

Exhibit 8

Exhibit 8
Infringement Claim Chart for U.S. Patent No. 11,024,311 (“the ’311 patent”)

Sonos Products directly and/or indirectly infringe at least claims 1-3, 8-12, 14-18, and 20 (“Asserted Claims”) of U.S. Patent No. 11,024,311 (“the ’311 patent”). The Sonos Products that infringe the ’311 patent include at least the Sonos Move, Sonos Roam, Sonos Arc, Sonos Beam, and Sonos One (collectively the “Accused Voice Products”).

The Accused Voice Products infringe the ’311 patent because they include systems, processors, and/or methods that support the Sonos Voice Control feature and for arbitrating between devices that detect a voice command, as claimed in the ’311 patent. Additionally, the Sonos One is representative of the Accused Voice Products at least because the other Accused Voice Products function in the same or substantially similar manner to the Sonos One. Sonos’ marketing, customer support, and other technical information describe the relevant aspects of Sonos Voice Control in the same way for all Sonos devices, including each of the Accused Voice Products.¹ Testing of multiple different Sonos devices further confirms that the Sonos Voice Control feature operates in the same or substantially similar manner on the different devices. Thus, on information and belief, the Sonos Voice Control functionality described in this chart for the Sonos One device implements the same code base (e.g., the Sonos S2 operating system) as the other Accused Voice Products to function in the same or substantially similar way for all products that support Sonos Voice Control, including each of the Accused Voice Products.


Google contends each of the following limitations is met literally, and, to the extent a limitation is not met literally, it is met under the doctrine of equivalents.

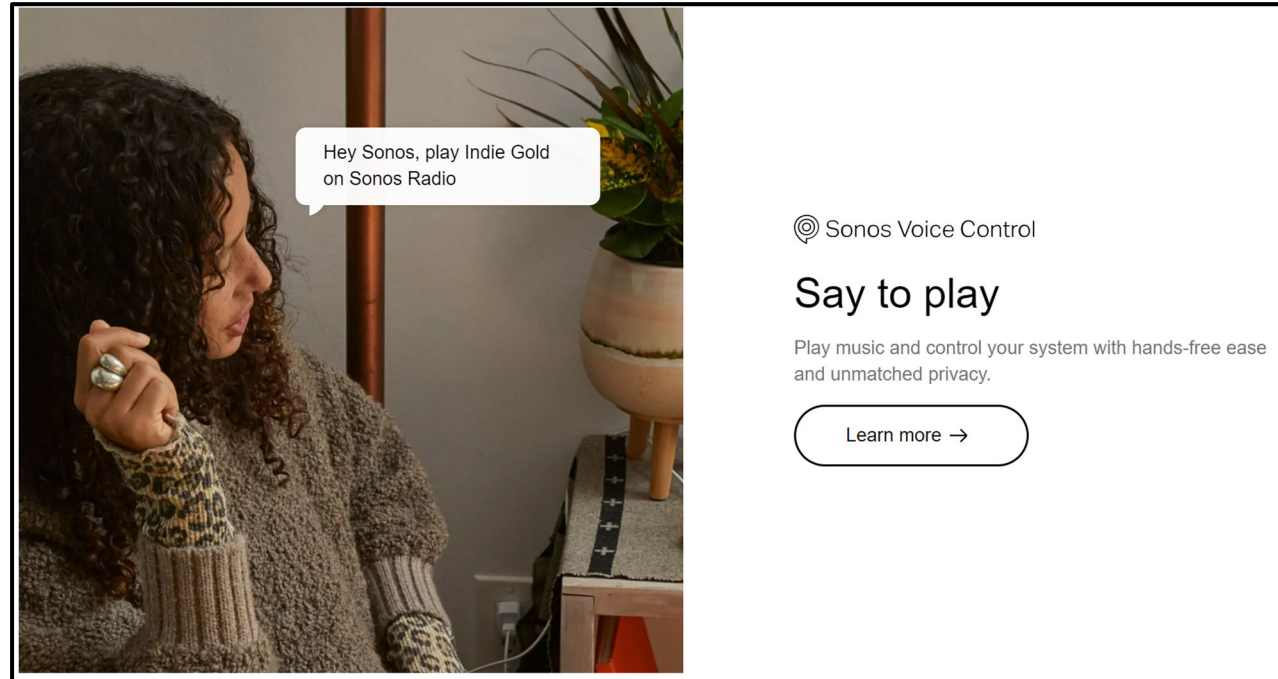
References:

- Sonos One, Sonos.com, <https://www.sonos.com/en-us/shop/one> (Ex. 9)
- Sonos Roam, Sonos.com, <https://www.sonos.com/en-us/shop/roam> (Ex. 10)
- Sonos Move, Sonos.com, <https://www.sonos.com/en-us/shop/move> (Ex. 11)
- Sonos Arc, Sonos.com, <https://www.sonos.com/en-us/shop/arc> (Ex. 12)
- Sonos Beam, Sonos.com, <https://www.sonos.com/en-us/shop/beam> (Ex. 13)
- Sonos User Guide, Sonos.com, <https://www.sonos.com/en-us/guides/sonossystem> (Ex. 14)
- Sonos One User Guide, Sonos.com, <https://www.sonos.com/en-us/guides/one> (Ex. 15)

¹ See Sonos Voice Control, Sonos.com, available at <https://www.sonos.com/en-us/sonos-voice-control>; Sonos Voice Control, Sonos Support, available at <https://support.sonos.com/s/topic/0TO8V000000HWlgWAG/sonos-voice-control>; “On-device voice control on Sonos speakers,” Sonos Tech Blog, available at <https://tech-blog.sonos.com/posts/on-device-voice-control-on-sonos-speakers/>.

- Control Sonos with Sonos Voice Control, Sonos Support, <https://support.sonos.com/s/article/5107> (Ex. 16)

Claims	Accused Voice Products
<p>[1.pre] A method performed at a first electronic device of a plurality of electronic devices, each of the plurality of electronic devices comprising one or more microphones, one or more processors, and memory storing one or more programs for execution by the one or more processors, the method comprising:</p>	<p>The Accused Voice Products are designed to, and capable of, performing the claimed method, and are capable of being used within, and designed for use within a configuration containing a plurality of electronic devices, each of the plurality of electronic devices comprising one or more microphones, one or more processors, and memory storing one or more programs for execution by the one or more processors. On information and belief, the Accused Voice Products are used by Sonos to perform the claimed method in the U.S. while testing and are performed by Sonos customers during normal operation of a multi-device Sonos environment.</p> <p>For example, the Sonos One device is a voice-enabled device that supports the Sonos Voice Control feature.</p> 



© Sonos Voice Control

Say to play

Play music and control your system with hands-free ease and unmatched privacy.

Learn more →

See Sonos One, Sonos.com, <https://www.sonos.com/en-us/shop/one>. Each of the other Accused Voice Products also supports Sonos Voice Control. See <https://www.sonos.com/en-us/shop/roam>; <https://www.sonos.com/en-us/shop/move>; <https://www.sonos.com/en-us/shop/arc>; <https://www.sonos.com/en-us/shop/beam>.

The Accused Voice Products are computing devices that can be placed into a system of a plurality of computing devices used in physical proximity to one another. See, e.g.:

The Sonos Sound System—

- Sonos is the wireless sound system that fills as many rooms as you want (up to 32) with music, movies and TV.
- Free **Sonos app** guides you through setup and provides system control for everyone in the house.
- Compatible with iOS, Android, Mac, and PC.
- Easily manage your system from any room.
- Mix and match products to build a home sound system that fits your lifestyle.


See Sonos User Guide, Sonos.com, <https://www.sonos.com/en-us/guides>.

The Accused Voice Products also include at least a plurality of microphones, a microprocessor, and memory storing programs for execution by the processor to perform elements [1.1] through [1.4]. *See, e.g.:*

Tech Specs

Audio	Details + Dimensions	Power + Connectivity	Box Contents	Requirements
WiFi		Voltage		Ethernet
Connect to WiFi with any 802.11a/b/g/n 2.4 or 5 GHz broadcast-capable router.		100-240V 50/60Hz internal power supply		10/100 port for hardwiring to your router
Learn more				
CPU		Memory		Apple AirPlay 2
Quad Core 1.4 GHz A-53		1GB SDRAM 4GB NV		Works with AirPlay 2 on Apple devices iOS 11.4 and higher
				Learn more

	<h2 style="text-align: center;">Tech Specs</h2> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <u>Audio</u> Details + Dimensions Power + Connectivity Box Contents Requirements </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;"> <p>Amplifiers</p> <p>Two Class-D digital amplifiers have been perfectly tuned to the speaker's unique acoustic architecture.</p> </div> <div style="width: 30%;"> <p>Tweeters</p> <p>One tweeter creates a crisp high-frequency response.</p> </div> <div style="width: 30%;"> <p>Midwoofers</p> <p>One midwoofer ensures faithful playback of mid-range frequencies and maximizes low-end output.</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;"> <p>Microphones</p> <p>The far-field microphone array uses advanced beamforming and multi-channel echo cancellation for quick and accurate voice control.</p> </div> <div style="width: 30%;"> <p>Adjustable EQ</p> <p>Use the Sonos app to adjust bass, treble, and loudness.</p> </div> <div style="width: 30%;"> <p>Trueplay</p> <p>This software measures the acoustics of the room then fine-tunes the speaker. Supported iOS device required.</p> </div> </div> <p style="margin-top: 20px;"><i>See Sonos One, Sonos.com, https://www.sonos.com/en-us/shop/one. See also https://www.sonos.com/en-us/shop/roam; https://www.sonos.com/en-us/shop/move; https://www.sonos.com/en-us/shop/arc; https://www.sonos.com/en-us/shop/beam.</i></p>
[1.1] detecting a voice input from a user;	<p>The Accused Voice Products are designed to, and capable of, detecting a voice input from a user.</p> <p>For example, a user may speak commands to a Sonos One to trigger the device to perform certain activities through Sonos Voice Control.</p>

	<div> Sonos Voice Control</div> <div><h1>Say to play</h1></div> <div><p>Play music and control your system with hands-free ease and unmatched privacy.</p></div> <div>Learn more →</div> <div><p>See Sonos One, Sonos.com, https://www.sonos.com/en-us/shop/one.</p></div>
--	--



See Sonos One, Sonos.com, <https://www.sonos.com/en-us/shop/one>.

Voice services

Use your voice to control your Sonos system with any voice-enabled Sonos product—play and control content, turn the volume up or down, and more.

- **Sonos Voice Control:** control your whole Sonos system with hands-free ease and unmatched privacy. Sonos Voice Control comes ready to use—it only takes a few seconds to add when you set up your speakers. [More information](#)
- **Amazon Alexa:** you'll need the Sonos app and the Alexa app with the Sonos skill enabled. You'll make some changes in both apps during setup. [Learn more](#)
- **Google Assistant:** you'll need the Sonos app and the Google Assistant app. You'll make some changes in both apps during setup. [Learn more](#)
- **Siri:** you'll need the Apple Home app. Add your AirPlay2-compatible Sonos speakers to the Apple Home app and then use an iPhone, iPad, or Apple TV to ask Siri to play music (currently limited to Apple Music). [Learn more](#)

See Sonos One User Guide, Sonos.com, <https://www.sonos.com/en-us/guides/one>.

Testing of the Sonos One device in physical proximity to other Sonos devices further confirms that each of the devices receive the spoken audio input, including a wake word (“Hey Sonos”) followed by a user command. For example, each Sonos One device that detects the wake word (“Hey Sonos”) will transmit a “Feedback – RunningSession” message to nearby Sonos devices to establish a Sonos Voice Control session. See, e.g.:

```
{
  "message": "Feedback",
  "data": {
    "message": "RunningSession",
    "data": {
      "devices_ids": [
        "[REDACTED]",
        "[REDACTED]"
      ],
      "message_serial": "[REDACTED]"
    }
  }
}
```

Each of the Sonos devices in the session then transmits a “WakeWord” message to the other devices. The “WakeWord” messages include information that the devices utilize to determine which device should respond to the user’s command, including at least the “arbitration_metric” value. *See, e.g.,*:

```
{
  "message": "WakeWord",
  "data": {
    "serial": "[REDACTED]",
    "in_session": false,
    "arbitration_metric": 29.761623,
    "muse_household_id": "Sonos [REDACTED]",
    "device_id": "RINCON [REDACTED]",
    "message_serial": "[REDACTED]"
  }
}
```

	<pre> { "message": "WakeWord", "data": { "serial": "[REDACTED]", "in_session": false, "arbitration_metric": 30.515377, "muse_household_id": "Sonos [REDACTED]", "device_id": "RINCON [REDACTED]", "message_serial": "[REDACTED]" } } </pre> <pre> { "message": "WakeWord", "data": { "serial": "[REDACTED]", "in_session": false, "arbitration_metric": 31.513437, "muse_household_id": "Sonos [REDACTED]", "device_id": "RINCON [REDACTED]", "message_serial": "[REDACTED]" } } </pre> <p>On information and belief, each of the Accused Voice Products supports the features described above in the same way, and therefore meet this limitation in the same manner as the exemplary products identified above.</p>
[1.2] determining a first value associated with the voice input;	<p>The Accused Voice Products are designed to, and capable of, determining a first value associated with the voice input.</p> <p>Testing of the Sonos One device in physical proximity to other Sonos devices shows that each of the devices determines a value for the detected voice input. For example, the “WakeWord” message transmitted by each Sonos device that detects the “Hey Sonos” command includes information that the devices utilize to determine which device should respond to the user’s command, including at least the “arbitration_metric” value. <i>See, e.g.,</i>:</p>

	<pre> { "message": "WakeWord", "data": { "serial": "[REDACTED]", "in_session": false, "arbitration_metric": 29.761623, "muse_household_id": "Sonos [REDACTED]", "device_id": "RINCON [REDACTED]", "message_serial": "[REDACTED]" } } </pre> <pre> { "message": "WakeWord", "data": { "serial": "[REDACTED]", "in_session": false, "arbitration_metric": 30.515377, "muse_household_id": "Sonos [REDACTED]", "device_id": "RINCON [REDACTED]", "message_serial": "[REDACTED]" } } </pre> <pre> { "message": "WakeWord", "data": { "serial": "[REDACTED]", "in_session": false, "arbitration_metric": 31.513437, "muse_household_id": "Sonos [REDACTED]", "device_id": "RINCON [REDACTED]", "message_serial": "[REDACTED]" } } </pre> <p>On information and belief, each of the Accused Voice Products supports the features described above in the same way, and therefore meet this limitation in the same manner as the exemplary products identified above.</p>
[1.3] receiving second values associated with the voice input from	The Accused Voice Products are designed to, and capable of, receiving second values associated with the voice input from other electronic devices of the plurality of electronic devices.

other electronic devices of the plurality of electronic devices; and	<p>For example, the Sonos One receives second values associated with the voice input from the other devices of the plurality of electronic devices contained in a “WakeWord” message containing a determined “arbitration_metric.”</p> <p><i>See supra</i> limitation [1.2].</p>
[1.4] in accordance with a determination that the first value is higher than the second values, responding to the detected input.	<p>The Accused Voice Products are designed to, and capable of, responding to the detected voice input in accordance with a determination that the first value is higher than the second values.</p> <p>On information and belief, the Accused Voice Products will compare the value of their own “arbitration_metric” (which was included in the WakeWord message that device sent) with the “arbitration_metric” values received in WakeWord messages from other devices in the Sonos Voice Control session. Testing confirms that the device that sends the highest arbitration_metric value will determine that it is the arbitration winner and will respond to the user’s input. <i>See, e.g.:</i></p> <div data-bbox="634 743 1780 1042"><pre>{ "message": "WakeWord", "data": { "serial": "[REDACTED]", "in_session": false, "arbitration_metric": 29.761623, "muse_household_id": "Sonos [REDACTED]", "device_id": "RINCON-[REDACTED]", "message_serial": "[REDACTED]" } }</pre></div> <div data-bbox="634 1079 1780 1388"><pre>{ "message": "WakeWord", "data": { "serial": "[REDACTED]", "in_session": false, "arbitration_metric": 30.515377, "muse_household_id": "Sonos [REDACTED]", "device_id": "RINCON-[REDACTED]", "message_serial": "[REDACTED]" } }</pre></div>

```
{
  "message": "WakeWord",
  "data": {
    "serial": "[REDACTED]",
    "in_session": false,
    "arbitration_metric": 31.513437,
    "muse_household_id": "Sonos_[REDACTED]",
    "device_id": "RINCON [REDACTED]",
    "message_serial": "[REDACTED]"
  }
}
```

For example, in accordance with a determination that the first value is higher than the second values, the Sonos One outputs visual and/or audible response.

Making a request with "Hey Sonos"

You can use Sonos Voice Control at any time by saying the wake words "Hey Sonos." While Sonos is listening, the white status light on your Sonos product will glow brighter and the volume will lower if any audio is playing. A confirmation tone will play after Sonos understands your request.

See Control Sonos with Sonos Voice Control, Support.sonos.com,
https://support.sonos.com/s/article/5107?language=en_US.

On information and belief, each of the Accused Voice Products supports the features described above in the same way, and therefore meet this limitation in the same manner as the exemplary products identified above.

[10.pre]: A first electronic device of a plurality of electronic devices, the first

The Accused Voice Products are electronic devices comprising one or more microphones, one or more processors, and memory storing one or more programs comprising instructions that, when executed, cause the devices to perform the steps of Claim 10.

See supra limitation [1.pre].

electronic device comprising: one or more microphones; one or more processors; and memory storing one or more programs to be executed by the one or more processors, the one or more programs comprising instructions for:	
[10.1]: detecting a voice input from a user;	The Accused Voice Products detect a voice input from a user. <i>See supra</i> limitation [1.1].
[10.2]: determining a first value associated with the voice input;	The Accused Voice Products determine a first value associated with the voice input. <i>See supra</i> limitation [1.2].
[10.3]: receiving second values associated with the voice input from other electronic devices of the plurality of electronic devices;	The Accused Voice Products receive second values associated with the voice input from other electronic devices of the plurality of electronic devices. <i>See supra</i> limitation [1.3].
[10.4]: in accordance with a determination that the first value is	The Accused Voice Products respond to the detected voice input in accordance with a determination that the first value is higher than the second values.

higher than the second values, responding to the detected input.	<i>See supra</i> limitation [1.4].
[16.pre] A system comprising a plurality of electronic devices, each of the electronic devices including one or more microphones, one or more processors, and memory storing one or more programs for execution by the one or more processors, each of the electronic devices programmed to:	<p>The Accused Voice Products are electronic devices that can be placed into a system of a plurality of electronic devices used in physical proximity to one another, each including one or more microphones, one or more processors, and memory storing one or more programs for execution by the one or more processors.</p> <p><i>See supra</i> limitation [1.pre].</p>
[16.1] detect a voice input;	<p>The Accused Voice Products detect a voice input.</p> <p><i>See supra</i> limitation [1.1].</p>
[16.2] determine a first value associated with the detected voice input;	<p>The Accused Voice Products determine a first value associated with the detected voice input.</p> <p><i>See supra</i> limitation [1.2].</p>
[16.3] receive respective second values from other	The Accused Voice Products receive respective second values from other electronic devices of the plurality of electronic devices.

electronic devices of the plurality of electronic devices;	<i>See supra</i> limitation [1.3].
[16.4] compare the first value and the respective second values; and	The Accused Voice Products compare the first value and the respective second values. <i>See supra</i> limitation [1.4].
[16.5] in accordance with a determination that the first value is higher than the respective second values, respond to the voice input.	The Accused Voice Products respond to the voice input in accordance with a determination tha the first value is higher than the respective second values. <i>See supra</i> limitation [1.4].