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*Attorneys for Plaintiff Sonos, Inc.*

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

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|---|---|
| SONOS, INC., | Case No.   2:20-cv-00169 |
| Plaintiff, | |
| v. | **COMPLAINT FOR PATENT INFRINGEMENT** |
| GOOGLE LLC, | **JURY TRIAL DEMANDED** |
| Defendant. | |

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**COMPLAINT FOR PATENT INFRINGEMENT**

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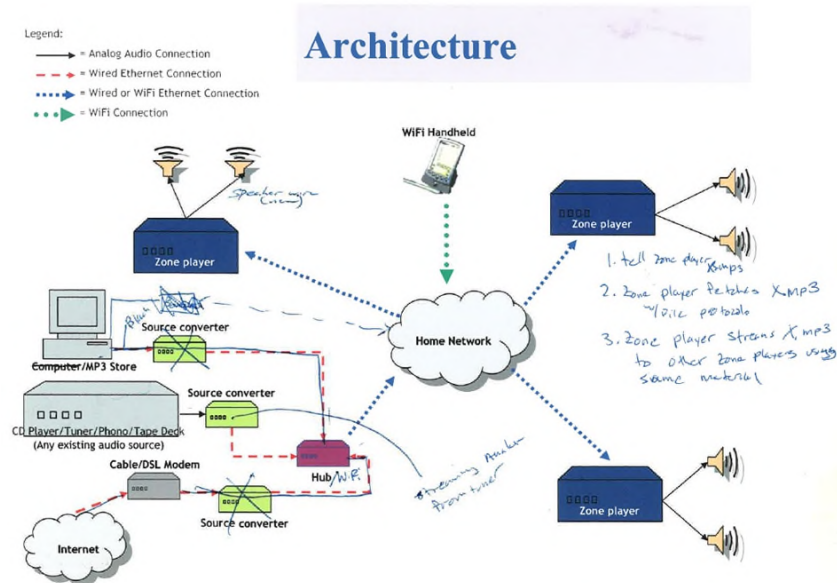
**INTRODUCTION**

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

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

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3.     The harm produced by Google's infringement has been profoundly compounded by Google's business strategy to use its multi-room audio products to vacuum up invaluable consumer data from users and, thus, further entrench the Google platform among its users and ultimately fuel its dominant advertising and search platforms.  In furtherance of this strategy, Google has not merely copied Sonos's patented technology, it has also subsidized the prices of its patent-infringing products, including at the entry level, and flooded the market.  These actions have caused significant damage to Sonos.

4.     Sonos has brought this lawsuit to hold Google accountable for its willful infringement of Sonos's patent rights.

**SONOS'S INNOVATION**

5.     Founded in 2002, Sonos invented what is known today as wireless multi-room audio.  Ex. 6 (2013 *NBC News*: "If you're not familiar with Sonos, this company revolutionized the home audio world a decade ago…."); Ex. 7 (2015 *Men's Journal*: "Sonos almost singlehandedly established the stand-alone wireless home speaker system category….").

6.      At the time of Sonos's founding, multi-room audio systems were dependent on a centralized receiver hard-wired to each individual passive speaker throughout a home or business.  In sharp contrast, Sonos's system eliminated this dependency and, instead, relies on intelligent, networked playback devices to deliver premium sound wirelessly throughout a home or business.  While conquering the challenge of inventing a multi-room wireless audio system was difficult in its own right, Sonos also built a system that is easy to setup, easy to use, customizable, readily integrated with other technologies and services, and effective in delivering outstanding sound quality in any home or business environment.  *See, e.g.*, Ex. 8 (2005 *PC Magazine*: describing one of Sonos's first products as "the iPod of digital audio" for the home and contrasting Sonos with conventional home audio systems that required "dedicated wiring").

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

2  shown below:

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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.

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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

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

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

<div align="center">

**GOOGLE'S INFRINGEMENT**

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

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

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

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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

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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]

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27   _____

[1] Any reference to a "Google Audio Player" or a "Google App" includes each
28   version and generation of such player/app unless otherwise noted.

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



30.     In addition to providing the various software Google Apps for controlling the Google Audio Players, Google also offers various infringing hardware controller devices that are pre-installed with the Google Play Music app or YouTube Music app (and capable of downloading and executing the Google Apps that are not pre-installed).  These infringing hardware controller devices include, for example, Google's "Pixel" phones, tablets, and laptops (*e.g.*, 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)  (individually or collectively, "Google Pixel Device(s)").  *See, e.g.*, Exs. 40-43.[2]

31.     Herein, "Google Wireless Audio System" refers to one or more Google Audio Players, one or more Google Pixel Devices, and/or one or more Google Apps.

**GOOGLE'S UNJUST ENRICHMENT**

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

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[2] Any reference to a "Google Pixel Device" includes each version and generation of such device unless otherwise noted.

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

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

34. On information and belief, Google's copying of Sonos's patented inventions has also helped and/or will help Google generate significant revenue from driving its users to make follow-on purchases such as streaming music subscriptions and retail purchases via the Google Wireless Audio Systems. For example, an *NPR* "smart speaker" survey found that 28% of survey respondents agreed that "[g]etting a Smart Speaker led [them] to pay for a music subscription service," and Google offers two such subscriptions – Google Play Music and YouTube Music. Ex. 46 at p. 20. Likewise, the *NPR* survey also found that 26% of respondents use their smart speakers "regularly" to "add [items] to shopping 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.

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## JURISDICTION AND VENUE

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.

24  ## PATENTS-IN-SUIT

25  ### Background

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

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

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

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

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

51.  For starters, Sonos provided an unconventional system architecture comprising "zone players" (also referred to as "playback devices") on a computer data network that were controlled by physical "controller" devices. *See, e.g.*, '949 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:



FIG. 1

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[ling] 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

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

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

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

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

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

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

1         **The Inventions Claimed in U.S. Patent No. 8,588,949 Provide Important**

2                           **Advantages to Wireless Audio Systems**

3         69.    The group volume control technology of the '949 Patent provides

4 significant advantages that are important to wireless audio systems. The advantages

5 of Sonos's group volume control technology are reflected in the recognition and

6 praise it has received from the press. For example, shortly after Sonos launched its

7 first commercial product in 2005, *PC Magazine* exclaimed: "[Sonos] is the first

8 digital audio hub we can recommend without reservation . . . . Once you're back

9 to using the master volume control, the volume rises or falls relative to each room's

10 existing setting. These are the brilliant touches . . . ." *See* Ex. 8. As another

11 example, in 2005, *Playlist* lauded Sonos's "Controller" for its "stand[] out"

12 interface that enables dynamic grouping of Sonos players and volume control. *See*

13 Ex. 52. Likewise, in 2008, *Gizmodo* praised Sonos for the ability to "[c]hange the

14 volume in a single room, or in all your rooms at once, all from the Sonos

15 Controller." *See* Ex. 53. A few years later, in 2012, *Pocket-lint* touted Sonos's

16 patented group volume technology as "simple but clever." *See* Ex. 54.

17         70.    Recognizing the advantages of Sonos's patented group volume control

18 technology, competitors in the industry, including Google, have incorporated

19 Sonos's technology into their products and marketed to their customers the features

20 that the technology enables. For example, Google's website includes a webpage

21 entitled "How to change the volume of an audio group," which touts the ability

22 "[t]o adjust the volume of **all speakers in a group**" and "[t]o adjust a **single**

23 **speaker's volume** when it's part of a group" in a Google Wireless Audio System.

24 *See* Ex. 55 (emphasis in original). As explained by Google, "[c]hanging the **group**

25 **volume** . . . will change the volume of all speakers within the group." *Id*. (emphasis

26 in original). In contrast, Google explains that "[c]hanging a **single speaker's**

27 **volume** when it's part of a group . . . will only change that individual speaker." *Id*.

28 (emphasis in original). As another example, Google's website also includes a

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  <div align="center">**U.S. Patent No. 9,195,258**</div>

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.

23

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

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

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

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

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

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

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

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

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

85.    The grouping and synchronization technology of the '258 Patent provides significant advantages that are important to wireless audio systems.  The advantages of Sonos's patented grouping and synchronization technology are reflected in the recognition and praise it has received from the press.  For example, in 2005, shortly after Sonos released its first commercial products, *PC Magazine* touted the Sonos system for its ability to "play the same music throughout the house, 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.

27

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

28

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

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

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

96.     These are just exemplary reasons why the inventions claimed in the '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:

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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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Ex. 76. Likewise, *Gizmodo* touted Sonos's patented playback-device-setup technology as "so easy that anybody can do it." Ex. 77. And *Consumer Reports* explained that Sonos's playback-device-setup technology is "pretty simple." Ex. 78.

135. Recognizing the advantages of Sonos's patented playback-device-setup technology, competitors in the industry, including Google, have incorporated Sonos's patented technology into their products and marketed the features that the technology enables to their customers. For example, to market its Google Audio Players on its website, Google includes a dedicated "Setup" tab that touts how "[g]etting set up is simple." *See, e.g.*, Ex. 79. As another example, Google's 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 |
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| A multimedia controller including a processor, the controller configured to: | 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.  *See, e.g.*, 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. |
| 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; | 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 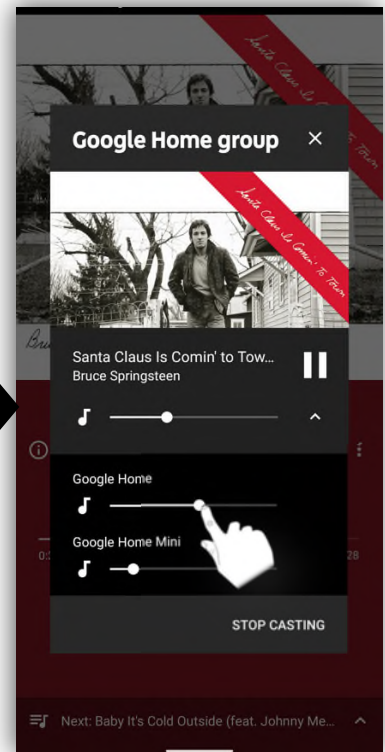Audio Players in a local area network (LAN), where each Google Audio Player is an independent playback device configured to playback a multimedia output from a multimedia source.

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 (*e.g.*, via a Google Home, YouTube Music, Google Play Music, or Hub Audio Player user interface).  *See, e.g.*, 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. |

[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.

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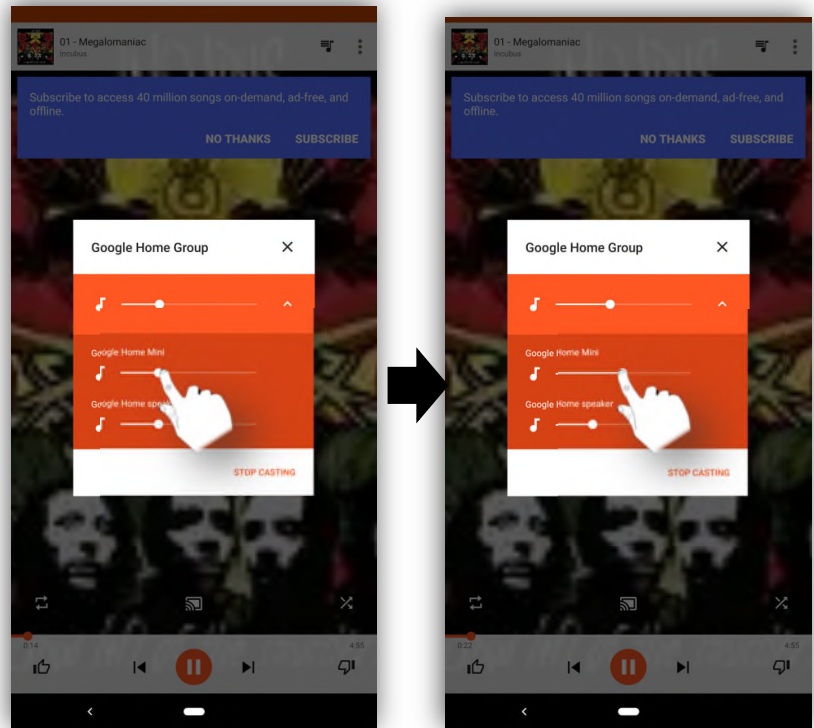| | Each group includes two or more Google Audio Players in a local Wi-Fi network (which is a LAN) that are configured to play back audio in synchrony with one another, where each Google Audio Player is an independent playback device configured to playback at least an audio output from an audio source (*e.g.*, Google Play Music, Spotify, etc.). *See e.g.*, 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. |
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| 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; | 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.<br><br>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) 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. *See, e.g.*, 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. |

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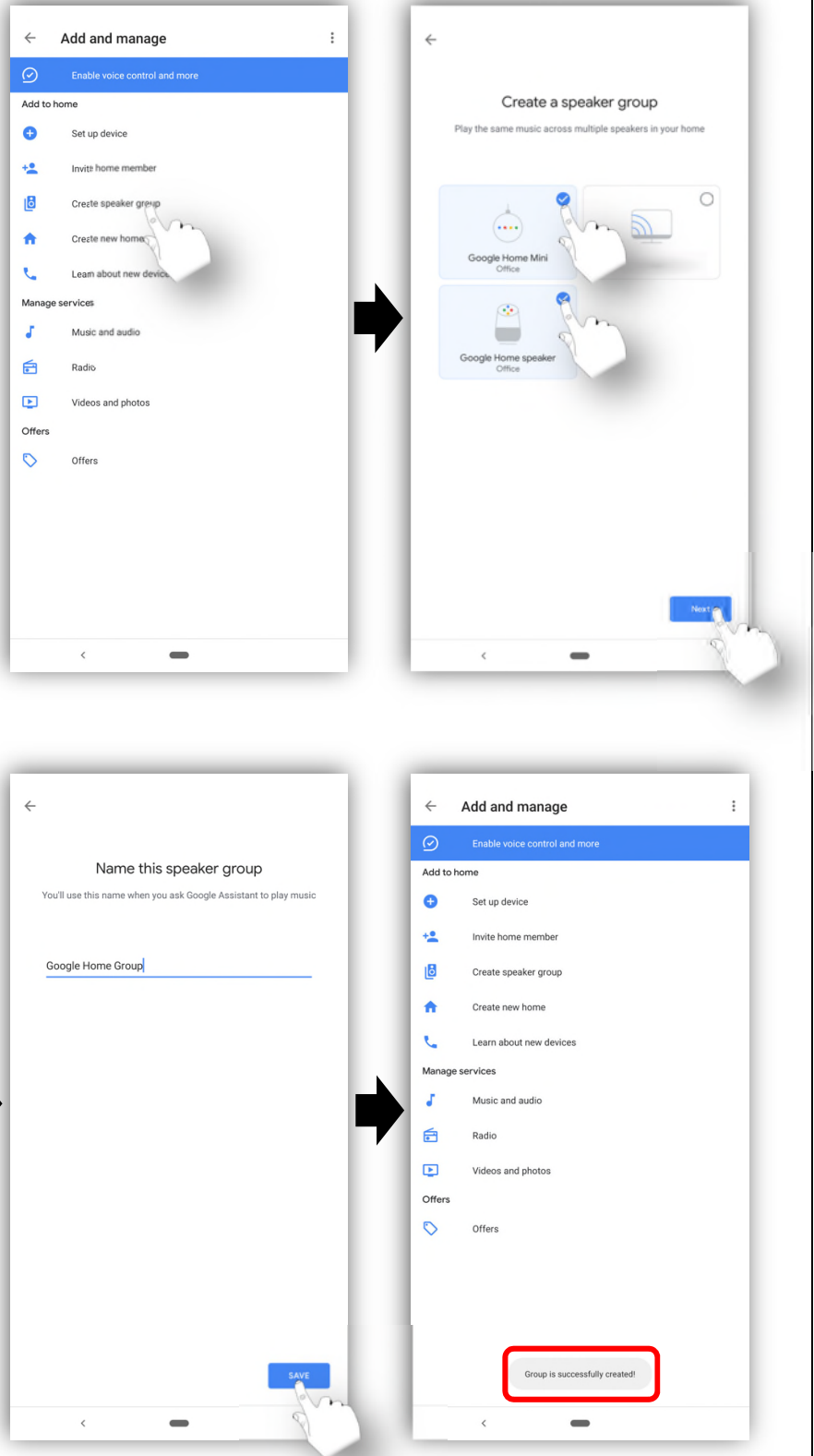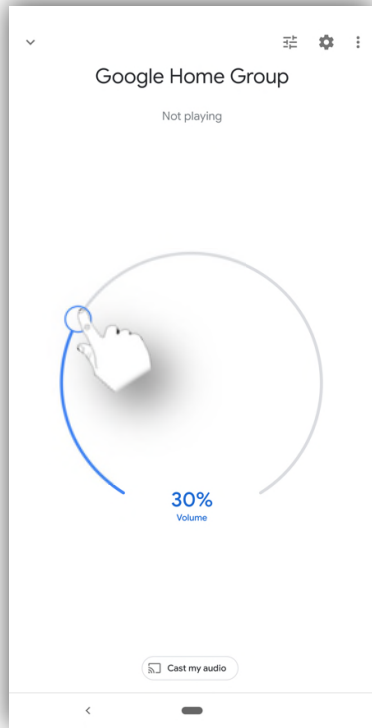
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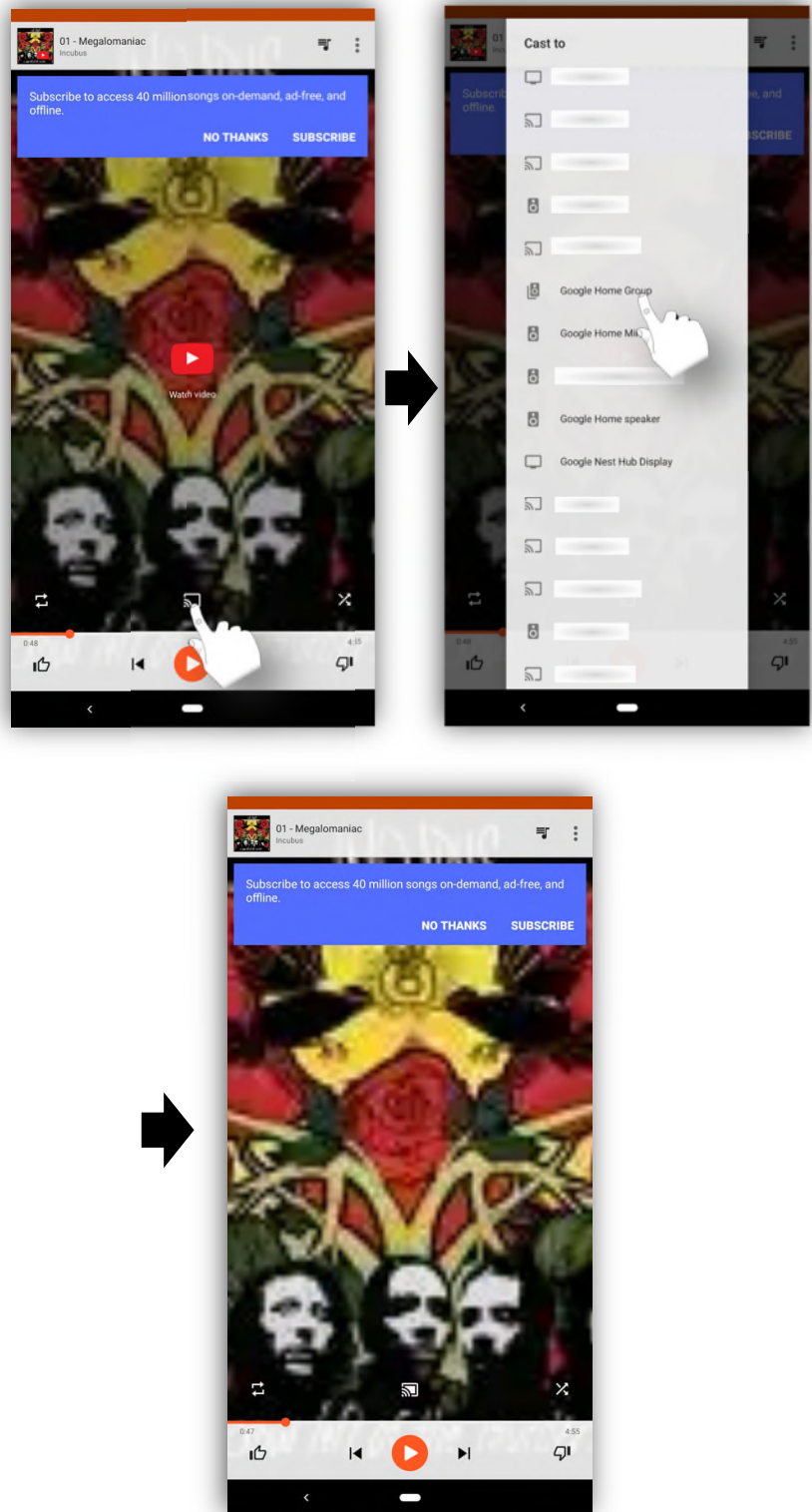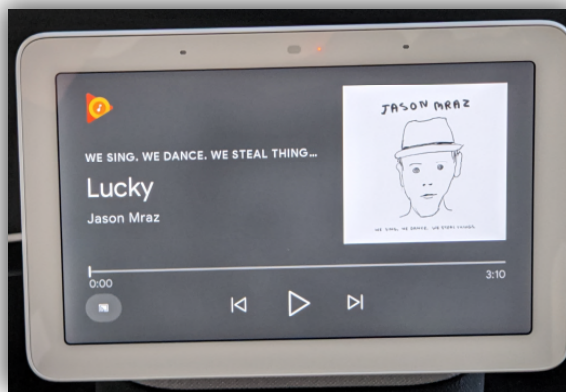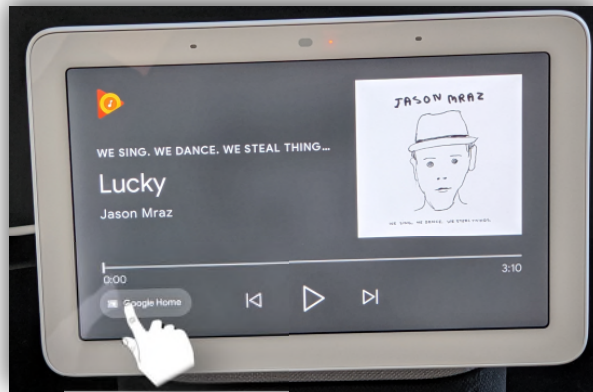
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| for any individual player in the player group, accept via the user interface a player-specific input to adjust a volume of that individual player, wherein | Each Chromecast-enabled computing device and Hub Audio Player is configured to, for any individual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

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| 1 | the player-specific input to adjust the volume of that individual player causes that individual player to adjust its volume; and | 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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| | *See also, e.g.*, Ex. 55 ("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. |
| 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. | 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.<br><br>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 "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. |

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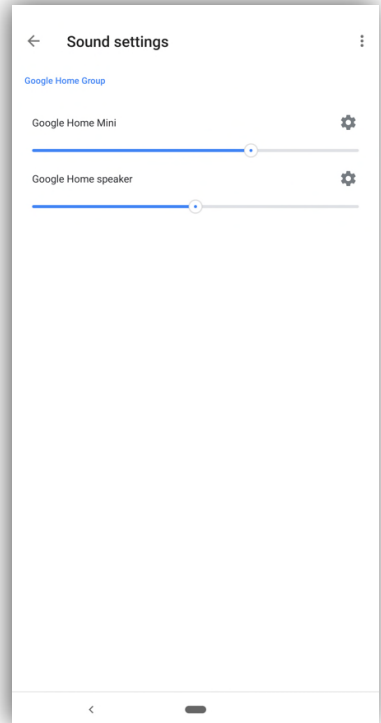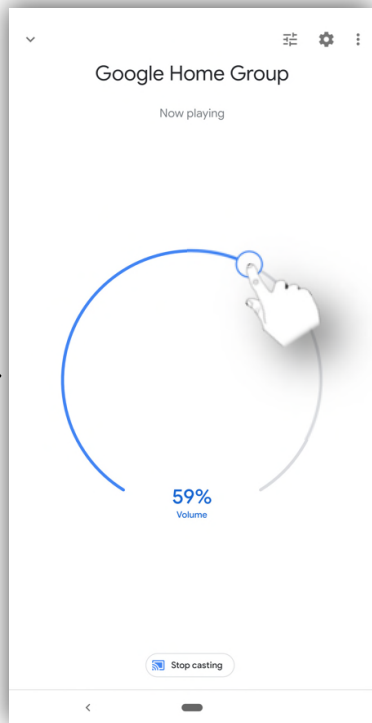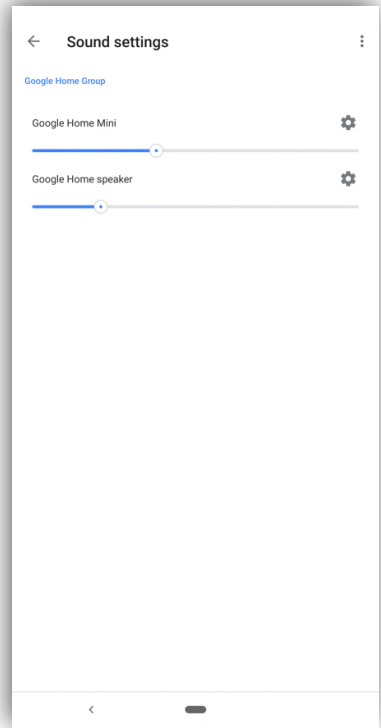
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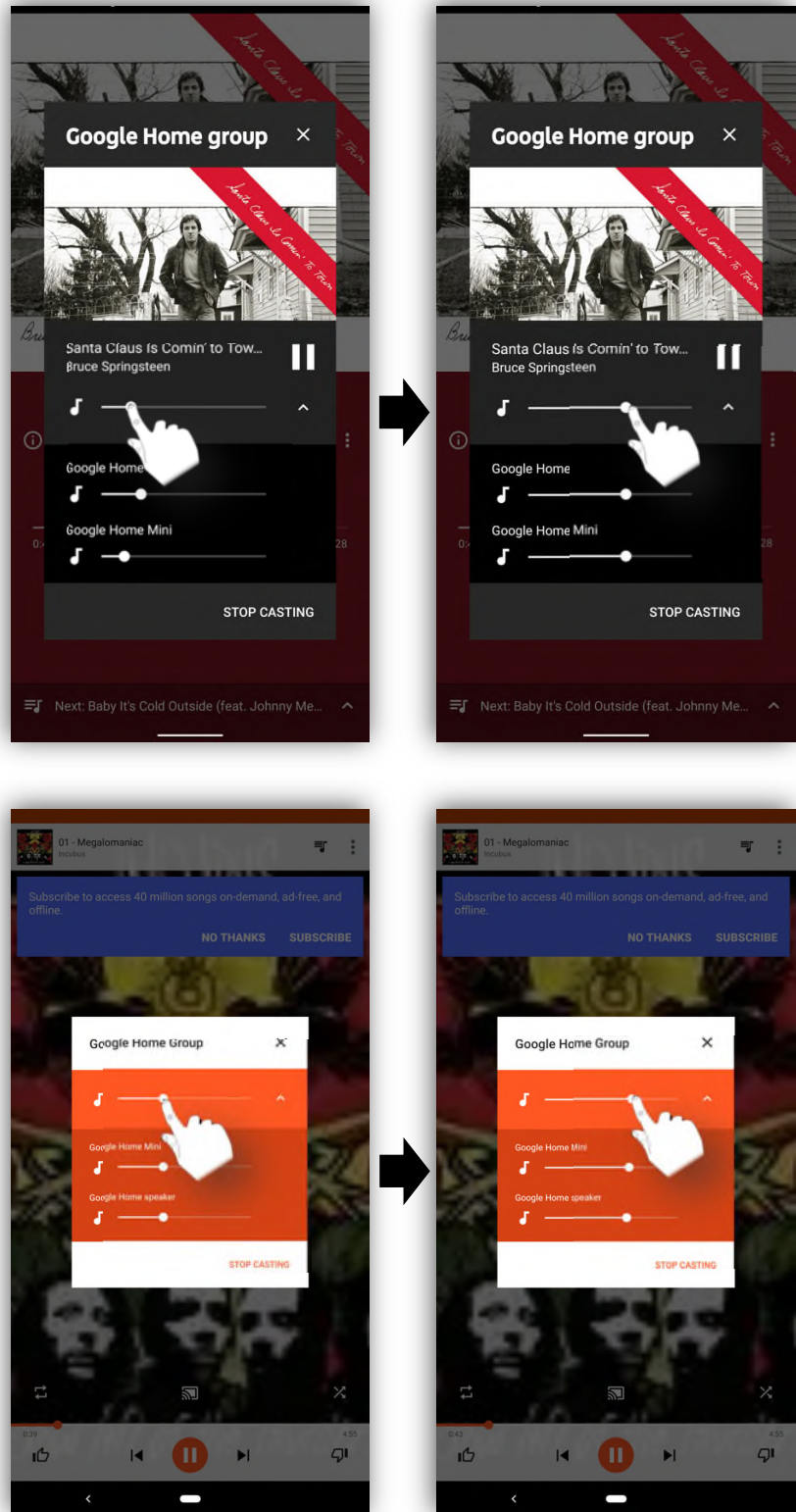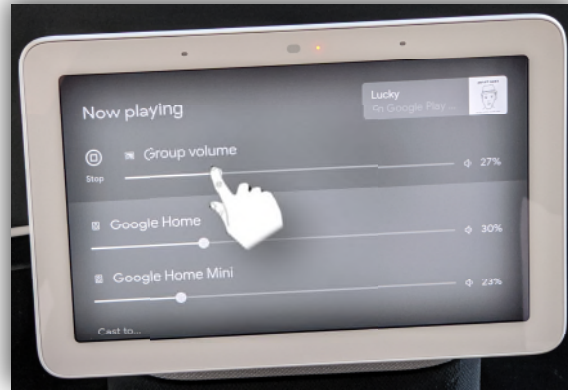
*See also, e.g.*, Ex. 55 ("When casting to a group, there are two ways to change the volume: 1. Changing the **group volume**. This action will change the volume of all speakers within the group.") (emphasis in original); Ex. 84.

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

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and potential customers about the Google Wireless Audio System and uses thereof, including infringing uses (*see* Exs. 29, 34-39, 55), (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 '949 Patent, and (d) users of the Google Wireless Audio System directly infringe one or more claims of the '949 Patent. For instance, at a minimum, Google has supplied and continues to supply the Google Apps to customers while knowing that installation and/or use of the Google Apps will infringe one or more claims of the '949 Patent and that Google's customers then directly infringe one or more claims of the '949 Patent by installing and/or using the Google Apps in accordance with Google's product literature. *See*, *e.g.*, *id.*

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

142. Additionally and/or alternatively, Google has indirectly infringed and continues to indirectly infringe one or more of the claims of the '949 Patent, in violation of 35 U.S.C. § 271(c), by offering to sell or selling within the United States, and/or importing into the United States, components in connection with the Google Wireless Audio System that contribute to the direct infringement of the '949 Patent by users of the Google Wireless Audio System. 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 action (*see* ¶¶ 35-38 above), (b) Google offers for sale, sells, and/or imports, in connection with the Google Wireless Audio System, one or more material components of the invention of the '949 Patent that are not staple articles of commerce suitable for substantial noninfringing use, (c) Google knows (or should know) that such

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

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

144. Google's infringement of the '949 Patent is also willful because Google (a) 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 action (*see* ¶¶ 35-38 above), (b) engaged in the aforementioned activity despite an objectively high likelihood that Google's actions constituted infringement of the '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

Google Wireless Audio System. This claim chart is based on publicly available information. Sonos reserves the right to modify this claim chart, including, for example, on the basis of information about the Google Wireless Audio System that 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 (*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") 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. *See, e.g.*, 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. *See, e.g.*, Exs. 68, 95-98. |
| one or more processors; and | Each of the foregoing Google Audio Players includes one or more processors. *See*, *e.g.*, 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. *See, e.g.*, Exs. 68, 85, 95-98. |

| Claim 17 | Google |
|---|---|
| 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; | 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.<br><br>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. *See e.g.*, 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. |
| in response to the direction, enter into the synchrony group with the second zone player, | 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.<br><br>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. *See e.g.*, 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 |

| Claim 17 | Google |
|---|---|
| | (sometimes referred to by Google as the "leader" of the group), and any other Google Audio Player in the group is designated to serve as a "slave" of the group. |
| wherein in the synchrony group, the first and second zone players are configured to playback audio in synchrony based at least in part on (i) audio content, (ii) playback timing information associated with the audio content, wherein the playback timing information is generated by one of the first or second zone players, and (iii) clock time information for the one of the first or second zone players, and wherein the generated playback timing information and the clock time information are transmitted from the one of the first or second zone players to the other of the first or second zone players, wherein the first and second zone players remain independently clocked while playing back audio in synchrony; and | Once grouped, the first and second Google Audio Players are configured to play back audio in synchrony based at least in part on (i) audio content, (ii) playback timing information associated with the audio content that is generated by the first Google Audio Player that is designated to serve as the "master" of the group, and (iii) clock time information for the first Google Audio Player, where the generated playback timing information and the clock time information are transmitted from the first Google Audio Player to the second Google Audio Player that is designated to serve as a "slave" of the group, and where the Google Audio Players in the group remain independently clocked while playing back audio in synchrony.

For instance, Google states that once its Google Audio Players have been grouped, those audio players are configured to play audio in synchrony. *See, e.g.*, 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."); *see also, e.g.*, Exs. 69, 99, 106.

Further, while in a group, a first Google Audio Player that is designated to serve as the "master"/"leader" of the group receives audio content from an audio source (*e.g.*, an Internet-based audio source), and then the first Google Audio Player and a second Google Audio Player that is designated to serve as a "slave" of the group are each configured play back audio in synchrony based on the audio content, playback timing information associated with the audio content and generated by the first Google Audio Player, and clock time information for the first Google Audio Player, all of which is sent from the first Google Audio Player to the second Google Audio Player via data packets – |

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| 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. | 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. 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 (*e.g.*, 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. *See also, e.g.*, Ex. 100 ("GCKMultizoneStatus Class" providing "[t]he status of a multizone group" including "[t]he member devices of the multizone group."). |

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,

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 '258 Patent by promoting, advertising, and instructing customers and potential customers about the Google Wireless Audio System and uses of the system, including infringing uses (*see* Exs. 20, 29, 60, 61), (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 '258 Patent, and (d) users of the Google Wireless Audio System directly infringe one or more claims of the '258 Patent. For instance, at a minimum, Google has supplied and continues to supply Google Audio Players to customers while knowing that use of these products will infringe one or more claims of the '258 Patent and that Google's customers then directly infringe one or more claims of the '258 Patent by using these Google Audio Players in accordance with Google's product literature. *See, e.g.*, *id*.

155. 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(c), by offering to sell or selling within the United States, and/or importing into the United States, components in connection with the Google Wireless Audio System that contribute to the direct infringement of the '258 Patent by users of the Google Wireless Audio System. 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, the filing of this action (*see* ¶¶ 35-38 above), (b) Google offers for sale, sells, and/or imports, in connection with the Google Wireless Audio System, one or more material components of the invention of the '258 Patent that are not staple articles of commerce suitable for substantial noninfringing use, (c) Google knows (or should know) that such component(s) were especially made or especially adapted for use in an infringement of the '258 Patent, and (d) users of devices that comprise such material 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.

22

| 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 |
|---|---|
| a network interface configured to receive audio data over a network; | The foregoing Google Audio Player includes a network interface configured to receive audio data over a network, such as a Wi-Fi interface.  *See, e.g.*, Ex. 96 ("802.11b/g/n/ac (2.4GHz/5Ghz) Wi-Fi for high-performance streaming"); Ex. 68 (same). |
| a plurality of speaker drivers configured to output audio based on the audio data; | The foregoing Google Audio Player includes a plurality of speaker drivers configured to output audio based on the audio data.  *See, e.g.*, 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). |
| one or more processors; and | The foregoing Google Audio Player includes one or more processors.  *See, e.g.*, Ex. 68 ("Processor[:] 1.5GHz 64-bit quad-core ARM® Cortex™ A53"); Ex. 96 (same). |
| tangible, non-transitory, computer readable memory comprising instructions encoded therein, wherein the instructions, when executed by the one or more processors, cause the playback device to | 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. *See, e.g.*, Exs. 68, 96. |
| (i) receive a signal from a controller over the network, wherein the signal comprises an instruction for the playback device to pair with one or more playback devices, | 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.<br><br>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 |

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| Claim 10 | Google |
|---|---|
| | configuration involving two or more Google Audio Players having different playback roles. *See, e.g.*, 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.  *See, e.g.*, Ex. 69 ("Tap **Left** or **Right** to match the location of the blinking speaker . . . .") (emphasis in original). <br><br> 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.  *See, e.g.*, 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). |
| (ii) process the audio data before the playback device outputs audio from the plurality of speaker drivers, | 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. <br><br> 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- |

| Claim 10 | Google |
|---|---|
| | analog conversion, decompression, decryption, etc. *See, e.g.*, 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[,] | 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.<br><br>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. *See, e.g.*, Ex. 69 ("Pair the speakers . . . Unpair speakers"); Ex. 68 ("Wireless stereo pairing").<br><br>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. *See, e.g.*, *id.* |
| (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 | 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.<br><br>For instance, each Google Home Max is programmed with the capability to change its equalization (including but not |

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| Claim 10 | Google |
|---|---|
| (v) configure the playback device to 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. | limited to its channel and/or frequency output) when its type of pairing changes from one of the aforementioned types of pairing to another of the aforementioned types of pairing.  *See, e.g.*, Ex. 69 ("Pair the speakers . . . Unpair speakers").<br><br>As one example to illustrate, as discussed above, each Google Home Max is programmed with the capability to operate in accordance with either a "no pairing" type of pairing or a "speaker pair" type of pairing.  When operating in accordance with a "no pairing" type of pairing, the Google Home Max is configured to perform a first equalization of audio data that is specific to the "no pairing" 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 both the left channel and the right channel of audio content are output via the Google Home Max's speaker drivers (perhaps along with using a first set of gain, frequency, phase, and/or time delay parameters that are specific to a "no pairing" type of pairing).  *See, e.g.*, 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.").  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).  *See, e.g.*, *id.* |

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166. Additionally and/or alternatively, Google has indirectly infringed and continues to indirectly infringe one or more of the claims of the '959 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 '959 Patent. In particular, (a) Google had actual knowledge of the '959 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 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 '959 Patent by promoting, advertising, and instructing customers and potential customers about the Google Wireless Audio System and uses of the system, including infringing uses (*see* Exs. 67-70), (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 '959 Patent, and (d) users of the Google Wireless Audio System directly infringe one or more claims of the '959 Patent. For instance, at a minimum, Google has supplied and continues to supply the Google Home Max to customers while knowing that use of this product will infringe one or more claims of the '959 Patent and that Google's customers then directly infringe one or more claims of the '959 Patent by using the Google Home Max in accordance with Google's product literature. *See, e.g.*, *id.*

167. Additionally and/or alternatively, Google has indirectly infringed and continues to indirectly infringe one or more of the claims of the '959 Patent, in violation of 35 U.S.C. § 271(c), by offering to sell or selling within the United States, and/or importing into the United States, components in connection with the Google Wireless Audio System that contribute to the direct infringement of the '959 Patent by users of the Google Wireless Audio System. In particular, (a) Google had actual knowledge of the '959 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 action (*see* ¶¶ 35-38 above), (b) Google offers for sale, sells, and/or imports, in connection with

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

168. Google's infringement of the '959 Patent is also willful because Google (a) had actual knowledge of the '959 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 action (*see* ¶¶ 35-38 above), (b) engaged in the aforementioned activity despite an objectively high likelihood that Google's actions constituted infringement of the '959 Patent, and (c) this objectively-defined risk was either known or so obvious that it should have been known to Google.

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

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

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.

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| 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, |

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| 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. *See, e.g.*, 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. *See, e.g.*, Exs. 68, 95-98. |
| at least one processor; | Each of the foregoing Google Audio Players includes at least one processor. *See, e.g.*, 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. *See, e.g.*, 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 |

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| Claim 7 | Google |
|---|---|
| communicatively coupled with the first zone player over a local area network (LAN); | Player that is communicatively coupled with the first Google Audio Player over a LAN.<br><br>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. *See e.g.*, 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. |
| in response to receiving the request to enter into the synchrony group, entering into the synchrony group with the second zone player, wherein the first zone player is selected to begin operating as a slave of the synchrony group and the second 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 | 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.<br><br>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. *See e.g.*, 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 |

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| Claim 7 | Google |
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| time of the second zone player; | 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. |
| after beginning to operate as the slave of the synchrony group: | 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. |
| receiving, from the second zone player over the LAN, clock timing information that comprises at least one reading of the clock time of the second zone player;<br><br>based on the received clock timing information, determining a differential between the clock time of the first zone player and the clock time of the second zone player; | 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.<br><br>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. |
| receiving, from the second zone player over the LAN, (a) audio information for | 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 |

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| Claim 7 | Google |
|---|---|
| at least a first audio track and (b) playback timing information associated with the audio information for the first audio track that comprises an indicator of a first future time, relative to the clock time of the second zone player, at which the first and second zone players are to initiate synchronous playback of the audio information for the first audio track; | slave of the synchrony group, receive, from the second Google Audio Player over the LAN, (a) audio information for at least a first audio track and (b) playback timing information associated with the audio information for the first audio track that comprises an indicator of a first future time, relative to the clock time of the second Google Audio Player, at which the first and second Google Audio Players are to initiate synchronous playback of the audio information for the first audio track.<br><br>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 receive, from the "master" Google Audio Player of the group, audio information for at least a first audio track and associated playback timing information that includes an indicator of a first future time, relative to the clock time of the "master" Google Audio Player, at which the Google Audio Players of the group are to initiate synchronous playback of the audio information for the first audio track, where such information is received via various types of data packets sent by the "master" Google Audio Player – including but not limited to 476-byte UDP packets and/or encrypted TCP packets sent via port 10001. *See also, e.g.*, Ex. 29; Ex. 69, 99, 106. |

| Claim 7 | Google |
|---|---|
| updating the first future time to account for the determined differential between the clock time of the first zone player and the clock time of the second zone player; and<br><br>when the clock time of the first zone player reaches the updated first future time, initiating synchronous playback of the received audio information with the second zone player. | 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.<br><br>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. *See, e.g.,* Ex. 29; Ex. 69, 99, 106. |

178. Additionally and/or alternatively, Google has indirectly infringed and continues to indirectly infringe one or more of the claims of the '953 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 '953 Patent. In particular, (a) Google had actual knowledge of the '953 Patent or was willfully blind to its existence prior to (at least as early as February 2019), 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 '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

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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.

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| 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. |

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[5] 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 is an example of a "Chromecast-enabled computing device."
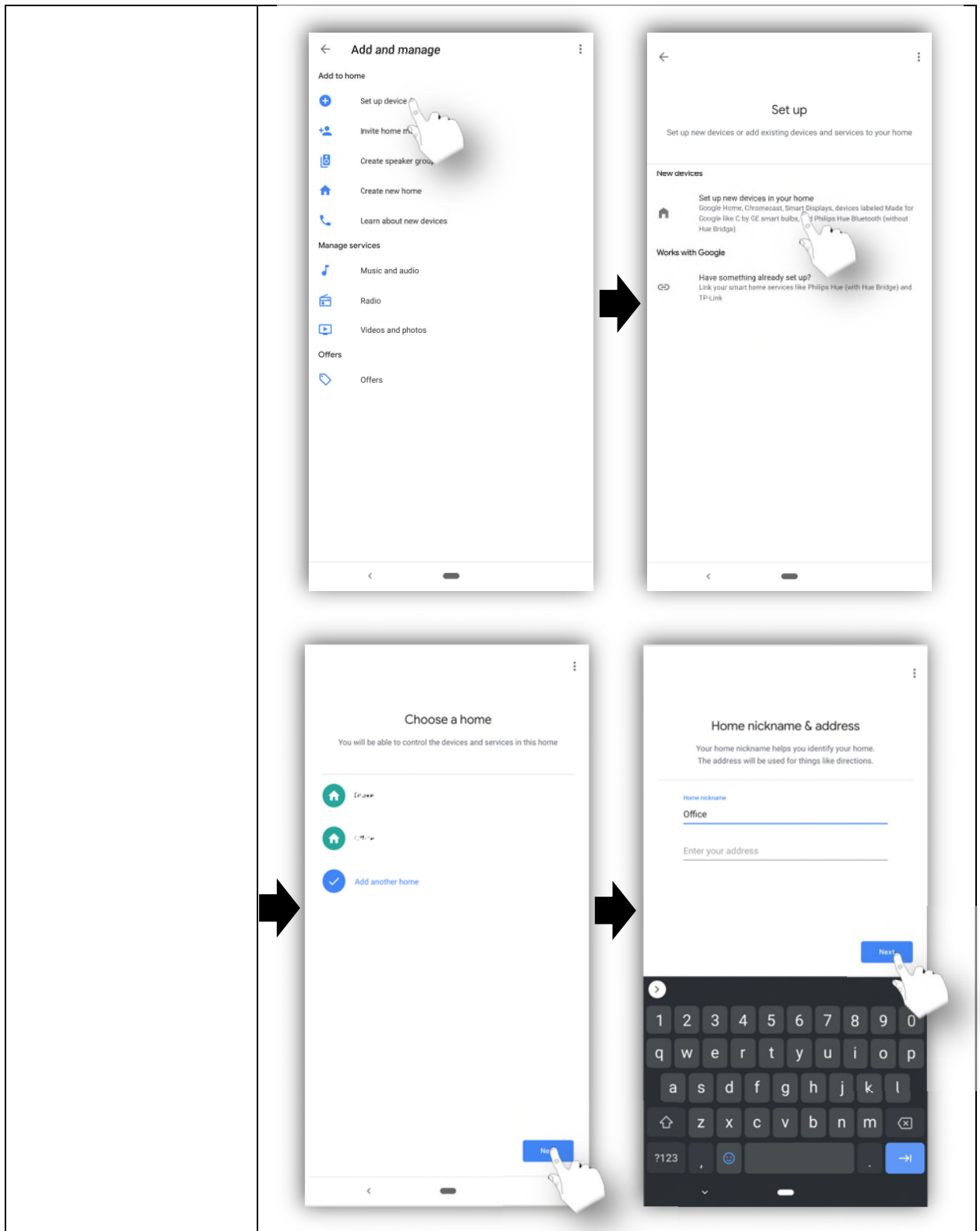
| Claim 1 | Google |
|---|---|
| a user interface; | Each Chromecast-enabled computing device includes a user interface, such as a touchscreen and one or more physical buttons.  *See, e.g.*, Exs. 40-43, 87-92. |
| a network interface; | Each Chromecast-enabled computing device includes a network interface, such as a Wi-Fi interface.  *See, e.g.*, Exs. 40-43, 87-92. |
| at least one processor; | Each Chromecast-enabled computing device includes at least one processor.  *See, e.g.*, 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. *See, e.g.*, 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. |

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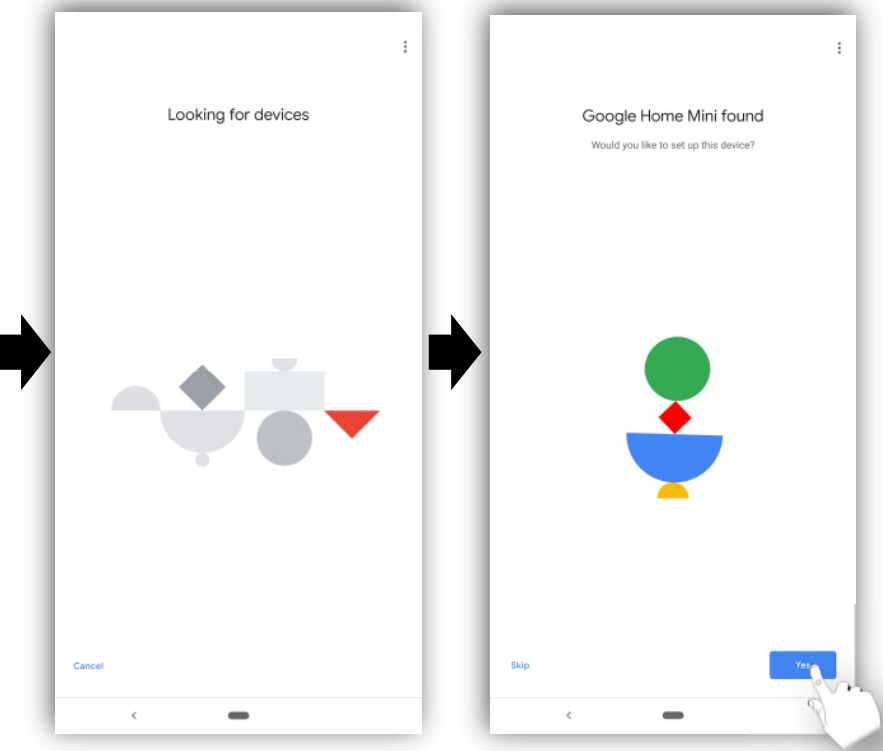| Claim 1 | Google |
|---|---|
| more playback devices, user input indicating that a user wishes to set up a playback device to operate on the secure WLAN and (b) receiving a first message indicating that a given playback device is available for setup; | For instance, each Chromecast-enabled computing device is programmed with the capability to run the Google Home app to setup and control Google Audio Players on a secure local Wi-Fi network (which is a WLAN) that is defined by an access point (*e.g.*, a  router) to which the Chromecast-enabled computing device is communicatively coupled. *See, e.g.*, Ex. 101 ("The Google Home app will walk you through the steps to set up Google Home. . . . Choose the Wi-Fi network you want to connect to your device. . . . Access your music and movie services."); Exs. 80, 102, 103. <br><br> In particular, while communicatively coupled to a secure local Wi-Fi network, the Chromecast-enabled computing device is capable of receiving, via a GUI presented by the Google Home app, user input indicating that a user wishes to set up a Google Audio Player to operate on the secure local Wi-Fi network.  While that Google Audio Player is operating in a setup mode (*e.g.*, after being plugged into a wall socket for the first time out of the box), the Chromecast-enabled computing device functions to receive a message indicating that the Google Audio Player is available for setup (*e.g.*, a message comprising an SSID for an unsecure wireless network provided by the Google Audio Player).  Examples of these functions are illustrated in the following screenshots. |

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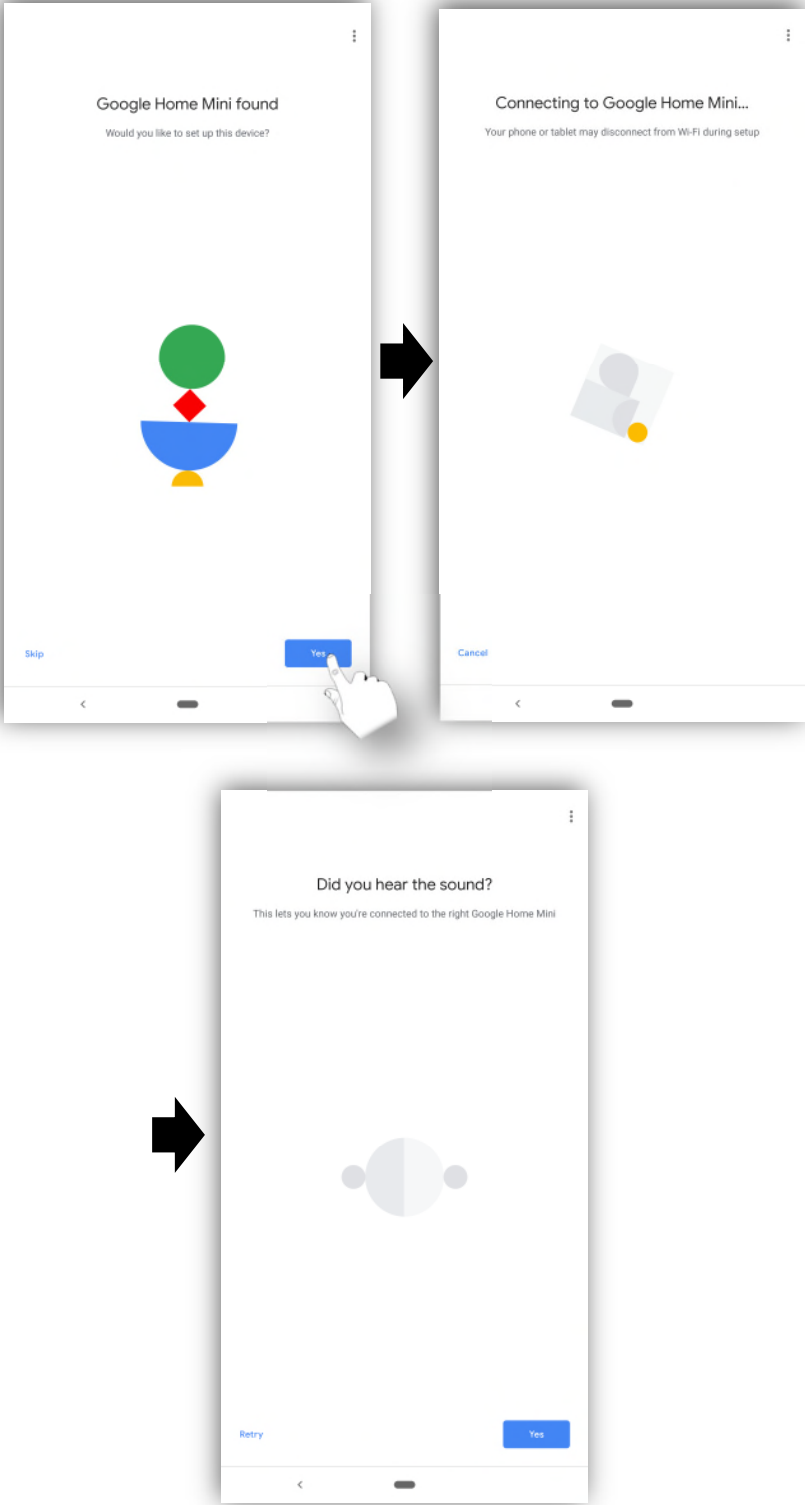13
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| Claim 1 | Google |
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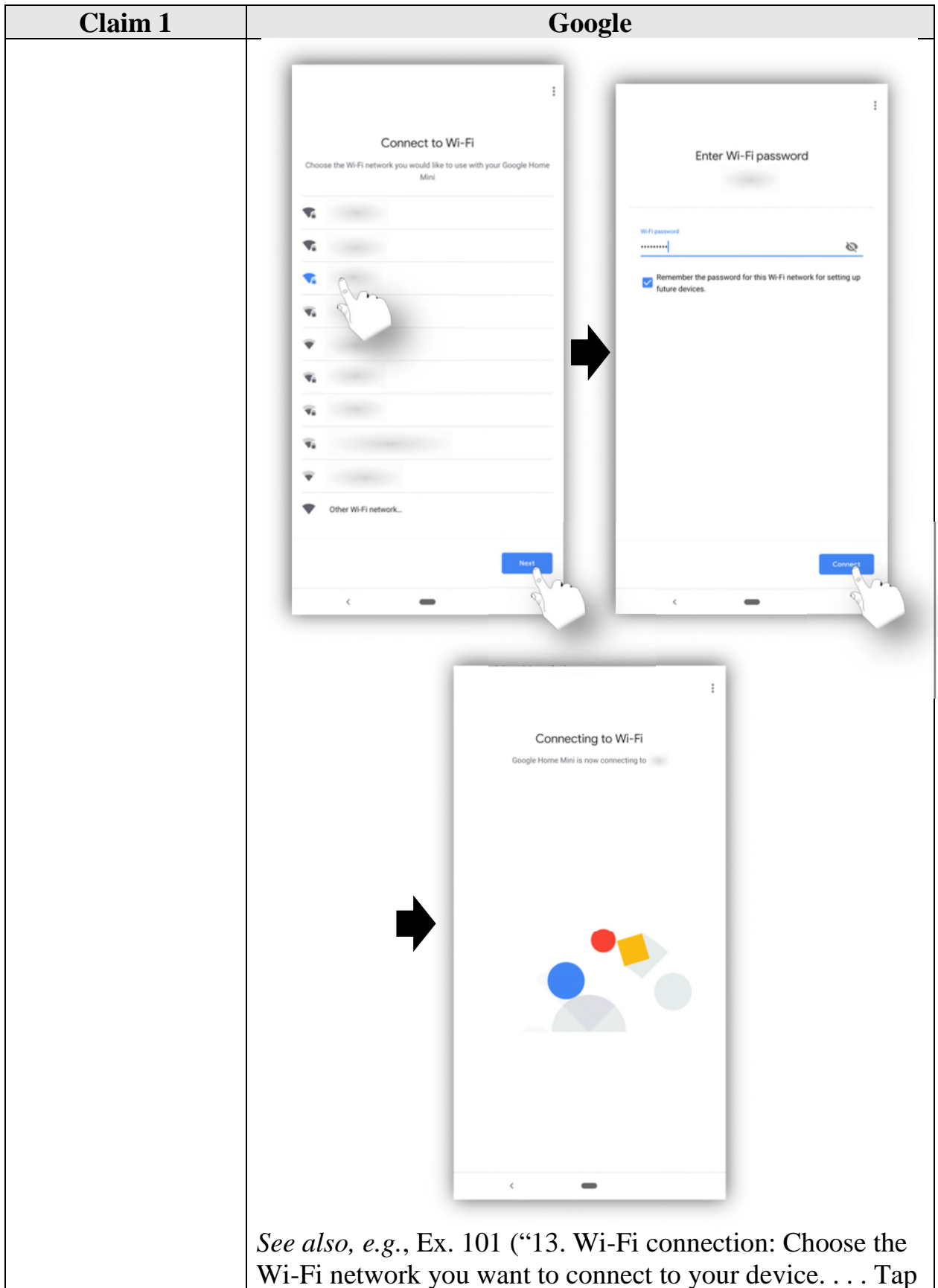23

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| Claim 1 | Google |
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| | <br><br>*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."). |
| 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 | 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.<br><br>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 |

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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 (*e.g.*, 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.  *See, e.g.*, 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. |

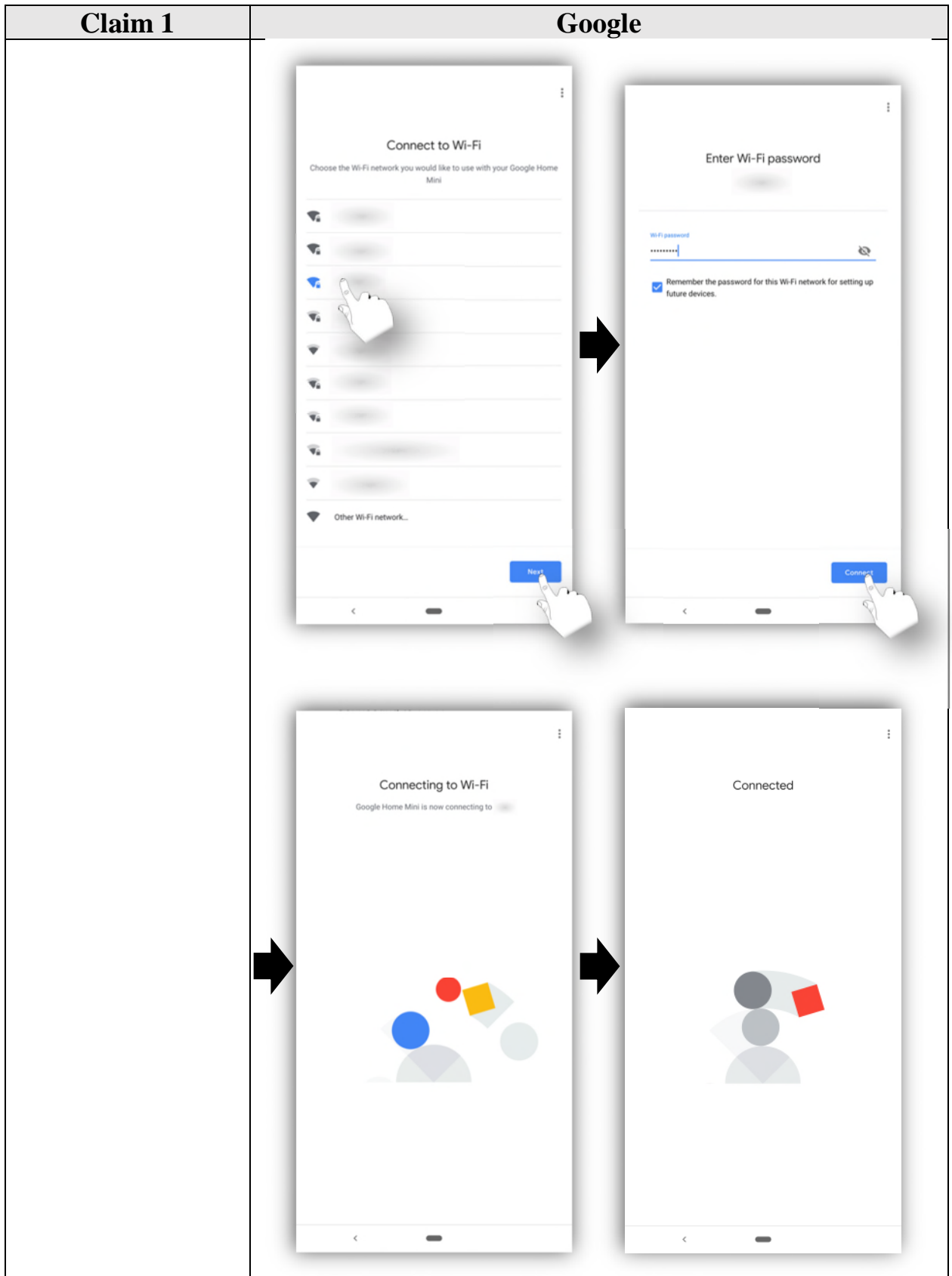| Claim 1 | Google |
|---------|--------|
| |  |
| transmitting, to the given playback device via the | Each Chromecast-enabled computing device comprises program instructions that, when executed by a Chromecast-enabled computing device's at least one processor, cause |

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| Claim 1 | Google |
|---|---|
| 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; | 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.<br><br>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. |

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| Claim 1 | Google |
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|  |  <br><br> 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 | 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.

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. |

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| Claim 1 | Google |
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| Claim 1 | Google |
|---|---|
| after detecting the indication, transitioning from communicating with the given playback device via the initial communication path to communicating with the given playback device via the secure WLAN that is defined by the access point. | 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 detecting the indication, transition from communicating with the given Google Audio Player via the initial communication path to communicating with the given Google Audio Player via the secure WLAN that is defined by the access point.

For instance, each Chromecast-enabled computing device is programmed such that, after detecting an indication that a Google Audio Player successfully received network configuration parameters for a secure local Wi-Fi network defined by an access point, the Chromecast-enabled computing device functions to transition from communicating with the Google Audio Player via the initial communication path to communicating with the Google Audio Player via the secure local Wi-Fi network. *See, e.g.*, Ex. 101 ("13. Wi-Fi connection: Choose the Wi-Fi network you want to connect to your device. . . . Tap 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.").

As one example to illustrate, after the Chromecast-enabled computing device transitions from communicating with the Google Audio Player via the initial communication path to 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 |
|---------|--------|
|  | network and the Internet. *See, e.g.*, 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. |

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

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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

Google (a) 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) engaged in the aforementioned activity despite an objectively high likelihood that Google's actions constituted infringement of the '896 Patent, and (c) this objectively-defined risk was either known or so obvious that it should have been known to Google.

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

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

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

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

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

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

## PRAYER FOR RELIEF

WHEREFORE, Sonos respectfully requests:

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

1  B.    An injunction enjoining Google, its officers, agents, servants,

2       employees and attorneys, and other persons in active concert or

3       participation with Google, and its parents, subsidiaries, divisions,

4       successors and assigns, from further infringement of the patents-in-

5       suit.

6  C.    An award of damages sufficient to compensate Sonos for Google's

7       infringement under 35 U.S.C. § 284, including an enhancement of

8       damages on account of Google's willful infringement;

9  D.    That the case be found exceptional under 35 U.S.C. § 285 and that

10      Sonos be awarded its reasonable attorneys' fees;

11 E.    Costs and expenses in this action;

12 F.    An award of prejudgment and post-judgment interest; and

13 G.    Such other and further relief as the Court may deem just and proper.

14 **DEMAND FOR JURY TRIAL**

15 Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Sonos

16 respectfully demands a trial by jury on all issues triable by jury.

17

18 Dated: January 7, 2020      Respectfully submitted,

19          ORRICK HERRINGTON & SUTCLIFFE LLP

20          *and*

         LEE SULLIVAN SHEA & SMITH LLP

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22          By: */s/ Alyssa Caridis*

23          ALYSSA CARIDIS

         *Attorneys for Plaintiff Sonos, Inc.*

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