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24 **UNITED STATES DISTRICT COURT**
25 **FOR THE CENTRAL DISTRICT OF CALIFORNIA**

26 SONOS, INC.,

27 Plaintiff,

28 v.

GOOGLE LLC,

Defendant.

Case No. 2:20-cv-00169

**COMPLAINT FOR PATENT
INFRINGEMENT**

JURY TRIAL DEMANDED

1 **COMPLAINT FOR PATENT INFRINGEMENT**

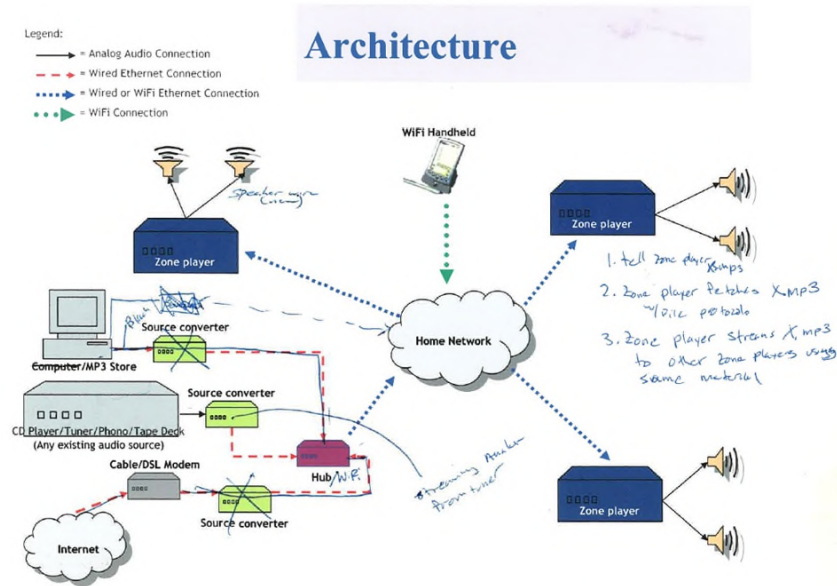
2 Plaintiff Sonos, Inc. (“Sonos” or “Plaintiff”) hereby asserts the following
3 claims for patent infringement of United States Patent Nos. 8,588,949, 9,195,258,
4 9,219,959, 10,209,953, and 10,439,896 (“patents-in-suit”; attached hereto as
5 Exhibits 1-5 respectively) against Defendant Google LLC (“Google” or
6 “Defendant”), and alleges as follows:

7 **INTRODUCTION**

8 1. In the early 2000s, Sonos pioneered what is known as wireless multi-
9 room audio, bringing its first commercial products to market in 2005. In
10 recognition of its wide-ranging innovations, the U.S. Patent & Trademark Office
11 has granted Sonos more than 750 patents, including the patents-in-suit. The
12 innovations captured by these patents cover many important aspects of wireless
13 multi-room audio devices/systems, including, for example, how to set up a playback
14 device on a wireless local area network, how to manage and control groups of
15 playback devices (*e.g.*, how to adjust group volume of playback devices and how
16 to pair playback devices together for stereo sound), and how to synchronize the play
17 back of audio within groups of playback devices.

18 2. As early as 2013, Google gained knowledge of Sonos’s patented multi-
19 room technology through a partnership with Sonos to integrate Google Play Music
20 into the Sonos platform. However, just two years later in 2015, Google began
21 willfully infringing Sonos’s patents when it launched its first wireless multi-room
22 audio product – Chromecast Audio. Since 2015, Google’s misappropriation of
23 Sonos’s patented technology has only proliferated, as Google has expanded its
24 wireless multi-room audio system to more than a dozen different infringing
25 products, including, for example, the Google Home Mini, Google Home, Google
26 Home Max, and Pixel phones, tablets, and laptops. Worse still, Google has
27 persisted despite the fact that Sonos has warned Google of its infringement on at
28 least four separate occasions dating back to 2016.

1 7. An early sketch of Sonos's wireless multi-room audio architecture is
2 shown below:



14 8. Sonos launched its first commercial products in 2005 and has since
15 released a wide variety of wireless multi-room audio products, including, for
16 example, the Play:1, Play:3, Play:5 (Gen 1 and Gen 2), One (Gen 1 and Gen 2),
17 One SL, Move, Playbar, Playbase, Beam, Sub, Connect, Port, Connect:Amp, and
18 Amp. *See, e.g., Ex. 9.* Sonos's products can be set up and controlled by the Sonos
19 app. *Id.*

20 9. A sampling of Sonos's product lineup is shown below.



1 10. Sonos’s products are consistently hailed as setting the standard for the
2 industry. *See, e.g.*, Ex. 10 (2018 *Digital Trends*: “Sonos is the king of multiroom
3 audio”); Ex. 11 (2019 *What Hi-Fi*: “[N]o multi-room offering is as complete
4 or as pleasurable to live with as Sonos.”).

5 11. Sonos’s products are also compatible with many different third-party
6 music streaming services and Sonos has entered into partnerships with dozens of
7 them to integrate their services into the Sonos platform. *See, e.g.*, Ex. 12. For
8 example, in 2013, Sonos started working closely with Google to integrate the
9 Google Play Music streaming service and Google Play Music launched on the
10 Sonos platform in 2014 (with Google’s YouTube Music service added later). *See,*
11 *e.g.*, Ex. 13. As recognized at the time, Sonos’s integration work with Google was
12 especially “deep” and gave Google a wide aperture through which to view Sonos’s
13 proprietary technology. *Id.* (2014 *Wired*: “Now, Google Play Music will be
14 available as an option to Sonos owners via the Sonos controller app (iOS, Android,
15 and web). And, for the first time, the Google Play Music Android app is getting
16 updated with a button that lets users easily play music from any Sonos speaker in
17 the house. This is the first time this sort of deep integration has happened between
18 a third party music service and Sonos.”).

19 12. As a pioneer in wireless audio, Sonos has been and continues to be at
20 the forefront of technological innovation and diligently protects its inventions.
21 Leading outside organizations have recognized the value of Sonos’s ingenuity. For
22 example, Sonos earned a spot on the IPO list of “Top 300 Organizations Granted
23 U.S. Patents” and the IEEE recognized Sonos as having one of “[t]he technology
24 world’s most valuable patent portfolios.” *See* Exs. 14, 15. Currently, Sonos is the
25 owner of more than 750 United States Patents related to audio technology, as well
26 as more than 420 pending United States Patent Applications. Sonos’s patents cover
27 important aspects of wireless multi-room audio systems, such as setting up a
28 playback device on a wireless local area network, managing and controlling groups

1 of playback devices (*e.g.*, adjusting group volume of playback devices and pairing
2 playback devices together for stereo sound), and synchronizing playback of audio
3 within groups of playback devices. These features are covered by the patents-in-
4 suit.

5 13. Sonos identifies many of its patents on the “Patents” webpage of
6 Sonos’s website. *See* Ex. 16. In addition, Sonos encloses notices of its patents with
7 its product inserts/manuals, which state that “[o]ur patent-to-product information
8 can be found here: sonos.com/legal/patents.” *See, e.g.*, Exs. 9, 17. Sonos also
9 provides a link in the Sonos app to sonos.com/en-us/legal/terms through which the
10 “Patents” webpage of Sonos’s website can be accessed. *See* Ex. 18.

11 **GOOGLE’S INFRINGEMENT**

12 14. In 2015, a decade after Sonos’s first product launch, Google released
13 its “Chromecast Audio” – an audio adapter/dongle that can turn a speaker with an
14 auxiliary port into a wireless, networked speaker. While the Chromecast Audio
15 product did not launch with Sonos’s patented multi-room audio functionality,
16 Google clearly understood the importance of this popular audio feature as it
17 released a multi-room audio software update only a couple of months after launch.
18 *See* Ex. 19 (2015 *The Guardian*: “Google is also working on multi-room audio
19 streaming using the Chromecast Audio, but it will not support the popular feature
20 out of the box.”).

21 15. In announcing its multi-room software update, Google explained the
22 importance of this added functionality:

23 A couple of months ago we launched Chromecast Audio. . . . Today
24 we’re starting to add two new features to the latest software update to
25 elevate your listening experience. . . . Now you can easily fill every
26 room in your home-bedroom, kitchen, living room, or wherever you
27 have a Chromecast Audio connected-with synchronous music. Multi-
28 room lets you group Chromecast Audio devices together so you can

1 listen to the same song on multiple speakers.

2 Ex. 20 (December 2015 *Google Chrome Blog*).

3 16. As observed in a 2015 *Variety* article entitled “Google’s Chromecast
4 Audio Adapter Gets Multi-Room Support Similar to Sonos,” Google’s updated
5 Chromecast Audio was considered a “major” advancement for Google and was
6 recognized as competing directly with Sonos because of its similar multi-room
7 capability:

8 Google’s recently-launched Chromecast Audio adapter is getting a
9 major feature update this week: Consumers will now be able to group
10 multiple Chromecast audio adapters to stream their favorite music
11 simultaneously in more than one room, similar to the multi-room
12 support available for internet-connected loudspeakers like the ones
13 made by Sonos.

14 Ex. 21.

15 17. To control the multi-room Chromecast Audio, Google also provided a
16 Chromecast app with multi-room audio functionality similar to the Sonos app. As
17 observed in a 2015 article by *Pocket-Lint*, Google’s multi-room app “can pretty
18 much do the same thing” as Sonos’s app:

19 [Chromecast Audio]’s been updated to make it more comparable to
20 Sonos, a smart speaker system that wirelessly streams all your Hi-Fi
21 music to any room, or every room. You control your Sonos experience
22 with one app. Well, thanks to a new software rollout, Chromecast
23 Audio can pretty much do the same thing.

24 Ex. 22.

25 18. The media comparisons between Google’s Chromecast Audio and
26 Sonos’s products are a result of the fact that, on information and belief, Google
27 copied key features from Sonos. These features include, for example, Sonos’s
28 patented technology for setting up a playback device on a wireless local area

1 network, adjusting group volume of playback devices, and synchronizing playback
2 of audio within groups of playback devices.

3 19. Moreover, as explained above, Google released the Chromecast Audio
4 merely two years after partnering with Sonos to integrate Google Play Music into
5 the Sonos platform. On information and belief, Google exploited the knowledge of
6 Sonos's system that it gained from this integration work to develop its multi-room
7 Chromecast Audio product and infringe Sonos's patents.

8 20. Over the next four years, Google aggressively expanded its line of
9 multi-room wireless audio products through new product releases and software
10 updates. On information and belief, with each iteration, Google's copying of
11 Sonos's products and patented technology became even more blatant.

12 21. For example, , on information and belief, in 2016, a year after Google
13 launched the Chromecast Audio wireless adapter, Google escalated its copying of
14 Sonos by releasing the Google Home multi-room audio player (which was
15 controlled by Google's rebranded multi-room controller app – the Google Home
16 app). Unlike the Chromecast Audio, the Google Home added an internal speaker
17 driver making it an “all-in-one” audio player akin to Sonos's prior Play:1, Play:3,
18 and Play:5 products.

19 22. As with the Chromecast Audio, the Google Home was recognized as
20 a direct attack on Sonos. When the Google Home was announced, for example,
21 *The Register* observed that “[n]o market is safe from [the] search engine monster”
22 and that Google was in particular “offering new products to compete with Sonos in
23 the music streaming market.” *See Ex. 23. The Register* also further noted the
24 conspicuous similarity that multiple “Google Homes will work with one another,
25 allowing music to be spread into different rooms on command - like the very
26 popular Sonos music system.” *Id.*

27 23. Like *The Register*, *The Verge* also recognized the similarities between
28 the new infringing Google Home and Sonos's prior products: “You can also group

1 multiple Home units together and play music through all of them simultaneously,
2 similar to how Sonos works.” *See* Ex. 24.

3 24. Again, the media comparisons between Google’s Home and Sonos’s
4 products reflected a darker truth that, on information and belief, Google had
5 misappropriated Sonos’s innovations. These innovations include, for example,
6 Sonos’s patented technology for setting up a playback device on a wireless local
7 area network, adjusting group volume of playback devices, and synchronizing
8 playback of audio within groups of playback devices. Notably, Google launched
9 the Google Home product in November 2016 despite Sonos’s prior warnings of
10 infringement in August and October, as set forth below.

11 25. On information and belief, the Google Home proved to be merely
12 another forerunner to further copying by Google. In 2017, Google released two
13 additional “all-in-one” wireless multi-room products – the Google Home Max and
14 the Google Home Mini. Google’s Home Max in particular was seen as a “Sonos
15 Clone” and a “not-so-subtle copy of the [Sonos] Play:5 speaker” Ex. 25. As
16 explained by *Gizmodo*, “[i]t’s also hard not to see the [Google Home Max] device
17 as something of a jab at Sonos.” *Id.*; *see also, e.g.*, Ex. 26 (2017 *Android Central*:
18 “You can’t help but look at Google Home Max . . . and come to the conclusion that
19 Google is sticking its nose where Sonos has been for years.”).

20 26. As with Google’s other prior infringing products, on information and
21 belief, Google also copied Sonos’s patented technology for the Google Home Max.
22 This patented technology includes, for example, Sonos’s patented technology for
23 setting up a playback device on a wireless local area network, adjusting group
24 volume of playback devices, and synchronizing playback of audio within groups of
25 playback devices. With the Google Home Max, however, Google copied even
26 more of Sonos’s patented technology than it did with Google’s previous wireless
27 audio products. For instance, the Google Home Max also copied Sonos’s patented
28 “pairing” technology, which allows two playback devices to be paired together for

1 stereo sound.

2 27. In contrast to the Google Home Max, which was priced similarly to
3 Sonos's comparable products, the Google Home Mini predatorily implemented
4 Sonos's valuable patented technology into an all-in-one wireless multi-room
5 product that Google sells at a super-cheap subsidized price point or even gives away
6 for free. Ex. 27 ("At \$49, Google Home Mini works on its own or you can have a
7 few around the house, giving you the power of Google anywhere in your home.");
8 Ex. 28 ("Google partnered with Spotify to offer Home Minis as a free promotion
9 for Spotify Premium customers. Spotify's premium userbase is nearly 90 million,
10 so if even a fraction of users take the free offer, a massive influx of Google smart
11 speakers will enter the market."). As is well understood, Google uses its Home
12 Mini as a "loss leader" to generate additional revenue from other revenue streams
13 that are bolstered and/or enabled by the sale of Google's wireless multi-room audio
14 products. *See, e.g.*, Ex. 28 (explaining that Google is using its smart speaker
15 devices as a "loss leader" to support advertising or e-commerce.").

16 28. On information and belief, Google's pervasive copying of Sonos's
17 products and patented technology has resulted in an infringing product line that now
18 includes at least the Chromecast, Chromecast Ultra, Chromecast Audio, Home
19 Mini, Nest Mini, Home, Home Max, Home Hub, Nest Hub, Nest Hub Max, and
20 Nest Wifi Point (individually or collectively, "Google Audio Player(s)"), all of
21 which can be controlled by, for example, the Google Home app, Google Play Music
22 app, and YouTube Music app (individually or collectively, "Google App(s)"). *See,*
23 *e.g.*, Exs. 29-39.¹

24
25
26
27 _____
28 ¹ Any reference to a "Google Audio Player" or a "Google App" includes each
version and generation of such player/app unless otherwise noted.

1 29. The image below shows a few of the infringing Google Audio Players.



10 30. In addition to providing the various software Google Apps for
11 controlling the Google Audio Players, Google also offers various infringing
12 hardware controller devices that are pre-installed with the Google Play Music app
13 or YouTube Music app (and capable of downloading and executing the Google
14 Apps that are not pre-installed). These infringing hardware controller devices
15 include, for example, Google’s “Pixel” phones, tablets, and laptops (*e.g.*, the Pixel
16 3, Pixel 3 XL, Pixel 3a, Pixel 3a XL, Pixel 4, and Pixel 4 XL phones, the Pixel Slate
17 tablet, and the Pixelbook and Pixelbook Go laptops) (individually or collectively,
18 “Google Pixel Device(s)”). *See, e.g.*, Exs. 40-43.²

19 31. Herein, “Google Wireless Audio System” refers to one or more
20 Google Audio Players, one or more Google Pixel Devices, and/or one or more
21 Google Apps.

22 **GOOGLE’S UNJUST ENRICHMENT**

23 32. Google’s infringement of Sonos’s patented inventions has paved the
24 way for Google to generate billions of dollars in revenue. A December 2018 market
25 report by *Royal Bank of Canada*, for example, concluded that Google has sold over
26 40 million Google Home devices in the U.S. and that Google generated \$3.4 billion

27 _____
28 ² Any reference to a “Google Pixel Device” includes each version and generation
of such device unless otherwise noted.

1 in Google Home revenue in 2018 alone. Ex. 44 at p. 1, 4, 14-15. *Royal Bank of*
2 *Canada* also found that, as of August 2017, Google had sold more than 55 million
3 Chromecast devices and that Google generated \$998 million in Chromecast revenue
4 in 2018. *Id.* at p. 4, 16. Further, *Royal Bank of Canada* estimated that, in 2018,
5 Google generated \$3.4 billion in Pixel device revenue. *Id.* at p. 4, 16, 18.

6 33. Moreover, the revenue obtained from sale of Google’s hardware
7 devices presents an incomplete picture of the full value to Google, as Google is
8 selling the infringing products at a discount and/or as a “loss leader” to generate
9 future revenue. For instance, on information and belief, Google’s copying of
10 Sonos’s patented inventions has helped and/or will help Google generate significant
11 revenue from the use of Google’s hardware devices including advertising, data
12 collection, and search via the Google Wireless Audio Systems. As the *New York*
13 *Post* explained, “Amazon and Google both discounted their home speakers so
14 deeply over the holidays that they likely lost a few dollars per unit . . . hoping to
15 lock in customers and profit from later sales of goods and data about buying habits.”
16 Ex. 45. Similarly, *News Without Borders* explained that companies like Google are
17 using their “smart speaker” devices as “‘loss leader[s]’ to support advertising”
18 Ex. 28.

19 34. On information and belief, Google’s copying of Sonos’s patented
20 inventions has also helped and/or will help Google generate significant revenue
21 from driving its users to make follow-on purchases such as streaming music
22 subscriptions and retail purchases via the Google Wireless Audio Systems. For
23 example, an *NPR* “smart speaker” survey found that 28% of survey respondents
24 agreed that “[g]etting a Smart Speaker led [them] to pay for a music subscription
25 service,” and Google offers two such subscriptions – Google Play Music and
26 YouTube Music. Ex. 46 at p. 20. Likewise, the *NPR* survey also found that 26%
27 of respondents use their smart speakers “regularly” to “add [items] to shopping
28 list.” *Id.* at p. 15; *see also, e.g.*, Ex. 28 (stating that companies like Google are using

1 their “smart speaker” devices as “‘loss leader[s]’ to support . . . e-commerce.”).

2 **GOOGLE’S INFRINGEMENT IS WILLFUL**

3 35. Google has undertaken this infringing conduct knowingly and
4 willfully. Indeed, Google had actual and/or constructive knowledge of Sonos’s
5 patents for years prior to the filing of this action.

6 36. More specifically, Sonos raised the issue of infringement with Google
7 as early as August 2016. In October 2016, Sonos put Google on notice of
8 infringement of 28 Sonos patents, including asserted United States Patent Nos.
9 8,588,949, 9,195,258, and 9,219,959. Later in January 2018, and then again in July
10 2018, Sonos put Google on notice of infringing even more Sonos patents. Yet
11 again, in February 2019, Sonos put Google on notice of infringement of 100 Sonos
12 patents, including asserted United States Patent No. 10,209,953. In addition, Sonos
13 provided a pre-filing copy of this Complaint to Google, thereby providing further
14 notice of infringement of the patents-in-suit, including United States Patent No.
15 10,439,896.

16 37. As another example, Google has been aware of (or, at a minimum, was
17 willfully blind to) Sonos’s patents well before August 2016 in view of Sonos’s
18 previously-filed patent litigation against D&M (another direct competitor of Sonos
19 and Google) and its infringing Denon HEOS system – *Sonos Inc. v. D&M Holdings,*
20 *Inc.*, C.A. No. 14-1330-RGA (D. Del.) (“the D&M Litigation”). *See* Ex. 47. This
21 prior litigation, initiated in 2014, lasted more than three years, garnered media
22 attention across the industry, and resulted in a jury verdict for Sonos on all counts,
23 including, *inter alia*, willful infringement of two of the patents-in-suit asserted here
24 against Google – United States Patent Nos. 8,588,949 and 9,195,258. *See, e.g.*, Ex.
25 48 (2014 *VentureBeat* article entitled “Sonos sues Denon, alleging wireless speaker
26 patent infringement”); Ex. 49 (2014 *CNET* article entitled “Sonos sues Denon for
27 ‘copying’ its wireless products”); Ex. 50 (*Sonos v D&M* jury Verdict Form finding
28 for Sonos on all counts).

1 38. Further, Google has also been aware of (or, at a minimum, was
2 willfully blind to) Sonos's patents well before Sonos provided Google notice of
3 infringement because Google's development of competitive products since the
4 launch of its Google Wireless Audio System in 2015 occurred against the backdrop
5 of: 1) a decade in which Sonos was the recognized pioneer in the wireless audio
6 industry; 2) Google's partnership with Sonos dating to at least as early as 2013; and
7 3) Sonos's prominent display of its patents on Sonos's website, and Sonos's
8 inclusion of a notice of its patents in Sonos's product inserts/manuals as well as the
9 Sonos app.

10 **THE PARTIES**

11 39. Plaintiff Sonos, Inc. is a Delaware corporation with its principal place
12 of business at 614 Chapala Street, Santa Barbara, California 93101. Sonos is the
13 owner of the patents-in-suit.

14 40. Defendant Google LLC is a Delaware limited liability corporation
15 with its principal place of business at 1600 Amphitheatre Parkway, Mountain View,
16 CA 94043. Google LLC also maintains other established places of business,
17 including established places of business in this district at, for example, 340 Main
18 St, Venice, CA 90291 and 12422 W Bluff Creek, Playa Vista, CA 90094.

19 41. Google LLC is one of the largest technology companies in the world
20 and conducts product development, engineering, sales, and online retail, search, and
21 advertising operations in this district.

22 42. Google LLC directly and/or indirectly develops, designs,
23 manufactures, distributes, markets, offers to sell, sells, and/or imports the infringing
24 Google Wireless Audio System at issue in this litigation in/into the United States,
25 including in the Central District of California, and otherwise purposefully directs
26 infringing activities to this District in connection with its Google Wireless Audio
27 System.

28

JURISDICTION AND VENUE

1
2 43. As this is a civil action for patent infringement arising under the patent
3 laws of the United States, 35 U.S.C. § 1 *et seq.*, this Court has subject matter
4 jurisdiction over the matters asserted herein under 28 U.S.C. §§ 1331 and 1338(a).

5 44. This Court has personal jurisdiction over Google because, pursuant to
6 Fed. R. Civ. P. 11(b)(3), Google has: (1) availed itself of the rights and benefits of
7 the laws of the State of California, (2) transacted, conducted, and/or solicited
8 business and engaged in a persistent course of conduct in the State of California (and
9 in this District), (3) derived substantial revenue from the sales and/or use of
10 products, such as the infringing Google Wireless Audio System, in the State of
11 California (and in this District), (4) purposefully directed activities (directly and/or
12 through intermediaries), such as shipping, distributing, offering for sale, selling,
13 and/or advertising its infringing Google Wireless Audio System, at residents of the
14 State of California (and residents in this District), (5) delivered its infringing Google
15 Wireless Audio System into the stream of commerce with the expectation that the
16 Google Wireless Audio System will be used and/or purchased by consumers, and (6)
17 committed acts of patent infringement in the State of California (and in this District).

18 45. This Court also has personal jurisdiction over Google because it is
19 registered to do business in the State of California and has one or more regular and
20 established places of business in the Central District of California.

21 46. Venue is proper in this District under the provisions of 28 U.S.C. §
22 1400(b) because, as noted above, Google has committed acts of infringement in this
23 district and has one or more regular and established place of business in this district.

PATENTS-IN-SUIT

Background

24
25
26 47. Sonos was founded to solve various shortcomings in existing
27 conventional audio technology. At the time, a “conventional multi-zone audio
28 system” was based on a “centralized” device that was “hard-wired” to “audio

1 players” in different rooms with dedicated speaker wire. *See, e.g.*, ‘949 Patent at
2 1:41-47, 1:57-60; *see also, e.g.*, ‘959 Patent at 6:54-61. These “audio players” were
3 basic “speakers” that passively received and outputted audio signals but lacked
4 processing capabilities. *See, e.g.*, ‘949 Patent at 1:41-60.

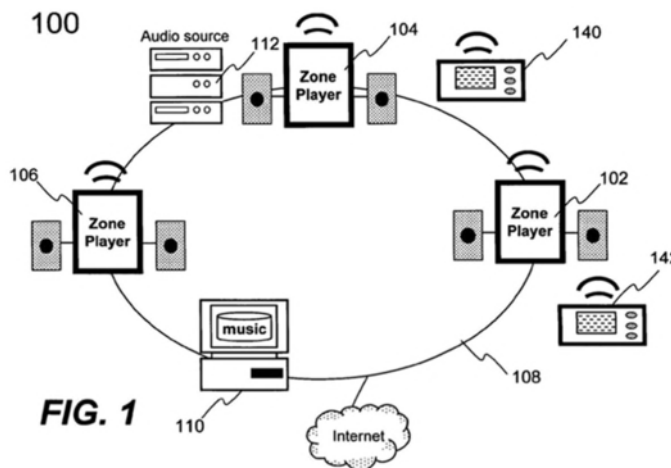
5 48. In this conventional “hard-wired” configuration, each audio player
6 relied on a “centralized” device that managed and controlled the multi-zone audio
7 system. Under this approach, audio sources were either hard-wired to the
8 “centralized” device, which made playing different audio sources at different audio
9 players difficult (if not impossible), or hard-wired locally at a given audio player,
10 which “[made] source sharing difficult.” *See, e.g.*, ‘949 Patent at 1:45-56. For
11 example, before an audio player could play audio from a source, a user had to
12 configure the centralized device to route audio to the audio player from the common
13 source. *See, e.g., id.* at 1:50-60.

14 49. In these conventional “hard-wired” systems, it was difficult or
15 impossible to play different audio sources on different audio players, “group” and
16 control audio players, access and play network-based audio sources (*e.g.*, Internet
17 radio), and install and configure the system in the first instance, which required
18 physically connecting every device to the “centralized” device. *See, e.g.*, ‘949
19 Patent at 1:34-2:13; ‘959 Patent at 6:52-61.

20 50. As recognized in 2005 when Sonos released its first products, Sonos
21 developed a series of new technologies to solve the many shortcomings of
22 conventional hard-wired audio systems, thereby revolutionizing the field. In turn,
23 Sonos’s own introduction of paradigm-shifting technology created new
24 technological opportunities and/or challenges that Sonos further solved.

25 51. For starters, Sonos provided an unconventional system architecture
26 comprising “zone players” (also referred to as “playback devices”) on a computer
27 data network that were controlled by physical “controller” devices. *See, e.g.*, ‘949
28 Patent at FIG. 1; ‘258 Patent at FIG 1. The following figure illustrates a simplified

1 diagram of an exemplary Sonos audio system in accordance with this new system
 2 architecture, which comprises “zone players” 102, 104, and 106 and “controllers”
 3 140 and 142 coupled to one another by a local data network 108 and two local audio
 4 sources 110 and 112 along with a connection to the Internet:



13 ‘949 Patent at FIG. 1; *see also, e.g.*, ‘258 Patent at FIG. 1.

14 52. Unlike audio players in conventional “centralized,” “hard-wired”
 15 multi-zone audio systems, Sonos’s “zone players” were “independent playback
 16 devices” with a data network interface and processing intelligence enabling each
 17 “zone player” to independently access and play back any audio source available on
 18 a local data network or another data network coupled thereto (*e.g.*, the Internet)
 19 without a centralized device. *See, e.g.*, ‘949 Patent at 4:60-64, 5:2-36, 9:50-52,
 20 Claims 1, 8, 15; ‘258 Patent at 1:33-44, 2:40-3:22, Claims 1, 11, 17.

21 53. The new, unconventional nature of Sonos’s “zone players” introduced
 22 additional technological challenges to Sonos’s system, which required Sonos’s
 23 “zone players” to have new intelligence enabling the “zone players” to “share
 24 information” with one another so that they could “reproduce audio information
 25 synchronously,” among other unconventional capabilities. *See, e.g.*, ‘258 Patent at
 26 31:34-41. Thus, Sonos’s new system featured “zone players” that could
 27 simultaneously play different audio from different sources or be “grouped” together
 28

1 to play the same audio source in a synchronized manner. *See, e.g.*, ‘258 Patent at
2 FIG. 1, 3:50-61, 4:22-50, 5:10-6:64, Claims 1, 11, 17; ‘949 Patent at 2:28-48, 9:49-
3 59, Claims 1, 8, 15.

4 54. Further, unlike the “pre-configured and pre-programmed
5 controller[s]” used to control conventional “centralized,” “hard-wired” audio
6 systems, Sonos’s “controller” devices were capable of remotely controlling any
7 “zone player” in a Sonos audio system from anywhere in a user’s house or the like
8 via a data network. *See, e.g.*, ‘949 Patent at 6:43-60; *see also, e.g.*, ‘258 Patent at
9 5:27-29, 5:38-40, 6:37-46. Building on the intelligence of Sonos’s new “zone
10 players,” Sonos’s “controllers” had new capabilities, including dynamically
11 “grouping the zone players” and “control[ing] the volume of each of the zone
12 players in a zone group individually or together.” ‘949 Patent at 6:43-60; *see also,*
13 *e.g.*, ‘258 Patent at FIG. 1, 3:50-61, 4:22-50, 5:10-6:64, 9:17-26, Claims 1, 11, 17.

14 55. Thus, Sonos’s audio system comprising networked “zone players”
15 controlled by physical “controllers” over a data network provided an entirely new
16 paradigm in home audio that overcame the technological deficiencies of
17 conventional audio systems. Moreover, Sonos’s unconventional system
18 architecture created new technological challenges that needed to be solved and
19 provided a new platform for further innovation. As discussed in further detail
20 below, the Sonos patents-in-suit are directed to overcoming these technological
21 challenges and building on this new platform.

22 **U.S. Patent No. 8,588,949**

23 56. Sonos is the owner of U.S. Patent No. 8,588,949 (the “‘949 Patent”),
24 entitled “Method and Apparatus for Adjusting Volume Levels in a Multi-Zone
25 System,” which was duly and legally issued by the United States Patent and
26 Trademark Office (“USPTO”) on November 19, 2013. A Reexamination
27 Certificate for the ‘949 Patent was duly and legally issued by the USPTO on
28 November 5, 2015. A copy of the ‘949 Patent, including the Reexamination

1 Certificate, is attached hereto as Exhibit 1.

2 57. The '949 Patent relates generally to devices, computer-readable
3 media, and methods for controlling a plurality of playback devices on a local area
4 network.

5 58. The '949 Patent recognized problems with conventional multi-zone
6 audio systems. For instance, the '949 Patent recognized that "conventional multi-
7 zone audio system[s]" were undesirably based on a "centralized" device that was
8 "hard-wired" to "audio players" in different rooms with dedicated speaker wire.
9 *See, e.g.*, '949 Patent at 1:41-47, 1:57-60. Moreover, because these "conventional
10 multi-zone audio system[s]" were "either hard-wired or controlled by a pre-
11 configured and pre-programmed controller," it was "difficult for [a conventional]
12 system to accommodate the requirement of dynamically managing the ad hoc
13 creation and deletion of groups," among other disadvantages of conventional multi-
14 zone audio systems. *See, e.g., id.* at 1:57-2:12.

15 59. In this regard, the '949 Patent recognized "a need for dynamic control
16 of [] audio players as a group" and a solution that allowed "audio players [to] be
17 readily grouped" with "minimum manipulation." *See, e.g., id.* at 2:13-15. In
18 particular, the '949 Patent recognized "a need for user interfaces that may be readily
19 utilized to group and control [] audio players." *See, e.g., id.* at 1:15-18. The claimed
20 inventions of the '949 Patent are directed to technology that provides a solution to
21 such needs. *See, e.g., id.* at 2:65-3:3.

22 **The Inventions Claimed in U.S. Patent No. 8,588,949 Improved Technology**
23 **& Were Not Well-Understood, Routine, or Conventional**

24 60. Given the state of the art at the time of the inventions of the '949
25 Patent, including the deficiencies in "centralized," "hard-wired" multi-zone audio
26 systems of the time, the inventive concepts of the '949 Patent cannot be considered
27 to be conventional, well-understood, or routine. *See, e.g.*, '949 Patent at 1:26-2:12.
28 The '949 Patent provides an unconventional solution to problems that arose in the

1 context of “centralized,” “hard-wired” multi-zone audio systems – namely, that
2 such systems made it difficult (or impossible) to dynamically group audio players
3 for synchronous playback and dynamically control such grouped audio players.
4 *See, e.g., id.* at 1:57-2:12.

5 61. At the core of the ‘949 Patent are aspects of Sonos’s unconventional
6 system architecture – a “controller” and a plurality of “independent playback
7 devices” (*e.g.*, “zone players”) communicating over a “local area network” (LAN).
8 Further, unlike the “pre-configured and pre-programmed controller[s]” used to
9 control conventional “centralized,” “hard-wired” multi-zone audio systems, the
10 ‘949 Patent’s “controller” devices were unconventionally capable of controlling
11 any “zone player” in the system from anywhere in a user’s house or business via
12 the LAN, such as by dynamically “grouping the zone players” and “control[ling]
13 the volume of each of the zone players in a zone group individually or together.”
14 *See, e.g.,* ‘949 Patent at 6:43-60.

15 62. In this respect, it was not well-understood, routine, or conventional at
16 the time of the inventions of the ‘949 Patent to have a “controller” configured to
17 (i) provide a user interface for a “player group” that includes a plurality of
18 “players,” each being an “independent playback device,” and (ii) accept an input to
19 facilitate formation of the “player group” for “synchronized playback of a
20 multimedia output from the same multimedia source.” *See, e.g.,* ‘949 Patent at
21 Claims 1, 8, 15; *see also, e.g.,* Ex. 8 (2005 *PC Mag*: “[Sonos’s ZonePlayers] can
22 play the same music throughout the house, perfectly synchronized. Even though
23 that may seem drop-dead simple, other hubs don’t do it. And you can join multiple
24 rooms to play the same music . . . on the fly.”).

25 63. Furthermore, it was not well-understood, routine, or conventional at
26 the time of the inventions of the ‘949 Patent to have a “controller” configured to
27 (i) accept, for any individual “player” in a “player group,” a player-specific input
28 to adjust the volume of that individual “player,” where the player-specific input

1 causes that individual “player” to adjust its volume and (ii) accept a “group-level”
2 input to adjust a volume associated with the “player group,” where the player-
3 specific input causes each of the “players” in the “player group” to adjust its
4 respective volume. *See, e.g.*, ‘949 Patent at Claims 1, 8, 15.

5 64. These are just exemplary reasons why the inventions claimed in the
6 ‘949 Patent were not well-understood, routine, or conventional at the time of their
7 invention.

8 65. The unconventional nature of the ‘949 Patent has also been confirmed
9 by wide-spread industry praise for the patented technology of the ‘949 Patent as an
10 advancement in the field of home audio, as set forth below.

11 66. Notably, the District Court of Delaware held that the claimed
12 inventions of the ‘949 Patent are “patent-eligible subject matter under § 101.” *See*
13 *Ex. 51* at p. 13. In particular, the district court recognized that the claimed
14 inventions of the ‘949 Patent “represent[] a substantial improvement over the
15 existing technology” that “provides for capabilities far beyond what a traditional
16 hardwired system offers.” *Id.* at p. 12.

17 67. The district court also recognized that the ‘949 Patent’s solutions
18 cannot be performed solely by a human. *See, e.g., id.* at pp. 11-12 (“Defendants’
19 arguments that a human could perform the actions the [controller] device is said to
20 perform is at best illogical.”). Indeed, the ‘949 Patent’s claimed solutions are not
21 merely drawn to longstanding human activities at least because they address
22 problems rooted in multi-zone audio systems. *See, e.g., id.* at p. 12 (“This is not
23 simply a ‘more efficient’ method of doing something already done by humans.”).

24 68. Moreover, the innovative and unconventional nature of the ‘949 Patent
25 was confirmed by the validity findings in the D&M Litigation (*see Ex. 50*) and the
26 ‘949 Patent reexamination proceeding (*see Ex. 1*).

27
28

1 webpage entitled “Create and manage speaker groups,” which touts the ability to
2 “control group members volume” in a Google Wireless Audio System. *See* Ex. 29.

3 71. The media has also recognized the importance of Sonos’s patented
4 group volume control technology to Google and its customers. For example, in
5 explaining that “[o]ne of the great advantages of having several Google Home
6 speakers is the ability to play the same music throughout your house,” the *Verge*
7 also touted Google’s group and individual volume features. *See* Ex 56.
8 Specifically, the *Verge* explained that you can control group volume if you “go to
9 your Home app and tap on the name of your group,” and that “[i]f you want to raise
10 or lower the volume on a specific speaker in the group, just tap on the icon for that
11 speaker on the main screen on the Home app.” *Id.*

12 **U.S. Patent No. 9,195,258**

13 72. Sonos is the owner U.S. Patent No. 9,195,258 (the “‘258 Patent”),
14 entitled “System and Method for Synchronizing Operations Among a Plurality of
15 Independently Clocked Digital Data Processing Devices,” which was duly and
16 legally issued by the USPTO on November 24, 2015. A copy of the ‘258 Patent is
17 attached hereto as Exhibit 2.

18 73. The ‘258 Patent relates generally to devices, systems, and methods for
19 synchronizing audio playback among a group of “zone players.”

20 74. As discussed above, Sonos recognized problems with conventional
21 multi-zone audio systems and introduced a paradigm-shifting system architecture
22 comprising “zone players” that communicated over a data network. The
23 unconventional nature of Sonos’s “zone players” introduced additional
24 technological challenges to Sonos’s system. *See, e.g.*, ‘258 Patent at 1:55-2:36.

25 75. For instance, the ‘258 Patent recognized the technological challenge
26 of “ensur[ing] that, if two or more audio playback devices are contemporaneously
27 attempting to play back the same audio program, they do so simultaneously.” ‘258
28 Patent at 2:17-36. In this respect, the ‘258 Patent recognized that “audio playback

1 devices that are being developed have independent clocks, and, if they are not
2 clocking at precisely the same rate, the audio playback provided by the various
3 [playback] devices can get out of synchronization.” *Id.* at 2:32-36. Moreover, the
4 ‘258 Patent recognized that “differences in the audio playback devices’ start times
5 and/or playback speeds” “can arise . . . for a number of reasons, including delays
6 in the transfer of audio information over the network,” and that “[s]uch delays can
7 differ as among the various audio playback devices for a variety of reasons,
8 including where they are connected into the network, message traffic, and other
9 reasons” *Id.* at 2:20-27. Consequently, the ‘258 Patent recognized that “[s]mall
10 differences in the audio playback devices’ start times and/or playback speeds can
11 be perceived by a listener as an echo effect, and larger differences can be very
12 annoying.” *Id.* at 2:20-22.

13 76. In this regard, the ‘258 Patent recognized a need for “a new and
14 improved system and method for synchronizing operations among a number of
15 digital data processing devices that are regulated by independent clocking devices.”
16 *See, e.g.*, ‘258 Patent at 2:40-43. The claimed inventions of the ‘258 Patent are
17 directed to technology that provides a solution to such needs. *See, e.g., id.*

18 **The Inventions Claimed in U.S. Patent No. 9,195,258 Improved Technology**
19 **& Were Not Well-Understood, Routine, or Conventional**

20 77. Given the state of the art at the time of the inventions of the ‘258
21 Patent, including the deficiencies in centralized, hard-wired multi-zone audio
22 systems of the time, the inventive concepts of the ‘258 Patent cannot be considered
23 to be conventional, well-understood, or routine. *See, e.g.*, ‘258 Patent at 1:26-2:12.
24 The ‘258 Patent provides an unconventional solution to problems that arose in
25 Sonos’s unconventional system architecture comprising “zone players” that
26 communicated over a data network – namely, that such “zone players” have
27 “independent clocks” which makes ensuring synchronized audio playback difficult.
28 *See, e.g., id.* at 2:17-36.

1 78. At the core of the ‘258 Patent are aspects of Sonos’s unconventional
2 system architecture – “zone players” and at least one “controller” communicating
3 over a “local area network.” Each “zone player” was unconventionally equipped
4 with a data network interface and intelligence enabling the “zone player” to
5 independently access and play back audio from a variety of network-accessible
6 audio sources and dynamically enter a “group” with one or more other “zone
7 players” for synchronized audio playback based on an instruction from a
8 “controller.” *See, e.g.*, ‘258 Patent at FIG. 1, 3:50-61, 4:22-50, 5:10-6:64, Claims
9 1, 11, 17. While “grouped,” the “zone players” were unconventionally capable of
10 sharing particular information over a data network to facilitate “reproduc[ing] audio
11 information synchronously” despite the fact that the “zone players operate with
12 independent clocks” and exchange packets over a data network with “differing
13 delays.” ‘258 Patent at 31:34-41.

14 79. In this respect, it was not well-understood, routine, or conventional at
15 the time of the invention of the ‘258 Patent to have a “zone player” configured to
16 interface with a LAN and receive from a “controller” over the LAN a direction for
17 the “zone player” to enter into a synchrony group with at least one other “zone
18 player.” *See, e.g.*, ‘258 Patent at Claims 1, 11, 17; *see also, e.g.*, Ex. 8 (2005 *PC*
19 *Mag*: “[Sonos’s ZonePlayers] can play the same music throughout the house,
20 perfectly synchronized. Even though that may seem drop-dead simple, other hubs
21 don’t do it. And you can join multiple rooms to play the same music . . . on the
22 fly.”).

23 80. Moreover, it was not well-understood, routine, or conventional at the
24 time of the inventions of the ‘258 Patent to have a “zone player” configured to enter
25 into a synchrony group with another “zone player” in which the “zone players” are
26 configured to playback audio in synchrony based at least on (i) audio content,
27 (ii) playback timing information associated with the audio content, and (iii) clock
28 time information for one of the “zone players.” *See, e.g.*, ‘258 Patent at Claims 1,

1 11, 17; *see also, e.g.*, Ex. 6 (2013 NBC News: “[Sonos] revolutionized the home
2 audio world a decade ago If you wanted the same song in every room, no
3 problem, the tracks would be perfectly in sync At the time, this was mind
4 blowing. Never before could you get music in every room without drilling a bunch
5 of holes for wires”).

6 81. These are just exemplary reasons why the inventions claimed in the
7 ‘258 Patent were not well-understood, routine, or conventional at the time of their
8 invention.

9 82. The unconventional nature of the ‘258 Patent has also been confirmed
10 by wide-spread industry praise for the patented technology of the ‘258 Patent as an
11 advancement in the field of home audio, as set forth below.

12 83. Notably, the Patent Trial and Appeal Board recently confirmed that
13 the ‘258 Patent is directed not just to unconventional implementations but to truly
14 innovative audio technology. In this regard, the PTAB specifically found that
15 inventions claimed in Sonos’s Patent No. 9,213,357 – which cover similar subject
16 matter as the inventions claimed in the ‘258 Patent – would not have been obvious
17 at the time of their invention. *See* Ex. 57 at pp. 6-7.

18 84. Moreover, the innovative and unconventional nature of the ‘258 Patent
19 was confirmed by the validity findings in the D&M Litigation. *See* Ex. 50.

20 **The Inventions Claimed in U.S. Patent No. 9,195,258 Provide Important**
21 **Advantages to Wireless Audio Systems**

22 85. The grouping and synchronization technology of the ‘258 Patent
23 provides significant advantages that are important to wireless audio systems. The
24 advantages of Sonos’s patented grouping and synchronization technology are
25 reflected in the recognition and praise it has received from the press. For example,
26 in 2005, shortly after Sonos released its first commercial products, *PC Magazine*
27 touted the Sonos system for its ability to “play the same music throughout the house,
28 perfectly synchronized.” *See* Ex. 8. Similarly, in 2005, *The Wall Street Journal*

1 praised Sonos's system for the ability to "play . . . the same songs, in each room
2 simultaneously." See Ex. 58. As another example, in 2013, *Macworld* exclaimed:
3 "Sonos is the gold standard when it comes to multi-room audio . . . you can drive
4 the system from any computer or handheld device, playing music in sync
5 throughout the house" See Ex. 59. Likewise, in 2013, *NBC News* praised
6 Sonos's patented synchronization technology as "mind blowing." See Ex. 6 ("If
7 you're not familiar with Sonos, this company revolutionized the home audio world
8 a decade ago when it launched the first (rather expensive) Sonos kits If you
9 wanted the same song in every room, no problem, the tracks would be perfectly in
10 sync At the time, this was mind blowing. Never before could you get music
11 in every room without drilling a bunch of holes for wires").

12 86. Recognizing the advantages of Sonos's patented grouping and
13 synchronization technology, competitors in the industry, including Google, have
14 incorporated Sonos's patented technology into their products and marketed the
15 features that the technology enables to their customers. For example, as set forth
16 above, when Google updated its first wireless audio product – the Chromecast
17 Audio – to include multi-room audio functionality, Google proclaimed that "[n]ow
18 you can easily fill every room in your home—bedroom, kitchen, living room, or
19 wherever you have a Chromecast Audio connected—with synchronous music.
20 Multi-room lets you group Chromecast Audio devices together so you can listen to
21 the same song on multiple speakers." See Ex. 20. And when Google later added
22 multi-room audio to its original Chromecast for video, Google recognized the
23 customer demand for Sonos's synchronization: "We heard your feedback, and the
24 Chromecast team is excited to you [*sic*] bring Multi-room audio support for
25 Chromecast devices!" Ex. 60.

26 87. As another example, in advertising the "Multi-room audio" capability
27 of its wireless audio products on its website, Google touts that you can "[g]roup any
28 combination of Google Home, Chromecast Audio, or speakers with Chromecast

1 together for synchronous music throughout the home.” *See, e.g.*, Ex. 61. Likewise,
2 Google’s website includes a webpage entitled “Create and manage speaker groups,”
3 which promotes grouping and synchronized audio playback in the very first
4 sentence: “Group any combination of Google Nest or Google Home speakers and
5 displays, Chromecast devices, and speakers with Chromecast built-in together for
6 synchronous music throughout the home.” *See, e.g.*, Ex. 29.

7 88. The media has also recognized the importance of Sonos’s patented
8 grouping and synchronization technology to Google and its customers. For
9 instance, *Variety* called Google’s 2015 multi-room software update for Chromecast
10 Audio “a major feature update” that allows “[c]onsumers . . . to group multiple
11 Chromecast audio adapters to stream their favorite music simultaneously in more
12 than one room . . .” Ex. 21. As another example, when Google released the Google
13 Home in 2016, *The Verge* recognized its ability to play audio in synchrony with
14 other Google devices as an important feature that provided Google with an
15 advantage over Amazon: “You can also group multiple Home units together and
16 play music though all of them simultaneously, similar to how Sonos works.
17 Amazon doesn’t yet provide this feature with the Echo.” Ex. 24. Notably, however,
18 Amazon added multi-room to its own products shortly thereafter in 2017. *See* Ex.
19 86 (2017 *Amazon Press Release*: “New multi-room music feature lets you group
20 multiple Amazon Echo devices for synchronized music streaming in every room.”).

21 **U.S. Patent No. 9,219,959**

22 89. Sonos is the owner of U.S. Patent No. 9,219,959, entitled “Multi
23 Channel Pairing in a Media System,” which was duly and legally issued by the
24 USPTO on December 22, 2015. A Reexamination Certificate for the ‘959 Patent
25 was duly and legally issued by the USPTO on April 5, 2017. A copy of the ‘959
26 Patent, including the Reexamination Certificate, is attached hereto as Exhibit 3.

27 90. The ‘959 Patent relates generally to devices and methods for providing
28 audio in a multi-channel listening environment.

1 91. As with other of the patents-in-suit, the ‘959 Patent recognized
2 problems with conventional multi-zone audio systems. For instance, the ‘959
3 Patent recognized that conventional multi-zone audio systems were based on a
4 centralized device hard-wired to “individual, discrete speakers” in different rooms
5 that required “physically connecting and re-connecting speaker wire, for example,
6 to individual, discrete speakers to create different configurations.” *See, e.g.*, ‘959
7 Patent at 6:54-58. Because these conventional multi-zone audio systems were hard-
8 wired to “individual, discrete speakers,” it was difficult (if not impossible) to
9 “group, consolidate, and pair” the speakers into different “desired configurations”
10 without “connecting and re-connecting speaker wire.” *See, e.g., id.*

11 92. Thus, the ‘959 Patent recognized a need for technology that could
12 “provide a more flexible and dynamic platform through which sound reproduction
13 can be offered to the end-user.” ‘959 Patent at 6:58-61. The claimed inventions of
14 the ‘959 Patent are directed to technology that provides a solution to such needs,
15 thereby providing technology that helps “to achieve or enhance a multi-channel
16 listening environment.” *Id.* at 2:17-19.

17 **The Inventions Claimed in U.S. Patent No. 9,219,959 Improved Technology**
18 **& Were Not Well-Understood, Routine, or Conventional**

19 93. Given the state of the art at the time of the inventions of the ‘959
20 Patent, including the deficiencies in centralized, hard-wired multi-zone audio
21 systems of the time that required “physically connecting and re-connecting speaker
22 wire . . . to create different configurations,” the inventive concepts of the ‘959
23 Patent cannot be considered to be conventional, well-understood, or routine. *See,*
24 *e.g.*, ‘959 Patent at 6:54-58. The ‘959 Patent provides an unconventional solution
25 to problems that arose in the context of centralized, hard-wired multi-zone audio
26 systems – namely, that the technology of such systems made it difficult (if not
27 impossible) to “group, consolidate, and pair” “individual, discrete speakers” into
28 different “desired configurations.” *See, e.g., id.* In this respect, unlike conventional

1 hard-wired multi-zone audio systems, the '959 Patent provided unconventional
2 technology including a "controller" with a "control interface" through which
3 "actions of grouping, consolidation, and pairing [were] performed," and a
4 "playback device" with processing intelligence capable of being dynamically
5 "pair[ed]" with another playback device to simulate "a multi-channel listening
6 environment." *See e.g., id.* at 2:16-19, 6:54-58.

7 94. In this respect, it was not well-understood, routine, or conventional at
8 the time of the invention of the '959 Patent to have a "playback device" comprising
9 a network interface and configured to operate in at least both a first and second
10 "type of pairing." *See, e.g., '959 Patent at Claims 4-7, 9-11, 17-20; see also, e.g.,*
11 *id.* at 6:54-58.

12 95. Moreover, it was not well-understood, routine, or conventional at the
13 time of the invention of the '959 Patent to have a "playback device" configured to
14 (i) process audio data before the "playback device" outputs audio, (ii) determine
15 that a type of pairing of the "playback device" comprises one of at least a first type
16 of pairing or a second type of pairing, (iii) perform a first equalization of the audio
17 data before outputting audio based on the audio data when the type of pairing is
18 determined to comprise the first type of pairing, and (iv) perform a second
19 equalization of the audio data before outputting audio when the type of pairing is
20 determined to comprise the second type of pairing. *See, e.g., '959 Patent at Claims*
21 *4-7, 9-11, 17-20; see also, e.g., id.* at 6:54-58. It was also not well-understood,
22 routine, or conventional at the time of the invention of the '959 Patent to have a
23 "playback device" configured to perform the aforementioned functions as well as
24 being configured to receive an instruction from a "controller" over a network for
25 the "playback device" to "pair" with one or more other "playback devices." *See,*
26 *e.g., id.* at Claim 10; *see also, e.g., id.* at 6:54-58.

27 96. These are just exemplary reasons why the inventions claimed in the
28 '959 Patent were not well-understood, routine, or conventional at the time of their

1 invention.

2 97. The unconventional nature of the ‘959 Patent has also been confirmed
3 by wide-spread industry praise for the patented technology of the ‘959 Patent as an
4 advancement in the field of home audio, as set forth below.

5 98. Notably, the District Court of Delaware held that the claimed
6 inventions of the ‘959 Patent are “patent-eligible subject matter under § 101.” Ex.
7 51 at p. 16. In particular, the district court recognized that the claimed inventions
8 of the ‘959 Patent represent a “substantial improvement” over the existing
9 technology. *Id.* at p. 15.

10 99. The district court also recognized that the ‘959 Patent’s solutions
11 cannot be performed solely by a human. *See, e.g., id.* at p. 15 (“In order to perform
12 this method manually . . . a person would have to manually rewire the devices each
13 time a new selection is made for which devices are to output which channels.”).
14 Indeed, at least because the ‘959 Patent’s claimed solutions address problems
15 rooted in multi-zone audio systems and facilitate a “pairing” process with functions
16 not previously performed by humans, these solutions are not merely drawn to
17 longstanding human activities. *See, e.g., id.* at p. 15 (“This simply is not the kind
18 of method that could be performed manually and, even if it were, automating the
19 method as claimed represents a substantial improvement to the functionality of a
20 specific device.”).

21 100. Moreover, the innovative and unconventional nature of the ‘959 Patent
22 was confirmed by the validity findings in the ‘959 Patent reexamination proceeding.
23 *See* Ex. 3.

24 **The Inventions Claimed in U.S. Patent No. 9,219,959 Provide Important**
25 **Advantages to Wireless Audio Systems**

26 101. The multi-channel pairing technology of the ‘959 Patent provides
27 significant advantages that are important to wireless audio systems. The advantages
28 of Sonos’s multi-channel pairing technology are reflected in the recognition and

1 praise it has received from the press. For example, in 2010, around the time that
2 Sonos released its multi-channel pairing technology, *SlashGear* praised Sonos’s
3 technology as “a slick way for users . . . to combine two speakers when they want
4 better sound.” *See* Ex. 62. Similarly, in 2015, *Trusted Reviews* described Sonos’s
5 multi-channel pairing technology as “[o]ne particularly nifty feature,” and
6 explained that it allows you to “[p]air up multiple speakers for better sound.” *See*
7 Ex. 63; *see also* Ex. 64 (2014 Consumer Reports: praising Sonos’s multi-channel
8 pairing technology as providing “a richer, more detailed sound with wider
9 soundstage.”); Ex. 65 (2014 Businessweek: recognizing Sonos’s pairing
10 technology as appealing to the “audiophile”); Ex. 66 (2013 What Hi-Fi: praising
11 Sonos’s pairing technology because “performance is bolstered significantly. Bass
12 is even more solid, instrument separation improves, smaller details are picked up
13 with more confidence and sound can go noticeably louder without distortion.”).

14 102. Recognizing the advantages of Sonos’s patented multi-channel pairing
15 technology, competitors in the industry, including Google, have incorporated
16 Sonos’s technology into their products and marketed the features that the
17 technology enables to their customers. For example, to market the Google Home
18 Max on its website, Google includes a product webpage touting that you can
19 “[w]irelessly pair two for room-filling stereo separation” for “[a]n even wider
20 stereo image.” Ex. 67. To illustrate this, Google provides the following image:



1 *Id.* Likewise, Google’s Home Max product webpage also notes the “[w]ireless
2 stereo pairing” functionality in the “Tech Specs” section. Ex. 68.

3 103. As another example, Google’s website includes a webpage entitled
4 “Pair Google Home Max speakers,” which proclaims that “[y]ou can pair two
5 Google Home Max speakers (devices) for stereo sound and an immersive
6 experience for music and casting,” and explains how to “[p]air the speakers” and
7 “[c]ontrol the speaker pair.” Ex. 69.

8 104. And yet further, Google’s press release for the launch of the Google
9 Home Max in 2017 announced that “[y]ou can even wirelessly pair two Maxes
10 together for stereo sound.” Ex. 70.

11 105. The media has also recognized the importance of Sonos’s patented
12 multi-channel pairing technology to Google and its customers. For instance, when
13 Google released the Home Max in 2017, *Engadget* cited the Home Max’s stereo
14 pairing capability in comparing it to Sonos’s competing speakers and observed that
15 “pairing two Home Max speakers in stereo . . . greatly extend[s] the soundstage.”
16 Ex. 71. *Engadget* also observed that “[t]he Home Max provides a stellar music
17 experience, particularly in a stereo pair.” *Id.* Similarly, *Digital Trends* observed
18 that the Home Max is “impressive when you pair one Max with another for stereo
19 audio.” Ex. 72; *see also, e.g.*, Ex. 73 (2017 *The Verge*: “You can buy two [Google
20 Home Max speakers] and set them up as a pair.”).

21 106. In the same vein, when Google recently announced that it will be
22 upgrading its Google Home and Home Mini to support stereo pairing, *9to5Google*
23 recognized that “Google is expanding stereo speaker pairing to the original Google
24 Home and Google Home Mini” and called stereo pairing “[o]ne of the best
25 features.” Ex. 74. Likewise, in response to Google’s recent announcement, *Digital*
26 *Trends* published an article entitled “Finally, stereo speaker pairing comes to the
27 Google Home and Home Mini,” which explained that stereo pairing is part of “[t]he
28 beauty of having Google smart home devices.” Ex. 75.

1 **U.S. Patent No. 10,209,953**

2 107. Sonos is the owner of U.S. Patent No. 10,209,953, entitled “Playback
3 Device,” which was duly and legally issued by the USPTO on February 19, 2019.
4 A copy of the ‘953 Patent is attached hereto as Exhibit 4.

5 108. The ‘953 Patent is related to the ‘258 Patent and shares a common
6 specification and ultimate priority claim.

7 109. The ‘953 Patent is directed to devices, methods, and computer-
8 readable media for synchronizing audio playback.

9 110. Sonos incorporates by reference and re-alleges the foregoing
10 paragraph numbers 72-76 of this Complaint as if fully set forth herein.

11 **The Inventions Claimed in U.S. Patent No. 10,209,953 Improved Technology**
12 **& Were Not Well-Understood, Routine, or Conventional**

13 111. Sonos incorporates by reference and re-alleges the foregoing
14 paragraph numbers 77-84 of this Complaint as if fully set forth herein.

15 112. Like the inventions claimed in the ‘258 Patent, the inventions claimed
16 in the ‘953 Patent improved technology and were not well-understood, routine, or
17 conventional.

18 113. Indeed, it was not well-understood, routine, or conventional at the time
19 of the invention of the ‘953 Patent to have a “zone player” configured to receive a
20 request for the “zone player” to enter into a synchrony group with at least one other
21 “zone player” and in response to receiving such a request, enter into the synchrony
22 group in which the “zone player” is selected to begin operating as a “slave” of the
23 synchrony group. *See, e.g.*, ‘953 Patent at Claims 1, 7, 25; *see also, e.g.*, Ex. 8
24 (2005 PC Mag: “[Sonos’s ZonePlayers] can play the same music throughout the
25 house, perfectly synchronized. Even though that may seem drop-dead simple, other
26 hubs don’t do it. And you can join multiple rooms to play the same music . . . on
27 the fly.”).

28 114. Moreover, it was not well-understood, routine, or conventional at the

1 time of the invention of the '953 Patent to have a "zone player" that, after beginning
2 to operate as a "slave" of a synchrony group, functions to (i) receive, from another
3 "zone player" operating as a "master" of the synchrony group over a local area
4 network (LAN), clock timing information and (ii) based on the received clock
5 timing information, determine a differential between the clock time of the "zone
6 player" and the clock time of the "master" "zone player." *See, e.g.*, '953 Patent at
7 Claims 1, 7, 25; *see also, e.g.*, Ex. 6 (2013 NBC News: "[Sonos] revolutionized the
8 home audio world a decade ago If you wanted the same song in every room,
9 no problem, the tracks would be perfectly in sync At the time, this was mind
10 blowing. Never before could you get music in every room without drilling a bunch
11 of holes for wires").

12 115. Further yet, it was not well-understood, routine, or conventional at the
13 time of the invention of the '953 Patent to have a "zone player" that, after beginning
14 to operate as a "slave" of a synchrony group, functions to receive, from another
15 "zone player" operating as a "master" of the synchrony group over a LAN, (a) audio
16 information for an audio track and (b) playback timing information associated with
17 the audio information for the audio track that comprises an indicator of a future
18 time at which the "zone players" are to initiate synchronous playback of the audio
19 information. *See, e.g.*, '953 Patent at Claims 1, 7, 25; *see also, e.g.*, Ex. 6. It was
20 also not well-understood, routine, or conventional at the time of the invention of
21 the '953 Patent to have a "zone player" that, after beginning to operate as a "slave"
22 of a synchrony group, functions to perform the aforementioned operations as well
23 as functions to (i) update the future time to account for a determine differential
24 between the clock time of the "zone player" and the clock time of the "master"
25 "zone player" and (ii) initiate synchronous playback of the received audio
26 information with the "master" "zone player" when the clock time of the "zone
27 player" reaches the updated future time. *See, e.g.*, '953 Patent at Claims 1, 7, 25;
28 *see also, e.g.*, Ex. 6.

1 116. These are just exemplary reasons why the inventions claimed in the
2 ‘953 Patent were not well-understood, routine, or conventional at the time of their
3 invention.

4 117. As with the ‘258 Patent, the unconventional nature of the ‘953 Patent
5 has also been confirmed by wide-spread industry praise for the patented technology
6 of the ‘953 Patent as an advancement in the field of home audio.

7 **The Inventions Claimed in U.S. Patent No. 10,209,953 Provide Important**
8 **Advantages to Wireless Audio Systems**

9 118. Sonos incorporates by reference and re-alleges the foregoing
10 paragraph numbers 85-88 of this Complaint as if fully set forth herein.

11 119. As with the ‘258 Patent, the synchronization technology of the ‘953
12 Patent provides significant advantages that are important to wireless audio systems,
13 as reflected in the recognition and praise it has received from the press/media and
14 competitors in the industry including Google.

15 **U.S. Patent No. 10,439,896**

16 120. Sonos is the owner of U.S. Patent No. 10,439,896, entitled “Playback
17 Device Connection,” which was duly and legally issued by the USPTO on October
18 8, 2019. A copy of the ‘896 Patent is attached hereto as Exhibit 5.

19 121. The ‘896 Patent relates generally to devices, methods, and computer-
20 readable media for connecting a “zone player” (or “playback device”) to a secure
21 wireless local area network (WLAN), thereby setting up the zone player for use in
22 a networked audio system.

23 122. The ‘896 Patent recognized problems with conventional device-setup
24 technology for connecting “consumer electronic devices” (*e.g.*, “home
25 entertainment products”) to a network. *See, e.g.*, ‘896 Patent at 1:37-67. For
26 instance, the ‘896 Patent recognized that “[c]onsumer electronic devices that
27 operate using wireless or wired Ethernet standards are often subject to the same
28 complicated set-up process as a wireless computer network.” *Id.* at 1:37-39.

1 123. Indeed, a conventional setup process typically required “the person
2 who sets up the wireless network [to] have at least some knowledge about IP
3 (Internet Protocol) networking and Ethernet (*e.g.*, 802.3, 802.11), such as
4 addressing, security, broadcast, unicast, etc.” *Id.* at 1:40-43. At the time of the
5 inventions of the ‘896 Patent, typically only “IT professionals” possessed such
6 knowledge. *Id.* at 1:43-46. In this respect, to connect a computer to a wireless
7 network, “the user [had] to know what type of network the computer [was] going
8 to be connected to,” which was a “difficult question [for] the average consumers”
9 to answer. *Id.* at 1:57-63. Moreover, there were additional “questions or options
10 related to [] security settings [] which evidently require[d] some good
11 understanding about the network security over the wireless network.” *Id.* at 1:63-
12 67. Thus, the ‘896 Patent recognized that it was “impractical to require average
13 consumers to have such knowledge to hook up consumer electronic devices, such
14 as home entertainment products that use wireless/wired Ethernet connectivity.” *Id.*
15 at 1:46-49.

16 124. The ‘896 Patent also recognized that a device that has yet to be setup
17 on a network has “limited networking capability” and is not addressable by other
18 devices, which presents technical challenges as to how that device can receive
19 information that facilitates the device’s setup to operate on the network. *See, e.g.*,
20 ‘896 Patent at 11:4-14.

21 125. Consequently, the ‘896 Patent recognized that there was “a clear need
22 to create simple methods of setting up and maintaining a secure wireless/wired in-
23 home network with minimum human interventions.” *Id.* at 2:1-4. The claimed
24 inventions of the ‘896 Patent are directed to technology that provides a solution to
25 such needs.

26 **The Inventions Claimed in U.S. Patent No. 10,439,896 Improved Technology**
27 **& Were Not Well-Understood, Routine, or Conventional**

28 126. Given the state of the art at the time of the inventions of the ‘896

1 Patent, including the deficiencies in conventional device-setup technology of the
2 time, the inventive concepts of the ‘896 Patent cannot be considered to be
3 conventional, well-understood, or routine. *See, e.g.*, ‘896 Patent at 1:37-2:4. The
4 ‘896 Patent provides an unconventional solution to problems arising in the context
5 of connecting “consumer electronic devices” (*e.g.*, “home entertainment products”)
6 to a network – namely, that such devices, prior to being setup, had limited
7 networking capabilities and were not network addressable by other devices and
8 typically operated “using wireless or wired Ethernet standards [that were] often
9 subject to the same complicated set-up process as a wireless computer network.”
10 *Id.* at 1:37-2:4, 11:4-14.

11 127. In this respect, the ‘896 Patent provided a technological solution that
12 addressed the limited-networking-capability and addressability problems with
13 existing setup technologies. *See, e.g.*, ‘896 Patent at 11:4-37. Moreover, unlike
14 conventional device-setup technology whose complexity made it “impractical” for
15 “average consumers to . . . hook up consumer electronic devices” to a requisite data
16 network, the ‘896 Patent provided a technological solution that made it easier for
17 consumers to connect a consumer electronic device to a data network. *See, e.g., id.*
18 at 1:37-67.

19 128. In this regard, it was not well-understood, routine, or conventional at
20 the time of the invention of the ‘896 Patent to have a “computing device”
21 comprising a graphical user interface (GUI) associated with an application for
22 controlling one or more “playback devices” and that is configured to facilitate
23 setting up a “playback device” to operate on a secure wireless local area network
24 (WLAN). *See, e.g.*, ‘896 Patent at Claims 1, 13, 20.

25 129. Moreover, it was not well-understood, routine, or conventional at the
26 time of the invention of the ‘896 Patent to have a “computing device” configured
27 to (i) transmit a response to a first message that facilitates establishing with a
28 “playback device” an “initial communication path” that does not traverse an access

1 point defining a secure WLAN, (ii) transmit “network configuration parameters”
2 for the secure WLAN to the “playback device” via the “initial communication
3 path,” and (iii) transition from communicating with the given “playback device”
4 via the “initial communication path” to communicating with the given “playback
5 device” via the secure WLAN. *See, e.g.*, ‘896 Patent at Claims 1, 13, 20; *see also,*
6 *e.g., id.* at 11:4-37.

7 130. Additionally, it was not well-understood, routine, or conventional at
8 the time of the invention of the ‘896 Patent to have a “computing device”
9 configured to perform the specific combination of (i) while operating on a secure
10 WLAN defined by an access point, (a) receiving “user input indicating that a user
11 wishes to set up a playback device” to operate on the secure WLAN and
12 (b) receiving a first message indicating that a “given playback device is available
13 for setup,” (ii) transmitting a response to the first message that facilitates
14 establishing with the given playback device an “initial communication path” that
15 does not traverse the access point, (iii) transmitting, to the given “playback device”
16 via the “initial communication path,” a second message containing “network
17 configuration parameters” for the secure WLAN, (iv) after detecting an indication
18 that the given “playback device” has successfully received the “network
19 configuration parameters,” transitioning from communicating with the given
20 “playback device” via the “initial communication path” to communicating with the
21 given “playback device” via the secure WLAN. *See, e.g.*, ‘896 Patent at Claims 1,
22 13, 20; *see also, e.g., id.* at 11:4-37.

23 131. These are just exemplary reasons why the inventions claimed in the
24 ‘896 Patent were not well-understood, routine, or conventional at the time of their
25 invention.

26 132. The unconventional nature of the ‘896 Patent has also been confirmed
27 by wide-spread industry praise for the patented technology of the ‘896 Patent as an
28 advancement in the field of home audio, as set forth below.

1 133. Moreover, the ‘896 Patent’s solutions are naturally rooted in consumer
2 device-setup technology and cannot be performed solely by a human. Indeed, the
3 ‘896 Patent’s claimed solutions provide a device-setup process comprising
4 functions not previously performed by humans and therefore, are not merely drawn
5 to longstanding human activities.

6 **The Inventions Claimed in U.S. Patent No. 10,439,896 Provide Important**
7 **Advantages to Wireless Audio Systems**

8 134. The playback-device-setup technology of the ‘896 Patent provides
9 significant advantages that are important to wireless audio systems. The advantages
10 of Sonos’s patented playback-device-setup technology are reflected in the
11 recognition and praise it has received from the press. For example, in 2015, *Ars*
12 *Technica* explained:

13 There was no convoluted wireless setup, syncing issues, or complex
14 software to decipher: I simply downloaded the Sonos app on the
15 Google Play Store, pushed the sync button on the back of the speaker,
16 and it did the rest. When you can describe the entire setup procedure
17 in a single sentence, that’s special.

18 Ex. 76. Likewise, *Gizmodo* touted Sonos’s patented playback-device-setup
19 technology as “so easy that anybody can do it.” Ex. 77. And *Consumer Reports*
20 explained that Sonos’s playback-device-setup technology is “pretty simple.” Ex.
21 78.

22 135. Recognizing the advantages of Sonos’s patented playback-device-
23 setup technology, competitors in the industry, including Google, have incorporated
24 Sonos’s patented technology into their products and marketed the features that the
25 technology enables to their customers. For example, to market its Google Audio
26 Players on its website, Google includes a dedicated “Setup” tab that touts how
27 “[g]etting set up is simple.” See, e.g., Ex. 79. As another example, Google’s
28 website includes a webpage entitled “Set up your Google Nest or Google Home

1 speaker or display,” which explains that “[t]he Google Home app will walk you
2 through the steps to set up your Google Nest or Google Home speaker or display.”
3 Ex. 80.

4 136. The media has also recognized the importance of Sonos’s patented
5 playback-device-setup technology to Google and its customers. For instance,
6 *Android Central* published an article entitled “How to set up Google Home and
7 other Google Assistant speakers,” which touted Google’s setup as a “simple
8 process.” Ex. 81. Similarly, *Tom’s Guide* exclaimed that the Google Home Mini
9 is a “cinch to set up” and further described the setup procedure as “pretty
10 straightforward.” Ex. 82; *see also, e.g.*, Ex. 83 (2019 CNET article explaining that
11 “[i]t’s easy to set up your Google Home . . . speaker for the first time”).

12 **COUNT I: INFRINGEMENT OF U.S. PATENT NO. 8,588,949**

13 137. Sonos incorporates by reference and re-alleges paragraphs 47-71 of
14 this Complaint as if fully set forth herein.

15 138. Google and/or users of the Google Wireless Audio System have
16 directly infringed (either literally or under the doctrine of equivalents) and continue
17 to directly infringe one or more of the claims of the ‘949 Patent, in violation of 35
18 U.S.C. § 271(a), by making, using, offering for sale, and/or selling the Google
19 Wireless Audio System within the United States and/or importing the Google
20 Wireless Audio System into the United States without authority or license.

21 139. As just one non-limiting example, set forth below is an exemplary
22 infringement claim chart for claim 1 of the ‘949 Patent in connection with the
23 Google Wireless Audio System. This claim chart is based on publicly available
24 information. Sonos reserves the right to modify this claim chart, including, for
25 example, on the basis of information about the Google Wireless Audio System that
26 it obtains during discovery.

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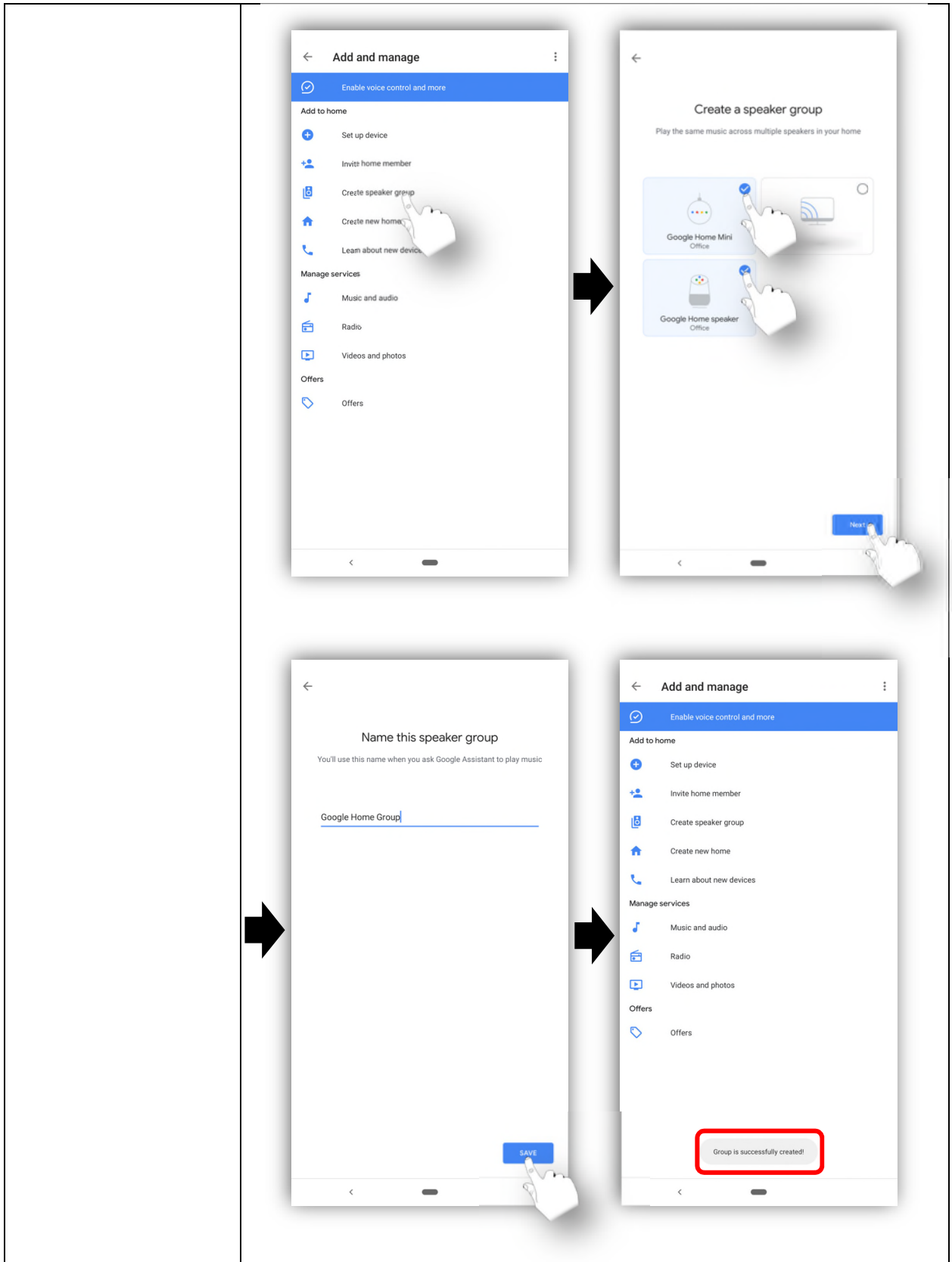
Claim 1	Google
<p>A multimedia controller including a processor, the controller configured to:</p>	<p>At least each smartphone, tablet, and computer installed with the Google Home app, the YouTube Music app, and/or the Google Play Music app (where a computing device installed with at least one of these apps is referred to herein as a “Chromecast-enabled computing device”³) comprises a “multimedia controller including a processor,” as recited in claim 1. <i>See, e.g.</i>, Exs. 40-43, 87-92. At least each Home Mini, Nest Mini, Home, Home Max, Home Hub, Nest Hub, Nest Hub Max,⁴ Nest Wifi Point, Chromecast, Chromecast Audio, and Chromecast Ultra comprises an “independent playback device,” as recited in claim 1.</p>
<p>provide a user interface for a player group, wherein the player group includes a plurality of players in a local area network, and wherein each player is an independent playback device configured to playback a multimedia output from a multimedia source;</p>	<p>Each Chromecast-enabled computing device and Hub Audio Player is configured to provide a user interface for a player group that includes a plurality of Google Audio Players in a local area network (LAN), where each Google Audio Player is an independent playback device configured to playback a multimedia output from a multimedia source.</p> <p>For instance, each Chromecast-enabled computing device and Hub Audio Player is programmed with the capability to provide a user interface that facilitates forming and/or controlling one or more groups of Google Audio Players (<i>e.g.</i>, via a Google Home, YouTube Music, Google Play Music, or Hub Audio Player user interface). <i>See, e.g.</i>, Exs. 29, 34, 36, 38, 93. Some exemplary screenshots of aspects of the user interface provided by a Chromecast-enabled computing device or Hub Audio Player are illustrated below.</p>

³ Each of the Pixel 3, Pixel 3 XL, Pixel 3a, Pixel 3a XL, Pixel 4, and Pixel 4 XL phones, the Pixel Slate tablet, and the Pixelbook and Pixelbook Go laptops installed with the Google Home app, the YouTube Music app, and/or the Google Play Music app is an example of a “Chromecast-enabled computing device.”

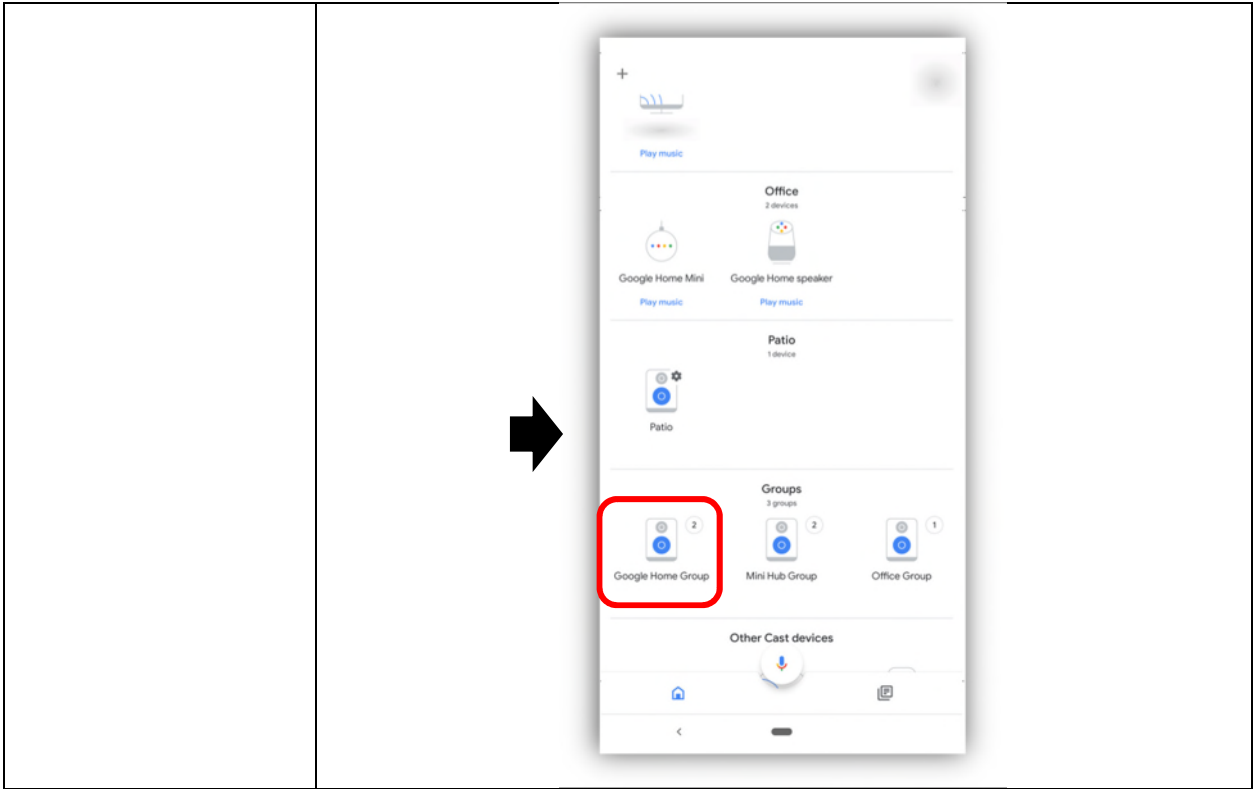
⁴ In addition to being configured as an “independent playback device,” as recited in claim 1, each Home Hub, Nest Hub, and Nest Hub Max (referred to herein as a “Hub Audio Player”) is installed with Home/Nest Hub software such that the given Hub Audio Player is configured as a “multimedia controller,” as recited in claim 1, that is capable of facilitating forming and controlling one or more groups of two or more Google Audio Players.

<p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p>	<p>Each group includes two or more Google Audio Players in a local Wi-Fi network (which is a LAN) that are configured to play back audio in synchrony with one another, where each Google Audio Player is an independent playback device configured to playback at least an audio output from an audio source (<i>e.g.</i>, Google Play Music, Spotify, etc.). <i>See e.g.</i>, Ex. 29 (“Group any combination of Google Nest or Google Home speakers and displays, Chromecast devices, and speakers with Chromecast built-in together for synchronous music throughout the home. Your favorite music and audio from Chromecast-enabled apps are instantly available to stream.”); Exs. 94, 106.</p>
<p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p> <p>26</p> <p>27</p> <p>28</p>	<p>accept via the user interface an input to facilitate formation of the player group, wherein the input to facilitate formation of the player group indicates that at least two of the plurality of players in the local area network are to be included in the player group for synchronized playback of a multimedia output from the same multimedia source;</p> <p>Each Chromecast-enabled computing device and Hub Audio Player is configured to accept via the user interface an input to facilitate formation of the player group, where the input to facilitate formation of the player group indicates that at least two of the plurality of Google Audio Players in the LAN are to be included in the player group for synchronized playback of a multimedia output from the same multimedia source.</p> <p>For instance, each Chromecast-enabled computing device and Hub Audio Player is programmed with the capability to display a GUI view (<i>e.g.</i>, via a Google Home, YouTube Music, Google Play Music, or Hub Audio Player user interface) through which the Chromecast-enabled computing device or Hub Audio Player receives user input that facilitates formation of a group of at least two Google Audio Players in a local Wi-Fi network that are configured to play back audio in synchrony. <i>See, e.g.</i>, Ex. 29 (“Group any combination of Google Nest or Google Home speakers and displays, Chromecast devices, and speakers with Chromecast built-in together for synchronous music throughout the home. Your favorite music and audio from Chromecast-enabled apps are instantly available to stream.”); Exs. 93-94, 106. Examples of this functionality are illustrated in the following sequences of screenshots/images.</p>

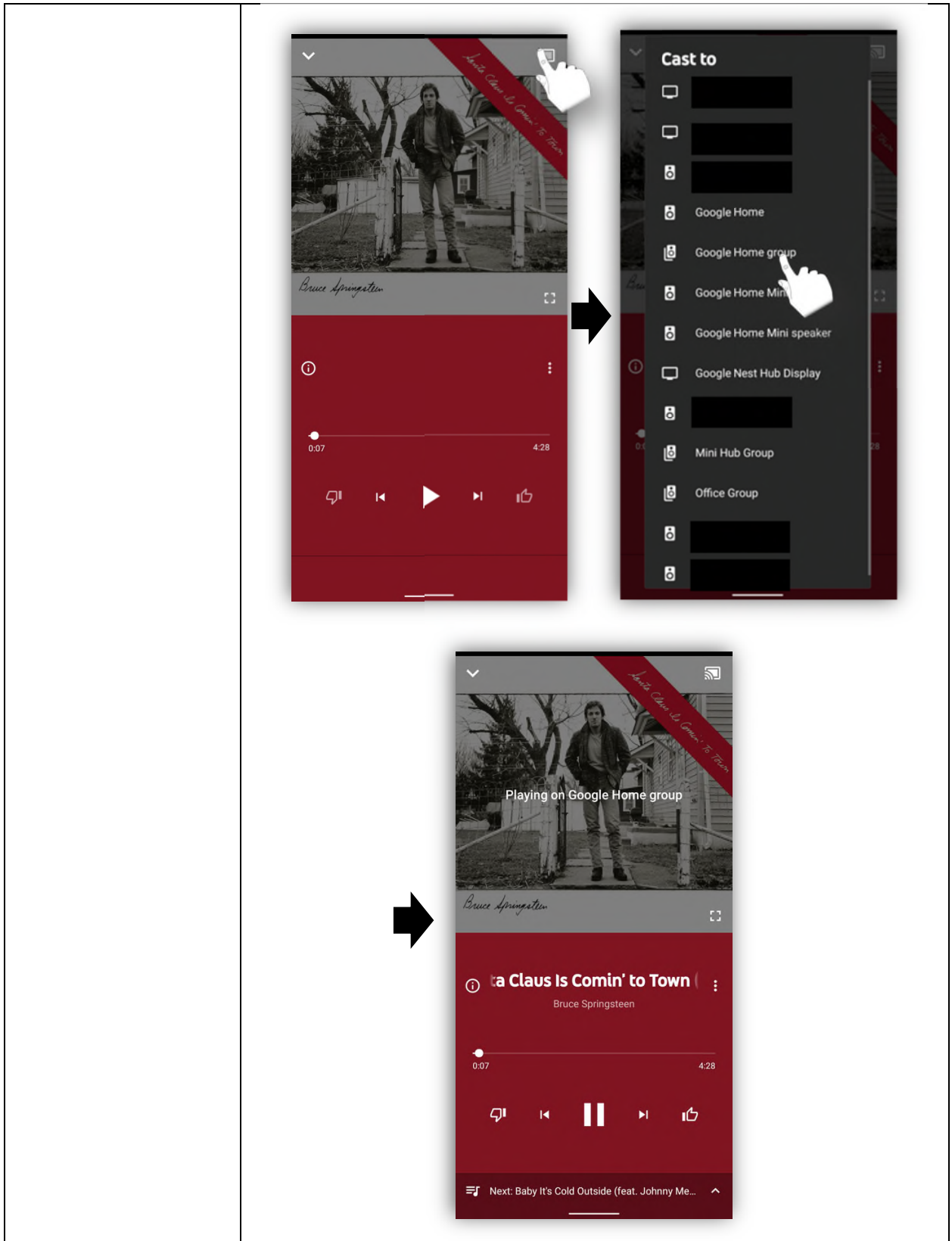
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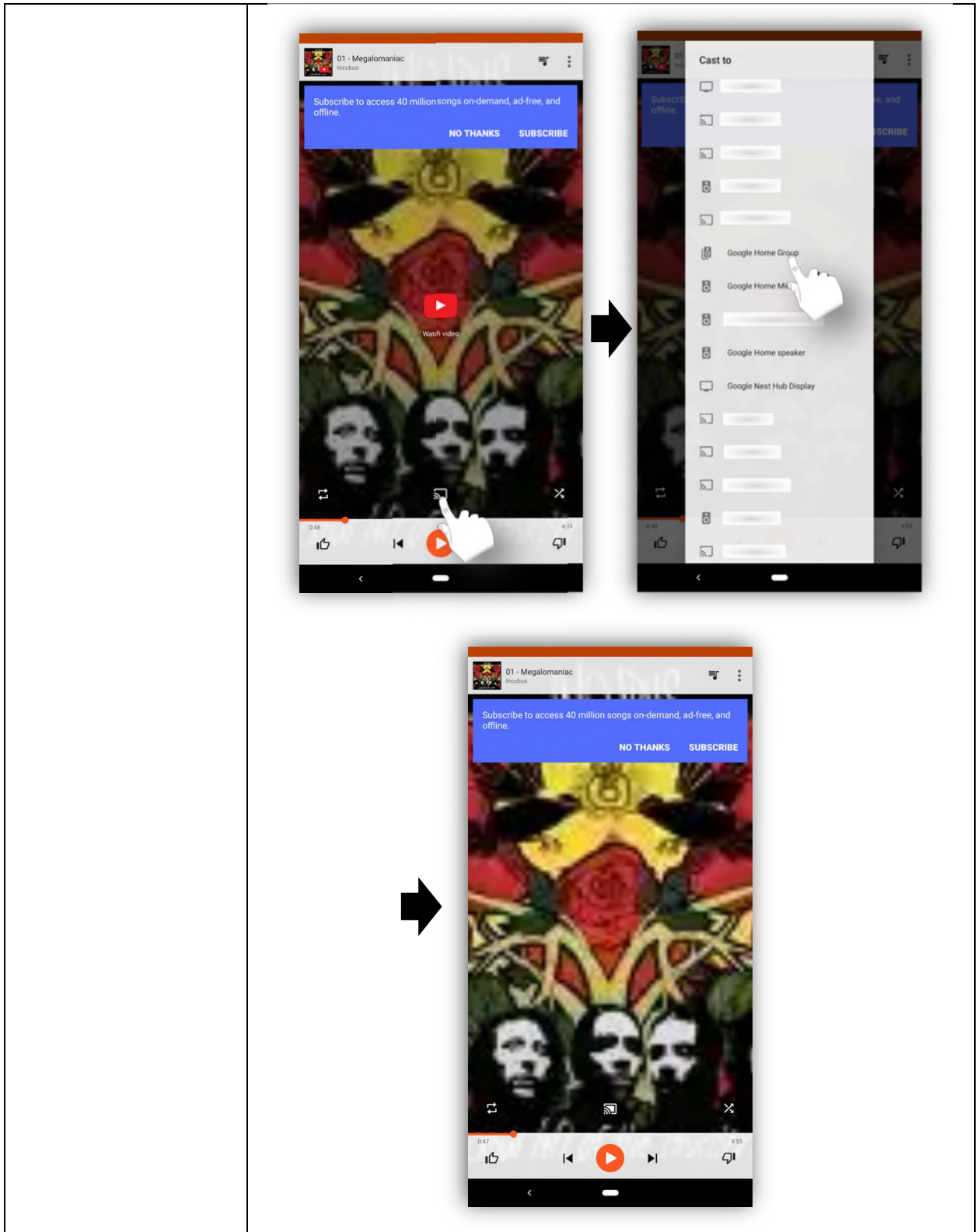
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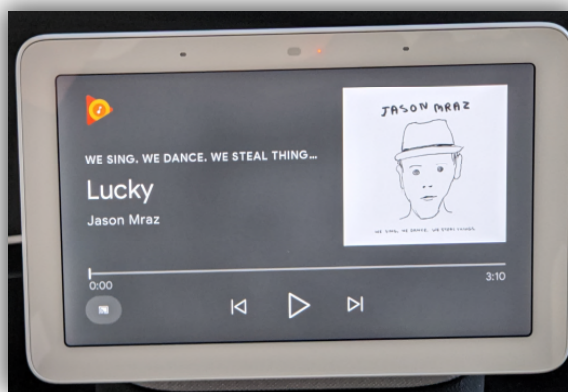
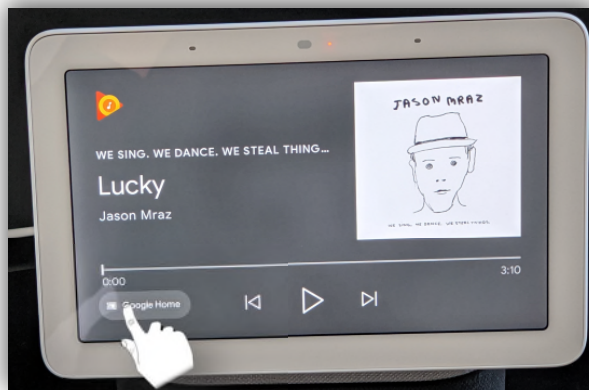
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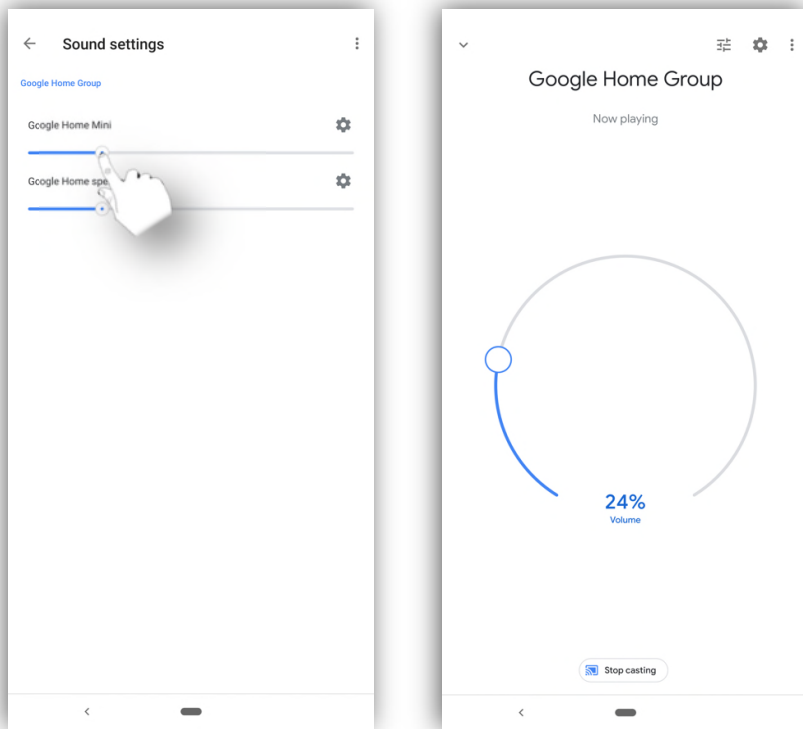


for any individual player in the player group, accept via the user interface a player-specific input to adjust a volume of that individual player, wherein

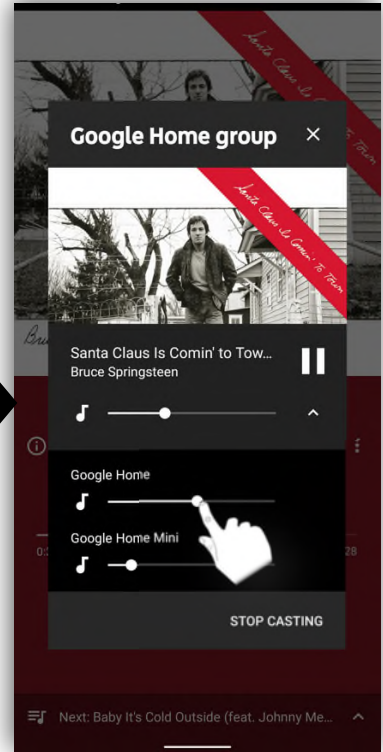
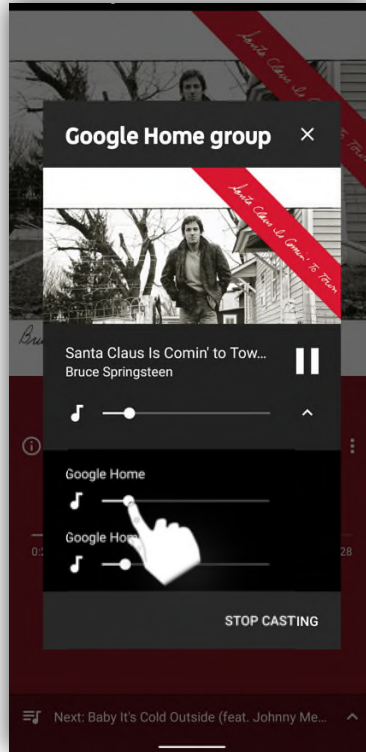
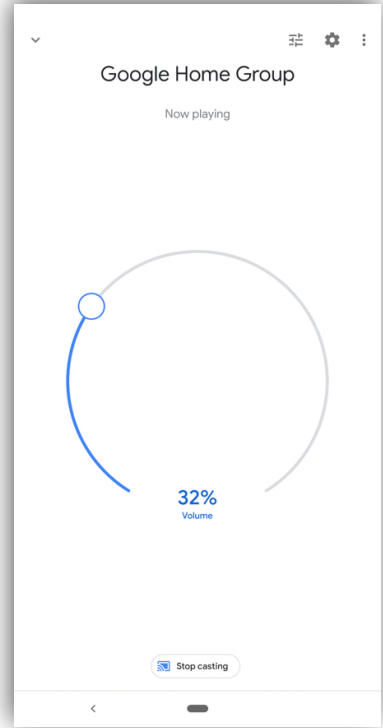
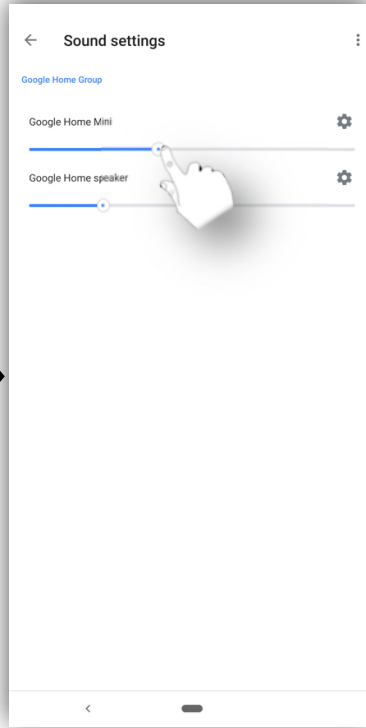
Each Chromecast-enabled computing device and Hub Audio Player is configured to, for any individual Google Audio Player in the player group, accept via the user interface a player-specific input to adjust a volume of that individual Google Audio Player, where the player-specific input to adjust the volume of that individual Google Audio Player causes that individual Google Audio Player to adjust its volume.

1 the player-specific
2 input to adjust the
3 volume of that
4 individual player
5 causes that
6 individual player
7 to adjust its
8 volume; and
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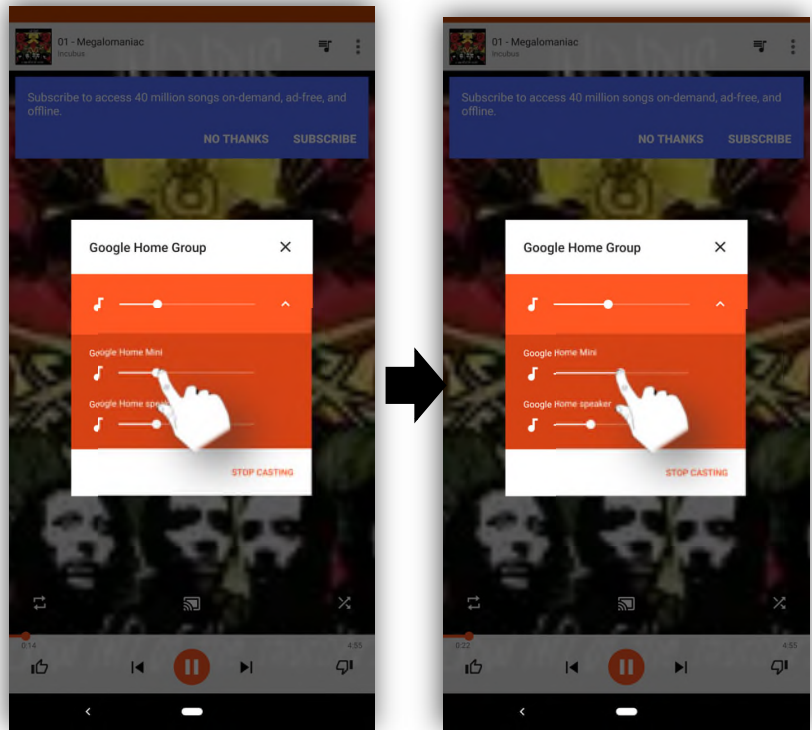
For instance, each Chromecast-enabled computing device and Hub Audio Player is programmed with the capability to display a GUI view (e.g., via a Google Home, YouTube Music, Google Play Music, or Hub Audio Player user interface) having a respective player-specific volume slider for each individual Google Audio Player in a group through which the Chromecast-enabled computing device or Hub Audio Player accepts a player-specific input to adjust a volume of an individual Google Audio Player, which in turn causes the individual Google Audio Player to adjust its volume. Examples of this functionality are illustrated in the following sequences of screenshots.



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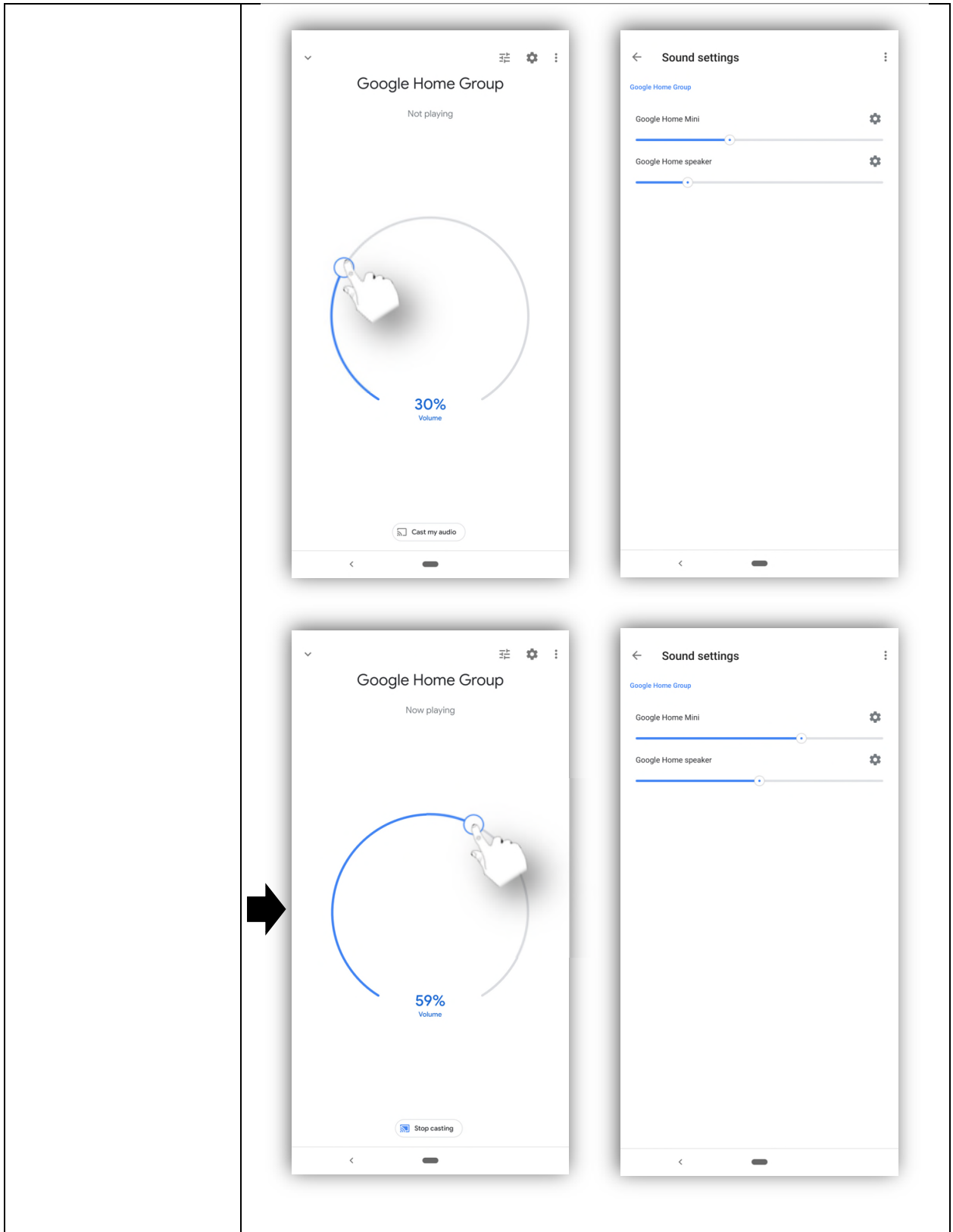
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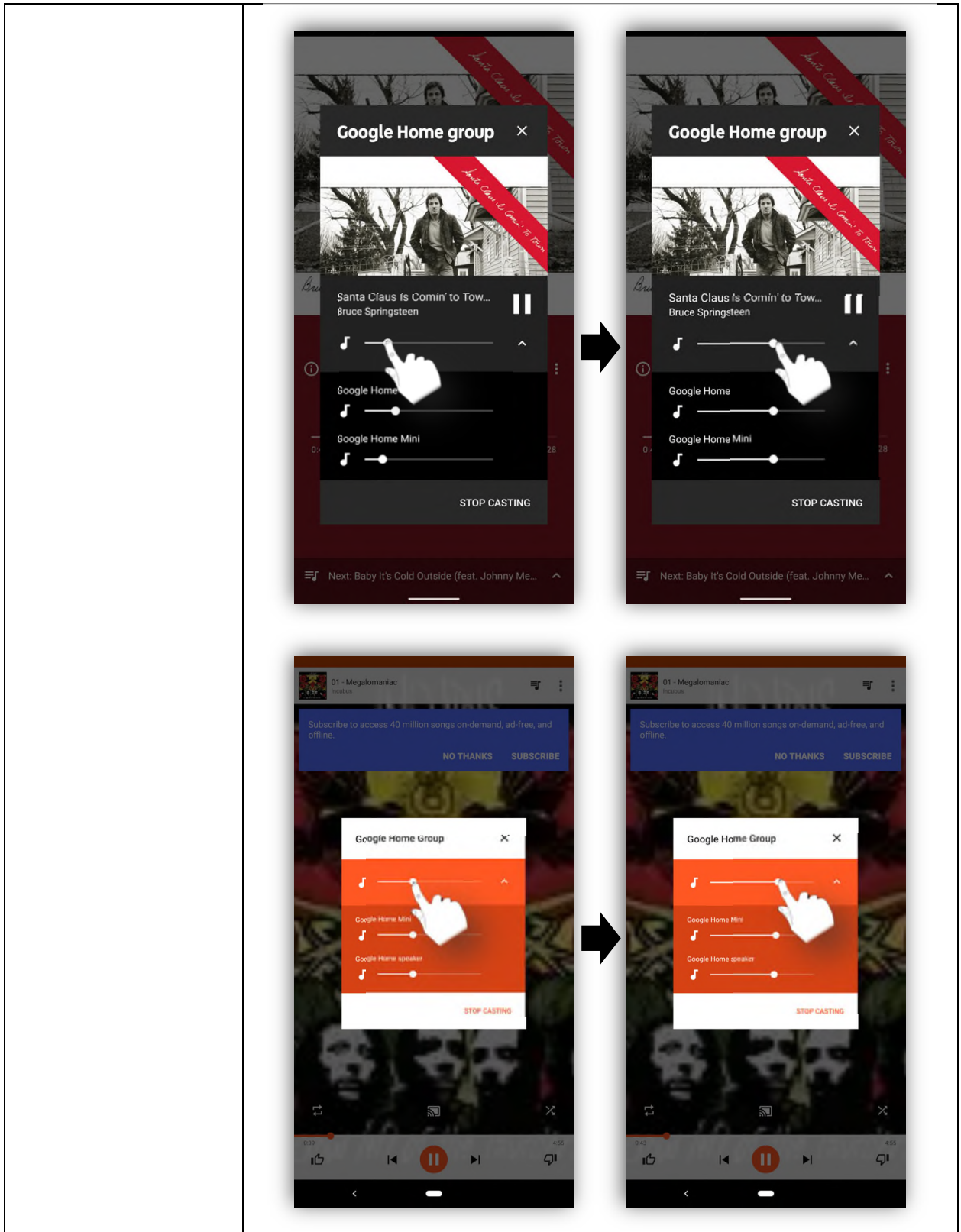
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	<p><i>See also, e.g., Ex. 55</i> (“When casting to a group, there are two ways to change the volume: . . . 2. Changing a single speaker’s volume when it’s part of a group. This action will only change that individual speaker.”) (emphasis in original); Exs. 29, 84, 106.</p>
<p>accept via the user interface a group-level input to adjust a volume associated with the player group, wherein the group-level input to adjust the volume associated with the player group causes each of the players in the player group to adjust its respective volume.</p>	<p>Each Chromecast-enabled computing device and Hub Audio Player is configured to accept via the user interface a group-level input to adjust a volume associated with the player group, where the group-level input to adjust the volume associated with the player group causes each of the Google Audio Players in the player group to adjust its respective volume.</p> <p>For instance, each Chromecast-enabled computing device and Hub Audio Player is programmed with the capability to display a GUI view (<i>e.g.</i>, via a Google Home, YouTube Music, Google Play Music, or Hub Audio Player user interface) having a “Group volume” slider for a group of Google Audio Players through which the Chromecast-enabled computing device or Hub Audio Player accepts a group-level input to adjust a volume associated with the group of Google Audio Players, which in turn causes each Google Audio Player in the group to adjust its respective volume. Examples of this functionality are illustrated in the following sequences of screenshots.</p>

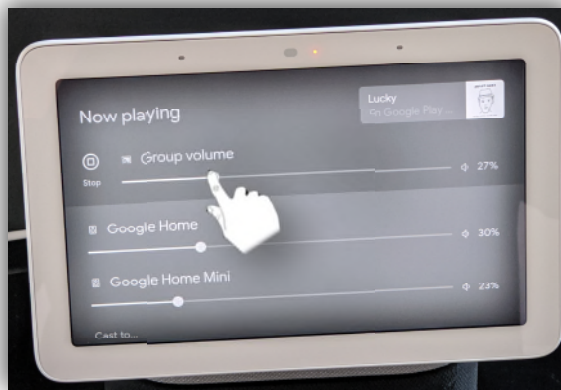
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See also, e.g., Ex. 55 (“When casting to a group, there are two ways to change the volume: 1. Changing the **group volume**. This action will change the volume of all speakers within the group.”) (emphasis in original); Ex. 84.

140. Additionally and/or alternatively, Google has indirectly infringed and continues to indirectly infringe the asserted claims of the ‘949 Patent, in violation of 35 U.S.C. § 271(b), by actively inducing users of the Google Wireless Audio System to directly infringe the asserted claims of the ‘949 Patent. In particular, (a) Google had actual knowledge of the ‘949 Patent or was willfully blind to its existence prior to (at least as early as October 2016), and no later than, the filing of this complaint (*see* ¶¶ 35-38 above), (b) Google intentionally causes, urges, or encourages users of the Google Wireless Audio System to directly infringe one or more claims of the ‘949 Patent by promoting, advertising, and instructing customers

1 and potential customers about the Google Wireless Audio System and uses thereof,
2 including infringing uses (*see* Exs. 29, 34-39, 55), (c) Google knows (or should
3 know) that its actions will induce users of the Google Wireless Audio System to
4 directly infringe one or more claims the '949 Patent, and (d) users of the Google
5 Wireless Audio System directly infringe one or more claims of the '949 Patent. For
6 instance, at a minimum, Google has supplied and continues to supply the Google
7 Apps to customers while knowing that installation and/or use of the Google Apps
8 will infringe one or more claims of the '949 Patent and that Google's customers
9 then directly infringe one or more claims of the '949 Patent by installing and/or
10 using the Google Apps in accordance with Google's product literature. *See, e.g.,*
11 *id.*

12 141. As another example, Google has supplied and continues to supply Hub
13 Audio Players to customers while knowing that use of these products will infringe
14 one or more claims of the '949 Patent and that Google's customers then directly
15 infringe one or more claims of the '949 Patent by using these Hub Audio Players
16 in accordance with Google's product literature. *See, e.g.,* Exs. 29, 84.

17 142. Additionally and/or alternatively, Google has indirectly infringed and
18 continues to indirectly infringe one or more of the claims of the '949 Patent, in
19 violation of 35 U.S.C. § 271(c), by offering to sell or selling within the United
20 States, and/or importing into the United States, components in connection with the
21 Google Wireless Audio System that contribute to the direct infringement of the '949
22 Patent by users of the Google Wireless Audio System. In particular, (a) Google
23 had actual knowledge of the '949 Patent or was willfully blind to its existence prior
24 to (at least as early as October 2016), and no later than, the filing of this action (*see*
25 ¶¶ 35-38 above), (b) Google offers for sale, sells, and/or imports, in connection with
26 the Google Wireless Audio System, one or more material components of the
27 invention of the '949 Patent that are not staple articles of commerce suitable for
28 substantial noninfringing use, (c) Google knows (or should know) that such

1 component(s) were especially made or especially adapted for use in an infringement
2 of the '949 Patent, and (d) users of devices that comprise such material
3 component(s) directly infringe one or more claims of the '949 Patent. For instance,
4 at a minimum, Google offers for sale, sells, and/or imports the Google Apps for
5 installation on devices (*e.g.*, smartphones, tablets, and computers) that meet one or
6 more claims of the '949 Patent. *See, e.g.*, Exs. 29, 34-39, 55. The Google Apps are
7 material components of the devices that meet the one or more claims of the '949
8 Patent. Further, Google especially made and/or adapted the Google Apps for use
9 in devices that meet the one or more claims of the '949 Patent, and the Google Apps
10 are not a staple article of commerce suitable for substantial noninfringing use.
11 Google's customers then directly infringe the one or more claims of the '949 Patent
12 by installing and/or using the Google Apps on the customers' devices.

13 143. As another example, Google offers for sale, sells, and/or imports
14 software updates for Hub Audio Players that meet one or more claims of the '949
15 Patent. *See, e.g.*, Exs. 29, 84, 85. These software updates are material components
16 of the Hub Audio Players that meet the one or more claims of the '949 Patent.
17 Further, Google especially made and/or adapted these software updates for use in
18 the Hub Audio Players that meet the one or more claims of the '949 Patent, and
19 these software updates are not staple articles of commerce suitable for substantial
20 noninfringing use. Google's customers then directly infringe the one or more
21 claims of the '949 Patent by installing and using software updates on the Hub Audio
22 Players.

23 144. Google's infringement of the '949 Patent is also willful because
24 Google (a) had actual knowledge of the '949 Patent or was willfully blind to its
25 existence prior to (at least as early as October 2016), and no later than, the filing of
26 this action (*see* ¶¶ 35-38 above), (b) engaged in the aforementioned activity despite
27 an objectively high likelihood that Google's actions constituted infringement of the
28 '949 Patent, and (c) this objectively-defined risk was either known or so obvious

1 that it should have been known to Google.

2 145. Additional allegations regarding Google's pre-suit knowledge of the
3 '949 Patent and willful infringement will likely have evidentiary support after a
4 reasonable opportunity for discovery.

5 146. Sonos is in compliance with any applicable marking and/or notice
6 provisions of 35 U.S.C. § 287 with respect to the '949 Patent.

7 147. Sonos is entitled to recover from Google all damages that Sonos has
8 sustained as a result of Google's infringement of the '949 Patent, including, without
9 limitation, a reasonable royalty and lost profits.

10 148. Google's infringement of the '949 Patent was and continues to be
11 willful and deliberate, entitling Sonos to enhanced damages.

12 149. Google's infringement of the '949 Patent is exceptional and entitles
13 Sonos to attorneys' fees and costs incurred in prosecuting this action under 35
14 U.S.C. § 285.

15 150. Google's infringement of the '949 Patent has caused irreparable harm
16 (including the loss of market share) to Sonos and will continue to do so unless
17 enjoined by this Court.

18 **COUNT II: INFRINGEMENT OF U.S. PATENT NO. 9,195,258**

19 151. Sonos incorporates by reference and re-alleges paragraphs 47-55 and
20 72-88 of this Complaint as if fully set forth herein.

21 152. Google and/or users of the Google Wireless Audio System have
22 directly infringed (either literally or under the doctrine of equivalents) and continue
23 to directly infringe one or more of the claims of the '258 Patent, in violation of 35
24 U.S.C. § 271(a), by making, using, offering for sale, and/or selling the Google
25 Wireless Audio System within the United States and/or importing the Google
26 Wireless Audio System into the United States without authority or license.

27 153. As just one non-limiting example, set forth below is an exemplary
28 infringement claim chart for claim 17 of the '258 Patent in connection with the

1 Google Wireless Audio System. This claim chart is based on publicly available
 2 information. Sonos reserves the right to modify this claim chart, including, for
 3 example, on the basis of information about the Google Wireless Audio System that
 4 it obtains during discovery.

Claim 17	Google
17. A first zone player comprising:	At least each Home Mini, Nest Mini, Home, Home Max, Home Hub, Nest Hub, Nest Hub Max, Nest Wifi Point, Chromecast, Chromecast Audio, and Chromecast Ultra comprises a “zone player,” as recited in claim 17. At least each smartphone, tablet, and computer installed with the Google Home app, the YouTube Music app, the Google Play Music app, and/or other Chromecast-enabled apps (<i>e.g.</i> , Spotify) (where a computing device installed with at least one of these apps is referred to herein as a “Chromecast-enabled computing device”) comprises a “controller,” as recited in claim 17.
a network interface configured to interface the first zone player with at least a local area network (LAN);	Each of the foregoing Google Audio Players includes a network interface configured to interface the Google Audio Player with at least a LAN, such as a Wi-Fi interface. <i>See, e.g.</i> , Exs. 68, 95-98.
a device clock configured to generate clock time information for the first zone player;	Each of the foregoing Google Audio Players includes a device clock configured to generate clock time information for the Google Audio Player. <i>See, e.g.</i> , Exs. 68, 95-98.
one or more processors; and	Each of the foregoing Google Audio Players includes one or more processors. <i>See, e.g.</i> , Exs. 68, 95-98.
a tangible, non-transitory computer-readable memory having instructions stored thereon that, when executed by the one or more processors, cause the first zone player to:	Each of the foregoing Google Audio Players includes a tangible, non-transitory computer-readable memory comprising executable program instructions that enable a Google Audio Player to perform the functions identified below. <i>See, e.g.</i> , Exs. 68, 85, 95-98.

1	Claim 17	Google
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	receive control information from any one of a plurality of controllers over the LAN via the network interface, wherein the received control information comprises a direction for the first zone player to enter into a synchrony group with at least a second zone player;	<p>Each of the foregoing Google Audio Players comprises program instructions that, when executed by a first Google Audio Player's one or more processors, cause that Google Audio Player to receive control information from any one of a plurality of Chromecast-enabled computing devices over the LAN via the network interface, where the received control information comprises a direction for the first Google Audio Player to enter into a synchrony group with at least a second Google Audio Player.</p> <p>For instance, each of the foregoing Google Audio Players is programmed with the capability to receive over a local Wi-Fi network (which is a LAN), from any of a plurality of Chromecast-enabled computing devices, a direction to enter into a group of two or more Google Audio Players that are configured to play back audio in synchrony with one another. <i>See e.g.</i>, Ex. 29 (“Group any combination of Google Nest or Google Home speakers and displays, Chromecast devices, and speakers with Chromecast built-in together for synchronous music throughout the home. Your favorite music and audio from Chromecast-enabled apps are instantly available to stream.”); Exs. 30, 69, 94, 99, 104, 106.</p>
19 20 21 22 23 24 25 26 27 28	in response to the direction, enter into the synchrony group with the second zone player,	<p>Each of the foregoing Google Audio Players comprises program instructions that, when executed by a first Google Audio Player's one or more processors, cause that Google Audio Player to, in response to the direction, enter into the synchrony group with the second Google Audio Player.</p> <p>For instance, each of the foregoing Google Audio Players is programmed such that, in response to receiving a direction to enter into a group of Google Audio Players, the Google Audio Player functions to enter into the group with the one or more other Google Audio Players. <i>See e.g.</i>, Exs. 29, 30, 69, 94, 99, 104. In such a group, a first Google Audio Player is designated to serve as the “master” of the group</p>

1	Claim 17	Google
2		(sometimes referred to by Google as the “leader” of the
3		group), and any other Google Audio Player in the
4	wherein in the	group is designated to serve as a “slave” of the group.
5	synchrony group, the	Once grouped, the first and second Google Audio
6	first and second zone	Players are configured to play back audio in synchrony
7	players are configured	based at least in part on (i) audio content, (ii) playback
8	to playback audio in	timing information associated with the audio content
9	synchrony based at	that is generated by the first Google Audio Player that
10	least in part on (i)	is designated to serve as the “master” of the group, and
11	audio content, (ii)	(iii) clock time information for the first Google Audio
12	playback timing	Player, where the generated playback timing
13	information associated	information and the clock time information are
14	with the audio content,	transmitted from the first Google Audio Player to the
15	wherein the playback	second Google Audio Player that is designated to serve
16	timing information is	as a “slave” of the group, and where the Google Audio
17	generated by one of the	Players in the group remain independently clocked
18	first or second zone	while playing back audio in synchrony.
19	players, and (iii) clock	For instance, Google states that once its Google Audio
20	time information for	Players have been grouped, those audio players are
21	the one of the first or	configured to play audio in synchrony. <i>See, e.g.</i> , Ex.
22	second zone players,	29 (“Group any combination of Google Nest or Google
23	and wherein the	Home speakers and displays, Chromecast devices, and
24	generated playback	speakers with Chromecast built-in together for
25	timing information and	synchronous music throughout the home.”); <i>see also</i> ,
26	the clock time	<i>e.g.</i> , Exs. 69, 99, 106.
27	information are	Further, while in a group, a first Google Audio Player
28	transmitted from the	that is designated to serve as the “master”/“leader” of
1	one of the first or	the group receives audio content from an audio source
2	second zone players to	(e.g., an Internet-based audio source), and then the first
3	the other of the first or	Google Audio Player and a second Google Audio
4	second zone players,	Player that is designated to serve as a “slave” of the
5	wherein the first and	group are each configured play back audio in
6	second zone players	synchrony based on the audio content, playback timing
7	remain independently	information associated with the audio content and
8	clocked while playing	generated by the first Google Audio Player, and clock
9	back audio in	time information for the first Google Audio Player, all
10	synchrony; and	of which is sent from the first Google Audio Player to
11		the second Google Audio Player via data packets –

Claim 17	Google
	including but not limited to 62-byte UDP packets, 476-byte UDP packets, and/or encrypted TCP packets sent via port 10001. Further yet, while playing back audio in synchrony, each of the first and second Google Audio Players in the group continues to operate in accordance with its own respective clock.
transmit status information to at least one of the plurality of controllers over the LAN via the network interface, wherein the status information comprises an indication of a status of the synchrony group.	<p>Each of the foregoing Google Audio Players comprises program instructions that, when executed by a first Google Audio Player's one or more processors, cause that Google Audio Player to transmit status information to at least one of the plurality of Chromecast-enabled computing devices over the LAN via the network interface, where the status information comprises an indication of a status of the synchrony group.</p> <p>For instance, while in a group, each Google Audio Player in the group (including the Google Audio Player that is designated to serve as the "master" of the group) functions to send status information to any Chromecast-enabled computing device on the same local Wi-Fi network as the Google Audio Players in the group (<i>e.g.</i>, via MDNS packets) that provides an indication of a status of the group, including but not limited to status information that provides an identification of a name of the group, an identification of an "elected leader" of the group, and/or an identification of the group members. <i>See also, e.g.</i>, Ex. 100 ("GCKMultizoneStatus Class" providing "[t]he status of a multizone group" including "[t]he member devices of the multizone group.").</p>

154. Additionally and/or alternatively, Google has indirectly infringed and continues to indirectly infringe one or more of the claims of the '258 Patent, in violation of 35 U.S.C. § 271(b), by actively inducing users of the Google Wireless Audio System to directly infringe the one or more claims of the '258 Patent. In particular, (a) Google had actual knowledge of the '258 Patent or was willfully blind to its existence prior to (at least as early as October 2016), and no later than,

1 the filing of this action (*see* ¶¶ 35-38 above), (b) Google intentionally causes, urges,
2 or encourages users of the Google Wireless Audio System to directly infringe one
3 or more claims of the ‘258 Patent by promoting, advertising, and instructing
4 customers and potential customers about the Google Wireless Audio System and
5 uses of the system, including infringing uses (*see* Exs. 20, 29, 60, 61), (c) Google
6 knows (or should know) that its actions will induce users of the Google Wireless
7 Audio System to directly infringe one or more claims the ‘258 Patent, and (d) users
8 of the Google Wireless Audio System directly infringe one or more claims of the
9 ‘258 Patent. For instance, at a minimum, Google has supplied and continues to
10 supply Google Audio Players to customers while knowing that use of these products
11 will infringe one or more claims of the ‘258 Patent and that Google’s customers
12 then directly infringe one or more claims of the ‘258 Patent by using these Google
13 Audio Players in accordance with Google’s product literature. *See, e.g., id.*

14 155. Additionally and/or alternatively, Google has indirectly infringed and
15 continues to indirectly infringe one or more of the claims of the ‘258 Patent, in
16 violation of 35 U.S.C. § 271(c), by offering to sell or selling within the United
17 States, and/or importing into the United States, components in connection with the
18 Google Wireless Audio System that contribute to the direct infringement of the ‘258
19 Patent by users of the Google Wireless Audio System. In particular, (a) Google
20 had actual knowledge of the ‘258 Patent or was willfully blind to its existence prior
21 to (at least as early as October 2016), and no later than, the filing of this action (*see*
22 ¶¶ 35-38 above), (b) Google offers for sale, sells, and/or imports, in connection with
23 the Google Wireless Audio System, one or more material components of the
24 invention of the ‘258 Patent that are not staple articles of commerce suitable for
25 substantial noninfringing use, (c) Google knows (or should know) that such
26 component(s) were especially made or especially adapted for use in an infringement
27 of the ‘258 Patent, and (d) users of devices that comprise such material
28 component(s) directly infringe one or more claims of the ‘258 Patent. For instance,

1 at a minimum, Google offers for sale, sells, and/or imports software updates for
2 Google Audio Players that meet one or more claims of the '258 Patent. *See, e.g.*,
3 Ex. 20, 29, 60, 61, 85. These software updates are material components of the
4 Google Audio Players that meet the one or more claims of the '258 Patent. Further,
5 Google especially made and/or adapted these software updates for use in the Google
6 Audio Players that meet the one or more claims of the '258 Patent, and these
7 software updates are not staple articles of commerce suitable for substantial
8 noninfringing use. Google's customers then directly infringe the one or more
9 claims of the '258 Patent by installing and using software updates on the Google
10 Audio Players.

11 156. Google's infringement of the '258 Patent is also willful because
12 Google (a) had actual knowledge of the '258 Patent or was willfully blind to its
13 existence prior to (at least as early as October 2016), and no later than, the filing of
14 this action (*see* ¶¶ 35-38 above), (b) engaged in the aforementioned activity despite
15 an objectively high likelihood that Google's actions constituted infringement of the
16 '258 Patent, and (c) this objectively-defined risk was either known or so obvious
17 that it should have been known to Google.

18 157. Additional allegations regarding Google's pre-suit knowledge of the
19 '258 Patent and willful infringement will likely have evidentiary support after a
20 reasonable opportunity for discovery.

21 158. Sonos is in compliance with any applicable marking and/or notice
22 provisions of 35 U.S.C. § 287 with respect to the '258 Patent.

23 159. Sonos is entitled to recover from Google all damages that Sonos has
24 sustained as a result of Google's infringement of the '258 Patent, including, without
25 limitation, a reasonable royalty and lost profits.

26 160. Google's infringement of the '258 Patent was and continues to be
27 willful and deliberate, entitling Sonos to enhanced damages.

28 161. Google's infringement of the '258 Patent is exceptional and entitles

1 Sonos to attorneys' fees and costs incurred in prosecuting this action under 35
2 U.S.C. § 285.

3 162. Google's infringement of the '258 Patent has caused irreparable harm
4 (including the loss of market share) to Sonos and will continue to do so unless
5 enjoined by this Court.

6 **COUNT III: INFRINGEMENT OF U.S. PATENT NO. 9,219,959**

7 163. Sonos incorporates by reference and re-alleges paragraphs 47-55 and
8 89-106 of this Complaint as if fully set forth herein.

9 164. Google and/or users of the Google Wireless Audio System have
10 directly infringed (either literally or under the doctrine of equivalents) and continue
11 to directly infringe one or more of the claims of the '959 Patent, in violation of 35
12 U.S.C. § 271(a), by making, using, offering for sale, and/or selling the Google
13 Wireless Audio System (*e.g.*, the Google Home Max) within the United States
14 and/or importing the Google Wireless Audio System into the United States without
15 authority or license.

16 165. As just one non-limiting example, set forth below is an infringement
17 claim chart of exemplary claim 10 of the '959 Patent in connection with the Google
18 Wireless Audio System. This claim chart is based on publicly available
19 information. Sonos reserves the right to modify this claim chart, including, for
20 example, on the basis of information about the Google Wireless Audio System that
21 it obtains during discovery.

Claim 10	Google
10. A playback device configured to output audio in a multi-channel listening environment, the playback device comprising:	At least each Google Home Max comprises a "playback device configured to output audio in a multi-channel listening environment," as recited in claim 10. At least each smartphone, tablet, and computer installed with the Google Home app (where a computing device installed with at least the Google Home app is referred to herein as a "Chromecast-enabled computing device") comprises a "controller," as recited in claim 10.

Claim 10	Google
<p>1 a network interface 2 configured to 3 receive audio data 4 over a network;</p>	<p>The foregoing Google Audio Player includes a network interface configured to receive audio data over a network, such as a Wi-Fi interface. <i>See, e.g.</i>, Ex. 96 (“802.11b/g/n/ac (2.4GHz/5Ghz) Wi-Fi for high-performance streaming”); Ex. 68 (same).</p>
<p>5 a plurality of 6 speaker drivers 7 configured to output 8 audio based on the 9 audio data;</p>	<p>The foregoing Google Audio Player includes a plurality of speaker drivers configured to output audio based on the audio data. <i>See, e.g.</i>, Ex. 68 (“Two 4.5 in (114 mm) high-excursion (+/- 11 mm) dual voice-coil woofers . . . Two 0.7 in (18 mm) custom tweeters”); Ex. 96 (same).</p>
<p>10 one or more 11 processors; and</p>	<p>The foregoing Google Audio Player includes one or more processors. <i>See, e.g.</i>, Ex. 68 (“Processor[:] 1.5GHz 64-bit quad-core ARM® Cortex™ A53”); Ex. 96 (same).</p>
<p>12 tangible, non- 13 transitory, computer 14 readable memory 15 comprising 16 instructions encoded 17 therein, wherein the 18 instructions, when 19 executed by the one 20 or more processors, 21 cause the playback 22 device to</p>	<p>The foregoing Google Audio Player includes tangible, non-transitory, computer-readable memory comprising executable program instructions that enable the Google Audio Player to perform the functions identified below. <i>See, e.g.</i>, Exs. 68, 96.</p>
<p>23 (i) receive a signal 24 from a controller 25 over the network, 26 wherein the signal 27 comprises an 28 instruction for the playback device to pair with one or more playback devices,</p>	<p>The foregoing Google Audio Player comprises program instructions that, when executed by the Google Audio Player’s one or more processors, cause the Google Audio Player to receive a signal from a controller over a network, where the signal comprises an instruction for the Google Audio Player to pair with one or more other Google Audio Players.</p> <p>For instance, each Google Home Max is programmed with the capability to receive, from a Chromecast-enabled computing device over a Wi-Fi network that the Google Home Max is connected to, an instruction to begin operating as part of a “speaker pair” configuration for “stereo sound” (also referred to by Google as a “stereo pairing”) with another Google Home Max, which is a</p>

Claim 10	Google
	<p>configuration involving two or more Google Audio Players having different playback roles. <i>See, e.g.</i>, Ex. 69 (“Pair Google Home Max speakers[:] You can pair two Google Home Max speakers (devices) for stereo sound and an immersive experience for music and casting. . . . Step 1. Place speakers in the best position in your room . . . Step 2. Set up both Google Home Max speakers . . . Step 3. Pair the speakers . . . Step 4. Control the speaker pair.”); Ex. 68 (“Wireless stereo pairing”). In a “speaker pair” configuration, one Google Home Max has the role of playing back the left audio channel, and the other Google Home Max has the role of playing back the right audio channel. <i>See, e.g.</i>, Ex. 69 (“Tap Left or Right to match the location of the blinking speaker . . .”) (emphasis in original).</p> <p>For example, at the time that a user inputs a request to create a given “speaker pair” via a Chromecast-enabled computing device, the Chromecast-enabled computing device transmits control packets to at least a first Google Home Max in the given “speaker pair.” On information and belief, these control packets include an instruction for the first Google Home Max to begin operating as part of the given “speaker pair” with at least a second Google Home Max. <i>See, e.g.</i>, Ex. 69 (“When two speakers are paired, your Assistant lives and responds on the left speaker. To use your Assistant on the right speaker, unpair the speakers using the steps below. Then you can use your Assistant on both speakers.”) (emphasis in original).</p>
(ii) process the audio data before the playback device outputs audio from the plurality of speaker drivers,	<p>The foregoing Google Audio Player comprises program instructions that, when executed by the Google Audio Player’s one or more processors, cause the Google Audio Player to process the audio data before the Google Audio Player outputs audio from the plurality of speaker drivers.</p> <p>For instance, each Google Home Max is programmed with the capability to perform various types of audio processing on received audio data before outputting audio based on that audio data, examples of which may include digital-to-</p>

Claim 10	Google
	analog conversion, decompression, decryption, etc. <i>See, e.g.,</i> Ex. 96 (listing various “[s]upported [a]udio [f]ormats”); Ex. 107.
(iii) determine that a type of pairing of the playback device comprises one of at least a first type of pairing or a second type of pairing[.]	<p>The foregoing Google Audio Player comprises program instructions that, when executed by the Google Audio Player’s one or more processors, cause the Google Audio Player to determine that a type of pairing of the Google Audio Player comprises one of at least a first type of pairing or a second type of pairing.</p> <p>For instance, each Google Home Max is programmed with the capability to operate in accordance with a particular type of pairing, such as a “no pairing” type of pairing or a “speaker pair” type of pairing. <i>See, e.g.,</i> Ex. 69 (“Pair the speakers . . . Unpair speakers”); Ex. 68 (“Wireless stereo pairing”).</p> <p>Further, each Google Home Max is programmed with the capability to determine its type of pairing at various times, including but not limited to when the Google Home Max receives an instruction to begin or stop operating as part of a “speaker pair” with another Google Home Max, when the Google Home Max is performing certain functions in accordance with its current “pairing type,” and/or when the Google Home Max powers up. <i>See, e.g., id.</i></p>
(iv) configure the playback device to perform a first equalization of the audio data before outputting audio based on the audio data from the plurality of speaker drivers when the type of pairing is determined to comprise the first type of pairing, and	<p>The foregoing Google Audio Player comprises program instructions that, when executed by the Google Audio Player’s one or more processors, cause the Google Audio Player to configure itself to (i) perform a first equalization of the audio data before outputting audio based on the audio data from the plurality of speaker drivers when the type of pairing is determined to comprise the first type of pairing and (ii) perform a second equalization of the audio data before outputting audio based on the audio data from the plurality of speaker drivers when the type of pairing is determined to comprise the second type of pairing.</p> <p>For instance, each Google Home Max is programmed with the capability to change its equalization (including but not</p>

1	Claim 10	Google
2	(v) configure the	limited to its channel and/or frequency output) when its
3	playback device to	type of pairing changes from one of the aforementioned
4	perform a second	types of pairing to another of the aforementioned types of
5	equalization of the	pairing. <i>See, e.g.</i> , Ex. 69 (“Pair the speakers . . . Unpair
6	audio data before	speakers”).
7	outputting audio	As one example to illustrate, as discussed above, each
8	based on the audio	Google Home Max is programmed with the capability to
9	data from the	operate in accordance with either a “no pairing” type of
10	plurality of speaker	pairing or a “speaker pair” type of pairing. When
11	drivers when the	operating in accordance with a “no pairing” type of
12	type of pairing is	pairing, the Google Home Max is configured to perform a
13	determined to	first equalization of audio data that is specific to the “no
14	comprise the second	pairing” type of pairing, which involves using one or more
15	type of pairing.	parameters that affect at least the channel output of one or
16		more of the Google Home Max’s speaker drivers such that
17		both the left channel and the right channel of audio
18		content are output via the Google Home Max’s speaker
19		drivers (perhaps along with using a first set of gain,
20		frequency, phase, and/or time delay parameters that are
21		specific to a “no pairing” type of pairing). <i>See, e.g.</i> , Ex.
22		69 (“Pair Google Home Max speakers[:] You can pair two
23		Google Home Max speakers (devices) for stereo sound
24		and an immersive experience for music and casting. . . .
25		Step 1. Place speakers in the best position in your room . .
26		. Step 2. Set up both Google Home Max speakers . . . Step
27		3. Pair the speakers . . . Step 4. Control the speaker pair.”).
28		On the other hand, when operating in accordance with a
		“speaker pair” type of pairing, the Google Home Max is
		configured to perform a second equalization of audio data
		that is specific to the “speaker pair” type of pairing, which
		involves using one or more parameters that affect at least
		the channel output of one or more of the Google Home
		Max’s speaker drivers such that only a given one of the
		left or right channel of audio content is output via the
		Google Home Max’s speaker drivers (perhaps along with
		using a second set of gain, frequency, phase, and/or time
		delay parameters that are specific to a “stereo pairing”
		type of pairing). <i>See, e.g., id.</i>

1 166. Additionally and/or alternatively, Google has indirectly infringed and
2 continues to indirectly infringe one or more of the claims of the ‘959 Patent, in
3 violation of 35 U.S.C. § 271(b), by actively inducing users of the Google Wireless
4 Audio System to directly infringe the one or more claims of the ‘959 Patent. In
5 particular, (a) Google had actual knowledge of the ‘959 Patent or was willfully
6 blind to its existence prior to (at least as early as October 2016), and no later than,
7 the filing of this action (*see* ¶¶ 35-38 above), (b) Google intentionally causes, urges,
8 or encourages users of the Google Wireless Audio System to directly infringe one
9 or more claims of the ‘959 Patent by promoting, advertising, and instructing
10 customers and potential customers about the Google Wireless Audio System and
11 uses of the system, including infringing uses (*see* Exs. 67-70), (c) Google knows
12 (or should know) that its actions will induce users of the Google Wireless Audio
13 System to directly infringe one or more claims the ‘959 Patent, and (d) users of the
14 Google Wireless Audio System directly infringe one or more claims of the ‘959
15 Patent. For instance, at a minimum, Google has supplied and continues to supply
16 the Google Home Max to customers while knowing that use of this product will
17 infringe one or more claims of the ‘959 Patent and that Google’s customers then
18 directly infringe one or more claims of the ‘959 Patent by using the Google Home
19 Max in accordance with Google’s product literature. *See, e.g., id.*

20 167. Additionally and/or alternatively, Google has indirectly infringed and
21 continues to indirectly infringe one or more of the claims of the ‘959 Patent, in
22 violation of 35 U.S.C. § 271(c), by offering to sell or selling within the United
23 States, and/or importing into the United States, components in connection with the
24 Google Wireless Audio System that contribute to the direct infringement of the ‘959
25 Patent by users of the Google Wireless Audio System. In particular, (a) Google
26 had actual knowledge of the ‘959 Patent or was willfully blind to its existence prior
27 to (at least as early as October 2016), and no later than, the filing of this action (*see*
28 ¶¶ 35-38 above), (b) Google offers for sale, sells, and/or imports, in connection with

1 the Google Wireless Audio System, one or more material components of the
2 invention of the '959 Patent that are not staple articles of commerce suitable for
3 substantial noninfringing use, (c) Google knows (or should know) that such
4 component(s) were especially made or especially adapted for use in an infringement
5 of the '959 Patent, and (d) users of devices that comprise such material
6 component(s) directly infringe one or more claims of the '959 Patent. For instance,
7 at a minimum, Google offers for sale, sells, and/or imports software updates for the
8 Google Home Max that meets one or more claims of the '959 Patent. *See, e.g.*, Exs.
9 67-70, 85. These software updates are material components of the Google Home
10 Max that meets the one or more claims of the '959 Patent. Further, Google
11 especially made and/or adapted these software updates for use in the Google Home
12 Max that meets the one or more claims of the '959 Patent, and these software
13 updates are not staple articles of commerce suitable for substantial noninfringing
14 use. Google's customers then directly infringe the one or more claims of the '959
15 Patent by installing and using software updates on the Google Home Max.

16 168. Google's infringement of the '959 Patent is also willful because
17 Google (a) had actual knowledge of the '959 Patent or was willfully blind to its
18 existence prior to (at least as early as October 2016), and no later than, the filing of
19 this action (*see* ¶¶ 35-38 above), (b) engaged in the aforementioned activity despite
20 an objectively high likelihood that Google's actions constituted infringement of the
21 '959 Patent, and (c) this objectively-defined risk was either known or so obvious
22 that it should have been known to Google.

23 169. Additional allegations regarding Google's pre-suit knowledge of the
24 '959 Patent and willful infringement will likely have evidentiary support after a
25 reasonable opportunity for discovery.

26 170. Sonos is in compliance with any applicable marking and/or notice
27 provisions of 35 U.S.C. § 287 with respect to the '959 Patent.

28 171. Sonos is entitled to recover from Google all damages that Sonos has

1 sustained as a result of Google's infringement of the '959 Patent, including, without
2 limitation, a reasonable royalty and lost profits.

3 172. Google's infringement of the '959 Patent was and continues to be
4 willful and deliberate, entitling Sonos to enhanced damages.

5 173. Google's infringement of the '959 Patent is exceptional and entitles
6 Sonos to attorneys' fees and costs incurred in prosecuting this action under 35
7 U.S.C. § 285.

8 174. Google's infringement of the '959 Patent has caused irreparable harm
9 (including the loss of market share) to Sonos and will continue to do so unless
10 enjoined by this Court.

11 **COUNT IV: INFRINGEMENT OF U.S. PATENT NO. 10,209,953**

12 175. Sonos incorporates by reference and re-alleges paragraphs 47-55 and
13 107- 119 of this Complaint as if fully set forth herein.

14 176. Google and/or users of the Google Wireless Audio System have
15 directly infringed (either literally or under the doctrine of equivalents) and continue
16 to directly infringe one or more of the claims of the '953 Patent, in violation of 35
17 U.S.C. § 271(a), by making, using, offering for sale, and/or selling the Google
18 Wireless Audio System within the United States and/or importing the Google
19 Wireless Audio System into the United States without authority or license.

20 177. As just one non-limiting example, set forth below is an exemplary
21 infringement claim chart for claim 7 of the '953 Patent in connection with the
22 Google Wireless Audio System. This claim chart is based on publicly available
23 information. Sonos reserves the right to modify this claim chart, including, for
24 example, on the basis of information about the Google Wireless Audio System that
25 it obtains during discovery.

Claim 7	Google
7. A first zone player comprising:	At least each Home Mini, Nest Mini, Home, Home Max, Home Hub, Nest Hub, Nest Hub Max, Nest Wifi Point,

Claim 7	Google
	Chromecast, Chromecast Audio, and Chromecast Ultra comprises a “zone player,” as recited in claim 7. These Google Audio Players are controlled by smartphones, tablets, and computers installed with the Google Home app, the Google Play Music app, the YouTube Music app, and/or other Chromecast-enabled apps (e.g., Spotify) (where a computing device installed with at least one of these apps is referred to herein as a “Chromecast-enabled computing device”).
a network interface that is configured to provide an interconnection with at least one data network;	Each of the foregoing Google Audio Players includes a network interface that is configured to provide an interconnection with at least one data network, such as a Wi-Fi interface. <i>See, e.g.</i> , Exs. 68, 95-98.
a clock that is configured to provide a clock time of the first zone player;	Each of the foregoing Google Audio Players includes a clock that is configured to provide a clock time of the Google Audio Player. <i>See, e.g.</i> , Exs. 68, 95-98.
at least one processor;	Each of the foregoing Google Audio Players includes at least one processor. <i>See, e.g.</i> , Exs. 68, 95-98.
a tangible, non-transitory computer-readable medium; and program instructions stored on the tangible, non-transitory computer-readable medium that are executable by the at least one processor to cause the first zone player to perform functions comprising:	Each of the foregoing Google Audio Players includes a tangible, non-transitory computer-readable medium comprising executable program instructions that enable a Google Audio Player to perform the functions identified below. <i>See, e.g.</i> , Exs. 68, 85, 95-98.
receiving a request to enter into a synchrony group with at least a second zone player that is	Each of the foregoing Google Audio Players comprises program instructions that, when executed by a first Google Audio Player’s at least one processor, cause that Google Audio Player to receive a request to enter into a synchrony group with at least a second Google Audio

1 Claim 7	Google
<p>2 communicatively 3 coupled with the first 4 zone player over a 5 local area network 6 (LAN);</p>	<p>Player that is communicatively coupled with the first Google Audio Player over a LAN.</p> <p>For instance, each of the foregoing Google Audio Players is programmed with the capability to receive over a local Wi-Fi network (which is a LAN) a request to enter into a group of two or more Google Audio Players that are configured to play back audio in synchrony with one another, where such a direction is from a Chromecast-enabled computing device on the local Wi-Fi network or a Google voice-server that is communicatively coupled to the local Wi-Fi network, among other possibilities. <i>See e.g.</i>, Ex. 29 (“Group any combination of Google Nest or Google Home speakers and displays, Chromecast devices, and speakers with Chromecast built-in together for synchronous music throughout the home. Your favorite music and audio from Chromecast-enabled apps are instantly available to stream.”); Exs. 30, 69, 94, 99, 104, 106.</p>
<p>15 in response to 16 receiving the request 17 to enter into the 18 synchrony group, 19 entering into the 20 synchrony group with 21 the second zone 22 player, wherein the 23 first zone player is 24 selected to begin 25 operating as a slave 26 of the synchrony 27 group and the second 28 zone player is selected to begin operating as a master of the synchrony group, and wherein the clock time of the first zone player differs from a clock</p>	<p>Each of the foregoing Google Audio Players comprises program instructions that, when executed by a first Google Audio Player’s at least one processor, cause that Google Audio Player to, in response to receiving the request to enter into the synchrony group, enter into the synchrony group with the second Google Audio Player, where the first Google Audio Player is selected to begin operating as a slave of the synchrony group and the second Google Audio Player is selected to begin operating as a master of the synchrony group, and where the clock time of the first Google Audio Player differs from a clock time of the second Google Audio Player.</p> <p>For instance, each of the foregoing Google Audio Players is programmed such that, in response to receiving a request to enter into a group of Google Audio Players, the Google Audio Player functions to enter into the group with the one or more other Google Audio Players. <i>See e.g.</i>, Exs. 29, 30, 69, 94, 99, 104, 106. In such a group, a first Google Audio Player is designated to operate as a “slave” of the group, and a second Google</p>

Claim 7	Google
<p>1 time of the second 2 zone player;</p>	<p>Audio Player is designated to operate as the “master” of the group (sometimes referred to by Google as the “leader” of the group). Moreover, the respective clock times of the first and second Google Audio Players differ.</p>
<p>5 after beginning to 6 operate as the slave 7 of the synchrony 8 group:</p>	<p>Each of the foregoing Google Audio Players comprises program instructions that, when executed by a first Google Audio Player’s at least one processor, cause that Google Audio Player to perform the following functions after beginning to operate as the slave of the synchrony group.</p>
<p>9 receiving, from the 10 second zone player 11 over the LAN, clock 12 timing information 13 that comprises at 14 least one reading of 15 the clock time of the 16 second zone player; 17 based on the received 18 clock timing 19 information, 20 determining a 21 differential between 22 the clock time of the 23 first zone player and 24 the clock time of the 25 second zone player;</p>	<p>Each of the foregoing Google Audio Players comprises program instructions that, when executed by a first Google Audio Player’s at least one processor, cause that Google Audio Player to, after beginning to operate as the slave of the synchrony group, (i) receive, from the second Google Audio Player over the LAN, clock timing information that comprises at least one reading of the clock time of the second Google Audio Player and (ii) based on the received clock timing information, determine a differential between the clock time of the first Google Audio Player and the clock time of the second Google Audio Player.</p> <p>For instance, each of the foregoing Google Audio Players is programmed such that, after beginning to operate as a “slave” of a group, the Google Audio Player is configured to (i) receive, from the “master” Google Audio Player of the group, clock timing information that comprises at least one reading of the clock time of the “master” player via data packets, such as 62-byte UDP packets, and (ii) based on the received clock timing information, determine a differential between its own clock time and the clock time of the “master” Google Audio Player.</p>
<p>26 receiving, from the 27 second zone player 28 over the LAN, (a) audio information for</p>	<p>Each of the foregoing Google Audio Players comprises program instructions that, when executed by a first Google Audio Player’s at least one processor, cause that Google Audio Player to, after beginning to operate as the</p>

1	Claim 7	Google
2	at least a first audio	slave of the synchrony group, receive, from the second
3	track and (b)	Google Audio Player over the LAN, (a) audio
4	playback timing	information for at least a first audio track and (b)
5	information	playback timing information associated with the audio
6	associated with the	information for the first audio track that comprises an
7	audio information for	indicator of a first future time, relative to the clock time
8	the first audio track	of the second Google Audio Player, at which the first and
9	that comprises an	second Google Audio Players are to initiate synchronous
10	indicator of a first	playback of the audio information for the first audio
11	future time, relative	track.
12	to the clock time of	For instance, each of the foregoing Google Audio
13	the second zone	Players is programmed such that, after beginning to
14	player, at which the	operate as a “slave” of a group, the Google Audio Player
15	first and second zone	is configured to receive, from the “master” Google
16	players are to initiate	Audio Player of the group, audio information for at least
17	synchronous	a first audio track and associated playback timing
18	playback of the audio	information that includes an indicator of a first future
19	information for the	time, relative to the clock time of the “master” Google
20	first audio track;	Audio Player, at which the Google Audio Players of the
21		group are to initiate synchronous playback of the audio
22		information for the first audio track, where such
23		information is received via various types of data packets
24		sent by the “master” Google Audio Player – including
25		but not limited to 476-byte UDP packets and/or
26		encrypted TCP packets sent via port 10001. <i>See also,</i>
27		<i>e.g., Ex. 29; Ex. 69, 99, 106.</i>
28		

Claim 7	Google
<p>1 updating the first 2 future time to account 3 for the determined 4 differential between 5 the clock time of the 6 first zone player and 7 the clock time of the 8 second zone player; 9 and 10 when the clock time 11 of the first zone 12 player reaches the 13 updated first future 14 time, initiating 15 synchronous 16 playback of the 17 received audio 18 information with the 19 second zone player.</p>	<p>Each of the foregoing Google Audio Players comprises program instructions that, when executed by a first Google Audio Player's at least one processor, cause that Google Audio Player to, after beginning to operate as the slave of the synchrony group, (i) update the first future time to account for the determined differential between the clock time of the first Google Audio Player and the clock time of the second Google Audio Player and (ii) when the clock time of the first Google Audio Player reaches the updated first future time, initiate synchronous playback of the received audio information with the second Google Audio Player.</p> <p>For instance, each of the foregoing Google Audio Players is programmed such that, after beginning to operate as a "slave" of a group, the Google Audio Player is configured to (i) update a first future time of playback timing information received from the "master" Google Audio Player of the group to account for a determined differential between the "slave" Google Audio Player's own clock time and clock time of the "master" Google Audio Player and (ii) when the clock time of the "slave" Google Audio Player reaches the updated first future time, initiate synchronous playback of the received audio information with the "master" Google Audio Player. <i>See, e.g., Ex. 29; Ex. 69, 99, 106.</i></p>

20 178. Additionally and/or alternatively, Google has indirectly infringed and
21 continues to indirectly infringe one or more of the claims of the '953 Patent, in
22 violation of 35 U.S.C. § 271(b), by actively inducing users of the Google Wireless
23 Audio System to directly infringe the one or more claims of the '953 Patent. In
24 particular, (a) Google had actual knowledge of the '953 Patent or was willfully
25 blind to its existence prior to (at least as early as February 2019), and no later than,
26 the filing of this action (*see* ¶¶ 35-38 above), (b) Google intentionally causes, urges,
27 or encourages users of the Google Wireless Audio System to directly infringe one
28 or more claims of the '953 Patent by promoting, advertising, and instructing

1 customers and potential customers about the Google Wireless Audio System and
2 uses of the system, including infringing uses (*see* Exs. 20, 29, 60, 61), (c) Google
3 knows (or should know) that its actions will induce users of the Google Wireless
4 Audio System to directly infringe one or more claims the '953 Patent, and (d) users
5 of the Google Wireless Audio System directly infringe one or more claims of the
6 '953 Patent. For instance, at a minimum, Google has supplied and continues to
7 supply Google Audio Players to customers while knowing that use of these products
8 will infringe one or more claims of the '953 Patent, and that Google's customers
9 then directly infringe one or more claims of the '953 Patent by using these Google
10 Audio Players in accordance with Google's product literature. *See, e.g., id.*

11 179. Additionally and/or alternatively, Google has indirectly infringed and
12 continues to indirectly infringe one or more of the claims of the '953 Patent, in
13 violation of 35 U.S.C. § 271(c), by offering to sell or selling within the United
14 States, and/or importing into the United States, components in connection with the
15 Google Wireless Audio System that contribute to the direct infringement of the '953
16 Patent by users of the Google Wireless Audio System. In particular, (a) Google
17 had actual knowledge of the '953 Patent or was willfully blind to its existence prior
18 to (at least as early as February 2019), and no later than, the filing of this action (*see*
19 ¶¶ 35-38 above), (b) Google offers for sale, sells, and/or imports, in connection with
20 the Google Wireless Audio System, one or more material components of the
21 invention of the '953 Patent that are not staple articles of commerce suitable for
22 substantial noninfringing use, (c) Google knows (or should know) that such
23 component(s) were especially made or especially adapted for use in an infringement
24 of the '953 Patent, and (d) users of devices that comprise such material
25 component(s) directly infringe one or more claims of the '953 Patent. For instance,
26 at a minimum, Google offers for sale, sells, and/or imports software updates for
27 Google Audio Players that meet one or more claims of the '953 Patent. *See, e.g.,*
28 Exs. 20, 29, 60, 61, 85. These software updates are material components of the

1 Google Audio Players that meet the one or more claims of the '953 Patent. Further,
2 Google especially made and/or adapted these software updates for use in the Google
3 Audio Players that meet the one or more claims of the '953 Patent, and these
4 software updates are not staple articles of commerce suitable for substantial
5 noninfringing use. Google's customers then directly infringe the one or more
6 claims of the '953 Patent by installing and using software updates on the Google
7 Audio Players.

8 180. Google's infringement of the '953 Patent is also willful because
9 Google (a) had actual knowledge of the '953 Patent or was willfully blind to its
10 existence prior to (at least as early as February 2019), and no later than, the filing
11 of this action (*see* ¶¶ 35-38 above), (b) engaged in the aforementioned activity
12 despite an objectively high likelihood that Google's actions constituted
13 infringement of the '953 Patent, and (c) this objectively-defined risk was either
14 known or so obvious that it should have been known to Google.

15 181. Additional allegations regarding Google's pre-suit knowledge of the
16 '953 Patent and willful infringement will likely have evidentiary support after a
17 reasonable opportunity for discovery.

18 182. Sonos is in compliance with any applicable marking and/or notice
19 provisions of 35 U.S.C. § 287 with respect to the '953 Patent.

20 183. Sonos is entitled to recover from Google all damages that Sonos has
21 sustained as a result of Google's infringement of the '953 Patent, including, without
22 limitation, a reasonable royalty and lost profits.

23 184. Google's infringement of the '953 Patent was and continues to be
24 willful and deliberate, entitling Sonos to enhanced damages.

25 185. Google's infringement of the '953 Patent is exceptional and entitles
26 Sonos to attorneys' fees and costs incurred in prosecuting this action under 35
27 U.S.C. § 285.

28 186. Google's infringement of the '953 Patent has caused irreparable harm

1 (including the loss of market share) to Sonos and will continue to do so unless
2 enjoined by this Court.

3 **COUNT V: INFRINGEMENT OF U.S. PATENT NO. 10,439,896**

4 187. Sonos incorporates by reference and re-alleges paragraphs 47-55 and
5 120-136 of this Complaint as if fully set forth herein.

6 188. Google and/or users of the Google Wireless Audio System have
7 directly infringed (either literally or under the doctrine of equivalents) and continue
8 to directly infringe one or more of the claims of the '896 Patent, in violation of 35
9 U.S.C. § 271(a), by making, using, offering for sale, and/or selling the Google
10 Wireless Audio System within the United States and/or importing the Google
11 Wireless Audio System into the United States without authority or license.

12 189. As just one non-limiting example, set forth below is an exemplary
13 infringement claim chart for claim 1 of the '896 Patent in connection with the
14 Google Wireless Audio System. This claim chart is based on publicly available
15 information. Sonos reserves the right to modify this claim chart, including, for
16 example, on the basis of information about the Google Wireless Audio System that
17 it obtains during discovery.

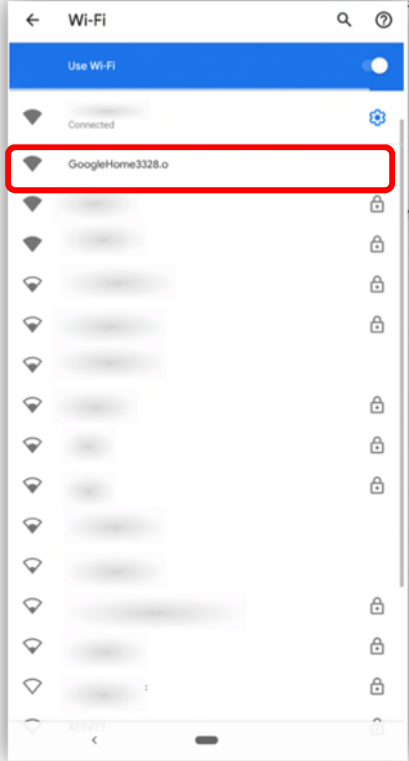
Claim 1	Google
1. A computing device comprising:	At least each smartphone, tablet, and computer installed with the Google Home app (where a computing device installed with at least the Google Home app is referred to herein as a "Chromecast-enabled computing device" ⁵) comprises a "computing device," as recited in claim 1. At least each Home Mini, Nest Mini, Home, Home Max, Home Hub, Nest Hub, Nest Hub Max, Chromecast, Chromecast Audio, and Chromecast Ultra comprises a "playback device," as recited in claim 1.

26 ⁵ Each of the Pixel 3, Pixel 3 XL, Pixel 3a, Pixel 3a XL, Pixel 4, and Pixel 4 XL
27 phones, the Pixel Slate tablet, and the Pixelbook and Pixelbook Go laptops installed
28 with the Google Home app is an example of a "Chromecast-enabled computing device."

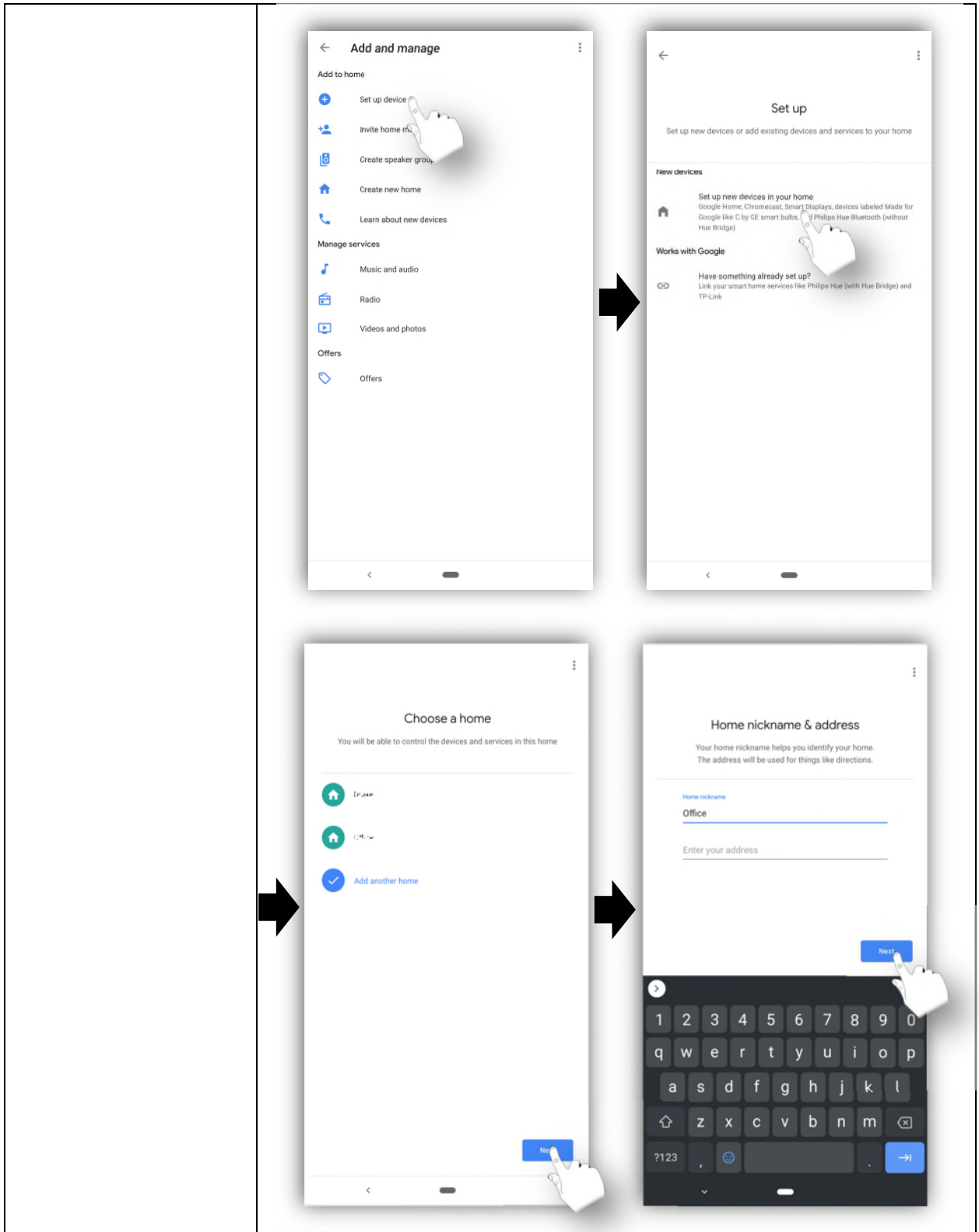
Claim 1	Google
a user interface;	Each Chromecast-enabled computing device includes a user interface, such as a touchscreen and one or more physical buttons. <i>See, e.g.</i> , Exs. 40-43, 87-92.
a network interface;	Each Chromecast-enabled computing device includes a network interface, such as a Wi-Fi interface. <i>See, e.g.</i> , Exs. 40-43, 87-92.
at least one processor;	Each Chromecast-enabled computing device includes at least one processor. <i>See, e.g.</i> , Exs. 40-43, 87-92.
a non-transitory computer-readable medium; and 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:	Each Chromecast-enabled computing device includes a non-transitory computer-readable medium comprising program instructions that enable a Chromecast-enabled computing device to perform the functions identified below. <i>See, e.g.</i> , Exs. 34, 40-43, 87-92.
while operating on a secure wireless local area network (WLAN) that is defined by an access point, (a) receiving, via a graphical user interface (GUI) associated with an application for controlling one or	Each Chromecast-enabled computing device comprises program instructions that, when executed by a Chromecast-enabled computing device's at least one processor, cause that Chromecast-enabled computing device to, while operating on a secure WLAN that is defined by an access point, (a) receive, via a GUI associated with an application for controlling one or more Google Audio Players, user input indicating that a user wishes to set up a Google Audio Player to operate on the secure WLAN and (b) receive a first message indicating that a given Google Audio Player is available for setup.

1	Claim 1	Google
2	more playback	For instance, each Chromecast-enabled computing device
3	devices, user input	is programmed with the capability to run the Google Home
4	indicating that a	app to setup and control Google Audio Players on a secure
5	user wishes to set	local Wi-Fi network (which is a WLAN) that is defined by
6	up a playback	an access point (<i>e.g.</i> , a router) to which the Chromecast-
7	device to operate	enabled computing device is communicatively coupled.
8	on the secure	<i>See, e.g.</i> , Ex. 101 (“The Google Home app will walk you
9	WLAN and (b)	through the steps to set up Google Home. . . . Choose the
10	receiving a first	Wi-Fi network you want to connect to your device. . . .
11	message indicating	Access your music and movie services.”); Exs. 80, 102,
12	that a given	103.
13	playback device is	In particular, while communicatively coupled to a secure
14	available for setup;	local Wi-Fi network, the Chromecast-enabled computing
15		device is capable of receiving, via a GUI presented by the
16		Google Home app, user input indicating that a user wishes
17		to set up a Google Audio Player to operate on the secure
18		local Wi-Fi network. While that Google Audio Player is
19		operating in a setup mode (<i>e.g.</i> , after being plugged into a
20		wall socket for the first time out of the box), the
21		Chromecast-enabled computing device functions to receive
22		a message indicating that the Google Audio Player is
23		available for setup (<i>e.g.</i> , a message comprising an SSID for
24		an unsecure wireless network provided by the Google
25		Audio Player). Examples of these functions are illustrated
26		in the following screenshots.
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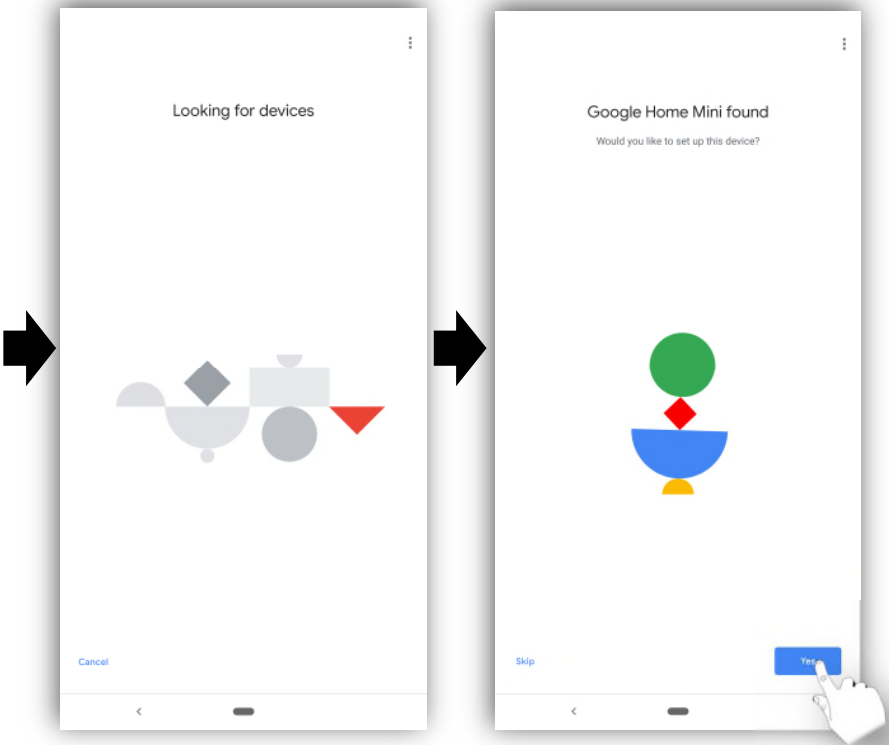
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Claim 1	Google
	

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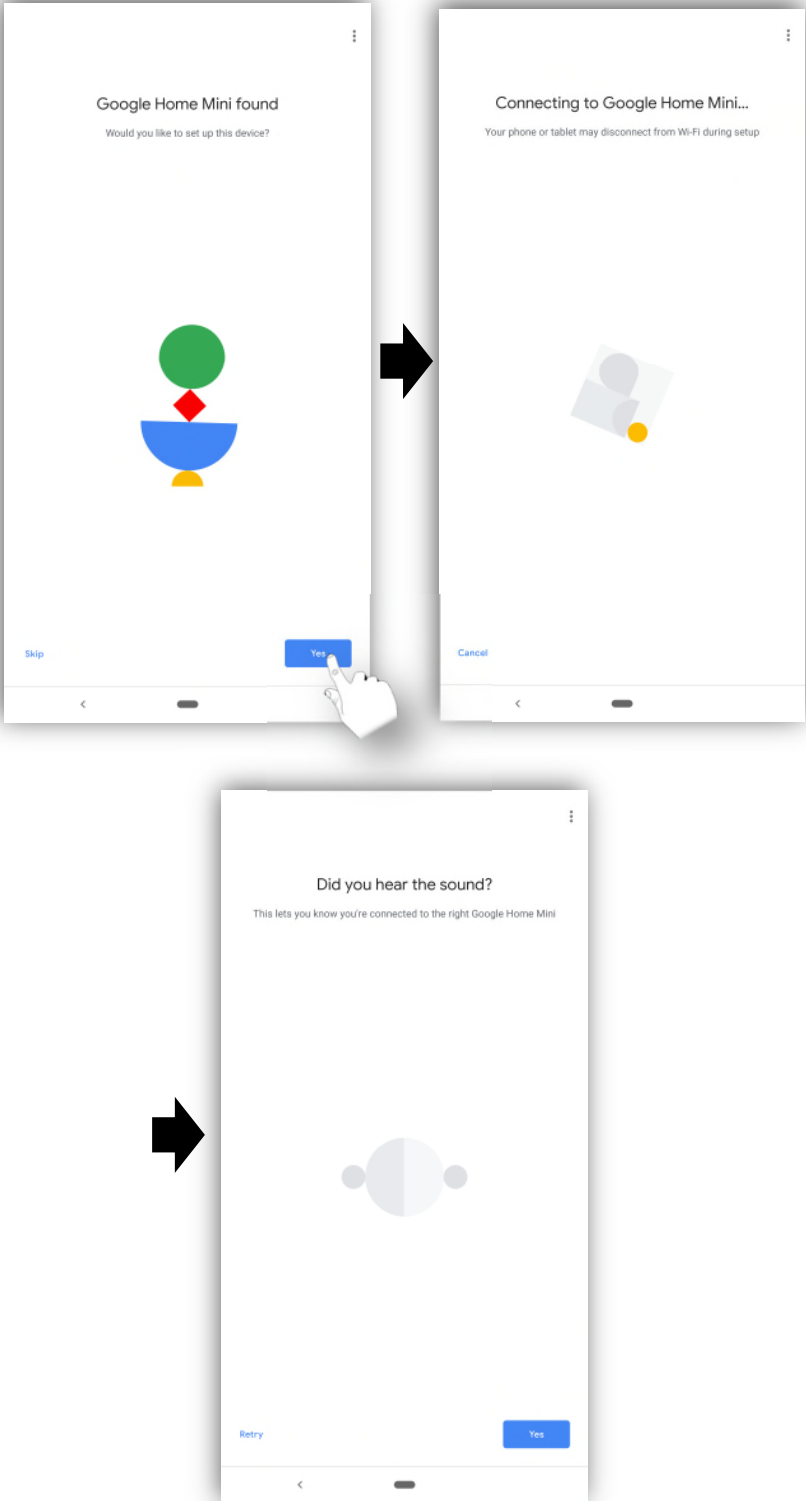
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Claim 1	Google
	 <p data-bbox="609 1008 1469 1176"><i>See also, e.g., Ex. 101 (“7. Scanning for Google Home devices: The Google Home app scans for nearby devices that are plugged in and ready to set up. Tap the home you want to add the device to > Next.”).</i></p>
<p data-bbox="284 1228 592 1900">after receiving the user input and receiving the first message, transmitting a response to the first message that facilitates establishing an initial communication path with the given playback device, wherein the initial communication path with the given</p>	<p data-bbox="609 1228 1502 1648">Each Chromecast-enabled computing device comprises program instructions that, when executed by a Chromecast-enabled computing device’s at least one processor, cause that Chromecast-enabled computing device to, after receiving the user input and receiving the first message, transmit a response to the first message that facilitates establishing an initial communication path with the given Google Audio Player, where the initial communication path with the given Google Audio Player does not traverse the access point.</p> <p data-bbox="609 1690 1502 1900">For instance, each Chromecast-enabled computing device is programmed such that, after receiving user input that initiates setting up a Google Audio Player on a secure local Wi-Fi network defined by an access point and a message indicating that the Google Audio Player is available for</p>

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Claim 1	Google
playback device does not traverse the access point;	setup, the Chromecast-enabled computing device functions to transmit a response to the message that facilitates establishing an initial communication path with the Google Audio Player, where the initial communication path is established directly between the Google Audio Player and Chromecast-enabled computing device (<i>e.g.</i> , via an unsecure wireless network provided by the Google Audio Player), as opposed to traversing the access point for the secure local Wi-Fi network. <i>See, e.g.</i> , Ex. 101 (“8. Connecting to your new device: The app will now connect your phone to your new Google Home so that you can configure it. Note: You will be prompted with the following notification during this step, ‘Your phone may disconnect from Wi-Fi during setup’. 9. Making a connection: We’ll play a sound on the device to make sure you’re setting up the right device. When you hear the sound, tap Yes.”). An example of this functionality is illustrated in the screenshots below.

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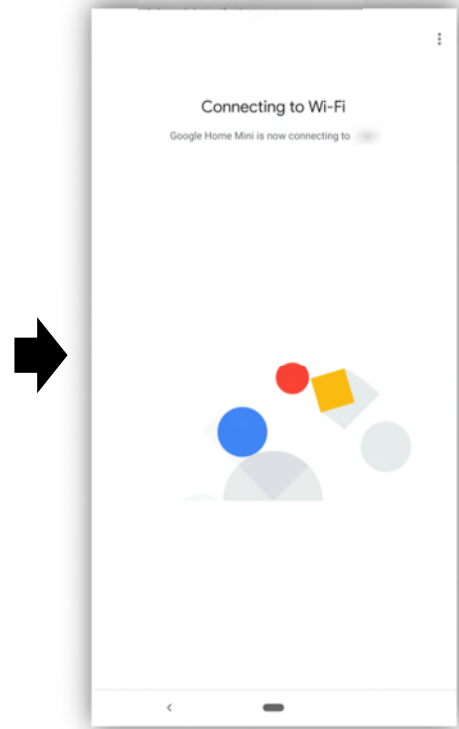
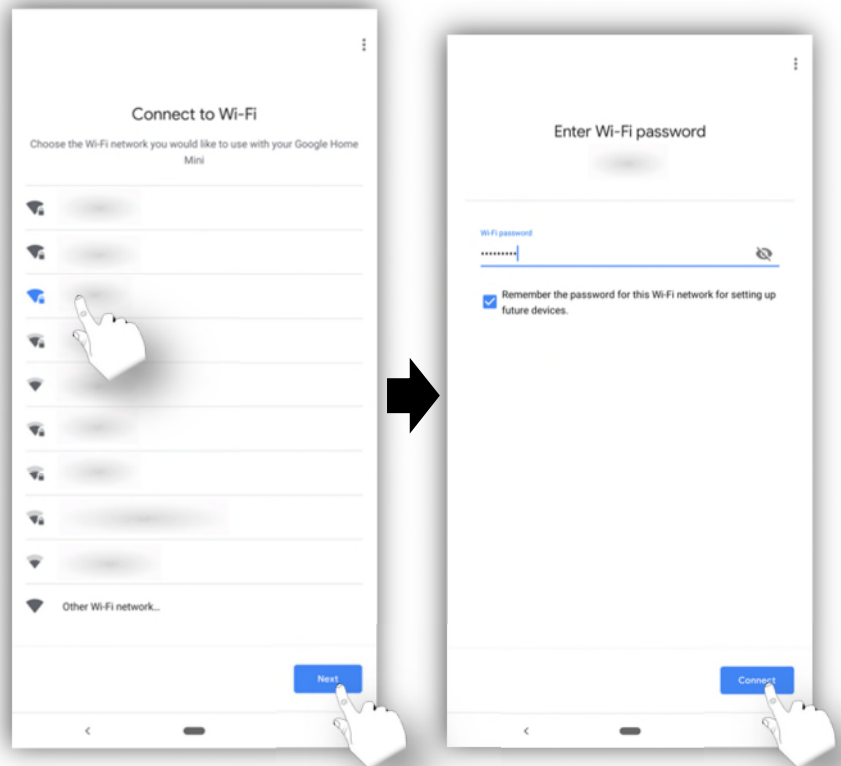
Claim 1	Google
	
<p>transmitting, to the given playback device via the</p>	<p>Each Chromecast-enabled computing device comprises program instructions that, when executed by a Chromecast-enabled computing device's at least one processor, cause</p>

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Claim 1	Google
<p>initial communication path, at least a second message containing network configuration parameters, wherein the network configuration parameters comprise an identifier of the secure WLAN and a security key for the secure WLAN;</p>	<p>that Chromecast-enabled computing device to transmit, to the given Google Audio Player via the initial communication path, at least a second message containing network configuration parameters, where the network configuration parameters comprise an identifier of the secure WLAN and a security key for the secure WLAN.</p> <p>For instance, each Chromecast-enabled computing device is programmed such that, after establishing an initial communication path with a Google Audio Player that is being set up to operate on a secure local Wi-Fi network, the Chromecast-enabled computing device functions to transmit, via the initial communication path, network configuration parameters for the secure local Wi-Fi network to the Google Audio Player that include an identifier of the secure local Wi-Fi network and a security key for the local Wi-Fi network. An example of this functionality is illustrated below.</p>

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Claim 1 **Google**

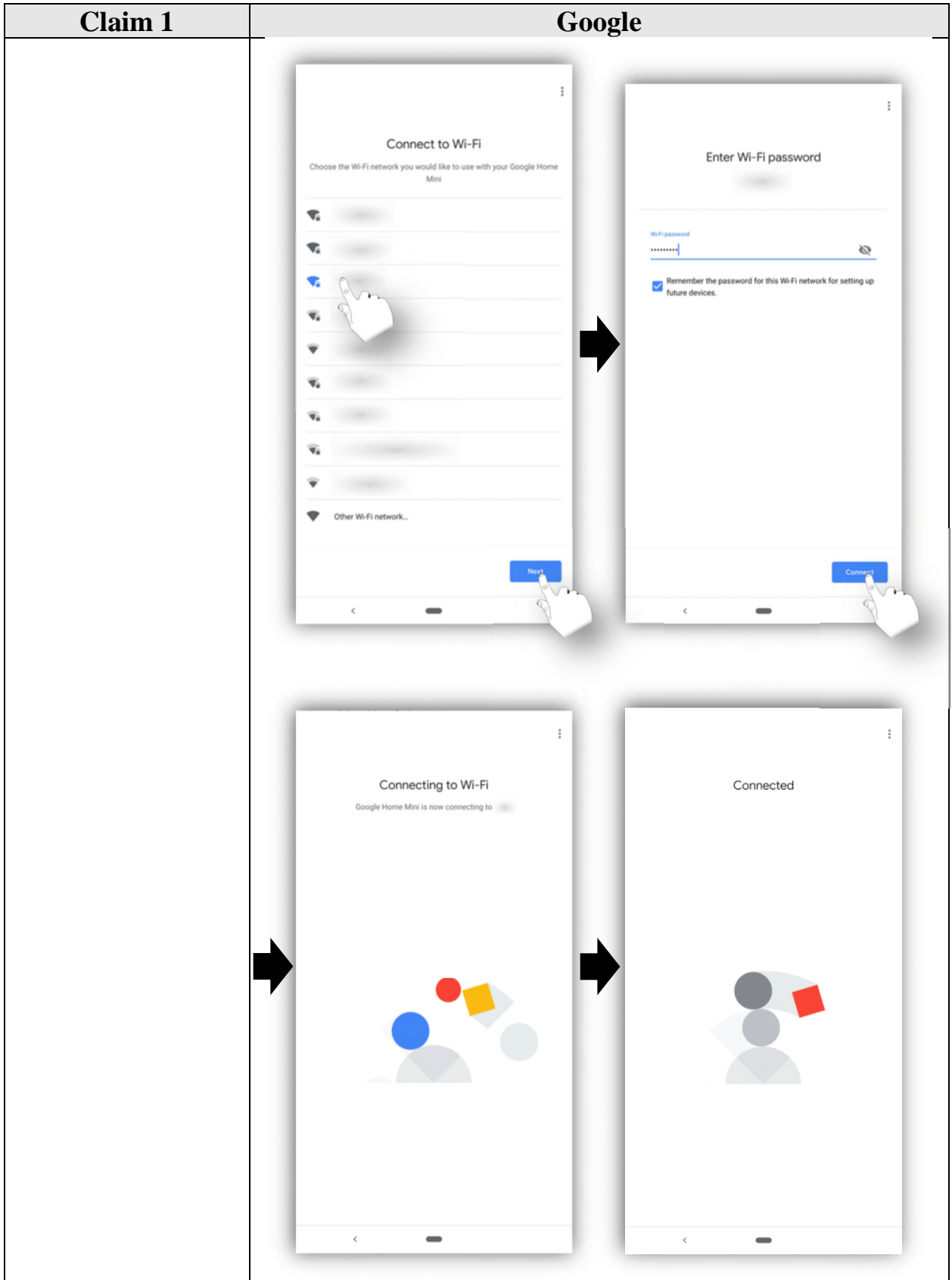


See also, e.g., Ex. 101 (“13. Wi-Fi connection: Choose the Wi-Fi network you want to connect to your device. . . . Tap


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Claim 1	Google
	OK to use the password you have saved in your phone [or] [t]o manually enter the password, tap Enter manually > type in password > Connect.”).
after transmitting at least the second message containing the network configuration parameters, detecting an indication that the given playback device has successfully received the network configuration parameters; and	<p>Each Chromecast-enabled computing device comprises program instructions that, when executed by a Chromecast-enabled computing device’s at least one processor, cause that Chromecast-enabled computing device to, after transmitting at least the second message containing the network configuration parameters, detect an indication that the given Google Audio Player has successfully received the network configuration parameters.</p> <p>For instance, each Chromecast-enabled computing device is programmed such that, after transmitting to a Google Audio Player a message containing network configuration parameters for a secure local Wi-Fi network, the Chromecast-enabled computing device functions to detect an indication that the Google Audio Player successfully received the network configuration parameters. An example of this functionality is illustrated in the following screenshots.</p>

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1	Claim 1	Google
2	after detecting the	Each Chromecast-enabled computing device comprises
3	indication,	program instructions that, when executed by a Chromecast-
4	transitioning from	enabled computing device's at least one processor, cause
5	communicating	that Chromecast-enabled computing device to, after
6	with the given	detecting the indication, transition from communicating
7	playback device	with the given Google Audio Player via the initial
8	via the initial	communication path to communicating with the given
9	communication	Google Audio Player via the secure WLAN that is defined
10	path to	by the access point.
11	communicating	For instance, each Chromecast-enabled computing device
12	with the given	is programmed such that, after detecting an indication that a
13	playback device	Google Audio Player successfully received network
14	via the secure	configuration parameters for a secure local Wi-Fi network
15	WLAN that is	defined by an access point, the Chromecast-enabled
16	defined by the	computing device functions to transition from
17	access point.	communicating with the Google Audio Player via the initial
18		communication path to communicating with the Google
19		Audio Player via the secure local Wi-Fi network. <i>See, e.g.,</i>
20		Ex. 101 ("13. Wi-Fi connection: Choose the Wi-Fi network
21		you want to connect to your device. . . . Tap OK to use the
22		password you have saved in your phone [or] [t]o manually
23		enter the password, tap Enter manually > type in password
24		> Connect.").
25		As one example to illustrate, after the Chromecast-enabled
26		computing device transitions from communicating with the
27		Google Audio Player via the initial communication path to
28		communicating with the Google Audio Player via the
		secure local Wi-Fi network, the Chromecast-enabled
		computing device is capable of transmitting commands
		related to playback of audio content to the Google Audio
		Player via the secure local Wi-Fi network, such as a
		command for the Google Audio Player to retrieve audio
		content for playback from an Internet-based music service
		(e.g., YouTube Music, Spotify, Pandora, Google Play
		Music, Deezer, TuneIn, iHeartRadio, etc.) that in turn
		causes the Google Audio Player to retrieve the audio
		content from the Internet-based music service via a
		communication path including the secure local Wi-Fi

Claim 1	Google
	<p>network and the Internet. <i>See, e.g.</i>, Ex. 30 (“Other ways to control music . . . From the Google Home app[:] 1. Make sure your mobile device or tablet is connected to the same Wi-Fi as your speaker or display. 2. Open the Google Home app . 3. Tap Play music under the name of the device that you want to use. Your device will play music from your default music provider. You can pause, resume, change volume and skip forward or backward in the song.”) (emphasis in original); Ex. 101 (“Media services: Access your music and movie services. . . . Default music service: If you have more than one music service linked, you will be asked to select a Default music service: Tap the service you want to use as default > Next.”); Exs. 104, 105.</p>

190. Additionally and/or alternatively, Google has indirectly infringed and continues to indirectly infringe one or more of the claims of the ‘896 Patent, in violation of 35 U.S.C. § 271(b), by actively inducing users of the Google Wireless Audio System to directly infringe the one or more claims of the ‘896 Patent. In particular, (a) Google had actual knowledge of the ‘896 Patent or was willfully blind to its existence prior to, and no later than, the filing of this action (*see* ¶¶ 35-38 above), (b) Google intentionally causes, urges, or encourages users of the Google Wireless Audio System to directly infringe one or more claims of the ‘896 Patent by promoting, advertising, and instructing customers and potential customers about the Google Wireless Audio System and uses thereof, including infringing uses (*see* Exs. 34, 35, 79, 80), (c) Google knows (or should know) that its actions will induce users of the Google Wireless Audio System to directly infringe one or more claims the ‘896 Patent, and (d) users of the Google Wireless Audio System directly infringe one or more claims of the ‘896 Patent. For instance, at a minimum, Google has supplied and continues to supply the Google Home app to customers while knowing that installation and/or use of this app will infringe one

1 or more claims of the '896 Patent, and that Google's customers then directly
2 infringe one or more claims of the '896 Patent by installing and/or using the Google
3 Home app in accordance with Google's product literature. *See, e.g., id.*

4 191. Additionally and/or alternatively, Google has indirectly infringed and
5 continues to indirectly infringe one or more of the claims of the '896 Patent, in
6 violation of 35 U.S.C. § 271(c), by offering to sell or selling within the United
7 States, and/or importing into the United States, components in connection with the
8 Google Wireless Audio System that contribute to the direct infringement of the '896
9 Patent by users of the Google Wireless Audio System. In particular, (a) Google
10 had actual knowledge of the '896 Patent or was willfully blind to its existence prior
11 to, and no later than, the filing of this action (*see* ¶¶ 35-38 above), (b) Google offers
12 for sale, sells, and/or imports, in connection with the Google Wireless Audio
13 System, one or more material components of the invention of the '896 Patent that
14 are not staple articles of commerce suitable for substantial noninfringing use, (c)
15 Google knows (or should know) that such component(s) were especially made or
16 especially adapted for use in an infringement of the '896 Patent, and (d) users of
17 devices that comprise such material component(s) directly infringe one or more
18 claims of the '896 Patent. For instance, at a minimum, Google offers for sale, sells,
19 and/or imports the Google Home app for installation on devices (*e.g.*, smartphones,
20 tablets, and computers) that meet one or more claims of the '949 Patent. *See, e.g.*,
21 Ex. 34, 35, 79, 80. The Google Home app is a material component of the devices
22 that meet the one or more claims of the '896 Patent. Further, Google especially
23 made and/or adapted the Google Home app for use in devices that meet the one or
24 more claims of the '896 Patent, and this app is not a staple article of commerce
25 suitable for substantial noninfringing use. Google's customers then directly
26 infringe the one or more claims of the '896 Patent by installing and/or using the
27 Google Home app on the customers' devices.

28 192. Google's infringement of the '896 Patent is also willful because

1 Google (a) had actual knowledge of the ‘896 Patent or was willfully blind to its
2 existence prior to, and no later than, the filing of this action (*see* ¶¶ 35-38 above),
3 (b) engaged in the aforementioned activity despite an objectively high likelihood
4 that Google’s actions constituted infringement of the ‘896 Patent, and (c) this
5 objectively-defined risk was either known or so obvious that it should have been
6 known to Google.

7 193. Additional allegations regarding Google’s pre-suit knowledge of the
8 ‘949 Patent and willful infringement will likely have evidentiary support after a
9 reasonable opportunity for discovery.

10 194. Sonos is in compliance with any applicable marking and/or notice
11 provisions of 35 U.S.C. § 287 with respect to the ‘896 Patent.

12 195. Sonos is entitled to recover from Google all damages that Sonos has
13 sustained as a result of Google’s infringement of the ‘896 Patent, including, without
14 limitation, a reasonable royalty and lost profits.

15 196. Google’s infringement of the ‘896 Patent was and continues to be
16 willful and deliberate, entitling Sonos to enhanced damages.

17 197. Google’s infringement of the ‘896 Patent is exceptional and entitles
18 Sonos to attorneys’ fees and costs incurred in prosecuting this action under 35
19 U.S.C. § 285.

20 198. Google’s infringement of the ‘896 Patent has caused irreparable harm
21 (including the loss of market share) to Sonos and will continue to do so unless
22 enjoined by this Court.

23 **PRAYER FOR RELIEF**

24 WHEREFORE, Sonos respectfully requests:

- 25 A. That Judgment be entered that Google has infringed at least one or
26 more claims of the patents-in-suit, directly and/or indirectly, literally
27 and/or under the doctrine of equivalents, and that such infringement is
28 willful;

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- B. An injunction enjoining Google, its officers, agents, servants, employees and attorneys, and other persons in active concert or participation with Google, and its parents, subsidiaries, divisions, successors and assigns, from further infringement of the patents-in-suit.
- C. An award of damages sufficient to compensate Sonos for Google’s infringement under 35 U.S.C. § 284, including an enhancement of damages on account of Google’s willful infringement;
- D. That the case be found exceptional under 35 U.S.C. § 285 and that Sonos be awarded its reasonable attorneys’ fees;
- E. Costs and expenses in this action;
- F. An award of prejudgment and post-judgment interest; and
- G. Such other and further relief as the Court may deem just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Sonos respectfully demands a trial by jury on all issues triable by jury.

Dated: January 7, 2020 Respectfully submitted,

ORRICK HERRINGTON & SUTCLIFFE LLP
and
LEE SULLIVAN SHEA & SMITH LLP

By: /s/ Alyssa Caridis
ALYSSA CARIDIS
Attorneys for Plaintiff Sonos, Inc.