

Exhibit 128

Cole Richter

From: Mark Triplett <mark.triplett@sonos.com>
Sent: Friday, August 13, 2021 3:22 PM
To: Renny Hwang; Patrick Weston; Tim Kowalski; bradriel@google.com
Subject: Sonos's Further Notice of Patent Infringement by Google
Attachments: 2021.08.13 Sonos Letter to Google - Ex. A (Chartered Patents).pdf; 2021.08.13 Sonos Letter to Google - Ex. B (New Patents).pdf; Sonos Notice Letter.pdf

Hi Renny, Patrick, Tim, and Brad,

I hope all is well with you and yours.

Please see the attachments that provide further notice of patent infringement by Google. If you have any questions or wish to discuss, please feel free to contact me directly.

Regards,
Mark
630.297.9099

Mark Triplett | VP Intellectual Property

SONOS

614 Chapala Street
 Santa Barbara, CA 93101
 sonos.com

VIA EMAIL

August 13, 2021

Google Inc.
 1600 Amphitheatre Parkway
 Mountain View, CA 94043

Re: Notice of Continued Infringement

Dear Renny, Patrick, Tim, and Brad:

As you know, over the course of the last five years, Sonos has alerted Google to its extensive infringement of Sonos’s patent portfolio on multiple occasions.

For instance, Sonos first raised the issue of infringement with Google in 2016, starting with an initial meeting in August 2016 and then continuing during a follow-up meeting in October 2016 where Sonos put Google on notice that it was already infringing at least the following Sonos patents:

Category	Patents ¹	
Acoustic Signature	8,930,005 9,519,454*	10,051,397*
Coordinator Selection	9,288,596	9,654,545*
Direct Control	9,684,484*	9,860,589*
Fault Tolerance	9,507,560*	
Grouping & Synchronization	8,370,678	9,218,017
	8,689,036	9,288,596
	8,938,637	9,348,354
	9,164,532	9,195,258
	9,182,777	9,207,905
	9,189,011	9,170,600
	9,213,357	9,213,356
Multi-Channel Pairing	9,202,509	9,219,959
Power Management	9,246,442	9,252,721
Queue Management	9,363,255	
Source Switching	8,938,312	
Setup	8,326,951	
Volume Control	7,571,014	8,588,949

¹ The patents denoted with an asterisk were originally identified using their U.S. application number.

Zone Scene	8,483,853	9,344,206
	8,843,228	
Other	8,995,240	9,348,824
	9,225,307	9,665,339*

Despite this notice of infringement, Google only expanded the scope of its infringing products and features after those 2016 discussions. Sonos again raised the issue of infringement with Google in 2018 over the course of two meetings, one in January and another in July, where Sonos put Google on notice that – in addition to the 38 specific patents previously identified in 2016 – Google was now also infringing at least the following Sonos patents:

Category	Patents	
Audio Calibration	9,219,460	9,872,119
Grouping & Synchronization	9,176,520	9,733,893
	9,727,302	9,740,453
	9,727,304	9,778,900
	9,733,891	EP 1 654 614
	9,733,892	EP 2 648 111
Multi-Channel Pairing	8,788,080	EP 2 695 400
	9,928,026	EP 3 059 980
Orientation-Based Configuration	9,042,556	9,748,647
	9,367,611	EP 2 735 171
	9,671,780	EP 3 100 156
Queue Management	9,654,459	
	9,942,215	
	9,648,071	
Setup	9,960,969	
Source Switching	9,686,606	
Voice Control	9,826,306	9,820,039
Zone Scene	8,934,997	9,749,760
Other	D768,602	9,973,851
	D796,447	

Google again continued to expand the scope of its infringing products and features. In fact, by 2019, Google’s infringement had become so extensive that it was infringing at least 100 Sonos patents in the United States alone. This willful disregard for Sonos’s patents led Sonos to escalate the discussions with Google regarding its infringement, and in February 2019, Sonos provided Google with claim charts for 100 different Sonos patents that Google was infringing. These charts provided an element-by-element breakdown of Google’s infringement. Attached as **Exhibit A** is a listing of the 100 Sonos patents for which Sonos provided claim charts in February 2019, organized by category.

Even though Sonos demonstrated Google’s pervasive use of Sonos’s patented technology by providing these 100 claim charts, Google did not stop its infringement or attempt to negotiate a license for Sonos’s patents in good faith. Thus, in 2020, Sonos was ultimately forced to bring patent infringement actions against Google at the U.S. International Trade Commission (“ITC”), in U.S. District Courts, and in Germany. The patents that Sonos has asserted against Google to date in these patent infringement actions are as follows:

Category	Patents	
Audio Calibration	9,219,460	
Direct Control	9,967,615 10,779,033	EP 3 554 005
Grouping & Synchronization	9,195,258	10,209,953
Multi-Channel Pairing	9,219,959	
Setup	10,439,896	
Volume Control	8,588,949	
Zone Scenes	9,344,206 10,469,966	10,848,885

As you know, the German court recently ruled in Sonos’s favor and issued a preliminary injunction that restricts Google from offering and/or supplying mobile devices, playback devices, and software in Germany that are suited and intended to carry out the patented method recited in EP 3 554 005. Sonos also remains confident about the strength of its ITC and District Court actions.²

Of course, the Sonos patents that were asserted against Google in these actions represent only a very small fraction of the Sonos patents that Google was infringing when such actions were filed. Yet, instead of curbing its infringing activity or negotiating a license in good faith, Google has only continued to expand its misappropriation of Sonos’s patented technology since Sonos filed these actions by adding new infringing products and features to its line of Cast-enabled media players and corresponding Cast-enabled apps. The universe of infringing Google products and services now includes more than a dozen different “Cast”-enabled media players – namely, Google’s Chromecast, Chromecast Ultra, Chromecast Audio, Chromecast with Google TV, Home Mini, Nest Mini, Home, Home Max, Home Hub, Nest Hub, Nest Hub Max, Nest Audio, and Nest Wifi Point – as well as corresponding Cast-enabled apps such as Google Home, YouTube Music, Google Play Music, YouTube, Google Podcasts, and/or the YouTube TV that have been installed on smartphones, tablets, and laptops (including Google’s own line of Pixel devices) and back-end cloud services that interact with these Cast-enabled media players and apps. In

² In contrast, the retaliatory cases that Google has filed against Sonos lack merit. In fact, Sonos has already eliminated U.S. Patent Nos. 7,065,206 and 8,583,489 from Google’s U.S. District Court case and that the German court found that Sonos does *not* infringe European Patent No. EP 1 579 621.

addition, Google continues to support and encourage the use of third-party Cast-enabled apps with Google's Cast-enabled players that likewise infringe Sonos patents.³

For at least the same reasons that Sonos has previously articulated during the parties' meetings and memorialized in the element-by-element claim charts provided in February 2019, Google continues to infringe each of the more than 100 patents for which Sonos has previously given Google notice by (1) making, offering for sale, selling, importing, and/or using its line of Cast-enabled media players, (2) making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others), (3) making and using back-end cloud servers that interact with these Cast-enabled media players and/or Cast-enabled apps, and (4) making and using servers that host Cast-enabled apps for download (as well as inducing and contributing to the foregoing infringing activities by others).

As Google is also surely aware, Sonos's portfolio of applicable patents that Google infringes has grown significantly since Sonos provided its element-by-element claim charts in February 2019. For instance, Sonos has been awarded many additional patents in the same patent families for which Sonos had previously given Google notice, and Google has been and continues to infringe at least one claim of each of these additional patents for similar reasons to those stated above and memorialized in the element-by-element claim charts for the other patents in these previously-identified families. Moreover, since Sonos provided its element-by-element claim charts, Sonos's portfolio has grown to include patents in several additional families, and Google has been and continues to infringe at least one claim of each of these patents as well by (1) making, offering for sale, selling, importing, and/or using its line of Cast-enabled media players, (2) making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others), (3) making and using back-end cloud servers that interact with these Cast-enabled media players and/or Cast-enabled apps, and (4) making and using servers that host Cast-enabled apps for download (as well as inducing and contributing to the foregoing infringing activities by others). Attached as **Exhibit B** is a listing of at least 64 additional patents that also have been and continue to be infringed by Google, organized by category.

³ See, e.g., <https://support.google.com/chromecast/builtin/answer/6279384?hl=en#zippy=%2Cbefore-you-begin-casting%2Ccast-from-chromecast-enabled-apps-to-your-audio-device%2Cfind-new-content-to-cast>; <https://www.google.com/chromecast/built-in/apps/>.

Please let me know if you have any questions or wish to discuss further. Also, if there is someone else that I should be in touch with regarding this matter, please let me know so that we can make some progress on resolving the parties' disputes.

Sincerely,



Mark Triplett
Sonos, Inc., VP Intellectual Property
Mark.Triplett@sonos.com

Exhibit A

Acoustic Signature

Patent #	Representative Infringing Conduct	Charted Claim
9,519,454	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 19
9,998,841	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
8,930,005	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 12

Audio Calibration

Patent #	Representative Infringing Conduct	Charted Claim
9,219,460	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 15
9,872,119	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,129,675	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

Coordinator Selection

Patent #	Representative Infringing Conduct	Charted Claim
10,091,548	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,142,688	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,320,888 (U.S. Patent App. No. 15/611,919)	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

Direct Control

Patent #	Representative Infringing Conduct	Charted Claim
9,654,821	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,860,589	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 15
9,883,234	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,967,615	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1

9,703,521	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,735,978	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,798,510	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,152,537	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,191,981	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,248,724 (U.S. Patent App. No. 16/107,092)	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

Grouping & Synchronization

Patent #	Representative Infringing Conduct	Charted Claim
8,370,678	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
8,689,036	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

8,938,637	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,158,327	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 6
9,164,531	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,164,532	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 34
9,164,533	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 35
9,170,600	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 5
9,176,520	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 22
9,182,777	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 12
9,189,011	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 6
9,195,258	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 17

9,207,905	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 8
9,213,356	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,213,357	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 9
9,218,017	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 26
9,348,354	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,658,820	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 6
9,727,302	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 8
9,727,303	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 5
9,727,304	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 7
9,733,891	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 8

9,733,892	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 8
9,733,893	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 4
9,740,453	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 8
9,778,897	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 19
9,778,898	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 17
9,778,900	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 7
10,031,715	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 7
10,120,638	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,140,085	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 2
10,146,498	Making, offering for sale, selling, importing, and/or using Cast-enabled media systems composed of Cast-enabled media players and/or smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1

10,157,035	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 12
10,175,930	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 19
10,175,932	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 8
10,185,540	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 7
10,185,541	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 7
10,209,953	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,216,473	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,296,283 (U.S. Patent App. No. 13/864,252)	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,228,902 (U.S. Patent App. No. 16/128,404)	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 7

Multi-Channel Pairing

Patent #	Representative Infringing Conduct	Charted Claim
8,788,080	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,202,509	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,219,959	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 10
9,928,026	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 13
10,136,218	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,228,898 (U.S. Patent App. No. 15/228,812)	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 27

Orientation-Based Configuration

Patent #	Representative Infringing Conduct	Charted Claim
9,042,556	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 28
9,367,611	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,748,647	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,117,037	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,241,504 (U.S. Patent App. No. 15/927,876)	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

Power Management

Patent #	Representative Infringing Conduct	Charted Claim
9,246,442	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,252,721	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

Queue Management

Patent #	Representative Infringing Conduct	Charted Claim
9,363,255	Making and using back-end cloud servers that interact with Cast-enabled media players and/or Cast-enabled apps	Claim 1
9,648,071	Making and using back-end cloud servers that interact with Cast-enabled media players and/or Cast-enabled apps	Claim 1
9,654,459	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,942,215	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 8
10,116,641	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,158,619	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

10,326,750 (U.S. Patent App. No. 15/477,988)	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,333,920 (U.S. Patent App. No. 16/143,057)	Making, offering for sale, selling, importing, and/or using systems composed of a Cast-enabled media player and one or more back-end cloud servers that interact with the Cast-enabled media player (as well as inducing and contributing to such infringing activities by others)	Claim 1

Setup

Patent #	Representative Infringing Conduct	Charted Claim
8,868,698	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,960,969	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

Source Switching

Patent #	Representative Infringing Conduct	Charted Claim
9,681,232	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,686,606	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,108,393	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

10,117,034	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
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Voice Control

Patent #	Representative Infringing Conduct	Charted Claim
9,811,314	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 8
9,826,306	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,212,512	Making and using back-end cloud servers that interact with Cast-enabled media players and/or Cast-enabled apps	Claim 16
10,225,651	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 16

Volume Control

Patent #	Representative Infringing Conduct	Charted Claim
7,571,014	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 25
8,588,949	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1

Zone Scenes

Patent #	Representative Infringing Conduct	Charted Claim
8,843,228	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 6
8,934,997	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 8
9,344,206	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,749,760	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 18
9,860,657	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 8

Other

Patent #	Representative Infringing Conduct	Charted Claim
9,973,851	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,348,824	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1

Exhibit B

Audio Calibration

Patent #	Representative Infringing Conduct	Representative Claim(s)
11,006,232	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others) and also making, offering for sale, selling, importing, and/or using systems composed of a Cast-enabled media player and a back-end cloud server that interacts with the Cast-enabled media player (as well as inducing and contributing to such infringing activities by others)	Claims 10 and 24

Coordinator Selection

Patent #	Representative Infringing Conduct	Representative Claim(s)
10,687,110	Making, offering for sale, selling, importing, and/or using systems composed of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 8

Direct Control

Patent #	Representative Infringing Conduct	Representative Claim(s)
10,567,831	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others) and also making, offering for sale, selling, importing, and/or using systems composed of a Cast-enabled media player and a smartphone, tablet, or laptop installed with a Cast-enabled app (as well as inducing and contributing to such infringing activities by others)	Claims 1 and 17

10,757,471	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others), making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others), and making and using back-end cloud servers that interact with these Cast-enabled media players and/or apps (as well as inducing and contributing to such infringing activities by others)	Claims 1, 11, and 21
10,503,465	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others), making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others), and making and using back-end cloud servers that interact with these Cast-enabled media players and/or apps (as well as inducing and contributing to such infringing activities by others)	Claims 1, 10, and 16
10,945,027	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others), and also making, offering for sale, selling, importing, and/or using systems composed of two or more of (i) smartphones, tablets, and laptops installed with Cast-enabled apps, (ii) Google's line of Cast-enabled media players, or (iii) back-end cloud servers that interact with these Cast-enabled media players and/or apps (as well as inducing and contributing to such infringing activities by others)	Claims 1, 2, 13, and 23
9,495,076	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 12
10,191,980	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others) and also making, offering for sale, selling, importing, and/or using	Claim 15

	Google’s line of Cast-enabled media players that are equipped with display screens (as well as inducing and contributing to such infringing activities by others)	
10,248,724	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
17/127,989	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others) and also making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players that are equipped with display screens (as well as inducing and contributing to such infringing activities by others)	Claim 1

Grouping & Synchronization

Patent #	Representative Infringing Conduct	Representative Claim(s)
10,324,684	Making, offering for sale, selling, importing, and/or using systems composed of Cast-enabled media players and an audio information source (as well as inducing and contributing to such infringing activities by others)	Claim 16
10,228,902	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 7
10,956,119	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 9
10,754,613	Making, offering for sale, selling, importing, and/or using systems composed of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 21
10,970,034	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 9

10,545,723	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 9
10,949,163	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 14
10,963,215	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others) and making, offering for sale, selling, importing, and/or using systems composed of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claims 3 and 25
10,282,164	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
11,080,001	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
16/459,605	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others) and also making, offering for sale, selling, importing, and/or using systems composed of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claims 1 and 25
16/459,661	Making, offering for sale, selling, importing, and/or using Google’s line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others) and also making, offering for sale, selling, importing, and/or using systems composed of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claims 1 and 21

Multi-Channel Pairing

Patent #	Representative Infringing Conduct	Representative Claim(s)
10,555,082	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,448,159	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,966,025	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
9,766,853	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 19
16/297,991	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
11,082,770	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

Power Management

Patent #	Representative Infringing Conduct	Representative Claim(s)
10,303,240	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

10,126,811	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,061,379	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,228,754	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,254,822	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,372,200	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

Queue Management

Patent #	Representative Infringing Conduct	Representative Claim(s)
10,666,634	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 15
10,412,073	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,462,119	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,587,602	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others) and also making, offering for sale, selling, importing, and/or using systems composed of a	Claims 1 and 9

	Cast-enabled media player and one or more back-end cloud servers that interact with the Cast-enabled media player (as well as inducing and contributing to such infringing activities by others)	
10,866,782	Making, offering for sale, selling, importing, and/or using systems composed of either or both of back-end cloud servers that interact with Cast-enabled media players and/or smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 11

Setup

Patent #	Representative Infringing Conduct	Representative Claim(s)
10,979,310	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,541,883	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,965,545	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
11,025,509	Making, offering for sale, selling, importing, and/or using systems composed of a smartphone, tablet, or laptop installed with a Cast-enabled app and a Cast-enabled media player (as well as inducing and contributing to such infringing activities by others)	Claim 1

Stream Transfer

Patent #	Representative Infringing Conduct	Representative Claim(s)
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10,986,460	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others) and making, offering for sale, selling, importing, and/or using systems composed of a smartphone, tablet, or laptop installed with a Cast-enabled app and one or more Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claims 1, 14, 23, and 27
17/104,466	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others), and also making, offering for sale, selling, importing, and/or using systems composed of two or more of (i) smartphones, tablets, and laptops installed with Cast-enabled apps, (ii) Google's line of Cast-enabled media players, or (iii) back-end cloud servers that interact with these Cast-enabled media players and/or apps (as well as inducing and contributing to such infringing activities by others)	Claims 1, 12, 19, and 25

Voice Control

Patent #	Representative Infringing Conduct	Representative Claim(s)
11,016,727	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others), making and using back-end cloud servers that interact with Cast-enabled media players and/or Cast-enabled apps (as well as inducing and contributing to such infringing activities by others), and making, offering for sale, selling, importing, and/or using systems composed of a Cast-enabled media player and a back-end cloud server that interacts with the Cast-enabled media player (as well as inducing and contributing to such infringing activities by others)	Claims 1, 13, and 22
11,006,214	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,970,035	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

10,847,143	Making and using back-end cloud servers that interact with Cast-enabled media players and/or Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 15
10,971,139	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others), making and using back-end cloud servers that interact with Cast-enabled media players and/or Cast-enabled apps (as well as inducing and contributing to such infringing activities by others), and making, offering for sale, selling, importing, and/or using systems composed of Cast-enabled media players and/or back-end cloud servers that interact with the Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claims 1, 14, 20, and 26
10,699,711	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,818,290	Making and using back-end cloud servers that interact with Cast-enabled media players and/or Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,365,889	Making, offering for sale, selling, importing, and/or using systems composed of a Cast-enabled media player and one or more back-end cloud servers that interact with the Cast-enabled media player (as well as inducing and contributing to such infringing activities by others)	Claim 7

Volume Control

Patent #	Representative Infringing Conduct	Representative Claim(s)
10,133,536	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 15

10,754,612	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 9
10,387,102	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others) and also making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players that are equipped with display screens (as well as inducing and contributing to such infringing activities by others)	Claim 1

Zone Scenes

Patent #	Representative Infringing Conduct	Representative Claim(s)
10,897,679	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others) and also making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players that are equipped with display screens (as well as inducing and contributing to such infringing activities by others)	Claim 1
15/130,919	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 1

Other

Patent #	Representative Infringing Conduct	Representative Claim(s)
10,606,555	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1

17/157,686	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others) and also making, offering for sale, selling, importing, and/or using systems composed of two or more of (i) smartphones, tablets, and laptops installed with Cast-enabled apps, (ii) Google's line of Cast-enabled media players, or (iii) back-end cloud servers that interact with these Cast-enabled media players and/or apps (as well as inducing and contributing to such infringing activities by others)	Claims 1, 11, 19, and 25
11,042,351	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,241,742	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others)	Claim 1
10,691,401	Making, offering for sale, selling, importing, and/or using smartphones, tablets, and laptops installed with Cast-enabled apps (as well as inducing and contributing to such infringing activities by others)	Claim 15
17/146,141	Making, offering for sale, selling, importing, and/or using Google's line of Cast-enabled media players (as well as inducing and contributing to such infringing activities by others) and also making, offering for sale, selling, importing, and/or using systems composed of two or more of (i) smartphones, tablets, and laptops installed with Cast-enabled apps, (ii) Google's line of Cast-enabled media players, or (iii) back-end cloud servers that interact with these Cast-enabled media players and/or apps (as well as inducing and contributing to such infringing activities by others)	Claims 1, 23, and 26