UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

In the Matter of CERTAIN AUDIO PLAYERS AND CONTROLLERS, COMPONENTS THEREOF, AND PRODUCTS CONTAINING SAME	**Investigation No. 337-TA-___**

COMPLAINANT'S STATEMENT ON THE PUBLIC INTEREST

Pursuant to Commission Rule 210.8(b), Complainant Sonos, Inc. ("Sonos" or "Complainant") submits this Statement on the Public Interest regarding the remedial orders it seeks against Respondents Google LLC and Alphabet Inc. (collectively, "Google" or "Respondents"). Sonos seeks a permanent limited exclusion order excluding from entry into the United States certain audio players and controllers, components thereof, and products containing same that infringe any of U.S. Patent Nos. 9,195,258; 10,209,953; 8,588,949; 9,219,959; and 10,439,896 (collectively "the Asserted Patents"). Complainant also seeks a permanent cease and desist order prohibiting Respondents and any of their principals, stockholders, officers, directors, employees, agents, licensees, distributors, controlled (whether by stock ownership or otherwise) and majority-owned business entities, successors, and assigns from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), soliciting U.S. agents or distributors, or aiding and abetting other entities in the importation, sale for importation, transfer (except for exportation), or distribution of audio players and controllers, components thereof, and products containing the same that infringe the Asserted Patents (the "Infringing Products").

The requested relief will not adversely impact any aspect of the public interest and will provide effective relief in the face of ongoing patent infringement in the United States by the Respondents. Thus, the Commission should not order the Administrative Law Judge to take evidence and hear arguments regarding the public interest in this Investigation.

I. THE REQUESTED REMEDIAL ORDERS ACCORD WITH THE PUBLIC INTEREST

There is a strong public interest in protecting intellectual property rights. *Certain Baseband Processor Chips & Chipsets*, Inv. No. 337-TA-543, 2011 ITC LEXIS 2613 at *239 (Oct. 2011). The requested remedial orders accord with the public interest for at least the following reasons: (1) exclusion of the Infringing Products will not have an adverse effect on the public health, safety, or welfare, as those issues are defined by the Commission; (2) Complainant's audio player products and controller applications directly compete with and are substitutes for Infringing Products in the United States; (3) only a subset of the industry selling or offering for sale audio players and controllers/controller applications in the United States would be barred if the Infringing Products are excluded; and (4) Complainant and third parties are poised to fill any void in the market caused by the requested remedial orders. Accordingly, the public interest in protecting Complainant's intellectual property rights outweighs any potential adverse impact on the public.

A. The Infringing Products Are Used to Play and/or Control the Playing of Music.

Pursuant to 19 CFR § 210.8(b)(1), the Infringing Products are audio players, controllers for audio players, components thereof, and products containing same that control and/or play music and other audio content. Each of the Infringing Products infringes Complainant's patent rights. The Infringing Products are imported into, sold for importation into, and/or sold after importation into the United States by or on behalf of the proposed Respondents.

B. Issuance of the Remedial Orders Will Not Implicate Any Public Health, Safety, or Welfare Concerns.

The Infringing Products are primarily used in homes or businesses to play and/or control the playing of music or other audio content. Pursuant to 19 CFR § 210.8(b)(2), they do not affect public health, safety, or welfare. Moreover, even if there could be some theoretical impact on public health, safety, or welfare, the exclusion of the Infringing Products would have *de minimis* impact because, as discussed below, Complainant and third parties are capable of supplying the market with like or competing products.

C. Complainant and Others Can Replace the Infringing Products with Like or Directly Competitive Articles If the Infringing Products Are Excluded.

Multiple products from Complainant and others satisfy the public interest requirement of 19 CFR § 210.8(b)(3). With respect to the infringing audio players, these replacement products include audio players sold by Sonos, such as Sonos's One, One SL, Play:5, Move, Beam, Playbar, Playbase, Port, and Amp, as well as audio players sold by Sonos licensees and potential licensees. Other third-party products, such as speakers from Bose Corporation, Harman International, and Yamaha Corporation, may also meet the requirements of 19 CFR § 210.8(b)(3).

With respect to the infringing audio player controllers/controller apps, Complainant, its licensees, and potential licensees provide controllers/controller apps that can be used to control audio players. In addition, multiple third parties, such as Motorola Mobility LLC, Nokia Corporation, and HTC Corporation, provide computing devices such as mobile phones, tablets, and computers that include or are capable of downloading and executing controller apps to control audio players.

D. Complainant And Others Can Replace the Volume of Articles Subject to the Requested Remedial Orders in a Commercially Reasonable Time in the United States.

Pursuant to 19 CFR § 210.8(b)(4), on information and belief, Complainant, its licensees, and potential licenses have the manufacturing capacity to readily supply the market for Infringing Products with Complainant's patented products or competitive products.

E. The Requested Remedial Orders Will Not Adversely Impact U.S. Consumers.

Pursuant to 19 CFR § 210.8(b)(5), Consumers in the United States would experience little or no impact if the Commission issues the requested remedial orders. Complainant, its licensees, and potential licenses can satisfy demand for the Infringing Products, as discussed above. Even if, *arguendo*, the remedial orders caused a slight increase in the price of certain products or a slight decrease in consumer choice, such changes do not warrant denying a remedial order. *See Certain Lens-Fitted Film Packages*, Inv. No. 337-TA-406, Comm'n Op., 1999 ITC LEXIS 202 at *40 (June 29, 1999) (finding that some price increase "does not justify a determination that the public interest in protecting intellectual property rights is in any way outweighed"); *Certain Personal Data & Mobile Commc'ns Devices & Related Software*, Inv. No. 337-TA-710, Comm'n Op., 2011 ITC LEXIS 2874 at *111 (Dec. 29, 2011) ("[M]ere constriction of [consumer] choice cannot be a sufficient basis for denying the issuance of an exclusion order."). Given that there are competitive products that could fill the existing demand for the Infringing Products, there would be no void if those products are excluded, and any potential impact on the public interest would be minimal.

II. CONCLUSION

Granting the requested remedial orders will serve the public interest, and exclusion of the Infringing Products will not adversely affect the public health, safety or welfare. Moreover, an adequate supply of substitute devices will be available from Complainant and others. Therefore,

there is no reason to order the administrative law judge to take evidence and to issue a recommended determination on the public interest.

Dated: January 5, 2020

Respectfully submitted,

/s/ DRAFT

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UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

In the Matter of	**Investigation No. 337-TA-___**
CERTAIN AUDIO PLAYERS AND CONTROLLERS, COMPONENTS THEREOF, AND PRODUCTS CONTAINING SAME	

VERIFIED COMPLAINT OF SONOS, INC. UNDER SECTION 337 OF THE TARIFF ACT OF 1930, AS AMENDED

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TABLE OF CONTENTS

LIST OF EXHIBITS

Exhibit	Description
1	Certified copy of U.S. Patent No. 9,195,258
2	Certified copy of Certificate of Correction to U.S. Patent No. 9,195,258
3	Certified copy of U.S. Patent No. 10,209,953
4	Certified copy of U.S. Patent No. 8,588,949
5	Certified copy of Ex Parte Reexamination Certificate to U.S. Patent No. 8,588,949
6	Certified copy of U.S. Patent No. 9,219,959
7	Certified copy of Ex Parte Reexamination Certificate to U.S. Patent No. 9,219,959
8	Certified copy of U.S. Patent No. 10,439,896
9	Certified copy of recorded assignment for U.S. Patent No. 9,195,258
10	Certified copy of recorded assignment for U.S. Patent No. 8,588,949
11	Certified copy of recorded assignment for U.S. Patent No. 9,219,959
12	Certified copy of recorded assignment for U.S. Patent No. 10,439,896
13	Copy of recorded assignment for U.S. Patent No. 8,234,395, related application data for U.S. Patent No. 10,209,953
14	Copy of recorded certificate of name change for U.S. Patent No. 8,234,395, related application data for U.S. Patent No. 10,209,953
15	List of foreign counterparts
16	Representative Infringement Chart For U.S. Patent No. 9,195,258
17	Representative Infringement Chart For U.S. Patent No. 10,209,953
18	Representative Infringement Chart For U.S. Patent No. 8,588,949
19	Representative Infringement Chart For U.S. Patent No. 9,219,959
20	Representative Infringement Chart For U.S. Patent No. 10,439,896
21	Representative Domestic Industry Chart For U.S. Patent No. 9,195,258
22	Representative Domestic Industry Chart For U.S. Patent No. 10,209,953
23	Representative Domestic Industry Chart For U.S. Patent No. 8,588,949
24	Representative Domestic Industry Chart For U.S. Patent No. 9,219,959
25	Representative Domestic Industry Chart For U.S. Patent No. 10,439,896
26	[**CONFIDENTIAL**] List of Licensees
27	[**CONFIDENTIAL**] Declaration of Christine Squarey On Behalf Of Sonos, Inc.
28	Web page: https://store.google.com/us/category/connected_home?hl=en-US last accessed 12/4/2019
29	Web page: https://support.google.com/googlenest/answer/7072284?hl=en last accessed 12/4/2019
30	Web page: https://store.google.com/us/product/google_nest_mini_specs?hl=en-US last accessed 12/4/2019

LIST OF EXHIBITS

Exhibit	Description
31	Web page: https://store.google.com/us/product/google_home_max_specs?hl=en-US last accessed 12/4/2019
32	Web page: https://www.ifixit.com/Teardown/Google+Home+Teardown/72684 last accessed 12/4/2019
33	Web page: https://support.google.com/googlenest/answer/7174267?hl=en last accessed 12/4/2019
34	Web page as of 4/8/2019 accessed via the Internet Archive WayBack Machine: http://web.archive.org/web/20190408185613/https://support.google.com/googlehome/answer/7030379
35	Web page: https://support.google.com/googlenest/answer/7559493?hl=en last accessed 12/4/2019
36	Web page: https://support.google.com/googlenest/answer/7181830?hl=en last accessed 12/4/2019
37	Web page: https://developers.google.com/cast/docs/reference/ios/interface_g_c_k_multizone_status last accessed 12/4/2019
38	Web page: https://support.google.com/chromecast/answer/6328714?hl=en last accessed 12/4/2019
39	Web page: https://store.google.com/product/pixel_3_specs last accessed 12/4/2019
40	Web page: https://store.google.com/product/pixel_3a_specs last accessed 12/4/2019
41	Web page: https://store.google.com/product/pixel_4_specs last accessed 12/4/2019
42	Web page: https://store.google.com/product/pixel_slate_specs last accessed 12/4/2019
43	Web page: https://store.google.com/product/google_pixelbook_specs last accessed 12/4/2019
44	Web page: https://store.google.com/product/pixelbook_go_specs last accessed 12/4/2019
45	Web page: https://support.google.com/chromecast/answer/7071794?co=GENIE.Platform%3DAndroid&hl=en last accessed 12/4/2019
46	Web page: https://play.google.com/store/apps/details?id=com.google.android.apps.chromecast.app&hl=en_US last accessed 12/4/2019

LIST OF EXHIBITS

Exhibit	Description
47	Web page: https://play.google.com/store/apps/details?id=com.google.android.music&hl=en_US last accessed 12/4/2019
48	Web page: https://developers.google.com/cast/docs/caf_receiver/ last accessed 12/4/2019
49	https://developers.google.com/cast/docs/caf_receiver/queueing last accessed 12/4/2019
50	Web page: https://developers.google.com/cast/docs/reference/caf_receiver/cast.framework.QueueBase last accessed 12/4/2019
51	Web page: https://developers.google.com/cast/docs/reference/caf_receiver/cast.framework.QueueManager last accessed 12/4/2019
52	Web page: https://developers.google.com/cast/docs/reference/caf_receiver/cast.framework.messages.QueueItem last accessed 12/4/2019
53	Web page: https://developers.google.com/cast/docs/reference/caf_receiver/cast.framework.messages.QueueData last accessed 12/4/2019
54	Web page: https://developers.google.com/cast/docs/reference/caf_receiver/cast.framework.messages.QueueLoadRequestData last accessed 12/4/2019
55	Web page: https://developers.google.com/cast/docs/reference/caf_receiver/cast.framework.messages.MediaInformation.html last accessed 12/4/2019
56	Web page: https://support.google.com/googlehome/answer/7559493?hl=en
57	Web page: https://developers.google.com/cast/docs/mpl/streaming_protocols last accessed 12/4/2019
58	Web page: https://support.google.com/googlehome/answer/7029485?hl=en&ref_topic=7196250
59	Web page: https://support.google.com/googlenest/answer/7029485?hl=en&ref_topic=7196250 last accessed 12/4/2019

LIST OF EXHIBITS

Exhibit	Description
60	Web page: https://support.google.com/chromecast/answer/2998456 last accessed 12/4/2019
61	Web page: https://support.google.com/googlenest/answer/7030379?hl=en&ref_topic=7030084 last accessed 12/4/2019
62	Web page: https://support.google.com/googlenest/answer/7060506?hl=en last accessed 12/4/2019
63	Web page as of 6/18/2019 accessed via the Internet Archive WayBack Machine: https://web.archive.org/web/20190618141603/https://support.google.com/googlenest/answer/7174267?hl=en
64	Web page: https://www.sonos.com/support/en/sonos-user-guide/index.html#t=sonos-user-guide%2Fsonos-user-guide-en%2Fsonos-user-guide-en.htm
65	Web page: https://apps.apple.com/us/app/sonos-controller/id293523031
66	Web page: https://play.google.com/store/apps/details?id=com.sonos.acr&hl=en_US
67	Web page: https://support.sonos.com/s/article/3391?language=en_US
68	Web page: https://musicpartners.sonos.com/sites/default/files/Sonos%20System%20Overview.pdf
69	Web page: https://support.sonos.com/s/article/3521?language=en_US&languae=en_US
70	Web page: https://www.sonos.com/en-us/easy-to-use
71	Web page: https://developer.sonos.com/build/direct-control/connect/
72	Web page: https://support.sonos.com/s/article/1066?language=en_US
73	Web page: http://web.archive.org/web/20190623024655/https://www.spotify.com/us/sonos/
74	Web page: https://musicpartners.sonos.com/node/465
75	Web page: https://support.sonos.com/s/article/2627?language=en_US
76	"Tiny $199 Sonos Play:1 speaker fills a room with wireless tunes" by NBC News
77	"Brilliant Bluetooth Speakers" by Men's Journal
78	"An Audio Hub that Actually Words, Easily" by PC Magazine
79	Sonos User Guide
80	"Sonos vs. Bluesound: A Hi-fi, Wi-fi Speaker System Shootout" by Digital Trends
81	"Sonos multi-room system review" by What Hi Fi?
82	Sonos web page: Music services on Sonos
83	"Now You Can Stream Google Play Music Through Your Sonos System" by Wired
84	IPO Top 300 Organizations Granted U.S. Patents in 2017
85	IEEE Interactive: Patent Power 2017

LIST OF EXHIBITS

Exhibit	Description
86	Google web page: Create and manage speaker groups – Google Nest Help
87	"Google renames Home Hub to the Nest Hub and releases a 10-inch Nest Hub Max" by Tech Crunch
88	Google web page: Listen to music on Google Nest and Google Home speakers and displays - Google Nest Help
89	Google Play web page: Google Home and Chromecast Apps
90	Google Play web page: YouTube Music App
91	Google Play web page: Google Play Music App
92	Apple App Store web page: Google Home App
93	Apple App Store web page: Google Play Music
94	Apple App Store web page: YouTube Music
95	Google Store web page: Compare Google Pixel Phones
96	Google Store web page: Pixel Slate specifications
97	Google Store web page: Compare Pixelbook Laptops
98	"Google launches new Chromecast and Chromecast Audio streaming dongles" by The Guardian
99	Google Chrome Blog: Even more to love about Chromecast Audio
100	"Google's Chromecast Audio Adapter Gets Multi-Room Support Similar to Sonos" by Variety
101	"New Chromecast Audio features let you play hi-res audio in every room at once" by Pocket-lint
102	"Google's hardware extravaganza: Ad giant takes on Sonos, Roku, Linksys, Amazon, Oculus... you name it" by The Register
103	"Google Home Review: Home is Where the Smart is" by The Verge
104	"Google's Home Max Goes After HomePod With a Big Ass Sonos Clone" by Gizmodo
105	"Google Home Max vs. Sonos" by Android Central
106	"An Audio Hub that Actually Works, Easily" by PC Magazine
107	"Sonos Offers Upscale Music System" by Playlist
108	"Sonos Audio System Brings Controller App to iPhone, Firmware 2.7 Update With Last.fm and 15,000+ Radio Stations" by Gizmodo
109	"Sonos Controller for Mac and PC (2012) pictures and hands-on" by Pocket-lint
110	"Gadget That 'Streams' Music Around House Is Terrific but Pricey" by The Wall Street Journal
111	"Sonos Play:1 wireless speaker" by Macworld

LIST OF EXHIBITS

Exhibit	Description
112	“Sonos adds new stereo pair mode to ZonePlayer S5” by Stash Gear
113	“Sonos Tips and Tricks” by Trusted Reviews
114	“Wireless speaker shootout: Sonos Play:1 vs. the Bose SoundTouch 20 and Samsung Shape M7” by Consumer Reports News
115	“How Sonos and John McFarlane Built the Perfect Wireless Speaker” by Businessweek
116	“Sonos Play:1 review” by What Hi-Fi?
117	“You can finally control your Sonos speakers directly from Spotify” by The Verge
118	“Now all Sonos users can now control their systems from Spotify” by Pocket-lint
119	“Sonos Play:5 review: The best-sounding wireless speaker system we’ve ever used” by Ars Technica
120	“Sonos Play:5 Review: Wireless Music Made Elegant” by Gizmodo
121	“Sonos gets update, so you don’t need a wired network connection” by Consumer Reports
122	Chromecast webpage: How to change the volume of an audio group
123	Google webpage: “Multi-room audio”
124	Google webpage: Google Home Max advertisement
125	Google webpage: “Pair Google Home Max speakers”
126	Google webpage: “Set up your Google Nest or Google Home speaker or display”
127	Google Home Max Importation
128	Google Pixel 3 Importation

LIST OF PHYSICAL EXHIBITS

Physical Exhibit	Description
CPX-1	Sonos Beam
CPX-2	Sonos One
CPX-3	Sonos Play:5
CPX-4	Sonos Playbar
CPX-5	Sonos Port
CPX-6	Sonos Sub
CPX-7	Google Chromecast
CPX-8	Google Chromecast Ultra
CPX-9	Google Home
CPX-10	Google Home Hub
CPX-11	Google Home Max
CPX-12	Google Home Mini
CPX-13	Google Nest Mini
CPX-14	Google Pixel 3
CPX-15	Google Pixel 3XL
CPX-16	Google Pixel 4

LIST OF APPENDICES

Appendix	Description
A	One certified copy and three additional copies of U.S. Patent and Trademark Office prosecution history for U.S. Patent No. 9,195,258
B	One certified copy and three additional copies of U.S. Patent and Trademark Office prosecution history for U.S. Patent No. 10,209,953
C	One certified copy and three additional copies of U.S. Patent and Trademark Office prosecution history for U.S. Patent No. 8,588,949
D	One certified copy and three additional copies of U.S. Patent and Trademark Office prosecution history for Reexamination Request No. 90/013,423 for U.S. Patent No. 8,588,949
E	One certified copy and three additional copies of U.S. Patent and Trademark Office prosecution history for U.S. Patent No. 9,219,959
F	One certified copy and three additional copies of U.S. Patent and Trademark Office prosecution history for Reexamination Request No. 90/013,756 for U.S. Patent No. 9,219,959
G	One certified copy and three additional copies of U.S. Patent and Trademark Office prosecution history for U.S. Patent No. 10,439,896
H	Four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history of U.S. Patent Nos. 9,195,258; 10,209,953; 8,588,949; 9,219,959 and 10,439,896

I. INTRODUCTION

1. Complainant Sonos, Inc. ("Sonos" or "Complainant") respectfully requests that the United States International Trade Commission commence an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 ("Section 337"), to remedy the unlawful importation into the United States, the sale for importation into the United States, and/or the sale within the United States after importation of audio players and controllers, components thereof, and products containing same that infringe the asserted Sonos patents, which are practiced by Sonos products.

2. The proposed Respondents are Alphabet Inc. and Google LLC (collectively, "Google" or "Respondents").

3. Google has engaged in unlawful acts, including the unlicensed importation into the United States, sale for importation into the United States, and/or sale after importation into the United States of certain audio players and controllers, components thereof, and products containing same that infringe claims of U.S. Patent Nos. 9,195,258; 10,209,953; 8,588,949; 9,219,959; and 10,439,896 (collectively the "Asserted Patents").[1] The '258 and '953 Patents are related and share essentially the same specification. In this Investigation, Sonos asserts seven independent claims and 20 dependent claims:

Patent No.	Asserted Claims
9,195,258	Independent claim 17 and dependent claims 21-24 and 26
10,209,953	Independent claim 7 and dependent claims 12-14 and 22-24
8,588,949	Independent claim 1 and dependent claims 2, 4 and 5
9,219,959	Independent claims 5, 9, and 10 and dependent claims 29 and 35
10,439,896	Independent claim 1 and dependent claims 3, 5, 6, and 12

[1] Certified copies of the Asserted Patents, together with the corresponding Certificate of Correction and *Ex Parte* Reexamination Certificates, accompany this Complaint as **Exhibits 1-8**.

4. A domestic industry under 19 U.S.C. § 1337(a)(2), as defined by § 1337(a)(3)(A)-(C), exists in the United States as a result of Sonos's significant investments in plant, equipment, labor, and capital with respect to articles protected by the Asserted Patents and substantial investment in the Asserted Patents' exploitation, including engineering, research and development, or licensing.

5. Respondents' activities with respect to the importation into the United States, the sale for importation into the United States, and/or the sale within the United States after importation of the Infringing Products, described more fully *infra*, are unlawful under 19 U.S.C. § 1337(a)(1)(B) because those products infringe one or more claims of the Asserted Patents.

6. Sonos seeks relief from the Commission in the form of a permanent limited exclusion order excluding from entry into the United States Respondents' audio players and controllers, components thereof, and products containing the same that infringe the Asserted Patents. Complainant further seeks cease and desist orders stopping Respondents and any of their principals, stockholders, officers, directors, employees, agents, licensees, distributors, controlled (whether by stock ownership or otherwise) and majority-owned business entities, successors, and assigns from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, transferring (except for exportation), or soliciting U.S. agents or distributors for audio players and controllers, components thereof, and products containing the same covered by one or more claims of the Asserted Patents. Finally, Complainant requests the imposition of a bond pursuant to 19 U.S.C. § 1337(j) during the period the Commission's relief is under presidential review, and any additional relief that the Commission deems just and proper under the law.

II. COMPLAINANT

7. Sonos, Inc. is a Delaware corporation with headquarters at 614 Chapala Street, Santa Barbara, CA 93101.

SONOS'S INNOVATION

8. Founded in 2002, Sonos invented what is known today as wireless multi-room audio. **Exhibit 76** (2013 *NBC News*: "If you're not familiar with Sonos, this company revolutionized the home audio world a decade ago…."); **Exhibit 77** (2015 *Men's Journal*: "Sonos almost singlehandedly established the stand-alone wireless home speaker system category….").

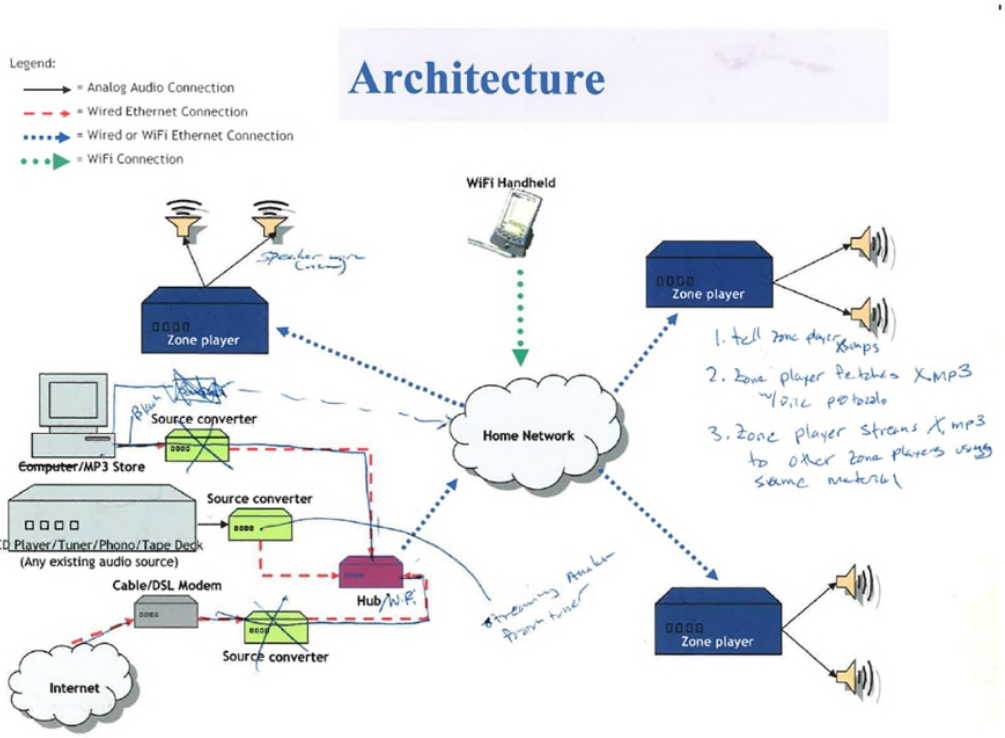
9. Sonos engineers in the United States conducted the research, development, and engineering that created Sonos's wireless audio system. Today, engineers in Boston, MA, San Francisco, CA, Santa Barbara, CA, and Seattle, WA continue Sonos's commitment to innovation. Sonos's operating expenses directed to research and development have increased every year since at least 2014. In fact, Sonos's research and development expenses more than doubled from over $70 million in fiscal year 2014 to over $171 million in fiscal year 2019. A substantial amount of this investment occurs in the United States.

10. In recognition of its innovations, the U.S. Patent & Trademark Office has granted Sonos more than 750 United States patents, including the Asserted Patents. The innovations in these patents are important to wireless audio systems and, in particular, multi-room audio systems.

11. 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.*, **Exhibit 78** (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").

12. An early sketch of Sonos's wireless audio architecture is shown below:



13. Sonos launched its first commercial products in 2005 and has since released a wide variety of wireless audio products, including, for example, the Play:1, Play:3, Play:5 (Gen 1 and Gen 2), One (Gen 1 and Gen 2), One SL, Move, Playbar, Playbase, Beam, Sub, Connect, Port, Connect:Amp, and Amp. *See, e.g.*, **Exhibit 79**. Sonos's products can be set up and controlled by the Sonos app. *Id.*

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

15. Sonos's products are consistently hailed as setting the standard for the industry. *See, e.g.*, **Exhibit 80** (2018 *Digital Trends*: "Sonos is the king of multiroom audio…."); **Exhibit 81** (2019 *What Hi-Fi*: "[N]o multi-room offering is as complete or as pleasurable to live with as Sonos.").

16. Sonos's products are also compatible with many different third-party music streaming services and Sonos has entered into partnerships with dozens of them to integrate their services into the Sonos platform. For example, in 2013, Sonos started working closely with Google to integrate the Google Play Music streaming service and Google Play Music launched on the Sonos platform in 2014 (with Google's YouTube Music service added later). *See, e.g.*, **Exhibit 82**. As recognized at the time, Sonos's integration work with Google was especially "deep" and gave Google a wide aperture through which to view Sonos's proprietary technology. *See, e.g.*, **Exhibit 83** (2014 *Wired*: "Now, Google Play Music will be available as an option to Sonos owners via the Sonos controller app (iOS, Android, and web). And, for the first time, the Google Play Music Android app is getting updated with a button that lets users easily play music from any Sonos speaker in the house. This is the first time this sort of deep integration has happened between a third party music service and Sonos.").

17. As a pioneer in wireless audio, Sonos has been and continues to be at the forefront of technological innovation and diligently protects its inventions. Leading outside organizations have recognized the value of Sonos's ingenuity. For example, Sonos earned a spot on the IPO list of "Top 300 Organizations Granted U.S. Patents" and the IEEE recognized Sonos as having one of "[t]he technology world's most valuable patent portfolios." *See* **Exhibits 84 and 85**. Currently, Sonos is the owner of more than 750 United States Patents related to audio technology, as well as more than 420 pending United States Patent Applications. Sonos's patents cover important aspects of wireless multi-room audio systems, such as setting up a 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 audio players together for stereo sound), and synchronizing playback of audio within groups of playback devices. These features are covered by the Asserted Patents.

III. RESPONDENTS

A. Google LLC

18. Proposed respondent Google LLC ("Google LLC") is a Delaware corporation with its principal place of business and headquarters at 1600 Amphitheatre Parkway, Mountain View, CA 94043.

GOOGLE'S INFRINGEMENT

19. 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* **Exhibit 98** (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.").

20. 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 listen to the same song on multiple speakers.

Exhibit 99 (December 2015 *Google Chrome Blog*).

21. As observed in a 2015 *Variety* article entitled "Google's Chromecast Audio Adapter Gets Multi-Room Support Similar to Sonos," Google's updated Chromecast Audio was considered a "major" advancement for Google and was recognized as competing directly with Sonos because of its similar multi-room audio functionality:

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

Exhibit 100.

22. To control the multi-room Chromecast Audio, Google also provided a Chromecast app with multi-room audio functionality similar to the Sonos app. As observed in a 2015 article by *Pocket-Lint*, Google's multi-room app "can pretty much do the same thing" as Sonos's app:

> [Chromecast Audio]'s been updated to make it more comparable to Sonos, a smart speaker system that wirelessly streams all your Hi-Fi music to any room, or

> every room. You control your Sonos experience with one app. Well, thanks to a new software rollout, Chromecast Audio can pretty much do the same thing.

Exhibit 101.

23. The media comparisons between Google's Chromecast Audio and Sonos's products are a result of the fact that, on information and belief, Google copied key features from Sonos. These features include, for example, Sonos's patented technology for setting up a playback device on a wireless local area network, adjusting group volume of playback devices, and synchronizing playback of audio within groups of playback devices.

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

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

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

27. As with the Chromecast Audio, the Google Home was recognized as a direct attack on Sonos. When the Google Home was announced, for example, *The Register* observed that "[n]o market is safe from [the] search engine monster" and that Google was, in particular, "offering new products to compete with Sonos in the music streaming market." *See* **Exhibit 102**. *The Register* further noted the conspicuous similarity that multiple "Google Homes will work with one another, allowing music to be spread into different rooms on command – like the very popular Sonos music system." *Id.*

28. Like *The Register*, *The Verge* also recognized the similarities between the new infringing Google Home and Sonos's prior products: "You can also group multiple Home units together and play music through all of them simultaneously, similar to how Sonos works." *See* **Exhibit 103**.

29. Again, the media comparisons between Google's Home and Sonos's products reflected a darker truth that, on information and belief, Google had misappropriated Sonos's innovations. These innovations include, for example, Sonos's patented technology for setting up a playback device on a wireless local area network, adjusting group volume of playback devices, and synchronizing playback of audio within groups of playback devices.

30. On information and belief, the Google Home proved to be merely another forerunner to further copying by Google. In 2017, Google released two additional "all-in-one" wireless multi-room products – the Google Home Max and the Google Home Mini. Google's Home Max in particular was seen as a "Sonos Clone" and a "not-so-subtle copy of the [Sonos] Play:5 speaker…." **Exhibit 104**. As explained by *Gizmodo*, "[i]t's also hard not to see the [Google Home Max] device as something of a jab at Sonos." *Id.*; *see also, e.g.,* **Exhibit 105**

(2017 *Android Central*: "You can't help but look at Google Home Max… and come to the conclusion that Google is sticking its nose where Sonos has been for years.").

31. As with Google's other prior infringing products, on information and belief, Google also copied Sonos's patented technology for the Google Home Max. This patented technology includes, for example, Sonos's patented technology for setting up a playback device on a wireless local area network, adjusting group volume of playback devices, and synchronizing playback of audio within groups of playback devices. With the Google Home Max, however, Google copied even more of Sonos's patented technology than it did with Google's previous wireless audio products. For instance, the Google Home Max also copied Sonos's patented "pairing" technology, which allows two audio playback devices to be paired together for stereo sound.

32. On information and belief, Google's pervasive copying of Sonos's products and patented technology has resulted in an infringing product line that now includes at least the Chromecast, Chromecast Ultra, Chromecast Audio, Home Mini, Nest Mini, Home, Home Max, Home Hub, Nest Hub, Nest Hub Max, and Nest Wifi Point (individually or collectively, "Google Audio Player(s)"), all of which can be controlled by, for example, the Google Home app, Google Play Music app, and YouTube Music app (individually or collectively, "Google App(s)"). *See, e.g.*, **Exhibits 88-94**.[2]

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

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

34. 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)").[3] *See, e.g.*, **Exhibits 95-97**.

35. On information and belief, Google LLC is in the business of developing, manufacturing, importing and selling audio players, controllers, components thereof and products containing same that infringe the Asserted Patents, including, but not limited to, the Google Audio Players, Google Apps, and Google Pixel Devices (the "Infringing Products").

36. On information and belief, Google LLC markets the Infringing Products to consumers in the United States through its established sales channels. *See id.* Google LLC also

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

imports into the United States, sell for importation, and/or sell within the United States after importation from China, if not elsewhere, the Infringing Products. *See id.*

B. Alphabet Inc.

37. Proposed Respondent Alphabet Inc. ("Alphabet") is a Delaware corporation with its principal place of business and headquarters at 1600 Amphitheatre Parkway, Mountain View, CA 94043.

38. On information and belief, Alphabet owns and/or controls Google LLC and is involved in developing, manufacturing, importing and/or selling Infringing Products.

IV. THE PRODUCTS AT ISSUE

39. Pursuant to Rules 210.10(b)(1) and 210.12(a)(12), 19 C.F.R. §§ 210.10(b)(1) and 210.12(a)(12), in plain English the categories of accused products are networked speaker devices, smart speaker devices, networked adapter devices with audio capabilities, networked dongle devices with audio capabilities, networked display devices with audio capabilities, networked hub devices with audio capabilities, networked node devices with audio capabilities, and mobile phones, tablets, and laptops capable of controlling such devices, and components thereof and products containing the same made by or on behalf of Respondents.

40. The Infringing Products are imported into the United States, sold for importation into the United States, and/or sold within the United States after importation by or on behalf of Respondents. On information and belief, commercially significant volumes of infringing products are maintained in inventory by Respondents in the United States.

41. Sonos products practice claims of each asserted patent. These "Domestic Articles" are Sonos audio players and the controller application, including the following: One, One SL, Play:5, Move, Beam, Playbar, Playbase, Port, Sub, and Amp, as well as the Sonos app.

42. Pursuant to Commission Rule 210.12(b), 19 C.F.R. § 210.12(b), Complainant is submitting herewith the following physical samples of representative Domestic Articles and imported Infringing Products that are the subject of this complaint: Sonos Beam, Sonos One, Sonos Play:5, Sonos Playbar, Sonos Port, Sonos Sub, Google Chromecast, Google Chromecast Ultra, Google Home, Google Home Hub, Google Home Max, Google Home Mini, Google Nest Mini, Google Pixel 3, Google Pixel 3XL, and Google Pixel 4.

V. THE ASSERTED PATENTS

A. Background

43. Sonos was founded to solve various shortcomings in existing conventional audio technology. At the time, a "conventional multi-zone audio system" was based on a centralized device that was hard-wired with dedicated speaker wire to audio players in different rooms. *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.

44. 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.

45. In these conventional hard-wired systems, it was often difficult or impossible to play different audio sources on different audio players, group and control audio players, access and play networked-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.

46. 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.

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

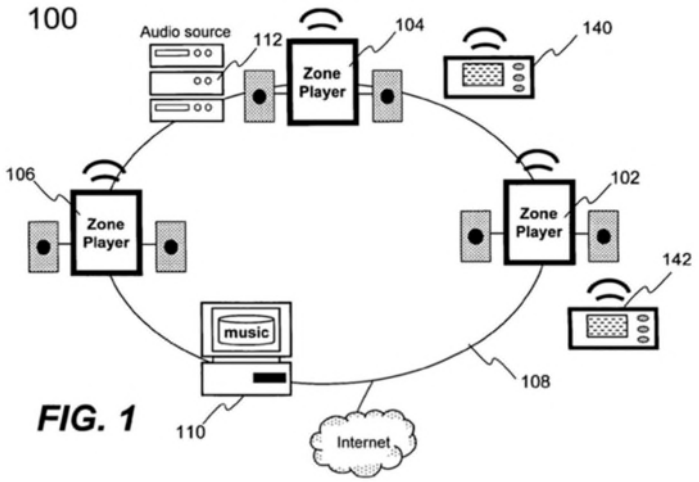


FIG. 1

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

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

49. The new, unconventional nature of Sonos’s zone players introduced additional technological challenges to Sonos’s system, which required Sonos’s zone players to have new intelligence enabling the, to share information with one another so that they could reproduce audio information synchronously. *See, e.g.*, ’258 Patent at 31:34-41. Thus, Sonos’s new system featured zone players that could simultaneously play different audio from different sources but also be grouped together to play the same audio source in a synchronized manner. *See, e.g.*, ’258 Patent at FIG. 1, 3:50-61, 4:22-50, 5:10-6:64, Claims 1, 11, 17; ’949 Patent at 2:28-48, 9:49-59, Claims 1, 8, 15.

50. Further, unlike the “pre-configured and pre-programmed controller[s]” used to control conventional centralized, hard-wired audio systems, Sonos’s controller devices were capable of remotely controlling any zone player in a Sonos audio system from anywhere in a user’s house or similar location via a data network. *See, e.g.*, ’949 Patent at 6:43-60; *see also, e.g.*, ’258 Patent at 5:27-29, 5:38-40, 6:37-46. Building on the intelligence of Sonos’s new zone players, Sonos’s controllers had new capabilities, including dynamically “grouping the zone players” and “control[ling] the volume of each of the zone players in a zone group individually

or together." '949 Patent at 6:43-60; *see also, e.g.*, '258 Patent at FIG. 1, 3:50-61, 4:22-50, 5:10-6:64, 9:17-26, Claims 1, 11, 17.

51. Thus, Sonos's audio system comprising networked zone players controlled by physical controllers over a data network provided an entirely new audio paradigm that overcame the technological deficiencies of conventional audio systems. Moreover, Sonos's unconventional system architecture created new technological challenges that needed to be solved and provided a new platform for further innovation. As discussed in further detail below, the Asserted Patents are directed to overcoming these technological challenges and building on this new platform.

B. U.S. Patent No. 9,195,258

1. Identification of the '258 Patent and Ownership by Complainant

52. U.S. Patent No. 9,195,258 (the "'258 Patent") is entitled "System And Method For Synchronizing Operations Among A Plurality Of Independently Clocked Digital Data Processing Devices." The named inventor is Nicholas A.J. Millington. The '258 Patent's application was filed February 20, 2014, it claims priority to a provisional application filed July 28, 2003, the patent issued November 24, 2015 and is assigned to Sonos, Inc. *See*, **Exhibits 1 and 9.** The applicable maintenance fees have been paid and the '258 Patent is valid and enforceable. The '258 Patent will expire April 1, 2024.

53. Pursuant to Commission Rule 210.12(a)(9)(i), 19 C.F.R. § 210.12(a)(9)(i), Complainant attaches as **Exhibit 1** a certified copy of the '258 Patent.[4] Pursuant to Commission Rule 210.12(c)(1), 19 C.F.R. § 210.12(c)(1), Complainant submits as **Appendix A** one certified

[4] Attached as **Exhibit 2** is a copy of the Certificate of Correction for the '258 Patent excerpted from the certified file wrapper for the '258 patent.

copy of the U.S. Patent and Trademark Office prosecution history for the '258 Patent, plus three additional copies thereof. Pursuant to Commission Rule 210.12(c)(2), 19 C.F.R. § 210.12(c)(2), Complainant submits as **Appendix H** each patent and the applicable pages of each technical reference mentioned in the prosecution history of the '258 Patent, plus three additional copies thereof.

2. Foreign Counterparts to the '258 Patent

54. Attached as **Exhibit 15** is an identification of the foreign patents, foreign patent applications (not already issued as a patent), and foreign patent applications that have been denied, abandoned or withdrawn and are known to Sonos to correspond to the '258 Patent.

3. Non-Technical Description of the '258 Patent[5]

55. The '258 Patent relates generally to devices, systems, and methods for synchronizing audio playback among a group of zone players.

56. In conventional multi-zone audio systems, a centralized device (such as an audio receiver) would send an analog audio signal over dedicated speaker wires to multiple, passive speakers (which could be located in different zones). Those speakers would, in turn, merely output audio corresponding to the analog signal. In contrast, the unconventional nature of Sonos's intelligent audio players ("zone players" in the terminology of this patent), which communicated with one another over a data network, introduced technological challenges to achieving synchronized playback. *See, e.g.*, '258 Patent at 1:55-2:36.

[5] This description and other descriptions of the relevant technology within this Complaint are for illustrative purposes only. Nothing contained within this Complaint is intended to either implicitly or explicitly express any position regarding the proper construction of any claim of any Asserted Patent or to affect the scope of the investigation, discovery, or any remedy the Commission may order.

57. For instance, the ’258 Patent recognized the technological challenge of how to “ensur[e] that, if two or more audio playback devices are contemporaneously attempting to play back the same audio program, they do so simultaneously.” ’258 Patent at 2:17-36. This was important because, as the ’258 Patent recognized, “[s]mall differences in the audio playback devices’ start times and/or playback speeds can be perceived by a listener as an echo effect, and larger differences can be very annoying.” *Id*. at 2:20-22.

58. A main aspect of technological challenge was complicated by the fact that the “audio playback devices that are being developed have independent clocks, and, if they are not clocking at precisely the same rate, the audio playback provided by the various [playback] devices can get out of synchronization.” *Id.* at 2:32-36. The ’258 Patent also recognized that “differences in the audio playback devices’ start times and/or playback speeds” “can arise… for a number of reasons, including delays in the transfer of audio information over the network,” and that “[s]uch delays can differ as among the various audio playback devices for a variety of reasons, including where they are connected into the network, message traffic, and other reasons….” *Id.* at 2:20-27.

59. Thus, the ’258 Patent recognized a need for “a new and improved system and method for synchronizing operations among a number of digital data processing devices that are regulated by independent clocking devices.” *See, e.g.*, ’258 Patent at 2:40-43. In the ’258 Patent, each zone player is equipped with a data network interface and intelligence enabling it 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 are 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.

60. In this regard, the '258 Patent is directed to 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.

61. 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* **Exhibit 106**. Similarly, in 2005, *The Wall Street Journal* praised Sonos's system for the ability to "play… the same songs, in each room simultaneously." *See* **Exhibit 110**. As another example, in 2013, *Macworld* exclaimed: "Sonos is the gold standard when it comes to multi-room audio… you can drive the system from any computer or handheld device, playing music in sync throughout the house…." *See* **Exhibit 111**. Likewise, in 2013, *NBC News* praised Sonos's patented synchronization technology as "mind blowing." *See* **Exhibit 76** ("If you're not familiar with Sonos, this company revolutionized the home audio world a decade ago when it launched the first (rather expensive) Sonos kits…. 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….").

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

1. Identification of the '953 Patent and Ownership by Complainant

62. U.S. Patent No. 10,209,953 (the "'953 Patent") is entitled "Playback Device." The named inventor is Nicholas A.J. Millington. The '953 Patent's application was filed August 31, 2018, it claims priority to an application filed July 28, 2003, it issued 10,209,953, and is assigned to Sonos, Inc. *See,* **Exhibits 3** ('953 Patent identifying "Sonos, Inc." as the assignee), **13** (assignment of 10/816,217 application leading to the '953 Patent to "Rincon Networks, Inc.") and **14** (showing "Rincon Networks, Inc." changed its name to "Sonos, Inc."). The applicable maintenance fees have been paid and the '953 Patent is valid and enforceable. The '953 Patent will expire April 1, 2024.

63. Pursuant to Commission Rule 210.12(a)(9)(i), 19 C.F.R. § 210.12(a)(9)(i), Complainant attaches as **Exhibit 3** a certified copy of the '953 Patent. Pursuant to Commission Rule 210.12(c)(1), 19 C.F.R. § 210.12(c)(1), Complainant submits as **Appendix B** one certified copy of the U.S. Patent and Trademark Office prosecution history for the '953 Patent, plus three additional copies thereof. Pursuant to Commission Rule 210.12(c)(2), 19 C.F.R. § 210.12(c)(2), Complainant submits as **Appendix H** each patent and the applicable pages of each technical reference mentioned in the prosecution history of the '953 Patent, plus three additional copies thereof.

2. Foreign Counterparts to the '953 Patent

64. Attached as **Exhibit 15** is an identification of the foreign patents, foreign patent applications (not already issued as a patent), and foreign patent applications that have been denied, abandoned or withdrawn and are known to Sonos to correspond to the '953 Patent:

3. Non-Technical Description of the ’953 Patent

65. The ’953 Patent is related to the ’258 Patent, described in § V(B)(3), *supra*, and the patents share essentially the same specification. The ’953 Patent, however, is directed to functions performed by a zone player that has been designated as a “slave” zone player of a synchrony group. In this respect, the ’953 Patent is directed to a zone player that, while operating as a slave of a synchrony group, receives particular information over a data network from a zone player designated as the master of the synchrony group. The slave zone player performs various functions based on such received information to facilitate engaging in synchronous playback of audio with the master zone player.

66. More specifically, the ’953 Patent is directed to 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. The ’953 Patent is also directed to 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 determined 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.

D. U.S. Patent No. 8,588,949

1. Identification of the ’949 Patent and Ownership by Complainant

67. U.S. Patent No. 8,588,949 (the “’949 Patent”) is entitled “Method And Apparatus For Adjusting Volume Levels In A Multi-Zone System.” The named inventors are Robert A. Lambourne and Nicholas A.J. Millington. The ’949 Patent’s application was filed September 14, 2012, it claims priority to an application filed July 28, 2003, it issued November 19, 2013, and is assigned to Sonos, Inc. *See*, **Exhibits 4 and 10.** The applicable maintenance fees have been paid and the ’949 Patent is valid and enforceable. The ’949 Patent will expire April 1, 2024.

68. An *Ex Parte* Reexamination Certificate issued November 5, 2015 in response to Reexamination Request No. 90/013,423, January 5, 2015. The Reexamination Certificate states that “Claims 1, 3, 4, 5, 6, 8, 10, 11, 13, 14, 15 and 17-20 are determined to be patentable as amended. Claims 2, 5, 9, 12, and 16, dependent on an amended claim, are determined to be patentable.”

69. Pursuant to Commission Rule 210.12(a)(9)(i), 19 C.F.R. § 210.12(a)(9)(i), Complainant attaches as **Exhibit 4** a certified copy of the ’949 Patent and as **Exhibit 5** the reexamination certificate. Pursuant to Commission Rule 210.12(c)(1), 19 C.F.R. § 210.12(c)(1), Complainant submits as **Appendix C** one certified copy of the U.S. Patent and Trademark Office prosecution history for the ’949 Patent, plus three additional copies thereof and submits as **Appendix D** one certified copy of the U.S. Patent and Trademark Office prosecution history for Reexamination Request No. 90/013,423 for U.S. Patent No. 8,588,949, plus three additional copies thereof. Pursuant to Commission Rule 210.12(c)(2), 19 C.F.R. § 210.12(c)(2), Complainant submits as **Appendix H** each patent and the applicable pages of each technical

reference mentioned in the prosecution history of the ’949 Patent, plus three additional copies thereof.

2. Foreign Counterparts to the ’949 Patent

70. There are no foreign patents, foreign patent applications (not already issued as a patent), or foreign patent applications that have been denied, abandoned or withdrawn and are known to Sonos to correspond to the ’949 Patent.

3. Non-Technical Description of the ’949 Patent

71. The ’949 Patent relates generally to devices, computer-readable media, and methods for controlling a plurality of playback devices on a local area network.

72. The ’949 Patent recognized problems with conventional multi-zone audio systems. For instance, the ’949 Patent recognized that “conventional multi-zone audio system[s]” were undesirably 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. Moreover, because these “conventional multi-zone audio system[s]” were “either hard-wired or controlled by a pre-configured and pre-programmed controller,” it was “difficult for [a conventional] system to accommodate the requirement of dynamically managing the ad hoc creation and deletion of groups,” among other disadvantages of conventional multi-zone audio systems. *See, e.g., id.* at 1:57-2:12.

73. Thus, the ’949 Patent recognized “a need for dynamic control of [] audio players as a group” and a solution that allowed “audio players [to] be readily grouped” with “minimum manipulation.” *See, e.g., id.* at 2:13-15. In particular, the ’949 Patent recognized “a need for user interfaces that may be readily utilized to group and control [] audio players.” *See, e.g., id.* at 1:15-18.

74. The ’949 Patent addressed this need through a controller capable of controlling a zone players in a networked audio system via a local data network. For example, such a controller could not only dynamically “group[] the zone players” but then also “control the volume of each of the zone players in a zone group individually or together.” *See, e.g.*, ’949 Patent at 6:43-60.

75. In this regard, the ’949 Patent is directed to a controller configured to (i) provide a user interface for a player group that includes a plurality of players, each being an independent playback device, (ii) accept an input to facilitate formation of the player group for synchronized playback of a multimedia output from the same multimedia source, (iii) accept, for any individual player in the player group, a player-specific input to adjust the volume of that individual player, where the player-specific input causes that individual player to adjust its volume, and (iv) accept a group-level input to adjust a volume associated with the player group, where the group-level 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.

76. The group volume control technology of the ’949 Patent provides significant advantages that are important to wireless audio systems. The advantages of Sonos’s group volume control technology are reflected in the recognition and praise it has received from the press. For example, shortly after Sonos launched its first commercial product in 2005, *PC Magazine* exclaimed: “[Sonos] is the first digital audio hub we can recommend without reservation…. Once you’re back to using the master volume control, the volume rises or falls relative to each room’s existing setting. These are the brilliant touches….” *See* **Exhibit 106**. As another example, in 2005, *Playlist* lauded Sonos’s “Controller” for its “stand[] out” interface that enables dynamic grouping of Sonos players and volume control. *See* **Exhibit 107**.

Likewise, in 2008, *Gizmodo* praised Sonos for the ability to "[c]hange the volume in a single room, or in all your rooms at once, all from the Sonos Controller." *See* **Exhibit 108**. A few years later, in 2012, *Pocket-lint* touted Sonos's patented group volume technology as "simple but clever." *See* **Exhibit 109**.

E. U.S. Patent No. 9,219,959

1. Identification of the '959 Patent and Ownership by Complainant

77. U.S. Patent No. 9,219,959 (the "'959 Patent") is entitled "Multi-Channel Pairing In A Media System." The named inventors are Christopher Kallai, Michael Darrell Andrew Ericson, Robert A. Lambourne, Robert Reimann, and Mark Triplett. The '959 Patent's application was filed June 9, 2014, the patent issued December 22, 2015, and is assigned to Sonos, Inc. *See,* **Exhibits 6 and 11.** The applicable maintenance fees have been paid and the '959 Patent is valid and enforceable. The '959 Patent will expire September 11, 2027.

78. An *Ex Parte* Reexamination Certificate issued April 5, 2017 in response to Reexamination Request No. 90/013,756, May 25, 2016. As a result of reexamination, original claims 1 and 14 were cancelled, claims 2-13 and 15-22 were determined to be patentable as amended, and new claims 23-48 were added and determined to be patentable.

79. Pursuant to Commission Rule 210.12(a)(9)(i), 19 C.F.R. § 210.12(a)(9)(i), Complainant attaches as **Exhibit 6** a certified copy of the '959 Patent and as **Exhibit 7** the reexamination certificate. Pursuant to Commission Rule 210.12(c)(1), 19 C.F.R. § 210.12(c)(1), Complainant submits as **Appendix E** one certified copy of the U.S. Patent and Trademark Office prosecution history for the '959 Patent, plus three additional copies thereof and submits as **Appendix F** one certified copy of the U.S. Patent and Trademark Office prosecution history for Reexamination Request No. 90/013,756 for U.S. Patent No. 9,219,959, plus three additional copies thereof. Pursuant to Commission Rule 210.12(c)(2), 19 C.F.R. § 210.12(c)(2),

Complainant submits as **Appendix H** each patent and the applicable pages of each technical reference mentioned in the prosecution history of the ’959 Patent, plus three additional copies thereof.

2. Foreign Counterparts to the ’959 Patent

80. Attached as **Exhibit 15** is an identification of the foreign patents, foreign patent applications (not already issued as a patent), and foreign patent applications that have been denied, abandoned or withdrawn and are known to Sonos to correspond to the ’959 Patent:

3. Non-Technical Description of the ’959 Patent

81. The ’959 Patent relates generally to devices and methods for providing audio in a multi-channel listening environment (*e.g.*, a stereo sound or home theater surround sound environment). ’959 Patent at 1:54-63 and 3:32-46.

82. The ’959 Patent recognized that conventional multi-zone audio systems based on a centralized device hard-wired to “individual, discrete speakers” in different rooms required “physically connecting and re-connecting speaker wire, for example, to individual, discrete speakers to create different configurations.” *See, e.g.*, ’959 Patent at 6:54-58. Because these conventional multi-zone audio systems were hard-wired to individual, discrete speakers, it was difficult (if not impossible) to group, consolidate, and pair the speakers into different desired configurations without connecting and re-connecting speaker wire. *See, e.g., id.*

83. Thus, the ’959 Patent recognized a need to “provide a more flexible and dynamic platform through which sound reproduction can be offered to the end-user.” ’959 Patent at 6:58-61. The ’959 Patent met this need with 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.” *Id*. at 2:16-19 and 6:54-58.

84. In the ’959 Patent, if a playback device determines that it is to operate according to a particular type of pairing (*e.g.*, a “stereo pair”), it may perform a particular type of equalization corresponding to that type of pairing (*e.g.*, play only the left or right channel of audio). But, if the playback device determines that it is to operate according to a different type of pairing (*e.g.*, no pairing), it may perform a different type of equalization corresponding to that type of pairing (*e.g.*, play both the left and right channels of audio). ’959 Patent, 1:64-2:16 and 4:26-37.

85. In this respect, the ’959 Patent is directed to a playback device configured to (i) receive an instruction from a controller over a network for the playback device to pair with one or more other playback devices, (ii) process audio data before the playback device outputs audio, (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, (iv) 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 (v) 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.

86. The multi-channel pairing technology of the ’959 Patent provides significant advantages that are important to wireless audio systems. The advantages of Sonos’s multi-channel pairing technology are reflected in the recognition and praise it has received from the press. For example, in 2010, around the time that Sonos released its multi-channel pairing technology, *SlashGear* praised Sonos’s technology as “a slick way for users… to combine two speakers when they want better sound.” *See* **Exhibit 112**. Similarly, in 2015, *Trusted Reviews* described Sonos’s multi-channel pairing technology as “[o]ne particularly nifty feature,” and

explained that it allows you to "[p]air up multiple speakers for better sound." *See* **Exhibit 113**; *see also* **Exhibit 114** (2014 *Consumer Reports*: praising Sonos's multi-channel pairing technology as providing "a richer, more detailed sound with wider soundstage."); **Exhibit 115** (2014 Businessweek: recognizing Sonos's pairing technology as appealing to the "audiophile"); **Exhibit 116** (2013 *What Hi-Fi*: praising Sonos's pairing technology because "performance is bolstered significantly. Bass is even more solid, instrument separation improves, smaller details are picked up with more confidence and sound can go noticeably louder without distortion.").

F. U.S. Patent No. 10,439,896

1. Identification of the '896 Patent and Ownership by Complainant

87. U.S. Patent No. 10,439,896 (the "'896 Patent") is entitled "Playback Device Connection." The named inventors are Nicholas A.J. Millington and Paul V. Hainsworth. The '896 Patent's application was filed March 11, 2019, it claims priority to an application filed June 5, 2004, it issued October 8, 2019, and is assigned to Sonos, Inc. *See*, **Exhibits 8 and 12.** The applicable maintenance fees have been paid and the '896 Patent is valid and enforceable. The '896 Patent will expire June 6, 2025.

88. Pursuant to Commission Rule 210.12(a)(9)(i), 19 C.F.R. § 210.12(a)(9)(i), Complainant attaches as **Exhibit 8** a certified copy of the '896 Patent. Pursuant to Commission Rule 210.12(c)(1), 19 C.F.R. § 210.12(c)(1), Complainant submits as **Appendix G** one certified copy of the U.S. Patent and Trademark Office prosecution history for the '896 Patent, plus three additional copies thereof. Pursuant to Commission Rule 210.12(c)(2), 19 C.F.R. § 210.12(c)(2), Complainant submits as **Appendix H** each patent and the applicable pages of each technical reference mentioned in the prosecution history of the '896 Patent, plus three additional copies thereof.

2. Foreign Counterparts to the ’896 Patent

89. There are no foreign patents, foreign patent applications (not already issued as a patent), or foreign patent applications that have been denied, abandoned or withdrawn are known to Sonos to correspond to the ’896 Patent.

3. Non-Technical Description of the ’896 Patent

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

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

92. 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.” ’896 Patent at 1:40-43. Thus, 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. 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.

93. 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.

94. Thus, the ’896 Patent recognized 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.

95. In this regard, the ’896 Patent is directed to a computing device comprising a graphical user interface (GUI) associated with an application for controlling one or more playback devices and that is configured to facilitate setting up a playback device to operate on a secure wireless local area network (WLAN). Further, the ’896 Patent is directed to a computing device configured to (i) while operating on a secure WLAN defined by an access point, (a) receive user input indicating that a user wishes to set up a playback device to operate on the secure WLAN and (b) receive a first message indicating that a given playback device is available for setup, (ii) transmit 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) transmit, to the given playback device via the initial communication path, a second message containing network configuration parameters for the secure WLAN, and (iv) after detecting an indication that the given playback device has successfully received the network configuration parameters, 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.

96. 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 that with Sonos:

> 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.

Exhibit 119. Likewise, *Gizmodo* touted Sonos's patented playback-device-setup technology as "so easy that anybody can do it." **Exhibit 120**. And *Consumer Reports* explained that Sonos's playback-device-setup technology is "pretty simple." **Exhibit 121**.

VI. SPECIFIC INSTANCES OF IMPORTATION AND SALE

97. Respondents import, sell for importation, and/or sell within the United States after importation certain audio players and controllers, components thereof, and products containing the same that infringe the Asserted Patents.

98. The specific instances of importation of the Respondents' products set forth below are illustrative and nonexhaustive examples of the Respondents' unlawful importation.

99. The Google Home Max is an exemplary audio player that infringes the Asserted Patents and is imported, sold for importation, and/or sold after importation by Google. Complainant ordered a Google Home Max from Google LLC and it was delivered to Chicago, IL. The packaging for the Google Home Max delivered to Chicago says, "Designed by Google, Made in China." *See* **Exhibit 127**.

100. The Google Pixel 3 XL is an exemplary controller that infringes the Asserted Patents and is imported, sold for importation, and/or sold after importation by Google.

Complainant ordered a Google Pixel 3 XL from Google LLC and it was delivered to Chicago, IL. The packaging for the Google Pixel 3 XL delivered to Chicago says, "Designed by Google, Made in China." *See* **Exhibit 128**.

VII. UNLAWFUL AND UNFAIR ACTS COMMITTED BY RESPONDENTS

101. On information and belief, Respondents unlawfully import, sell for importation, and sell after importation into the United States Infringing Products. These Infringing Products include, but are not limited to, (i) Google's Chromecast, Chromecast Ultra, Chromecast Audio, Home Mini, Nest Mini, Home, Home Max, Home Hub, Nest Hub, Nest Hub Max, and Nest Wifi Point audio players, (ii) the Google Home app, Google Play Music app, and YouTube Music app, and (iii) 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) that are pre-installed with or capable of downloading and executing an app or other software (such as the Google Home app, Google Play Music app and/or YouTube Music app) and are controllers for audio players.

102. On information and belief, the Infringing Products infringe, literally and/or under the doctrine of equivalents, directly and/or indirectly the following Asserted Claims of the Asserted Patents:

Patent No.	Asserted Claims
9,195,258	Independent claim 17 and dependent claims 21-24 and 26
10,209,953	Independent claim 7 and dependent claims 12-14 and 22-24
8,588,949	Independent claim 1 and dependent claims 2, 4 and 5
9,219,959	Independent claims 5, 9, and 10 and dependent claims 29 and 35
10,439,896	Independent claim 1 and dependent claims 3, 5, 6, and 12

103. The claim charts attached as **Exhibits 16-20** apply each asserted independent claim of each involved U.S. patent to a representative involved article of Respondents.

104. On information and belief, Google directly infringes the Asserted Claims by making, using, offering to sell, or selling the Infringing Products in the United States and by importing the Infringing Products into the United States in violation of 35 U.S.C. § 271(a).

105. On information and belief, Google also actively, knowingly, and intentionally induces the infringement of the Asserted Claims by actively encouraging others to make, use, offer to sell, or sell the Infringing Products in the United States and/or import the Infringing Products into the United States in violation of 35 U.S.C. § 271 (b).

106. Google had actual knowledge of the Asserted Patents and the allegation that it infringed the Asserted Claims prior to the filing of this complaint. On January 6, 2020, Sonos served a copy of this complaint and **Exhibits 1-8** and **16-20** (the asserted patents and the charts illustrating how the Infringing Products infringe the asserted independent claims) on Corporation Service Company, Google's registered agent for service of process. That same day, Sonos provided Google with a courtesy copy of the complaint and **Exhibits 1-8** and **16-20** by electronic mail.

107. Despite knowing of the '258 and '953 Patents, Google actively, knowingly, and intentionally induced the infringement of the Asserted Claims by actively encouraging others to make, use, offer to sell, or sell the Infringing Products in the United States and/or import the Infringing Products into the United States in violation of 35 U.S.C. § 271 (b). For example, in advertising the "Multi-room audio" capability of its wireless audio products on its website, Google instructs its customers that they can "[g]roup any combination of Google Home, Chromecast Audio, or speakers with Chromecast together for synchronous music throughout the

home." *See, e.g.*, **Exhibit 123**. Likewise, Google's website includes a webpage entitled "Create and manage speaker groups," which encourages its customers to "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, e.g.*, **Exhibit 86**.

108. Despite knowing of the '949 Patent, Google actively, knowingly, and intentionally induced the infringement of the Asserted Claims by actively encouraging others to make, use, offer to sell, or sell the Infringing Products in the United States and/or import the Infringing Products into the United States in violation of 35 U.S.C. § 271 (b). For example, Google's website includes a webpage entitled "How to change the volume of an audio group," which teaches Google's customers "[t]o adjust the volume of **all speakers in a group**" and "[t]o adjust a **single speaker's volume** when it's part of a group". *See* **Exhibit 122** (emphasis in original).

109. Despite knowing of the '959 Patent, Google actively, knowingly, and intentionally induced the infringement of the Asserted Claims by actively encouraging others to make, use, offer to sell, or sell the Infringing Products in the United States and/or import the Infringing Products into the United States in violation of 35 U.S.C. § 271 (b). For example, Google instructs its Google Home Max customers to "[w]irelessly pair two for room-filling stereo separation" for "[a]n even wider stereo image." **Exhibit 124**. As another example, Google's website includes a webpage entitled "Pair Google Home Max speakers," which encourages its customers to "pair two Google Home Max speakers (devices) for stereo sound and an immersive experience for music and casting," and explains how to "[p]air the speakers" and "[c]ontrol the speaker pair." **Exhibit 125**.

110. Despite knowing of the ’896 Patent, Google actively, knowingly, and intentionally induced the infringement of the Asserted Claims by actively encouraging others to make, use, offer to sell, or sell the Infringing Products in the United States and/or import the Infringing Products into the United States in violation of 35 U.S.C. § 271 (b). For example, Google’s website includes a webpage entitled “Set up your Google Nest or Google Home speaker or display,” which instructs Google’s customers that “[t]he Google Home app will walk you through the steps to set up your Google Nest or Google Home speaker or display.” **Exhibit 126**.

111. Pursuant to 35 U.S.C. § 271(c), Google contributorily infringes the Asserted Claims of the ’949 Patent by offering to sell or selling within the United States or importing into the United States the Google Apps (where each of the Google Apps is or contains a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention), knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use.

112. Pursuant to 35 U.S.C. § 271(c), Google contributorily infringes the Asserted Claims of the ’896 Patent by offering to sell or selling within the United States or importing into the United States the Google Apps (where each of the Google Apps is or contains a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention), knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use.

VIII. HARMONIZED TARIFF SCHEDULE

113. On information and belief, the Infringing Products fall within at least the following headings and subheadings of the United States Harmonized Tariff Schedule ("HTS"): 8515.10.80; 8515.21.00; 8515.22.00; 8517.12.00; 8517.62.00; 8517.62.50; 8517.62.00.90; 8517.70.00; 8471.30.01, 8471.41.01, 8471.49.00, and/or 8471.50.01. These HTS numbers are illustrative only and not intended to limit the scope of the investigation.

IX. LICENSES

114. Pursuant to Commission Rule 210.12(a)(9)(iii), 19 C.F.R. § 210.12(a)(9)(iii), attached as **CONFIDENTIAL Exhibit 26** is a list of licenses relating to the Asserted Patents.

X. THE DOMESTIC INDUSTRY

115. A domestic industry exists under 19 U.S.C. § 1337(a)(2) as defined by 19 U.S.C. § 1337(a)(3)(A)-(C), based on Sonos's significant investments in plant and equipment, significant employment of labor or capital, and/or substantial investment in the exploitation of the Asserted Patents through engineering and research and development.

A. Complainant Satisfies the Technical Prong of the Domestic Industry Requirement

116. An industry in the United States exists relating to Sonos articles protected by the Asserted Patents ("Domestic Industry Products"). The claim charts attached as **Exhibits 21-25** apply exemplary claims of the Asserted Patents to a representative involved domestic article of Sonos. Additional information about Sonos's products is attached as **Exhibits 64-75**.

B. Complainant Satisfies the Economic Prong of the Domestic Industry Requirement

117. As required by Section 337(a)(3)(A)-(C), a domestic industry exists by virtue of Complainant's activities in the United States, including (i) significant investments in plant and equipment, (ii) significant employment of labor or capital, and (iii) substantial investment in the exploitation of the Asserted Patents for the engineering and research and development of Sonos domestic articles.

118. Sonos is one of the world's leading sound experience brands. As the inventor of wireless multi-room audio, Sonos's innovation helps the world experience audio better by giving people access to the content they love and allowing them to control it however they choose. The research, development, and engineering that created Sonos's wireless multi-room audio system took place predominantly in the United States.

119. Sonos debuted its first wireless multi-room audio system in 2005 and has since been a leading innovator in wireless audio. Today, Sonos's products include audio players, components, and apps to address consumers' evolving audio needs. In addition to new product launches, Sonos frequently introduces new features across its platform, providing its customers with enhanced functionality, improved sound and an enriched user experience. Sonos is committed to continuous technological innovation, as evidenced by its growing global patent portfolio. Sonos's innovative products, seamless customer experience and expanding global footprint have driven 14 consecutive years of growth since its first product launch.

120. Sonos believes its patents comprise the foundational intellectual property for wireless multi-room audio technology. Sonos has significantly expanded the size of its patent portfolio in recent years and holds over one thousand issued patents and is pursuing hundreds of

patent applications throughout the world. In 2017, the strength of Sonos's patent portfolio placed it 2nd in Electronics and 19th overall in IEEE's Patent Power Report.

121. The first element of Sonos's growth strategy is to consistently introduce innovative products. To that end, Sonos has developed a long-term roadmap to deliver innovative products and software enhancements, and has been and intends to continue increasing the pace of product introductions across multiple categories.

122. Sonos's research and development team develops new software and hardware products as well as improves and enhances its existing software and hardware products to address customer demands and emerging trends. Sonos's team has worked on features and enhancements to the Sonos platform including development and improvements to the Sonos app, Trueplay tuning and the universal search function. The products and software Sonos develops require significant technological knowledge and expertise to develop at a competitive pace. Sonos believes its research and development capabilities and its intellectual property differentiates it from its competitors. Sonos intends to continue to invest significantly in research and development to bring new products and software to market and expand its platform and capabilities.

123. Sonos's investments in the United States in the Domestic Industry Products is summarized below and detailed in the attached Declaration of Christine Squarey. *See* **Exhibit 27**. Complainant reserves the right to rely on additional investments during the investigation.

1. Significant Investments in Plant and Equipment

124. Sonos has made and continues to make significant investments in plant and equipment with respect to the Domestic Industry Products. Sonos currently conducts research

and development and engineering relating to the Domestic Industry Products in facilities in Boston, MA, San Francisco, CA, Santa Barbara, CA, and Seattle, WA. Sonos utilizes a significant amount of space in each facility and has invested a significant amount in rent payments at these facilities. Sonos has also made significant investments in equipment used in the facilities for research and development and engineering related to the Domestic Industry Products. Sonos's domestic investments in plant and equipment relating to the Domestic Industry Products is quantitatively significant relative to Sonos's investments in plant and equipment relating to the Domestic Industry Products outside the United States. *See* **Exhibit 27** at ¶¶ 10-11.

2. Significant Investments in Plant and Equipment

125. Sonos engages in significant employment of labor and capital in the United States with respect to the Domestic Industry Products. Sonos employs over 1,000 people in the United States, a significant number of whom are involved in research, development, or engineering relating to the Domestic Industry Products. Sonos has invested hundreds of millions of dollars in compensation for U.S. employees who conduct research, development, and engineering relating to the Domestic Industry Products and this investment is a quantitatively significant portion of Sonos's worldwide investment in employees who conduct research, development, and engineering work relating to the Domestic Industry Products. *See* **Exhibit 27** at ¶¶ 12-13.

3. Significant Investment in the Exploitation of the Asserted Patents Through Engineering and Research and Development

126. Sonos further engages in exploitation of the Asserted Patents through its substantial domestic investments in engineering and research and development directed to the Domestic Industry Products. Substantially all of Sonos's research and development expenses are related to developing new products and services and improving existing products and services.

127. Sonos's operating expenses directed to research and development have increased every year since at least 2014. In fact, Sonos's research and development expenses more than doubled from over $70 million in fiscal year 2014 to over $171 million in fiscal year 2019. Research and development expenses consist primarily of personnel-related expenses, consulting and contractor expenses, tooling, test equipment and prototype materials and overhead costs. Sonos expects its research and development expenses to increase in absolute dollars as it continues to make significant investments in developing new products and enhancing existing products. Sonos's domestic investments in research, development and engineering are quantitatively significant in comparison to its investments in research, development and engineering outside the United States. *See* **Exhibit 27** at ¶¶ 9-13.

XI. RELATED LITIGATION

128. Sonos asserted the '959, '949, and '258 Patents in *Sonos Inc. v. D&M Holdings Inc. et al*, Case No. 1:14-cv-1330 (D. Del.). Sonos filed its complaint on October 21, 2014. On December 15, 2017, a jury found claims of the '258 and '949 Patents valid and infringed and awarded damages to Sonos. On May 21, 2018, the judge granted a stipulation of dismissal.

129. Sonos asserted the '959,' '949, and '258 Patents in *Sonos, Inc. v. Lenbrook Industries Limited, et al*, Case No. 2:19-cv-5411 (W.D. Cal.). Sonos filed its complaint on June 20, 2019. Defendants filed their original Answer and Counterclaims on October 14, 2019, and then filed an Amended Answer and Counterclaims on November 14, 2019. Sonos filed its Answer to the Counterclaims on December 2, 2019.

130. An *Ex Parte* Reexamination Certificate for the '959 Patent issued April 5, 2017 in response to Reexamination Request No. 90/013,756, May 25, 2016. The Reexamination

Certificate states that "Claims 1 and 14 are cancelled. Claims 2-13 and 15-22 are determined to be patentable as amended. New claims 23-48 are added and determined to be patentable." A copy of the *Ex Parte* Reexamination Certificate is attached as **Exhibit 7**.

131. An *Ex Parte* Reexamination Certificate for the '949 Patent issued November 5, 2015 in response to Reexamination Request No. 90/013,423, January 5, 2015. The Reexamination Certificate states that "Claims 1, 3, 4, 5, 6, 8, 10, 11, 13, 14, 15 and 17-20 are determined to be patentable as amended. Claims 2, 5, 9, 12, and 16, dependent on an amended claim, are determined to be patentable." A copy of the *Ex Parte* Reexamination Certificate is attached as **Exhibit 5**.

132. An Certificate Of Correction for the '258 Patent issued June 7, 2016. A copy of the Certificate Of Correction is attached as **Exhibit 2**.

XII. RELIEF REQUESTED

WHEREFORE, by reason of the foregoing, Sonos respectfully requests that the United States International Trade Commission:

(a) institute an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, with respect to Respondents' violations of that section based on the importation into the United States, sale for importation, or the sale within the United States after importation of Respondents' audio players and controllers, components thereof, and products containing same that infringe the Asserted Patents;

(b) schedule and conduct a hearing on permanent relief pursuant to 19 U.S.C. § 1337(c) for the purposes of receiving evidence and hearing argument

concerning whether there has been a violation of Section 337 and following the hearing to determine that there has been a violation of Section 337;

(c) issue a permanent limited exclusion order, pursuant to 19 U.S.C. § 1337(d), forbidding entry into the United States of Respondents' audio players and controllers, components thereof, and products containing same that infringe one or more claims of the Asserted Patents;

(d) issue permanent cease and desist orders, pursuant to 19 U.S.C. § 1337(f), prohibiting Respondents and their related companies or divisions from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, transferring (except for exportation), and soliciting U.S. agents or distributors for audio players and controllers, components thereof, and products containing same covered by one or more claims of the Asserted Patents;

(e) impose a bond, pursuant to 19 U.S.C. § 1337(j), on importation of any audio players and controllers, components thereof, and products containing same that infringe one or more claims of the Asserted Patents during the Presidential Review Period; and,

(f) issue such other and further relief as the Commission deems just and proper under the law based on the facts determined by the investigation and the authority of the Commission.

Dated: January 5, 2020

Respectfully submitted,

/s/ DRAFT

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