new network 102 (step 316)/joins existing network 112 (step 318). EX1003, ¶¶233-234.

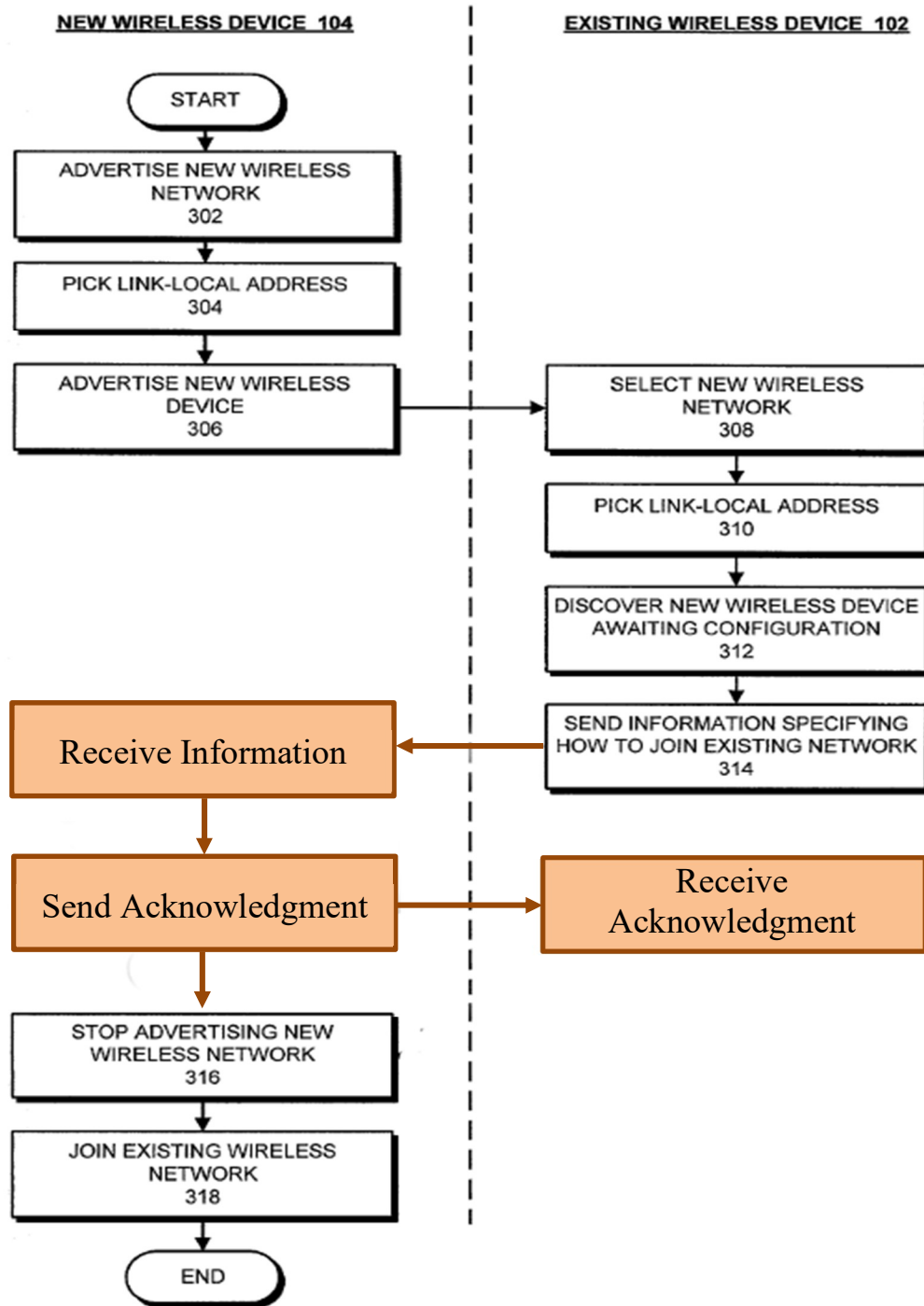


FIG. 3

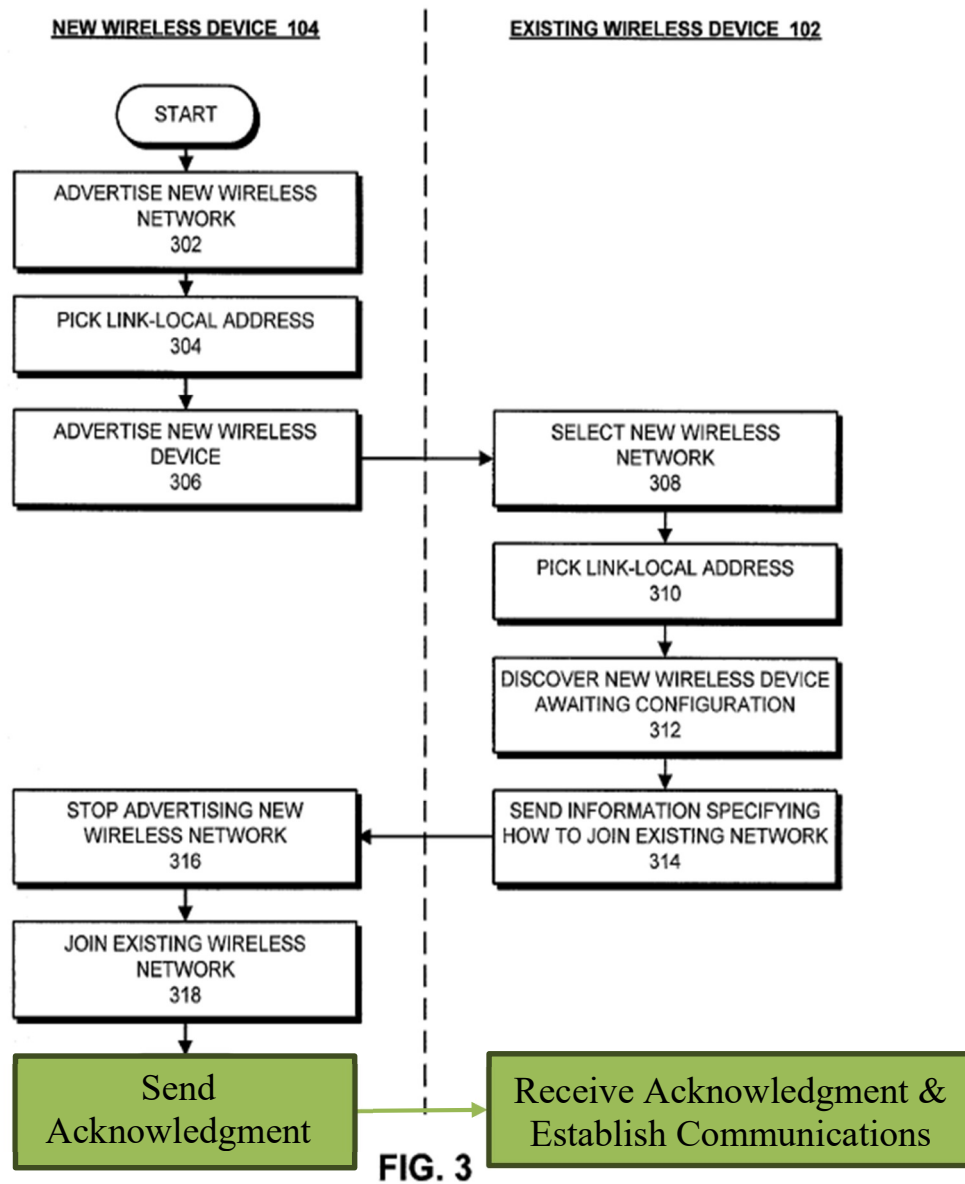
EX1005, Fig. 3 (modified; annotated).

4. Claim 6: wherein providing the indication comprises providing an indication that the playback device has successfully connected to the secure WLAN using the network configuration parameters.

Cheshire and Meenan render obvious claim 6 for the reasons described in Ground 2, claim 4. Section VIII.D.2. A POSITA would have found it obvious to implement an acknowledgment step after new device 104 joins existing network 112 because Meenan instructs that acknowledgment steps are beneficial to the process. EX1006, 19:41-20:7 (sending “an acknowledgment that the wireless configuration settings have been modified”); EX1003, ¶¶235-240.

A POSITA would have found it obvious to implement another acknowledgment step after new device 104 joins existing network 112 because doing so would have been obvious to try and would have established a connection between new device 104 and existing device 102 on existing network 112. EX1003, ¶¶238-240. It would have been obvious to try because acknowledgment steps were known in the art and there are limited options to consider when deciding whether to include such a step. A POSITA would have known that the options were to include an acknowledgment or not to include an acknowledgment of successful connection. *Id.* It would have been obvious to try because the modification does not explore new technology. *Id.* A POSITA would have been motivated to include an acknowledgment of a successful connection because doing so would establish

communications between new device 104 and existing device 102 on existing network 112. *Id.*



EX1005, Fig. 3 (modified; annotated). A POSITA would have had a reasonable expectation of success in making this modification as explained above. EX1003, ¶¶212-217, 221-224.

A POSITA would have understood that this modification provides an indication that *the playback device has successfully connected to the secure WLAN using the network configuration parameters* because sending the acknowledgment over existing network 112 would instruct existing device 102 that new device 104 was able to join existing network 112. EX1003, ¶240.

5. **Claim 9: further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the playback device to perform functions comprising: receiving, from the computing device, a command to assign a name to the playback device.**

Cheshire and Meenan render obvious claim 9 because Meenan discloses “a user-assigned name.” EX1006, 5:56-58; EX1003, ¶¶241-244. A POSITA would have found it obvious to send a command naming new device 104 because naming provides a simple way to differentiate between and locate devices on the network. EX1003, ¶243.

Meenan describes that “home-networking gateway configuration information 115*b* also may include device information for devices 112 associated with the home-network 110.” EX1006, 5:35-37. “Device information may include a device identifier for a device, such as devices 112*a*-112*h*.” EX1006, 5:37-39. Meenan instructs that the “device identifier may include ... a dynamic IP address. The dynamic IP address may be assigned by home-networking gateway 115” or “by some other network device.” EX1006, 5:39-47. Meenan provides that device

information “also may include a user-assigned name.” EX1006, 5:56-58. A POSITA would have understood that Meenan suggests assigning names to wireless devices 112. EX1003, ¶243. A POSITA would have understood that Meenan suggests sending wireless devices 112 a command to adopt the user-assigned name because the name is sent as part of the configuration information. *Id.*; EX1006, 5:20-60, 6:49-55.

A POSITA would have been motivated with a reasonable expectation of success to implement this naming step into Cheshire’s configuration process. EX1003, ¶244. A POSITA would have been motivated to assign a name to new device 104 because a name would have made it simpler to differentiate between and locate devices on the network. EX1006, 5:56-60; EX1003, ¶244. A POSITA would have had a reasonable expectation of success in the combination because assigning names to devices was routine. EX1003, ¶244.

E. Claims 14 and 20

To the extent Patent Owner disputes that Cheshire renders obvious claims 14 and 20, Cheshire and Meenan render obvious claims 14 and 20 for the reasons in claim 1 because of the overlap between the claims. Sections VII.B, VIII.C; EX1003, ¶246.

F. Dependent Claims 15-18

1. Claim 15

Cheshire and Meenan render obvious claim 15 for the reason discussed for claim 2. Sections VIII.C-VIII.D.1, VII.B, VII.C.1, VII.E; EX1003, ¶246.

- 2. Claim 16: wherein the non-transitory computer-readable medium is also provisioned with program instructions that are executable to cause the playback device to perform functions comprising: after receiving the second message, providing an indication that the playback device has successfully received the network configuration parameters for the secure WLAN.**

Cheshire and Meenan render obvious claim 16 for the reason discussed for claim 4. EX1003, ¶¶247-249; Section VIII.D.2.

- 3. Claim 17: wherein providing the indication comprises transmitting, to the computing device via the initial communication path, at least a third message indicating that the playback device has successfully received the network configuration parameters.**

Cheshire and Meenan render obvious claim 17 for the reason discussed for claim 5. EX1003, ¶¶250-252; Section VIII.D.3.

- 4. Claim 18: wherein providing the indication comprises providing an indication that the playback device has successfully connected to the secure WLAN using the network configuration parameters.**

Cheshire and Meenan render obvious claim 18 for the reason discussed for claim 6. Section VIII.D.4; EX1003, ¶¶253-254.

IX. Grounds 3A and 3B: Cheshire and Spurgat [Ground 3A] or Cheshire, Meenan, and Spurgat [Ground 3B] Render Obvious Claims 1-19

A. Overview of Spurgat

Spurgat published on November 21, 2002. EX1007, cover page. Spurgat relates to “a digital audio playback device that uses wireless communication to interact and synchronize with a computing platform as well as other mobile digital audio players and fixed digital audio players” (EX1007, ¶3). Spurgat adds “increased functionality” to “digital audio players” by automating traditionally manual functions such as “interaction, communication[,] and synchronizing the digital content on a plurality of digital audio players.” EX1007, ¶6.

Spurgat describes a networked audio system comprising at least “a computing platform 103, for example, a personal computer, [that] is used as a gateway to enable various digital audio players 115 and 116 to be connected to the Internet or other computer network 102.” EX1007, ¶34. Through “a wireless network or wireless communication platform 104, the computing platform 103 is adapted to communicate with [the] various digital audio players” to form a “local wireless network as generally illustrated in Fig. 3.” *Id.*

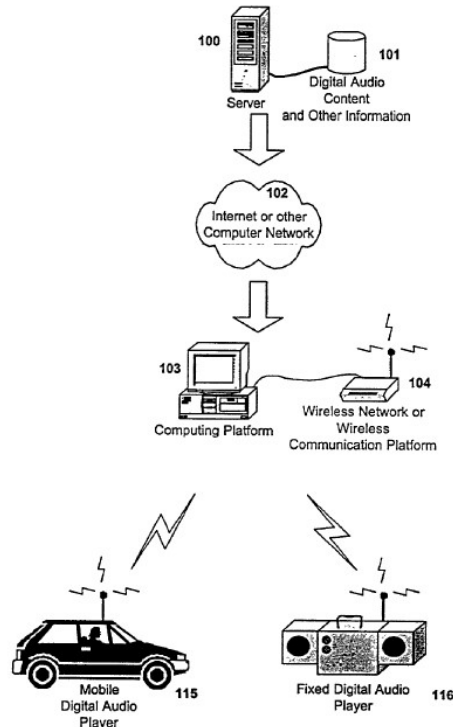


Figure 1

EX1007, Fig. 1.

Spurgat's personal computer acts as an "audio gateway" to "download digital audio content and other information 101 from the server 100 (FIG. 1) connected to the Internet or other computer network 102." EX1007, ¶41. Through a wireless access point (106 in Figure 4 below), the personal computer "either automatically or at [a] user[']s request[] pass[es] the digital audio content and other information 101, including new playlists, to mobile digital audio players 115 and fixed digital audio players 116." EX1007, ¶42. This allows a user to move between devices and "automatically be able to continue the same music and playlist in a

seamless manner.” EX1007, ¶43.

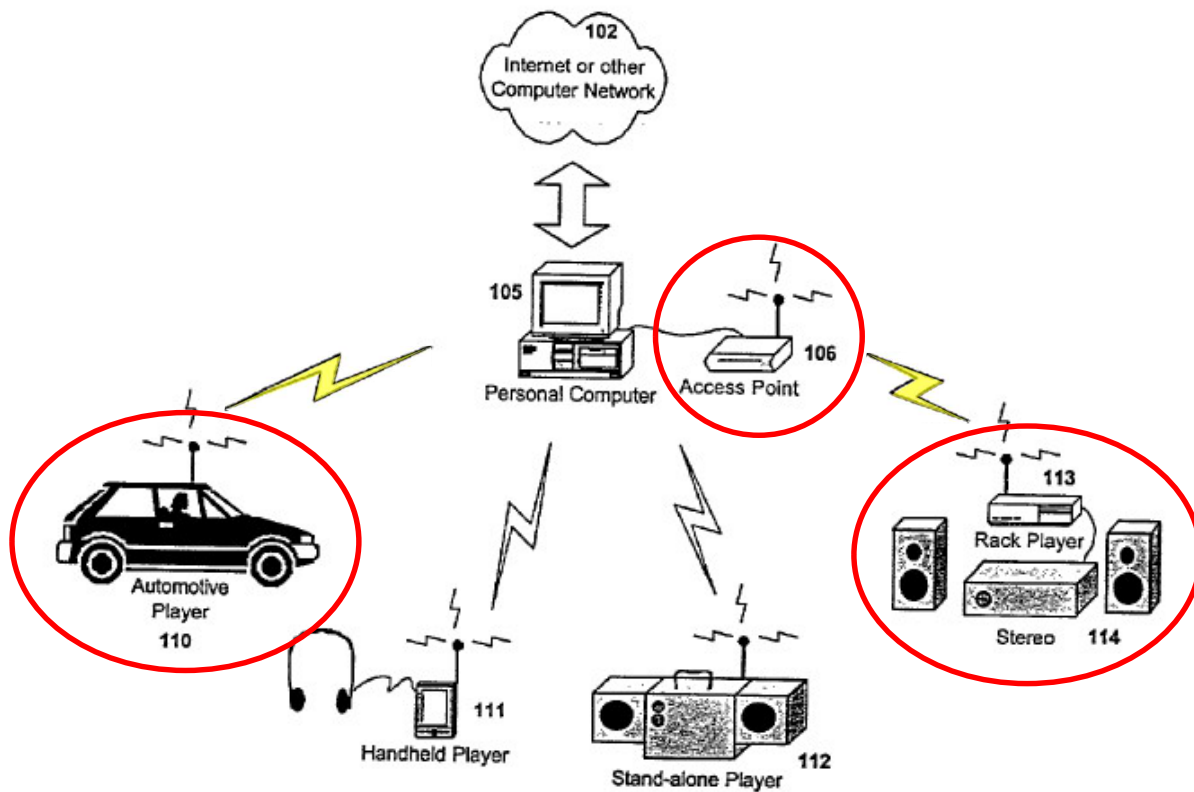


Figure 4

EX1007, Fig. 4 (annotated).

Spurgat describes the components of its audio playback devices. EX1007, ¶¶58-86. Spurgat’s “Fixed Player” contains a “processor 155,” “software and firmware components” stored in “player storage 156, such as a hard drive ...,” and “an internal or external wireless network interface or wireless communication

interface 141.” EX1007, ¶¶71-72.

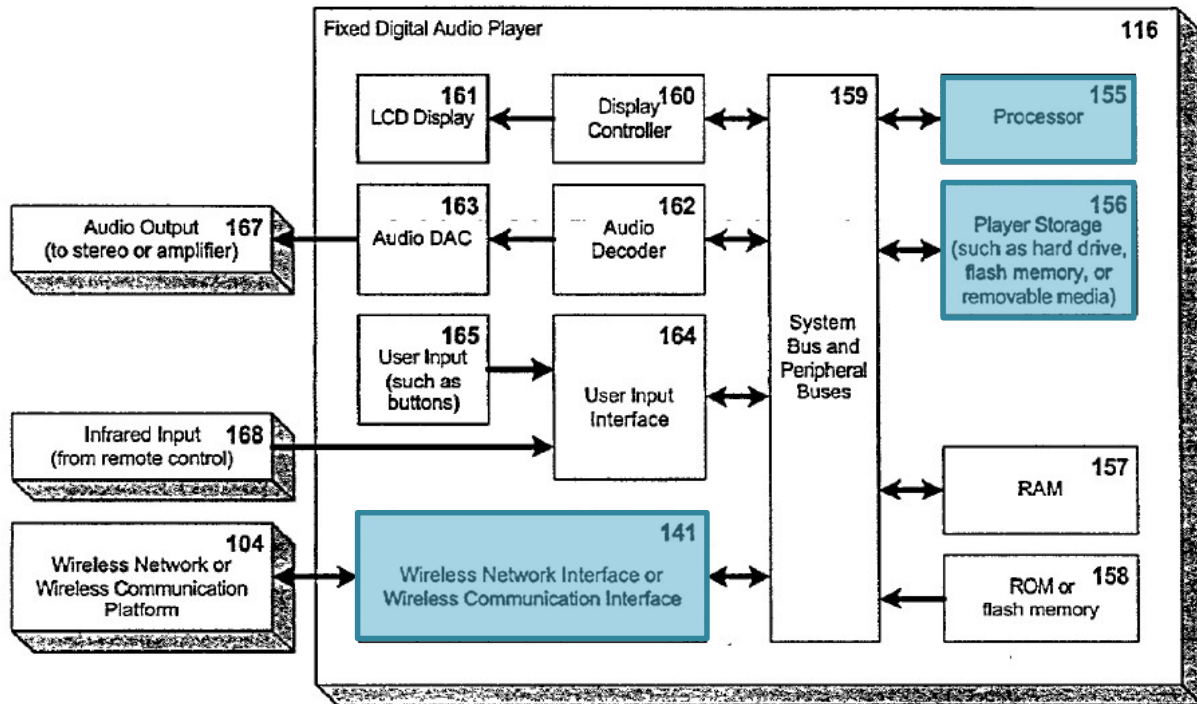


Figure 11

EX1007, Fig. 11 (annotated).

B. Rationale to Combine

Spurgat is analogous art to the '883 patent because it is in the same field of endeavor: wireless device configuration. *Compare*, EX1007, ¶¶92-93, with EX1001, 1:25-32, 2:16-4:24. Like the '883 patent, Spurgat also describes wireless playback devices. EX1007, ¶7; EX1001, 2:45-63. And Spurgat shares a common

goal with the '883 patent: improving wireless communication systems. *Compare*, EX1007, ¶¶5-6, with EX1001, 2:1-4; EX1003, ¶¶66, 72, 78.

Cheshire, Meenan, and Spurgat describe wireless audio devices with similar functions and uses to the '883 patent. EX1003, ¶256. Spurgat discloses wireless audio playback devices synced over a wireless network, Cheshire teaches wireless “audio output devices,” and Meenan discloses “stereo system[s].” EX1007, ¶7; EX1005, 3:6-14; EX1006, 3:28-42. Spurgat’s devices are controlled by a computer (an audio gateway) that exchanges a series of messages with the audio device in a discovery process, and Cheshire outlines a method of configuring wireless devices that includes device discovery. EX1007, ¶93; EX1005, 4:6-5:2. Spurgat highlights that “[d]iscovery of mobile digital audio players 115 and fixed digital audio players 116 within range of the audio gateway, on the wireless network or wireless communication platform 104, is an important capability with respect to this invention.” EX1007, ¶93. All three references describe computing devices configured to exchange messages with audio devices, and all three use IEEE 802.11 or wireless local area networks. EX1007, ¶¶55, 93; EX1005, 3:23-26, 4:6-5:2; EX1006, 4:9-20, 17:62-20:51.

Given the similarities, a POSITA would have been motivated with a reasonable expectation of success to combine Cheshire and Spurgat. EX1003, ¶257. Combining the references would have been no more than a simple

implementation of known elements—i.e., Spurgat’s specific device components—within a known device that has an identical purpose—i.e., Cheshire’s audio output device. And doing so would have yielded predictable results because it involves an implementation of known elements, and the purpose and functionality of Cheshire would not change. *Id.* Additional rationales for the combination are otherwise provided below for specific claim limitations.

C. Claim 1

1. [1Pre]: A playback device comprising:

To the extent Patent Owner disputes Grounds 1 and 2, Cheshire and Spurgat (Ground 3A) or Cheshire, Meenan, and Spurgat (Ground 3B) alternatively render obvious [1Pre] because Spurgat teaches “a digital audio playback device that uses wireless communication to interact and synchronize with a computing platform.” EX1007, ¶¶3, 34; EX1003, ¶258.

2. [1a]-[1c]

To the extent Patent Owner disputes that Cheshire explicitly discloses or renders obvious [1a]-[1c] in Grounds 1 and 2, Cheshire and Spurgat (Ground 3A) or Cheshire, Meenan, and Spurgat (Ground 3B) alternatively render obvious [1a]-[1c] because Spurgat teaches “various digital audio players” that contain a “wireless network interface or wireless communication interface 141” (*network interface*), “a processor 155 that is responsible for executing various software and firmware components” (*a processor*), and “player storage 156, such as a hard drive

...” (*a non-transitory computer-readable medium*). EX1007, ¶¶72, 57, 69-86; EX1003, ¶¶259-267. A POSITA would have found it obvious to implement Cheshire’s audio output device (new device 104) as the specific audio players described in Spurgat. Section VII.B.1; EX1003, ¶¶256-257, 260-261, 263-264, 266-267.

A POSITA would have been motivated to implement Cheshire’s new device 104 as described in Spurgat because Cheshire explicitly contemplates that its configuration process is applicable to audio output devices. EX1005, 3:3-14; EX1003, ¶¶260, 263, 266. A POSITA would have known and wanted to include device components that enable Cheshire’s device to execute its configuration process. *Id.* A POSITA would have included: (1) Spurgat’s network interface in Cheshire’s new device 104 because it enables the device to connect to new network 106 and existing network 112 (EX1007, ¶72; EX1005, 1:16-19, 1:28-36, 2:67-3:14, 3:30-35); (2) Spurgat’s processor in Cheshire’s new device 104 because it enables the device to execute the steps of Cheshire’s process, which Spurgat instructs “is responsible for executing various software and firmware components” (EX1007, ¶72; EX1005, 1:16-19, 1:28-36, 3:3-10, 3:30-35, 4:11-25); and (3) Spurgat’s player storage in Cheshire’s new device 104 because it enables the device to complete the same function as Cheshire’s “computer-readable storage medium” that stores “instructions that when executed by a computer cause the

computer to perform a method” (EX1007, ¶¶72; EX1005, 2:48-59, 6:62-7:29 (claim 11)). EX1003, ¶¶260, 263, 266. A POSITA would have been motivated to look to Spurgat because it demonstrates what components are present in audio playback devices, such as Cheshire’s audio output device, and explains that they have the same functions as Cheshire’s audio output device. *Id.*

A POSITA would have had a reasonable expectation of success in the implementation because Cheshire teaches that new device 104 is already configured to connect to networks, and thus the implementation would not impact Cheshire’s device functionality while also still achieving its original purpose. EX1003, ¶¶261, 264, 267. A POSITA would have found Cheshire and Spurgat compatible because they both describe wireless audio devices. *Id.* In other words, the combination is nothing more than an implementation of known prior art elements according to known methods to yield predictable results. *Id.*

3. [1d]

To the extent Patent Owner disputes that Cheshire explicitly discloses or renders obvious [1d] in Grounds 1 and 2, Cheshire and Spurgat (Ground 3A) or Cheshire, Meenan, and Spurgat (Ground 3B) alternatively render obvious [1d] because Spurgat teaches that “[t]he software and firmware components are executed by the processor 155 directly from their storage location ...,” and that “processor 155 ... is responsible for executing various software and firmware

components.” EX1007, ¶72; ¶¶57, 69-86; EX1003, ¶¶268-269. A POSITA would have found [1d] obvious because Cheshire teaches a similar function of its own storage medium, namely, “storing instructions that when executed by a computer cause the computer to perform a method.” EX1005, 6:62-7:29 (claim 11); 2:48-51; EX1003, ¶¶268-269.

A POSITA would have known Cheshire’s program instructions (its process steps) to be storable on Spurgat’s player storage because both references describe memory similarly. EX1003, ¶269; EX1005, 2:48-59 (“disk drives”); EX1007, ¶¶72 (“hard drive”), 102 (“these flow diagrams represent only one of many different ways to implement the key software functionality for the player”). A POSITA would have known Cheshire’s program instructions to be executable with Spurgat’s processor because both references describe that their devices execute discovery steps. EX1003, ¶269.

4. [1e.1]-[1e.5]

Cheshire alone or Cheshire and Meenan disclose or render obvious [1e.1]-[1e.5] for the reasons as Grounds 1 and 2. Sections VII.B.6-VII.B.12, VIII.C; EX1003, ¶270. A POSITA would have found Cheshire’s configuration process to be compatible with Spurgat’s device components because Spurgat merely provides components that a skilled artisan would have known to be needed to execute

Cheshire's configuration process. EX1003, ¶270. And the combination does nothing to change Cheshire's configuration process. EX1003, ¶270.

To the extent Patent Owner disputes that Cheshire discloses *a computing device installed with an application for controlling a playback device*, Spurgat teaches a computer “used to control mobile digital audio players 115 and fixed digital audio players 116 by changing the current playlist or the currently playing digital audio content.” EX1007, ¶¶34-36; EX1003, ¶¶271-272. A POSITA would have understood that Spurgat's computer is *installed with an application for controlling a playback device* because Spurgat instructs that the computer contains, among other features, “software components”—an application—and “wireless network interface” for wireless communication with the various audio players. EX1007, ¶¶60-65; EX1003, ¶¶271, 118 (explaining that an application is a type of software). The wireless interface is how the computer communicates the “control” instructions of changing the playlist or audio content to the audio players. EX1007, ¶¶36, 60-65, 93; EX1003, ¶271.

A POSITA would have found it obvious to implement Spurgat's computer features in Cheshire's existing device 102 (device controller) as in Sections IX.C.1-3. A POSITA would have been motivated to include Spurgat's application in Cheshire's existing device 102 (device controller) because it would have provided the device controller with the means to control the audio output device

(new device 104). EX1003, ¶¶272. A POSITA would have had a reasonable expectation of success in this implementation because both references describe how computing devices communicate with audio devices over a network. *Id.*

D. Dependent Claims

1. Claims 2-10, 12, and 14-18

Cheshire and Spurgat (Ground 3A) or Cheshire, Meenan, and Spurgat (Ground 3B) render obvious claims 2-10, 12, and 14-18 for the reasons in Grounds 1 and 2. Sections VII.C-VII.E, VIII.D-VIII.F.

2. Claim 3

To the extent that Patent Owner disputes that Cheshire alone or Cheshire and Meenan disclose or render obvious claim 3 in Grounds 1 and 2, Cheshire and Spurgat (Ground 3A) or Cheshire, Meenan, and Spurgat (Ground 3B) alternatively render obvious claim 3 because Spurgat teaches a computer “used to control mobile digital audio players 115 and fixed digital audio players 116.” EX1007, ¶¶34-36; Section IX.C.4. A POSITA would have understood that Spurgat describes a *networked audio system* because “a communication system between a number of digital audio players” and the computer (*controller device of a networked audio system*). EX1007, ¶¶11, 14; EX1003, ¶274.

A POSITA would have been motivated with a reasonable expectation of success to implement Spurgat’s computer features in Cheshire’s existing device 102 (controller device) for the reasons in Sections IX.C.1-4. EX1003, ¶275. A

POSITA would have found it obvious to use Cheshire's supplemented existing device 102 (controller device) to control a networked audio system comprising at least Cheshire's supplemented new device 104 because doing so would have made controlling the audio device simpler and improved the user experience because a user could control the audio device from a distance. *Id.*

3. Claim 6

Cheshire and Spurgat (Ground 3A) or Cheshire, Meenan, and Spurgat (Ground 3B) render obvious claim 6 because Spurgat teaches that “[d]iscovery of mobile digital audio players 115 and fixed digital audio players 116 within range of the audio gateway, on the wireless network or wireless communication platform 104, is an important capability with respect to this invention.” EX1007, ¶¶93, 107. A POSITA would have understood that Spurgat's discovery is an *indication* that the audio player *has successfully connected to the secure WLAN using the network configuration parameters* as the audio player could not be discovered on a network if it were not connected to it. EX1003, ¶276. A POSITA would have found it obvious to implement Spurgat's discovery steps in Cheshire's configuration process after new device 104 is configured and on existing network 112 because doing so would enable communications between new device 104 and the other devices on the network. *Id.*

Spurgat describes that after audio players are connected to a network, the audio gate and the audio players engage in a discovery process. EX1007, ¶¶93, 107. The discovery process is depicted in Figure 17 reproduced below.

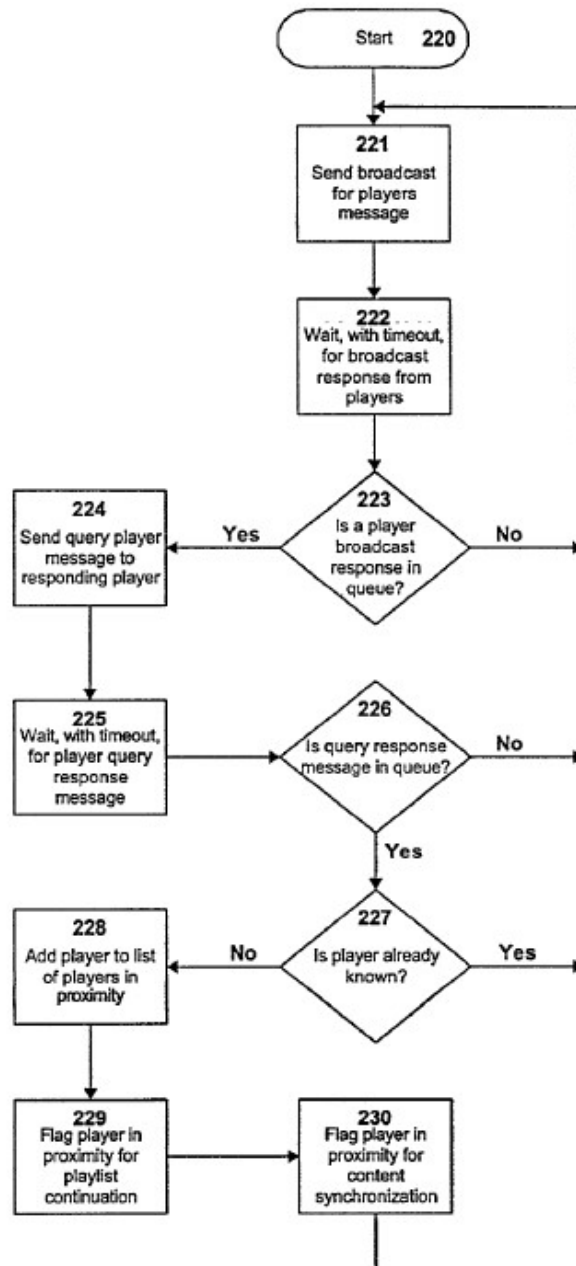


Figure 17

EX1007, Fig. 17. Figure 17 represents the discovery process from the perspective of the audio gateway device, whereas Figures 22 and 23, not reproduced here, describe the process from the perspective of the audio players. EX1007, ¶¶93, 107-108. This process involves the exchange of messages that results in a connection between the audio gate and the various audio players. *Id.*

A POSITA would have understood that Spurgat's discovery is an *indication* that the audio player *has successfully connected to the secure WLAN using the network configuration parameters*. EX1003, ¶¶277-278. A POSITA would have interpreted a discovery process as a successful connection because the audio player could not be discovered on a network if it were not connected to it. *Id.* Indeed, Cheshire describes a similar sentiment as discovery on new network 106 occurs after new device 104 and existing device 102 are on new network 106. EX1005, 4:20-30, 4:44-46.

A POSITA would have found it obvious to implement Spurgat's discovery steps in Cheshire's configuration process after new device 104 is configured and on existing network 112. EX1003, ¶279. A POSITA would have been motivated to add this post-configuration step into Cheshire because doing so would enable communications between new device 104 and the other devices on the network. *Id.* A POSITA would have implemented this post-configuration step in Cheshire because Spurgat instructs that device discovery is "important" and allows for the

synchronization of devices on the network. *Id.* A POSITA would have had a reasonable expectation of success in the implementation of the post-configuration discovery at least because device discovery was known and routine in the art. *Id.* A POSITA would have expected a successful combination because Cheshire’s devices are configured to conduct discovery, indicating that the additional step would not require any significant changes to Cheshire’s new device 104. *Id.*

4. Claims 7-8

To the extent Patent Owner disputes that Cheshire alone or Cheshire and Meenan disclose or render obvious claims 7 and 8 in Grounds 1 and 2, Cheshire and Spurgat (Ground 3A) or Cheshire, Meenan, and Spurgat (Ground 3B) alternatively render obvious claims 7 and 8 because Spurgat teaches “a communication system between a number of digital audio players and stand-alone audio gateway.” EX1007, ¶¶11, 14. A POSITA would have found these combinations obvious for the reasons in Sections VII.C.3, VIII.B; EX1003, ¶¶281-286, 157-162.

Spurgat discloses *establishing a new networked audio system*. Spurgat describes “a digital audio playback device that uses wireless communication to interact and synchronize with a computing platform as well as other mobile digital audio players and fixed digital audio players.” EX1007, ¶3. Spurgat describes that “a local wireless network is formed, which enables wireless communication

between a host, such as a personal computer 105 ... and various digital audio players.” EX1007, ¶¶54, 55. Spurgat instructs that “computing platform 103 may also be used to control mobile digital audio players 115 and fixed digital audio players 116 by changing the current playlist or the currently playing digital audio content, among other things, on [115 and 116].” EX1007, ¶¶34-36. When a first audio player is added to the network with at least one personal computer, a POSITA would have understood that this establishes *a new networked audio system* because the addition would have allowed the audio player to communicate with other devices on the network. EX1003, ¶283.

Spurgat also discloses *joining an existing networked audio system*. Spurgat describes that, during device discovery, when the “player is not already known, then the discovery handler adds the player to the list of players in proximity.” EX1007, ¶¶92-97. A POSITA would have understood that the addition to a list means that there are already players on the network, and the player is joining an existing networked audio system because it is not part of a group that already exists on the network. EX1003, ¶283.

A POSITA would have been motivated to implement Cheshire’s modified new device 104, with Spurgat’s components, on a new and existing networked audio system based on Spurgat’s teachings. EX1003, ¶285. Spurgat provides that connecting a device to a network allows wireless control. EX1007, ¶36. Having

multiple devices on one network controlled by one controller allows for the same music to be played across the devices or to “continue the same music and playlist in a seamless manner” between the devices. EX1007, ¶¶36, 43; EX1003, ¶285. It would have been obvious to try establishing a new networked audio system or joining a new audio networked audio system because there are limited options when adding a new device to a network, and doing so would not explore new technology as audio systems already existed well before the invention of the ’883 patent. EX1003, ¶285 (citing EX1007, ¶¶34-36, EX1010, ¶¶66, 144, 146, 162-166, 174-176; EX1020, ¶¶2-10). A POSITA would have had a reasonable expectation of success in implementing these audio systems because such systems were known in the art. *Id.*

5. Claim 10

To the extent Patent Owner disputes that Cheshire alone or Cheshire and Meenan disclose or render obvious claim 10 as described in Grounds 1 and 2 (Sections VII.C.4, VIII.D.1), Cheshire and Spurgat (Ground 3A) or Cheshire, Meenan, and Spurgat (Ground 3B) alternatively render obvious claim 10 because Spurgat teaches that “computing platform 103 may also be used to control mobile digital audio players 115 and fixed digital audio players 116 by changing the current playlist or the currently playing digital audio content, among other things, on [115 and 116].” EX1007, ¶¶34-36. A POSITA would have interpreted

“changing ... the currently playing digital audio content” as changing a song.

EX1003, ¶¶287-289; EX1007, ¶97 (“sends the content data to the player”). A

POSITA would have understood that changing a song in these disclosures involves a command because the controller instructs the audio content to be played.

EX1003, ¶¶287-288.

6. **Claim 11: 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, and wherein the playback device further comprises program instructions stored on the non-transitory computer-readable medium that, when executed by the at least one processor, cause the playback device to perform functions comprising: in response to receiving the command, retrieving the audio content from the audio source via the communication path that includes the secure WLAN.**

Cheshire and Spurgat (Ground 3A) or Cheshire, Meenan, and Spurgat (Ground 3B) render obvious claim 11 because Spurgat’s audio player retrieves “audio content ... not contained on the player” when queried, i.e., commanded to synchronize its audio content with the audio files on a gateway or computer (source). EX1007, ¶97; *id.*, ¶¶112, 34, 41 (computer works as an audio gateway), 36; EX1003, ¶¶290-292.

Spurgat explains its synchronization process in Fig. 19. [At step 263, the gateway “sends a query player for content message to the player.”](#) EX1007, ¶97. A POSITA would have understood this query to be the command required by claim

10 because it is a query commanding a responsive message of the audio content for playback on the device—i.e., it is for playback. Once the player receives the query (command), it sends a “player content response message” back to the gateway at steps 264-265. Spurgat’s “player content response message” causes the player to retrieve audio content from the source (digital content files on the gateway) because it informs the gateway of what audio content is synced to the player and allows the gateway to determine what additional audio content needs to be transmitted to the player to complete the content synchronization process. EX1007, ¶97. Spurgat explains, the “player’s digital audio content information is contained in the content response message sent to the gateway by the player” and allows the gateway to “check if there is any content in the gateway that is not on the player” (steps 267-268). EX1007, ¶97. If the gateway determines the gateway contains content that has not been synchronized to the player, the gateway “sends the content data to the player in step 270” over the wireless network. EX1007, ¶97.

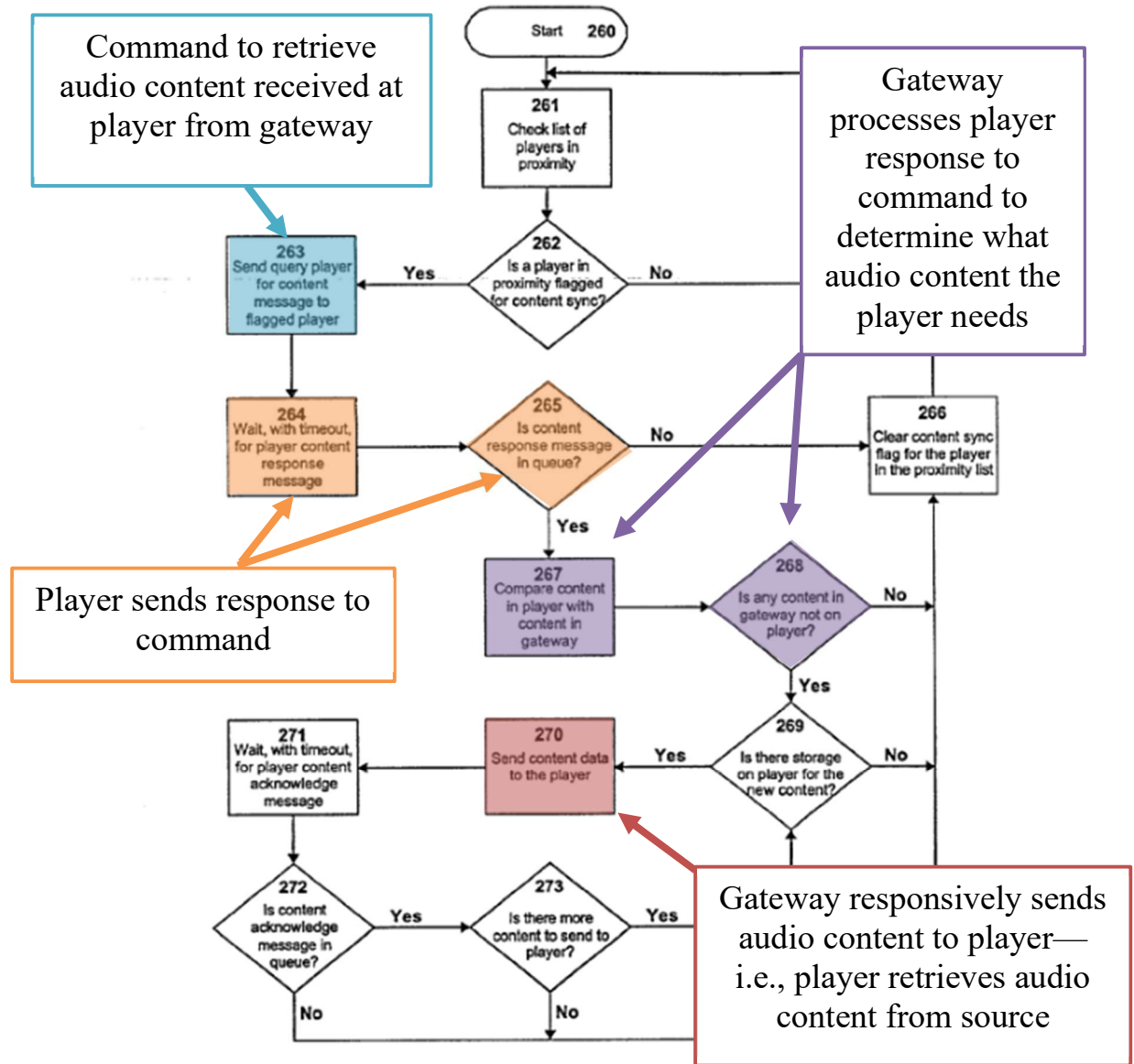


Figure 19

EX1007, FIG. 19 (annotated).

A POSITA would have understood Spurgat's player *retrieves audio content for playback from an audio source that is accessible via a communication path* because the player transmits its response to the gateway's query to initiate transmission of audio content from the gateway over the network. EX1003, ¶291.

A POSITA would have found it obvious to implement Spurgat's content synchronization on Cheshire's devices as discussed above, to retrieve audio content from an audio source accessible via the secure WLAN. EX1003, ¶292. A POSITA would have been motivated to implement Spurgat's content synchronization to allow new device 104 to obtain audio content for playback without manual intervention. *Id.* It would not require a user to input a CD to an audio device. *Id.* A POSITA would have expected such a combination to be successful because limiting manual input is a common goal of both Cheshire and Spurgat. *Id.*

7. **Claim 13: further comprising 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: after transitioning to communicating with computing device via the secure WLAN, receiving, from the computing device, a command to form a group with at least a first playback device of a networked audio system such that the playback device is configured to play back audio content in synchrony with at least the first playback device.**

Cheshire and Spurgat (Ground 3A) or Cheshire, Meenan, and Spurgat (Ground 3B) render obvious claim 13 because Spurgat teaches that “the digital audio playback device is configured to enable wireless communication among other digital playback devices and/or a computing platform to allow synchronization and control.” EX1007, ¶7; EX1003, ¶¶293-296.

As discussed in claims 6 and 8, Spurgat discloses a player device discovery process that adds a new player to a list, i.e., an existing networked audio system. Spurgat instructs that “computing platform 103 may ... control mobile digital audio players 115 and fixed digital audio players 116 by changing the current playlist or the currently playing digital audio content, among other things, on [115 and 116].” EX1007, ¶¶34-36. Spurgat’s synchronization allows for a user to continue listening to music “in a seamless manner.” EX1007, ¶43.

A POSITA would have established an audio system as discussed in Sections IX.D.2, IX.D.4. EX1003, ¶296. A POSITA would have known or found it obvious that when Cheshire’s audio output device joins an existing networked audio system, as discussed in claim 8, it forms a group because Spurgat describes the creation of a list of players that operate in sync. EX1007, ¶93; EX1003, ¶295. A POSITA would have interpreted that when adding a new player to this list, the audio gateway sends a *command* to form a group with other devices because Spurgat instructs the new player to share its status and begin communicating with the audio gateway and other players to operate in sync. EX1007, ¶93, EX1007, ¶¶36, 43, 99; EX1003, ¶295. A POSITA would have been motivated to configure multiple audio output devices to play in sync based on Spurgat’s teachings and because it would improve a user’s audio experience. EX1003, ¶296; EX1007, ¶¶36, 43, 99. A POSITA would have had a reasonable expectation of success in

applying Spurgat’s instructions to Cheshire’s devices because doing so would have been straightforward and routine, as grouping devices and playing audio content on multiple devices in sync was already well known in the art. EX1003, ¶296.

E. Claims 14 and 19

Claim 14 is obvious for the reasons in Grounds 1 and 2. Sections VII.D, VIII.E; EX1003, ¶297. Claim 19 is obvious for the reasons in Sections IX.D.6; EX1003, ¶¶298-299.

X. Secondary Considerations

Petitioner is unaware of any objective evidence of non-obviousness relevant to the ’883 patent. Patent Owner presented confidential evidence and arguments related to secondary considerations for the related ’896 patent an ITC proceeding, but that is inapplicable here at least because the ’883 patent was not addressed in the earlier proceeding and the patents have different claim scope. EX1008, 17:60-20:61 (computing devices that have “graphical user interface”); EX1001, 17:60-21:2 (playback devices). Patent Owner “bears the burden of production with respect to evidence of secondary considerations of nonobviousness.” *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1373 (Fed. Cir. 2018). Petitioner will rebut any secondary considerations raised for the ’883 patent in this proceeding.

XI. Mandatory Notices

A. Real Party-in-Interest

Google LLC³ is the real party-in-interest for this Petition.

B. Related Matters

The '883 patent is, or has been, involved in the following proceedings:

Name	Number	Court	Filed
<i>Sonos, Inc. v. Google LLC</i>	2:20-cv-00169	C.D. Cal.	Originally filed Jan. 7, 2020 '883 patent added in Second Amended Complaint, filed Dec. 27, 2024
<i>Linkplay Technology Inc. v. Sonos, Inc.</i>	IPR2025-00510	PTAB	Feb. 5, 2025
<i>Sonos, Inc. v. Linkplay Technology Inc.</i>	1:24-cv-00131	D. Del.	Feb. 1, 2024

³ Google LLC is a subsidiary of XXVI Holdings Inc., which is a subsidiary of Alphabet Inc. XXVI Holdings Inc. and Alphabet Inc. are not real parties-in-interest to this proceeding.

C. Lead and Backup Counsel, and Service Information

Petitioner identifies the following lead and backup counsel:

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XII. Conclusion

Petitioner has established a reasonable likelihood of success and requests the Board institute review and cancel the Challenged Claims.

Date: July 8, 2025

Respectfully submitted,

/Erika H. Arner/
Erika H. Arner (Reg. No. 57,540)
Lead Counsel

CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that the foregoing **Petition for *Inter Partes* Review** contains 13,990 words, excluding those portions identified in 37 C.F.R. §42.24(a), as measured by the word-processing system used to prepare this paper.

/Erika H. Arner/
Erika H. Arner (Reg. No. 57,540)
Lead Counsel

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing **Petition for *Inter Partes* Review of U.S. Patent No. 10,541,883, Power of Attorney, and Exhibits 1001-1013, 1015-1021** were served on July 8, 2025, by FedEx Priority Overnight® on the correspondence address of record indicated in the Patent Office's Patent Center system for U.S. Patent No. 10,541,883.

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Date: July 8, 2025

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