

PUBLIC VERSION

The undersigned agrees with Google and Staff that Sonos has failed to show that this theory applies to the Nest Audio Devices. Sonos’ analysis consists of a single sentence in a footnote of its initial brief and a cite to Dr. Almeroth’s testimony. *See* CIB at 107 n.65. Dr. Almeroth’s testimony is similarly conclusory. *See* CX-0011C at Q/A 979 (“[REDACTED]”).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].”). Conclusory assertions without additional evidence cannot support a finding of infringement. *See, e.g., TQ Delta, LLC v. Cisco Sys., Inc.*, 942 F.3d 1352, 1358 (Fed. Cir. 2019) (“Conclusory expert testimony does not qualify as substantial evidence.”); *Yoon Ja Kim v. ConAgra Foods, Inc.*, 465 F.3d 1312, 1319-20 (Fed. Cir. 2006) (“[W]e agree with the district court that Kim did not prove infringement because she presented no testimony based on the accused products themselves that supported a finding of infringement.”).

In addition, the evidence shows that the Home Max and Nest Audio devices operate differently. *See, e.g.,* RX-1471C at Q/As 10, 54-57; RX-1521C at Q/As 42-44, 47-49. For example,

[REDACTED]

[REDACTED] RX-1521C at Q/A 87; *see also* RX-1471C at Q/A 60 (“[REDACTED]”).

[REDACTED].”). This is because [REDACTED]. RX-1521C at Q/As 88-89; RX-1471C at Q/As 10-36, 54-60; CX-3328C. [REDACTED]

[REDACTED]

[REDACTED]. *See, e.g.*, CX-3328C.

[REDACTED]. RX-1471C at Q/As 14-16, 56. [REDACTED]

[REDACTED]. *Id.*; *see also* RDX-0019C.13-14.

For these reasons, the undersigned finds that Sonos has failed to prove by a preponderance of the evidence that the Nest Audio devices infringe claim 10 under the “matrix coefficients” theory.

b) Infringement Argument No. 2: Synchronizing User Bass and Treble Settings

Sonos asserts that the ’959 Accused Products also meet the equalization limitations because they are programmed to be able to [REDACTED]
[REDACTED]. CIB at 113-117. Sonos contends that “when a product’s determined stereo-pairing state corresponds to an unpaired state, it configures itself to have settings as specified in the ‘Equalizer Settings’ GUI menu displayed by the Google Home app for the product.” *Id.* at 114. Sonos further explains that “when the product’s determined stereo-pairing state corresponds to that of a follower in a stereo pair, it configures itself to have settings matching those of the product operating as the leader of the stereo pair.” *Id.* According to Sonos, this satisfies “equalization of the audio data” under the undersigned’s claim construction. *Id.* Staff concurs with Sonos, stating: “[T]he evidence clearly shows that the ’959 Accused Products meet Elements 10.8 and 10.9 under this theory.” SRB at 29-31; *see also* SIB at 90-92.

Google argues that Sonos’ infringement theory centers on the accused products being capable of being modified in a way that forces their bass and treble settings to change when two devices are paired. RIB at 124-128; RRB at 47-50. Google submits that the Accused Products do not infringe because, “[REDACTED]

[REDACTED].” RIB at 127.

PUBLIC VERSION

Google explains that when the Home Max and Nest Audio devices are manufactured and imported into the United States, they have [REDACTED]

[REDACTED]. *Id.* at 124. Google contends that [REDACTED]

[REDACTED]. *Id.*

Google also criticizes Sonos' reliance on certain screenshots of Dr. Almeroth's, as well as a "lawyer created" demonstrative, to demonstrate infringement by the '959 Accused Products. RIB at 129 (arguing that in Dr. Almeroth's screenshots, the treble and bass settings have the same relative strength before and after pairing, and that Sonos tried to correct "this deficiency" through the use of a demonstrative); RRB at 50.

The parties agree that the Home Max and Nest Audio devices have default bass and treble settings when manufactured and imported into the United States. RX-1521C at Q/A 129; CX-0011C at Q/A 987; *see also* CRB at 57-60; RIB at 124-128. Likewise, they all agree that the Home Max and Nest Audio devices allow a user to adjust bass or treble to suit their listening preferences. *See, e.g.,* Almeroth, Tr. at 232:21-233:2; RX-1521C at Q/A 128; CX-0011C at Q/As 987 (testifying that a user of the '959 Accused Products can adjust the relative strength of the lower range of frequencies (*i.e.*, bass) or higher range of frequencies (*i.e.*, treble) in the audio data), 991; *see also* Almeroth, Tr. at 233:3-22. These settings are referred to as "user eq" settings. RX-1521C at Q/A 128; CX-0011C at Q/A 987.

It is also undisputed that when two Home Max or Nest Audio devices are joined as a stereo pair, the "leader" device maintains its "user eq" settings and sends those settings to the "follower"

PUBLIC VERSION

device, which then changes its “user eq” settings to match those of the “leader.” *See* Almeroth, Tr. at 236:1-4; RX-1521C at Q/A 128; CX-0011C at Q/As 987-996; CX-3658C. An example of this functionality is set forth below:



CDX-0011 (showing a follower's treble increasing relative to its bass when entering a stereo pair); *see also* Jeffay, Tr. at 991:14-992:23.

PUBLIC VERSION

The screenshots demonstrate that after entering a stereo pair, the “follower” device changes its bass and treble settings to match those of the “leader”. *Id.* The evidence therefore shows that the ’959 Accused Products alter their bass and treble settings depending on their type of pairing (*e.g.*, unpaired vs. stereo paired), as required by limitations 10.8 and 10.9.⁴⁵ *See, e.g.*, CX-0011C at Q/As 991-992, 994; Jeffay, Tr. at 992:14-23 (“Q. You would agree then that in this example the treble level has increased relative to the bass, correct? A. If this is a real example, I mean, to the extent this is a real example, that’s what appears to happen.”); Almeroth, Tr. at 234:22-235:25, 236:17-237:10 (“Q. And, again, depending on how the bass and treble settings are set before pairing, when the speaker adopts the leader’s bass and treble settings, the relative strengths of the frequencies for the bass and treble would change; is that correct? A. That’s correct. In -- in all situations, except for where they were identical on the master -- or sorry, on the leader versus the follower. In the one instance where they were identical, then there wouldn’t be a change in the relative frequencies, but all the other cases there would be.”); CDX-0011.

As noted above, Google does not dispute that the Home Max and Nest Audio are capable of the infringing functionality. RX-1521C at Q/As 128-129. Google nonetheless argues that the ’959 Accused Products do not infringe because the functionality is not active unless actions are taken by a user. RIB at 124-128. (arguing that Dr. Almeroth had to modify the device from its default configuration in order to prove infringement.). This argument is contrary to Federal Circuit precedent.⁴⁶ The Federal Circuit has stated:

⁴⁵ The undersigned notes that Google is no longer disputing that similar “user eq” settings in the ’959 DI Products practice these limitations. RLUL at 13-14; *see also* CIB at 122-123 (detailing how the ’959 DI Products meet limitations 10.8 and 10.9).

⁴⁶ Google cites a couple of Federal Circuit cases to “support” its argument. *See* RIB at 127 (citing *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1330 (Fed. Cir. 2001) and *Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1380 (Fed. Cir. 2011)). Those cases are inapposite. As Sonos correctly noted, “the ‘modification’ in these cases was modifying the **underlying source code** to **add** infringing functionality – not a change to default product settings.” CRB at 58 (emphasis in original).

PUBLIC VERSION

Software is a set of instructions, known as code, that directs a computer to perform specified functions or operations. Thus, the software underlying a computer program that presents a user with the ability to select among a number of different options must be written in such a way as to enable the computer to carry out the functions defined by those options when they are selected by the user. Therefore, although a user must activate the functions programmed into a piece of software by selecting those options, the user is only activating means that are *already present in the underlying software*. Otherwise, the user would be required to alter the code to enable the computer to carry out those functions.

Fantasy Sports Props., Inc. v. Sportsline.com, Inc., 287 F.3d 1108, 1118 (Fed. Cir. 2002) (emphasis in original). Thus, in order for the Home Max and Nest Audio devices to infringe the '959 patent, the source code "must be written in such a way as to enable a user of that software to utilize the function of [REDACTED],] without having to modify that code." *Id.*

The evidence clearly demonstrates that the Home Max and Nest Audio devices are manufactured with software that enables these products to alter the relative strength of frequency ranges in the audio data. *See, e.g., Finjan*, 626 F.3d at 1197 ("The fact that users needed to 'activate the functions programmed' by purchasing keys does not detract from or somehow nullify the existence of the claimed structure in the accused software."). In other words, the '959 Accused Products are programmed with software (limitation 10.4) that, when executed, performs the claimed operations (limitations 10.8 and 10.9). CX-0011C at Q/A 987 (showing built-in ability for user to switch settings); Almeroth, Tr. at 209:25-210:7, 212:7-215:3. A user need not modify the software to render the '959 Accused Products capable of carrying out the operations recited by limitations 10.8 and 10.9. That capability is present at the time of importation by virtue of the software installed on the devices.

Google next contends that the "lawyer-created" demonstrative exhibit(s) relied upon by Sonos and Staff to show infringement "is not evidence" and "should be afforded no weight." RIB

PUBLIC VERSION

at 128-129.⁴⁷ First, neither Sonos nor the Staff has argued that the demonstrative is evidence. Dr. Almeroth's screenshots are merely examples of the infringing functionality present in the Home Max and Nest Audio devices. More specifically, Dr. Almeroth's screenshots illustrate how the "follower" in a stereo pair adopts the bass and treble settings of the "leader" and how the bass and treble of the "follower" and/or "leader" can be set at different relative strengths such that the "follower's" bass and/or treble settings can be adjusted relative to one another when the "follower" adopts the settings of the "leader". Almeroth, Tr. at 232:24-237:11; *see also* Jeffay, Tr. at 992:14-24; CX-0011C at Q/A 987. Second, Google ignores the testimony and other evidence in the record confirming this functionality. For example, Dr. Almeroth testified that, in the Home Max and Nest Audio devices, the bass and treble of the follower and/or leader can be set at different relative strengths – via separate sliding bars from "less" to "more" across configurations – such that the follower's bass and/or treble settings can be adjusted relative to one another when the follower adopts the settings of the leader. Almeroth, Tr. at 232:24-237:11. Ken MacKay, a Google software engineer, similarly testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] MacKay, Tr. at 433:6-434:2; *see also* JX-0466C at 287:5-288:19; CX-3658C; Jeffay, Tr. at 990:9-992:24.

⁴⁷ To the extent Google is claiming that adjusting the bass and treble do not satisfy the undersigned's construction of "equalization [of the audio data]," such a claim is without merit. The patent specification expressly describes "equalization" in terms of adjusting bass and treble. JX-0004 at 12:15-16; *see also* Order No. 20 at 44. In addition, Google has conceded that adjusting bass and treble can equalize. *See, e.g.*, EDIS Doc ID 713880 (Google's Initial *Markman* Brief) at 10; EDIS Doc ID at 715080 (Google's Rebuttal *Markman* Brief) at 4; Jeffay, Tr. at 990:9-991:13 ("Yes, I understand that the specification says that adjusting bass and treble may result in an equalization."); CX-0011C at Q/As 987, 991.

PUBLIC VERSION

Accordingly, the undersigned finds that the '959 Accused Products meet limitations 10.8 and 10.9 of claim 10 under the “user eq” theory of infringement

c) Conclusion

For the reasons set forth above, the undersigned finds that the '959 Accused Products infringe claim 10 of the '959 patent under the “user eq” theory, but do not infringe claim 10 under the “matrix coefficients” theory.

2. Google's Redesigns⁴⁸

Google has developed redesigned versions of the Home Max and Nest Audio devices to remove or modify certain functionality that Sonos alleged meet the limitations of claim 10. RIB at 131.

a) 959 NIA No. 3 – Maintaining Driver Output Levels

Google contends that this redesign [REDACTED]

[REDACTED] RIB at 132-133. Sonos does not dispute that “[REDACTED]

[REDACTED]” CIB at 118-119. Sonos, however, asserts that the redesign would still infringe under its other theory of infringement related to synchronizing user bass and treble settings [REDACTED] [REDACTED]). *Id.* In Staff's view, this redesign does not remove the '959 Accused Products' ability to [REDACTED] and thus, infringes claim 10. SIB at 96-97.

⁴⁸ Sonos contends that these redesigns are “hypothetical and thus not ripe for adjudication.” CIB at 117. And, if they are determined to be “fixed and definite,” Sonos asserts that they still infringe. *Id.* The undersigned previously found that the redesigned products are fixed and definite. *See* Section VI.B.3.

PUBLIC VERSION

As discussed above, Sonos has alleged that the Home Max performs a “first equalization” and “second equalization” of audio data because [REDACTED]

[REDACTED].
See Section VIII.B.1.a.; *see also* CIB at 107-113. The parties do not dispute that 959 NIA No. 3 modifies the Home Max to remove this behavior. RX-1521C at Q/As 240-249; RX-1471C at Q/As 50-53; CX-0011C at Q/As 1093-1102; RX-1491C. There is also no dispute that this redesign retains the ability to change its bass and treble settings when it transitions from an unpaired to a stereo-paired state. RIB at 132-133; CIB at 118-119; SIB at 96.

The undersigned found hereinabove that the '959 Accused Products do not infringe under Sonos' “matrix coefficients” theory (*see* Section VIII.B.1.a) but do infringe under the [REDACTED] theory (*see* Section VIII.B.1.b). Because 959 NIA No. 3 does not remove the infringing functionality (*i.e.*, [REDACTED]), it infringes claim 10 of the '959 patent.

b) 959 NIA No. 4 – Removing Synchronization of User Bass and Treble Settings

Google contends that this redesign removes the functionality of the '959 Accused Products that synchronizes the user bass and treble settings between the “leader” and “follower” in a stereo pair. RIB at 133-134; RRB at 52. More specifically, this redesign “[REDACTED]

[REDACTED]” RIB at 133. Sonos does not dispute that this redesign removes the functionality that synchronizes the user bass and treble settings between the “leader” and “follower” in a stereo home pair. CIB at 119. Sonos, however, asserts that the 959 NIA No. 4 would still infringe under its other theory of infringement related to changing the matrix

PUBLIC VERSION

coefficients for specific drivers (the “matrix coefficients” theory). *Id.* Staff submits that this redesign does not infringe claim 10 of the ’959 patent. SIB at 97; SRB at 32.

As discussed above, Sonos has alleged that the Home Max and Nest Audio devices perform a “first equalization” and “second equalization” of audio data through a follower device’s adoption of a leader device’s bass and treble settings. *See* Section VIII.B.1.b; *see also* CIB at 113-117. The parties do not dispute that 959 NIA No. 4 modifies the Home Max and Nest Audio devices to remove this functionality. RX-1521C at Q/As 250-259; RX-1470C at Q/As 71-83; RX-1492C; CX-0011C at Q/As 1103-13; Jeffay, Tr. at 998:3-999:3. There is also no dispute that this redesign retains the ability to change its bass and treble settings when it transitions from an unpaired to a stereo-paired state. RIB at 133-134; CIB at 119; SIB at 97.

The undersigned found hereinabove that the ’959 Accused Products do not infringe under Sonos’ “matrix coefficients” theory (*see* Section VIII.B.1.a) but do infringe under the “[REDACTED]” theory (*see* Section VIII.B.1.b). Because the 959 NIA No. 4 removes the infringing functionality (*i.e.*, [REDACTED]), it does not infringe claim 10 of the ’959 patent.

C. Technical Prong of the Domestic Industry Requirement

Sonos asserts that the ’959 DI Products practice all limitations of claim 10 of the ’959 patent. CIB at 119-123. Staff concurs. SIB at 98-99. Google does not dispute that Sonos’ ’959 DI Products practice claim 10 of the ’959 patent. RLUL at 15. Additionally, the evidence shows that Sonos’ ’959 DI Products practice claim 10. CX-0011C at Q/As 734-787, 792-800, 804-806, 815, 816, 822, 823, 899-903; CX-1002.10; JX-0336C; JX-0251.101; CX-2662.118; CX-2630.4; JX-290C.1-4; CX-0007C at Q/As 155-156; CDX-0001.14; CDX-0005C.36-37.

PUBLIC VERSION

Accordingly, the undersigned finds that Sonos has satisfied the technical prong of the domestic industry requirement for the '959 patent.

D. Validity⁴⁹

Google asserts two invalidity grounds. First, Google contends that U.S. Patent No. 8,423,893 ("Ramsay") combined with U.S. Patent No. 8,509,463 ("Goh 463") renders the asserted claim obvious.^{50, 51} RIB at 135-148. Second, Google alleges that the '959 patent is invalid for improper inventorship. *Id.* at 153-157.

1. Obviousness

Google asserts that claim 10 is rendered obvious by Ramsay in view of Goh 463.⁵² RIB at 134-148. Specifically, Google contends that Ramsay teaches networked audio devices that form different pairing configurations, including stereo and surround sound, and that Goh 463 teaches the benefit of applying different equalizations for stereo and surround sound. RIB at 135. Google therefore submits that "[a] person of ordinary skill in the art would have been motivated to apply the teachings of Goh 463 to the multi-speaker system of Ramsay to improve its sound quality and enhance its different listening configurations." *Id.*

⁴⁹ The '959 patent issued from a continuation of Application No. 13/083,499, which was filed on April 8, 2011. *See* JX-0004. The parties agree that the effective filing date of the '959 patent is April 8, 2011, and that Sonos has alleged an invention date of May 18, 2010. CIB at 124; RIB at 134; SIB at 100.

⁵⁰ Google contends that U.S. Patent No. 8,423,893 ("Ramsay") is prior art under pre-AIA 35 U.S.C. § 102(e) because it was filed as an international application on January 7, 2009, and that Ramsay also qualifies as prior art under pre-AIA 35 U.S.C. § 102(b) because it was published on July 6, 2009. RIB at 134. Google similarly contends that U.S. Patent No. 8,509,463 ("Goh 463") qualifies as prior art under pre-AIA 35 U.S.C. § 102(e) because it was filed in the United States on November 9, 2007, and that Goh 463 also qualifies as prior art under pre-AIA 35 U.S.C. § 102(b) because it was published on May 14, 2009. *Id.* Sonos does not dispute this. *See generally* CIB at 135-139; CPHB at 247-251.

⁵¹ Ramsay is directed to "systems and methods for managing the operation of networked media playback devices." JX-0447 at Abstract. It focuses on a "drag and drop" configuration and control of its networked multimedia devices through a graphical user interface. *Id.* at 2:33-47, Fig. 2B; *see also* CX-0014C at Q/A 910; RX-1515C at Q/A 661. Goh 463 is directed to "a multi-mode sound reproduction system for reproduction of both stereophonic signals and multi-channel audio signals." JX-0189 at Abstract. In Goh 463, "the arrangement of electronic components forms a device like, for example, low pass filter, high pass filter, band-pass filter, crosstalk canceller and any combination of the aforementioned." *Id.* at 3:53-56.

⁵² Ramsay was before the USPTO during prosecution of the '959 patent. *See* JX-0004.3

PUBLIC VERSION

Sonos disputes that Ramsay discloses limitation 10.5 and 10.7.⁵³ CIB at 135-137; CLUL at 5. Sonos also disputes that Ramsay in view of Goh 463 discloses limitations 10.8 and 10.9. CIB at 137; CLUL at 5. Staff does not believe that Ramsay in combination with Goh 463 renders obvious elements 10.5 and/or elements 10.8 and 10.9. SIB at 109; SRB at 35.

a) Limitation 10.5

Element 10.5 requires that the playback device “receive a signal from a controller over the network, wherein the signal comprises an instruction for the playback device to pair with one or more playback devices.” *See* JX-0004, cl. 10. Google does not contend that Goh 463 discloses or renders obvious this limitation. RIB at 136-140; RRB at 53-58.

Google submits that the speakers in Ramsay are configured to “receive a signal from a controller over the network, wherein the signal comprises an instruction for the playback device to pair with one or more playback devices.” RIB at 138. According to Google, the “controller” is the “PC” with a graphical user interface, the “signal” is “the control signal issued from the PC and received at the interface of the master device,” and the “instruction for the playback device to pair” is “the instruction for each device in the group to adopt a specific role.” *Id.* Google explains that a user may define a surround sound configuration by assigning specific playback roles to specific speakers and that after the roles are assigned, “the controller issues a control signal with instructions for each speaker in the group to playback the audio channel corresponding to its

⁵³ The undersigned need not reach whether the asserted combination discloses limitation 10.7 because as discussed *infra*, Ramsay in view of Goh 463 fails to disclose limitations 10.5, 10.8, and 10.9. Nevertheless, the undersigned finds that the evidence demonstrates that the wireless speakers in Ramsay are configured to determine that a type of pairing of the playback device comprises at least a first type of pairing or a second type of pairing, as recited by limitation 10.7. As Dr. Jeffay explained, the master device receives a control signal from the PC and determines the configuration selection (*i.e.*, type of pairing) as a predicate to issuing instructions to the slave devices. RX-1515C at Q/As 588-603; *see also* JX-0447 at 12:20-21, 14:59-15:3; 15:39-16:2, 18:65-19:11, Fig. 10. The slave devices then process these instructions to determine the type of pairing and adopt an appropriate playback role. *Id.* On cross-examination, Dr. Almeroth agreed that the master device does indeed perform an assessment to determine the type of configuration. Almeroth, Tr. at 826:18-827:23.

PUBLIC VERSION

location. RIB at 137; RRB at 54. Google further explains: “The control signal is received at an interface defined on the master speaker of the group. And the master device issues the instructions to slave devices in the group.” RIB at 137-138.

Sonos asserts that Ramsay does not disclose a signal from a controller instructing a playback device to pair with another playback device. CIB at 135; CRB at 62. Sonos also asserts that Ramsay “discloses a user configuring speakers into a five-channel surround arrangement by manually identifying the location of each speaker subsystem on the speaker itself – not by sending a signal from a controller.” CIB at 135-136. Staff concurs. SIB at 110; SRB at 35-37.

The evidence shows that Ramsay teaches away from having the claimed “controller” that transmits an instruction to pair, as required by Element 10.5. More specifically, the speaker subsystems in Ramsay automatically configure themselves without the need for an instruction from a controller. *See, e.g.*, JX-0447 at 10:3-11:65, Fig. 5; CX-0014C at Q/A 1023; Almeroth, Tr. at 794:12-796:15. As shown and described with reference to Figure 5, Ramsay discloses that: (1) a plurality of audio devices discover each other on a network (step 501); (2) the plurality of audio devices then autonomously determines which audio device is the relative master/leader (step 502); and (3) the leader then defines the wireless audio system (step 503). JX-0447 at 10:3-11:65, Fig. 5. It is only *after* the system is defined that the leader device provides a system control interface for receiving control signals (step 504).⁵⁴ *Id.* at 10:53-64 (emphasis added); *see also id.* at Fig. 5; CX-0014C at Q/A 1023. The control signals are not “an instruction for the playback device to pair.” Rather, as Google’s own expert testifies, the control signals are sent “[a]fter the group is defined.”⁵⁵ *See, e.g.*, RX-1515C at Q/As 670, 673; *see also* Almeroth Reb., Tr., 795:19-796:15.

⁵⁴ Nowhere in this discussion does Ramsay mention the use of a “controller.” *See* JX-0447 at 10:3-11:65.

⁵⁵ Stated differently, to the extent a “controller” is used to make operational changes, this only occurs after the speakers have been configured to operate together. CX-0014C at Q/A 1023.

PUBLIC VERSION

Google nevertheless contends that Ramsay’s “surround group configuration” teaches limitation 10.5. RIB at 136-140. However, as Dr. Almeroth explained: “In Ramsay, these ‘wireless speaker subsystems’ include ‘a physical or digital switch that is progressed between a plurality of positions to allow such identification’ of the speaker’s location in the surround sound system,” and, as such, “a user manually identifies the location of the ‘wireless speaker subsystem’ via a switch on the speaker itself—not by sending a signal from a ‘controller’ to the ‘wireless speaker subsystem.’” CX-0014C at Q/A 1023. “In other words, a user manually identifies the location of the ‘wireless speaker subsystem’ via a switch on the speaker itself—not by sending a signal from a ‘controller’ to the ‘wireless speaker subsystem.’” *Id.*

The undersigned therefore finds that Google has failed to present clear and convincing evidence that Ramsay renders obvious limitation 10.5.

b) Limitations 10.8 and 10.9

Claim 10 includes the limitations: the playback device “to perform a first equalization of the audio data before outputting audio based on the audio data from the plurality of speaker drivers when the type of pairing is determined to comprise the first type of pairing” and “to perform a second equalization of the audio data before outputting audio based on the audio data from the plurality of speaker drivers when the type of pairing is determined to comprise the second type of pairing.” *See* JX-0004, cl. 10. The parties address these limitations together.

Google contends that “it would have been obvious to modify the wireless speakers of Ramsay to meet [elements 10.8 and 10.9] based on the teachings of Goh 463.” RIB at 145; RRB at 61-63. Google explains that Ramsay teaches networked audio devices that form different pairing configurations, while Goh 463 teaches the benefit of applying different equalizations for stereo and surround sounds. RIB at 144-146. Google therefore claims a person of ordinary skill in the art

PUBLIC VERSION

would have been “motivated to apply the teachings of Goh 463 to the multi-speaker system of Ramsay to improve its sound quality and enhance its different listening configurations.” *Id.* at 135

Sonos argues that because Ramsay does not disclose a “playback device” that is configured to determine and implement different types of pairing, Google has not shown that elements 10.8 and 10.9 would be satisfied, even if the teachings of Goh 463 made it obvious to modify Ramsay to perform equalization generally. CIB at 137; CRB at 64-65. Next, Sonos asserts that Google (and its expert) did not “sufficiently describe the proposed modification to Ramsay.” CIB at 137.

Staff agrees with Sonos that Google has failed to show that it would have been obvious to modify the speakers in Ramsay, based on the teachings of Goh 463, to perform different equalizations based on type of pairing, as required by elements 10.8 and 10.9. SIB at 110-111; SRB at 37-38.

Limitations 10.8 and 10.9 require a “playback device” with a “network interface” that is configured to perform a first and second equalization depending on type of pairing. It is undisputed that Ramsay does not disclose performing a first and second equalization. RIB at 144 (“Although Ramsay does not disclose performing a first and second equalization under the CALJ’s construction, the record evidence demonstrates that it would have been obvious to modify the wireless speakers of Ramsay to meet this requirement based on the teachings of Goh 463.”); CX-0014C at Q/A 1006; RX-1515C at Q/A 559. And, the speakers in Goh 463 are not playback devices nor do they have a network interface, as required by the claim. *See* JX-0189 at Abstract, 3:53-58, Figs. 2 & 3; CX-0014C at Q/As 922-923 (confirming that the Goh 463 speakers do not operate on a data network or process audio). Thus, as Sonos correctly noted in its briefing, “it is not enough for Google to simply point to teachings of equalization in Goh 463; it is Google’s burden to show—

PUBLIC VERSION

as it contends—that it would have been obvious to *apply* Goh 463 to Ramsay.” CRB at 65 (emphasis in original).

Google claims that Dr. Jeffay detailed “exactly how a person of ordinary skill in the art would integrate Goh’s equalization settings into Ramsay’s software.” RRB at 41. The undersigned disagrees. The mere fact that Ramsay and Goh 463 can be combined or modified does not render the resultant combination obvious, unless the results would have been predictable to a person of ordinary skill in the art. While Dr. Jeffay asserts that a person of skill in the art would have been motivated “to modify the networked playback devices in Ramsay to perform a first equalization or second of audio data depending on the system’s pairing configuration,” he failed to articulate a sufficient rationale for why a person of skill in the art would have been motivated to combine these references.⁵⁶ *See, e.g.*, RX-1515C at Q/As 633, 650. For example, when asked how a person of ordinary skill in the art would combine the teachings of Ramsay and Goh 463, Dr. Jeffay responded: “[T]he person of ordinary skill in the art would have been motivated to implement the techniques using software and digital signal processing.” *Id.* at Q/A 650. He did not describe his proposed modification or explain how this could have been implemented with a reasonable expectation of success. *See, e.g., id.* at Q/As 641-643, 650-651; *see also* CX-0014C at Q/A 1029 (“For example, as discussed previously, in Goh 463, the electronic components that perform equalization are separate and distinct components from the primary and secondary speakers. *See, e.g.*, JX-0189 at Figs. 1 & 2. Dr. Jeffay does not explain where such processing would be performed if implemented in software and whether that would constitute configuring the ‘playback device’ itself to perform

⁵⁶ In reaching his conclusion, Dr. Jeffay relied on at least one piece of prior art (U.S. Patent Publication No. 2005/0100174 (“Howard”)) that is no longer being asserted against the ’959 patent. *See, e.g.*, RX-1515C at Q/As 645-649.

PUBLIC VERSION

equalization, as required by the Asserted Claims of the '959 Patent.”). Such a conclusory assertion with no explanation is inadequate to support a finding that there would have been a motivation to combine. *See TQ Delta, LLC*, 942 F.3d at 1359 (“Conclusory expert testimony does not qualify as substantial evidence.”). The Federal Circuit has cautioned against the type of reasoning employed by Dr. Jeffay, stating: “This type of finding, without more, tracks the *ex post* reasoning *KSR* warned of and fails to identify any actual *reason* why a skilled artisan would have combined the elements in the manner claimed.” *In re Van Os*, 844 F.3d 1359, 1361 (Fed. Cir. 2017). The Federal Circuit has also emphasized that it is important to clearly articulate why a person of ordinary skill in the art would have been motivated to combine the references “because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *Pers. Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 991-92 (Fed. Cir. 2017) (citing *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007)).

The undersigned therefore finds that Google has failed to show by clear and convincing evidence that it would have been obvious to modify Ramsay based on Goh 463 to perform different equalizations based on type of pairing, as required by limitations 10.8 and 10.9.

c) Conclusion

For the reasons set forth above, Google has not shown that Ramsay in combination with Goh discloses limitations 10.5, 10.8, and 10.9. Accordingly, the undersigned finds that Google has failed to establish, by clear and convincing evidence, that claim 10 is rendered obvious.

d) Secondary Considerations

Secondary considerations of nonobviousness may rebut a *prima facie* case of obviousness. Here, where Google has not made out a *prima facie* case of obviousness, there is no showing to

rebut. Accordingly, the undersigned need not consider any secondary considerations of nonobviousness.

2. Improper Inventorship

Google asserts that the '959 patent is invalid for failing to name the proper inventors. RIB at 153-157; RRB at 67-69. According to Google, during development of the stereo pairing feature of the Sonos S5 device, Sonos identified [REDACTED] [REDACTED] [REDACTED]. RIB at 154. Google claims that [REDACTED] [REDACTED]. *Id.* at 154-156. [REDACTED] [REDACTED] [REDACTED]. *Id.* Google therefore contends that [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED].⁵⁸ RIB at 156-157; RRB at 67-68.

Sonos disputes Google's assertion, arguing that the named inventors had already conceived of the subject matter of the '959 patent before [REDACTED] [REDACTED] [REDACTED]. CIB at 144-146; CRB at 67-68. While Sonos acknowledges that [REDACTED] [REDACTED], Sonos maintains that [REDACTED] [REDACTED] [REDACTED]. CIB at 144.

⁵⁷ In Mr. Kallai's testimony, [REDACTED] See, e.g., CX-0009C at Q/As 56, 60, 61, 67, 75, 77.

⁵⁸ Google also contends that [REDACTED] [REDACTED] RIB at 154, 157 ([REDACTED] [REDACTED]); RRB at 68-69.

PUBLIC VERSION

Staff agrees with Sonos. SIB at 112-114. In Staff's view, the evidence shows that the named inventors [REDACTED]

[REDACTED]. *Id.* at 113-114; SRB at 38-39.

The claims of the '959 patent recite using different equalizations and techniques for performing equalization. More specifically, the "second equalization" limitation of claim 10 requires configuring the playback device to "perform a second equalization of the audio data before outputting audio based on the audio data from the plurality of speaker drivers when the type of pairing is determined to comprise the second type of pairing." *See* JX-0004, cl. 10. None of the claims require specific EQ profiles. *Id.* In other words, because no claims of the '959 patent recite specific EQ profiles, the evidence does not support Google's allegation that [REDACTED]

[REDACTED]. *See, e.g.,* Kallai, Tr. at 172:22-185:6; CX-0009C at Q/As 56-109; CX-0014C at Q/As 1129-1138.

The fact that Sonos [REDACTED]
[REDACTED]
[REDACTED]. CX-0009C at Q/As 60-71, 104, 108; CX-0004 at Q/A 1133; CX-0625C ([REDACTED]
[REDACTED]); CX-0626C.5 ("[REDACTED]
[REDACTED]
[REDACTED]"); JX-0435C; JX-0033C; Kallai, Tr. at 173:4-175:3. [REDACTED]. He testified:

[REDACTED]

PUBLIC VERSION

[REDACTED]

CX-0009C at Q/A 108.

Google contends that “[REDACTED]

[REDACTED], RIB at 154. To the contrary, [REDACTED]

[REDACTED] s. CX-0009C at Q/A 64. [REDACTED]

[REDACTED] *Id.* In addition, [REDACTED]

[REDACTED]

Id. at Q/As 62-70; *see also* Kallai, Tr. at 176:3-24 ([REDACTED]

[REDACTED]).

Google also claims that using pass filters to perform the second equalization was [REDACTED]

[REDACTED] RIB at 157. Google points to dependent claims 23, 26, 30,

32, 34, 38, 42, and 46 of the '959 patent. *Id.*; *see also* RRB at 68-69. First, these claims recite a

“first type of pass filter” and a “second type of pass filter.” *See id.* They do not [REDACTED]

[REDACTED]. CX-0014C at Q/A 1135. Second, the

evidence shows that [REDACTED]⁵⁹, that

[REDACTED], and that [REDACTED]

[REDACTED]. *See* CX-0009C at Q/As 78, 86, 108; JX-0108C;

JX-0109C; JX-0110C.3; CX-0014C at Q/A 1135.

⁵⁹ Google’s expert, Dr. Jeffay, agrees that equalization techniques, including pass filters, were known in the industry (and thus, not something new). RX-1515C at Q/As 49-50.

[REDACTED]

[REDACTED]

[REDACTED]. *StoneEagle Servs.*, 746 F.3d at 1063. Stated differently, [REDACTED]

[REDACTED]

[REDACTED].⁶⁰ *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624 (Fed. Cir. 1985) (“An inventor may use the services, ideas, and aid of other in the process of perfecting his invention without losing his right to a patent.”) (internal quotations and citation omitted).

Accordingly, the undersigned finds that Google has failed to present clear and convincing evidence that the ’959 patent is invalid for lack of improper inventorship.

IX. U.S. PATENT 8,588,949

A. Overview

The ’949 patent, entitled “Method and Apparatus for Adjusting Volume Levels in a Multi-Zone System,” issued on November 19, 2013 to Robert A. Lambourne and Nicholas A. J. Millington. The ’949 patent is assigned to Sonos. The ’949 patent relates to “user interfaces for controlling or manipulating a plurality of multimedia players in a multi-zone system.” JX-0003 at 1:27-30. An *Ex Parte* Reexamination Certificate issued November 5, 2015 in response to Reexamination Request No. 90/013,423 (filed January 5, 2015). Compl. at ¶ 68. The Reexamination Certificate states: “Claims 1, 3, 4, 5, 6, 8, 10, 11, 13, 14, 15 and 17-20 are

⁶⁰ The undersigned notes that Dr. Jeffay failed to [REDACTED]. See RX-1515 at Q/As 1029-1082. Dr. Almeroth opined that this failure undermined Dr. Jeffay’s (and Google’s) assertion that the inventorship for the ’959 patent is incorrect. See CX-0014C at Q/A 1138. The undersigned agrees.

PUBLIC VERSION

determined to be patentable as amended. Claims 2, 5, 9, 12, and 16, dependent on an amended claim, are determined to be patentable.” *Id*; see also Compl. Ex. 5.

1. Asserted Claims

Sonos is asserting claims 1, 2, 4, and 5, which read as follows⁶¹:

1. [1.0] A multimedia controller including a processor, the controller configured to:
 - [1.1] provide a user interface for a player group, wherein the player group includes a plurality of players in a local area network, and wherein each player is an independent playback device configured to playback a multimedia output from a multimedia source;
 - [1.2] accept via the user interface an input to facilitate formation of the player group, wherein the input to facilitate formation of the player group indicates that a least two of the plurality of players in the local area network are to be included in the player group *for synchronized playback of a multimedia output from the same multimedia source*;
 - [1.3] for [each of the plurality of players within] *any individual player* in the player group, accept via the user interface [an] *a player-specific* input to adjust a volume [associated with the] *of that individual* player, wherein the *player-specific* input to adjust the volume [associated with the] *of that individual* player causes [the corresponding independent playback device] *that individual player* to adjust its volume; and
 - [1.4] accept via the user interface [an] *a group-level* input to adjust a volume associated with the player group, wherein the *group-level* input to adjust the volume associated with the *player* group causes [the corresponding independent playback devices] *each of the players* in the player group to adjust [their volumes] *its respective volume*.
2. The multimedia controller of claim 1, wherein the controller is further configured to accept via the user interface an input to remove one of the plurality of players from the player group.
4. The multimedia controller of [claim 3] *claim 1*, wherein the *group-level* input to [mute] *adjust the volume associated* with the player group *further* causes [the players in the player group to adjust their volumes further comprises]: the controller [sending] *to send* an instruction to one of the players in the player group, the instruction indicating that the volume of each of the players in the player group should be adjusted in scale.
5. The multimedia controller of claim 1, wherein the controller is further configured to accept via the user interface an input to name the player group.

⁶¹ The claim language has been copied directly from the reexamination certificate. As such, matter enclosed in brackets [] originally appeared in the '949 patent, but has been deleted and matter printed in italics indicates additions made to the '949 patent during reexamination.

PUBLIC VERSION

2. Claim Construction

The undersigned has construed the following terms from the asserted claims:

TERM	CLAIM(S)	CLAIM CONSTRUCTION
“playback device”	1	“data network device configured to process and output audio”
“multimedia”	1, 2, 4, 5	“any type of media that comprises audio (including audio alone)”
“local area network”	1	“a data communications network spanning a limited geographical area, such as an office, an entire building, or industrial park”
“independent playback device”	1	“data network device configured to process and output audio that is capable of independent operation”

Order No. 20 at 15, 19-20, 26.

B. Infringement

Sonos asserts that the '949 Accused Products infringe claims 1, 2, 4, and 5 of the '949 patent. Sonos also alleges that Google induces infringement of the asserted claims. *Id.* at 161. Google and Staff disagree that any of the claims of the '949 patent are infringed.⁶² RIB at 159; SIB at 115.

1. Claim 1

Sonos asserts that the '949 Accused Products infringe claim 1 of the '949 patent. Google disputes that the '949 Accused Products meet limitations 1.1, 1.2, and 1.3.⁶³ RLUL at 16. Google does not dispute that the '949 Accused Products meet the remaining limitations of claim 1. *Id.* Staff asserts that “Sonos has failed to meet its burden of showing direct infringement of the asserted claims of the '949 patent.” SIB at 115.

⁶² Google also asserts that the '949 Asserted Products, as imported, do not infringe the '949 patent. RIB at 159. As explained, *supra*, with respect to the '258 patent, the undersigned is not persuaded by this argument. *See* Section VI.B.1.

⁶³ In its brief, Google also disputes that limitation 1.4 is met. *See* RIB at 162-163.

PUBLIC VERSION

a) Limitation 1.1

Claim 1 includes the limitation: “provide a user interface for a player group, wherein the player group includes a plurality of players in a local area network, and wherein each player is an independent playback device configured to playback a multimedia output from a multimedia source.” JX-0003, cl. 1.

Sonos explains that most of this limitation is undisputed, but that Google contends that the Chromecast-enabled audio players in the player group are not “independent playback devices.” CIB at 150-151. Sonos notes that this term was construed as “data network device configured to process and output audio that is capable of independent operation” and that “[t]he Chromecast-enabled audio players satisfy this construction.” *Id.* at 151. Sonos acknowledges that the term “independent playback device” was added to distinguish the invention from U.S. Patent Application Publication No. 2002/0124097 (“Isely”), but asserts that “the leader/follower technique employed by Chromecast-enabled audio players is fundamentally different.” CIB at 152. Sonos explains that, in Isely, “the audio devices in a group are ‘tethered’ and ‘interdependent’ because the volume of one individual device cannot be adjusted without also adjusting the volume of other devices in the group.” *Id.* In the ’949 Accused Products, however, “each Chromecast-enabled audio player in a player group is capable of adjusting its own volume individually without also adjusting the volumes of other players in the player group.” *Id.* at 153.

Google asserts that, during prosecution of the ’949 patent, Sonos added the term “independent playback device” to distinguish the pending claims “over the tethered or interdependent operation” of Isely. RIB at 160. Google argues: “In view of this prosecution history, any system that controls player volumes in a ‘tethered’ or ‘interdependent’ manner is outside the

PUBLIC VERSION

scope of the claims.” *Id.* Because Google asserts that the ’949 Accused Products operate in this manner, Google contends there is no infringement. *Id.*

Staff argues that, in adopting Staff’s proposed construction of “independent playback device,” the undersigned recognized that the invention was different than the “tethered and interdependent operation of Isely.” SIB at 117. Staff further argues that “the evidence shows that, in the ’949 Accused Products, each ‘follower’ device has its volume changed in a tethered or interdependent manner.” *Id.* at 117-118.

The parties agree that the ’949 Accused Products work [REDACTED]
[REDACTED] CIB at 153; RIB at 160; SIB at 118. [REDACTED]
[REDACTED] CX-0012C at Q/As 324-352, 359-360;
RX-1520C at Q/As 46, 111. [REDACTED]
[REDACTED] *Id.* [REDACTED]
[REDACTED]. *Id.*; *see also* Weissman, Tr. at 272:2-
274:9; Fisher, Tr. at 390:11-391:11; JX-0018C.

The dispute between the parties is centered on whether this [REDACTED] technique was specifically disclaimed during prosecution of the patent. The undersigned finds that it was not. The term “independent playback device” was added to distinguish the invention over the prior art. JX-0008 at .01747-01750. In a telephone interview with the Examiner, Sonos “[d]iscussed support for the independent operation of the claimed individual player” and “distinguished the individual operation over the tethered or interdependent operation of Isley [sic].” *Id.* at .01751. In allowing the amended claims, the Examiner noted that, “where Isley [sic] controls volume in an interdependent manner[,], the instant application s [sic] teaches the system functional to provide

PUBLIC VERSION

groupwise and individual control of each of the groupwise addressable and independently addressable playback devices.” *Id.* at .01749.

The undersigned finds that these statements do not demonstrate a clear disavowal of devices that operate according to [REDACTED]. *See Digital-Vending Servs. Int’l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1276 (Fed. Cir. 2012) (explaining that “it is particularly important not to limit claim scope based on statements made during prosecution absent a clear disavowal or contrary definition”). While the Examiner used the language “tethered or interdependent operation,” there is not a clear intent to disavow *all* systems that can be characterized as either “tethered” or “interdependent.” Rather, the patentee disclaimed the devices as described in Isely – a system in which the volume of one individual device could not be adjusted without also adjusting the volume of other devices in the group. JX-0008 at .01751. The ’949 Accused Products do not operate in such a manner. Instead, [REDACTED]
[REDACTED]
[REDACTED]. CX-0012C at Q/As 324-325, 330-332; Rinard, Tr. at 930:23-931:3.

Having found that Sonos did not disclaim devices that operate according to [REDACTED]
[REDACTED], the undersigned finds that the ’949 Accused Products meet this limitation. The evidence shows that ’949 Accused Products provide a user interface for a player group, wherein the player group includes a plurality of players in a local area network. CX-0012C at Q/As 243-261; Weismann, Tr. at 327:15-24. The evidence also shows that each player is a data network device configured to process and output audio that is capable of independent operation configured to playback a multimedia output from a multimedia source. *Id.* Specifically, Chromecast-enabled audio players can play audio independently when not in a group and, when

PUBLIC VERSION

grouped, their individual volume can be independently adjusted without changing the volume of any other player. Rinard, Tr. at 930:23-931:8. Thus, the undersigned finds that the '949 Accused Products meet this limitation.

b) Limitation 1.2

Claim 1 includes the limitation “accept via the user interface an input to facilitate formation of the player group, wherein the input to facilitate formation of the player group indicates that at least two of the plurality of players in the local area network are to be included in the player group for synchronized playback of a multimedia output from the same multimedia source.” JX-0003, cl. 1. For the Hub Controller and Pixel Controllers installed with the Google Home app, Google disputes this limitation only to the extent that players are not “independent playback devices.” RLUL at 16. For the Pixel Controllers installed with either the GPM or YTM apps, Google disputes that these applications “facilitate formation of the player group.” RIB at 162.⁶⁴

i) Undisputed Products

Google does not dispute that this limitation is met for the Hub Controllers and Pixel controllers installed with the Google Home App, if the undersigned finds that the devices are “independent playback devices.” RIB at 162. As noted above, the undersigned made such a finding. As such, the Hub Controllers and the Pixel controllers installed with the Google Home App meet this limitation.

ii) GPM and YTM

The claim requires “an input to facilitate formation of the player group.” Sonos acknowledges that the GPM and YTM apps cannot “define a static or dynamic group.” CIB at 155. Sonos instead argues that the GPM and YTM apps do “precisely what [this] limitation requires.”

⁶⁴ Staff does not address this limitation. *See* SIB at 115-120; SRB at 39-44.

PUBLIC VERSION

Id. at 156. Specifically, the Chromecast-enabled players will “stop whatever they are doing . . . and coordinate with each other to play in synchrony.” *Id.* Sonos also disagrees that formation is an event that can only occur once. *Id.* Sonos explains that Google “mistakenly conflates ‘creation’ (which is not required by the claim) with ‘facilitating formation.’” *Id.*

Google argues that the GPM and YTM apps do not allow users to form groups, but instead “allow users to ‘cast’ audio to pre-existing groups.” RIB at 162. Google explains that “casting to a pre-formed group does not constitute forming a group.” *Id.* Google also notes that there is nothing in the intrinsic record to support an interpretation that “every time a pre-formed group plays music, that counts as a re-‘formation’ of the group.” RRB at 74.

The undersigned finds that the evidence shows that a person of ordinary skill in the art would understand that the concept of “formation” in the claim requires that a player group must be formed by the controller, and cannot be pre-existing. The ’949 patent describes group formation as the user selecting which players to include in a group. JX-0003 at 2:56-58, 5:35-36; 10:55-67. Sonos does not point to anything in the intrinsic record to support the idea that the groups can be pre-formed, and the user interface must simply select one of the pre-formed groups. Because the GPM and YTM apps do not allow users to form groups, the undersigned finds that this limitation is not met. Thus, the undersigned finds that this limitation is not met for the Pixel Controllers installed with either the GPM or YTM apps.

c) Limitations 1.3 and 1.4

Claim 1 includes the limitations: (1) “for any individual player in the player group, accept via the user interface a player-specific input to adjust a volume of that individual player, wherein the player-specific input to adjust the volume of that individual player causes that individual player to adjust its volume” and (2) “accept via the user interface a group-level input to adjust a volume

PUBLIC VERSION

associated with the player group, wherein the group-level input to adjust the volume associated with the player group causes each of the players in the player group to adjust its respective volume.” JX-0003, cl. 1. Sonos and Google address these limitations together in their briefs, whereas Staff only addresses limitation 1.3. *See* CIB at 156; RIB at 162; SIB at 119-120.

Sonos explains that Google “repeats its argument that Chromecast-enabled audio players in a group are no[t] ‘independent playback devices’ because they allegedly make individual volume adjustments.” CIB at 158. Sonos argues that “Google’s players are not subject to tethered or interdependent volume control as in Isely.” *Id.* [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].” *Id.* Sonos also asserts that Google’s argument on noninfringement as it relates to the Pixel Controller with GPM and YTM “is premised on the notion that the Google Home app . . . is required for an Accused Pixel Controller to facilitate formation of the player group.” *Id.* at 157 n.86.

Google disputes these limitations are met on the ground that player-specific volume control is “tethered and interdependent.” RLUL at 16; RIB at 162. Google further asserts that the YTM and GPM applications cannot infringe for an additional reason. *Id.* at 163. “Specifically, claim 1 requires that the same user interface used to form the group in limitation 1(b) must also accept the volume of limitations 1(c) and 1(d).” *Id.* Google notes that “neither [GPM] or [YTM] can form a group.” *Id.*

Staff agrees that Sonos has failed to establish that this limitation is infringed on the grounds that “[REDACTED]

[REDACTED].” SIB at 119. According to Staff, this is because [REDACTED]

PUBLIC VERSION

[REDACTED]
[REDACTED]
[REDACTED].” *Id.*

As noted above, the undersigned found that Sonos did not disclaim [REDACTED]
[REDACTED]. Nor does the undersigned find that the way that the volume message is provided to the
player results in noninfringement. In the ’949 Accused Products, [REDACTED]
[REDACTED]
[REDACTED]. CX-0012C at Q/As 324-352, 359-360. Thus, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

The undersigned agrees with Google, however, that the Pixel Controllers with YTM or
GPM cannot infringe because they do not use the same “user interface” to accept the player specific
and group level volume inputs and to facilitate formation of a player group. As noted above, the
undersigned found that neither the YTM nor GPM apps facilitate formation of a player group.
Accordingly, the undersigned finds that this limitation is not met for the Pixel Controllers with
YTM or GPM.

Accordingly, the undersigned finds that the Hub and Pixel Controllers installed with the
Google Home app meet these limitations, but that Pixel Controllers installed with either the YTM
or GPM apps do not.

d) Conclusion

Accordingly, for the reasons set forth above, the undersigned finds that the Hub and Pixel Controllers installed with the Google Home app infringe claim 1, but that Pixel Controllers installed with either the YTM or GPM apps do not.

2. Claims 2 and 5

Google does not dispute that the additional limitations of claim 2 and 5 are met. RLUL at 16, 17. Additionally, the evidence shows that the Hub and Pixel Controllers installed with the Google Home app meet these limitations. CX-0012C at Q/As 324-360. 374-400. Accordingly, the undersigned finds that the Hub and Pixel Controllers installed with the Google Home app meets claims 2 and 5.

3. Claim 4

Claim 4 states: “The multimedia controller of claim 1, wherein the group-level input to adjust the volume associated with the player group further causes the controller to send an instruction to one of the players in the player group, the instruction indicating that the volumes of each of the players in the player group should be adjusted in scale.” JX-0003, cl. 4. Google disputes that the additional limitations of claim 4 are met.⁶⁵ RLUL at 16-17.

Sonos asserts that “each Hub Controller, and each Pixel Controller installed with either Google Home, YTM, or GPM, is configured to accept a ‘group-level input.’” CIB at 159. Sonos explains that each leader device has [REDACTED]. *Id.*

Google argues that “the accused ‘instruction’ in the accused products does not ‘indicat[e] that the volumes of each of the players in the player group should be adjusted in scale.’” RIB at 163. Google explains that “the claim requires that the instruction itself indicate that volumes should

⁶⁵ Staff does not address this argument, other than noting that it believes that Sonos has not met its burden to show that independent claim 1 is infringed. SIB at 121; SRB at 44.

PUBLIC VERSION

be adjusted in scale, and [REDACTED].” RRB at 76. Google also notes that [REDACTED].” *Id.*

Google further argues that [REDACTED]

[REDACTED]. RIB at 164. Google explains: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]” *Id.*

The undersigned agrees with Google that this claim is not met. The claim language requires that the instruction “indicat[es] that the volumes of each of the players in the player group should be adjusted in scale.” JX-0003, cl. 4. In the ’949 Accused Products, the instruction does not so indicate. Both Sonos and Google agree that [REDACTED]. CIB at 159; RIB at 163. [REDACTED]. [REDACTED]. RX-1517C at Q/As 39, 42; RX-1520C at Q/As 128-129. [REDACTED]. [REDACTED]. [REDACTED]. RX-1517C at Q/As 30, 34-38; RX-1520C at Q/As 130-131. Because [REDACTED]. [REDACTED]. [REDACTED] it does not meet the limitation.⁶⁶ Accordingly, the undersigned finds that the ’949 Accused Products do not infringe claim 4.

4. Indirect Infringement

Sonos asserts that Google actively induces infringement. CIB at 161. Sonos explains that “third parties have directly infringed the ’949 Claims.” *Id.* Sonos further states that Google “had

⁶⁶ Although Google argues that this limitation is likewise not met under the doctrine of equivalents, Sonos does not make an argument regarding the doctrine of equivalents in its brief. CIB at 158-160; CRB at 74-75. As such, it is waived.

PUBLIC VERSION

knowledge of the '949 Patent and the infringement allegations at least as early as October 13, 2016 and no later than when Sonos provided Google” a copy of the complaint. *Id.* According to Sonos, “Google encouraged third parties to infringe.” *Id.*

Google argues that “Sonos has failed to demonstrate that Google encourages the user of any of the accused products to directly infringe any claim of the '949 patent.” RIB at 164. Google also notes that “no accused 949 Pixel Device is pre-installed with the Google Home App at the time that it is imported” and that “Sonos has not shown that Google encourages each purchaser . . . to install the Home App even after purchase.” *Id.*^{67, 68}

The undersigned first disagrees with Google that there can be no induced infringement because certain activities take place after importation. The fact that the Google Home app is not installed at the time of importation is not dispositive. The Commission does not require that all acts occur before importation in order for there to be induced infringement. *See* Section VI.B.1.

The undersigned also finds that there is evidence that Google encourages purchasers to install the Google Home app. Google “instructs its customers to download the Google Home app to set up speaker devices.” Chan, Tr. at 416:5-8. The evidence further shows that all 34,480,450 Google Home Mini devices that were online in a 28-day period were setup using the Google Home App. *Id.* at 416:9-417:4; JX-0400C.

As for the Hub Controllers, Google argues that “Sonos has not demonstrated that any purchaser . . . will ultimately use that device to form and control player groups as required by the asserted claims.” RIB at 166. The asserted claims of the '949 patent are apparatus claims. Thus, Sonos is not required to show that consumers actually use the software in an infringer manner.

⁶⁷ Google does not dispute Sonos’ allegations that: (1) resellers have offered to sell and have sold the Hub and Pixel controllers; (2) consumers have installed or updated the relevant software or firmware, and (3) Google had knowledge of the '949 patent. RIB at 165-166; RRB at 77.

⁶⁸ Staff does not address induced infringement in its briefs. *See* SIB at 121; SRB at 41.

PUBLIC VERSION

Rather, “to infringe a[n] apparatus claim that recites capability and not actual operation, an accused device ‘need only be capable of operating’ in the described mode.” *Finjan*, 626 F.3d at 1204. As such, the undersigned finds that Google induced infringement of claims 1, 2, and 5 of the ’949 patent.

5. Google’s Redesigns

Google explains that it “has redesigned every accused device such that their user interfaces cannot accept the ‘group-level’ volume input required by limitation 1(d).”⁶⁹ RIB at 166. Staff states that “there is no dispute that Google’s redesigns would remove the infringing functionality.” SIB at 122.

Sonos does not dispute that the redesigned products do not infringe.⁷⁰ Additionally, the evidence shows that the redesigned products do not infringe the ’949 patent. RX-1520C at Q/As 161-172.

C. Technical Prong of the Domestic Industry Requirement

The undersigned previously determined that the technical prong of the domestic industry requirement is met for the ’949 patent. Order No. 32 (Jan. 21, 2021), *aff’d* by Comm’n Notice (Feb. 2, 2021).

D. Validity⁷¹

Google argues that claims 1, 2, 4, and 5 of the ’949 patent are invalid due to anticipation and that all of the asserted claims are invalid due to obviousness. RIB at 168-198. Google also asserts that the patent is invalid under 35 U.S.C. § 101(a). *Id.* at 199.

⁶⁹ Google does not provide names for the redesigned products, as it does for the other patents (*i.e.*, ’258 NIA No. 2). *See* RIB at 167 (describing the modifications).

⁷⁰ The undersigned previously found that the redesigned products are fixed and definite. *See* Section VI.B.3.

⁷¹ Sonos asserts that claims 1, 2, and 4 have an effective priority date of June 5, 2004 and claim 5 has a priority date of February 21, 2008. CIB at 164. Sonos further asserts that claims 1 and 2 were conceived at least by July 11, 2003 and reduced to practice at least by October 24, 2003. *Id.* Staff agrees and Google does not dispute these dates. SIB at 123-124; RIB at 168.

1. Anticipation

a) Bose Lifestyle 50 System

Google argues that claims 1 and 2 are anticipated by the Bose Lifestyle 50 System and the Bose Lifestyle 50 Owner's Guide (collectively, "Bose").⁷² RIB at 168. Sonos disputes that Bose discloses any limitation of claim 1 in full, but does not dispute that Bose discloses "a multimedia controller." CLUL at 6. Sonos also disputes that Bose discloses claim 2. *Id.* Staff argues that "Google failed to present clear and convincing evidence that [the] asserted claims of the '949 patent are invalid as anticipated by Bose." SIB at 124.

i) Limitation 1.2

Claim 1 includes the limitation "accept via the user interface an input to facilitate formation of the player group, wherein the input to facilitate formation of the player group indicates that at least two of the plurality of players in the local area network are to be included in the player group for synchronized playback of a multimedia output from the same multimedia source." JX-0003, cl. 1.

Google notes that "Sonos contends that simultaneous audio playback is not 'synchronized' because the plain meaning of 'player group for synchronized playback' requires that the players be 'configured to coordinate' by sending signals to achieve synchronization." RIB at 171. According to Google, "[n]either the claims nor the specification require 'coordination.'" *Id.* Google explains that one of the inventors of the '949 patent testified that "the word 'synchronized' does not require 'coordination' or any other engineering technique" but instead "requires only that from the user's perspective, sound is played back at the same time (in synchrony)." *Id.* at 172.

⁷² Google contends that the Bose LifeStyle 50 System, [REDACTED] at 168-169. Sonos does not dispute this. CIB at 165-169; CRB at 76-82.

PUBLIC VERSION

Google also asserts that “both 949 inventors and Sonos’ expert testified that sending the same audio signal over speaker wires is ‘synchronized.’” *Id.* at 174.

Sonos asserts that “[t]he record overwhelmingly establishes that Bose is not configured for ‘synchronized playback.’” CIB at 167. Sonos argues that “Dr. Rinard’s unfounded insistence that Bose teaches synchronized playback . . . is entirely unpersuasive – and certainly not the clear and convincing evidence that § 102 requires.” *Id.*

Staff argues that “[t]he evidence shows that a person of ordinary skill in the art would understand ‘synchronized playback’ to require more than just playing the same source at the same time.” SIB at 124. Staff therefore asserts that “the evidence shows that one of ordinary skill would not have understood the ‘Acoustimass modules’ in Bose to be in a ‘player group for synchronized playback’ as required by Element 1.2.” *Id.* at 125.

The undersigned agrees that this limitation is not present in Bose. Bose features a type of speaker called an “Acoustimass module,” which can be connected to one or more “Jewel Cube” speakers. JX-0130.11-12. The speakers do not have any capacity to communicate with each other and instead play whatever signal arrives from the multi-room interface. CX-0015C at Q/A 239. The evidence shows that a person of ordinary skill in the art would not consider this to be “synchronized playback.” For example, Paul Hainsworth, a former Bose employee, testified that “no one in the industry would call” what the Bose speakers do “synchronized.” *See* JX-0476C at 36:2-13.⁷³ Dr. Weissman further explained that a person of ordinary skill in the art would expect to see something more than just the same signal being sent to different players in a hard-wired setting to conclude that the system was synchronized. Weissman, Tr. at 861:20-862:6; *see also*

⁷³ Google asserts that Mr. Hainsworth initially testified: “Of course it’s synchronized.” RIB at 173 (quoting JX-0476C at 34:11-35:1). As Sonos explains, however, Mr. Hainsworth misspoke and then corrected himself to say “I wouldn’t call that synchronized.” JX-0467C at 34:18-35:4; *see also id.* at 35:14-22.

PUBLIC VERSION

CX-0015C at Q/As 239-245. The testimony of other witnesses similarly supports the idea that Bose does not teach “synchronized playback.” *See* JX-0491C at 26:7-21; Millington, Tr. at 78:3-79:19. Because Bose does not disclose limitation 1.2, the undersigned finds that Bose does not anticipate claim 1 of the ’949 patent. Additionally, because Bose does not anticipate claim 1, it cannot anticipate dependent claim 2.

b) Isely

Google argues that claims 1, 2, and 4 are anticipated by Isely. RIB at 179. Sonos disputes that Isely discloses any limitation of claim 1 in full, but does not dispute that Isely discloses “a multimedia controller,” “a processor,” or “a plurality of players in a local area network.” CLUL at 6. Sonos also disputes that Isely discloses claim 2 or 4. *Id.* Staff argues that “Google failed to present clear and convincing evidence that [the] asserted claims of the ’949 patent are invalid as anticipated by Isely.” SIB at 126.

Google states that “Sonos asserted that Isely did not anticipate claim 1 for three reasons.” RIB at 180. “Two were repeats of flawed arguments that Sonos made with respect to Bose.” *Id.* The third reason argued that “Isely does not teach the ‘player-specific’ volume control of limitation 1(c).” *Id.* According to Google, “[t]hat assertion is incorrect.” *Id.* Google argues that Isely discloses a “player-specific” volume control. *Id.* Specifically, “[i]n Isely, to issue a player-specific volume command, the user can configure the controller such that only one player in a group will respond to volume commands, while the volume of every other player remains static.” *Id.* Google also asserts that “[t]he user can . . . change which player in the group is to receive the player-specific volume adjustment.” *Id.*

Sonos asserts that “[t]he USPTO thoroughly reviewed Isely during prosecution of the ’949 Patent and concluded that it did not anticipate the asserted claims.” CIB at 169. Sonos further

PUBLIC VERSION

argues that “Isely fails to disclose several core Sonos innovations embodied in claim 1.” *Id.* at 170. Sonos explains that Isely’s “controller is not configured to accept ‘a player-specific input to adjust a volume of that individual player.” *Id.* Sonos also asserts that the hypothetical example upon which Google relies is flawed and notes that “Google cannot argue that something ‘not disclosed’ anticipates.” CRB at 85.

Staff asserts that “Google failed to present clear and convincing evidence that [the] asserted claims of the ’949 patent are invalid as anticipated by Isely.” SIB at 126. Staff notes that the undersigned had already determined that Isely does not disclose “independent playback devices” and that it controls volume in an interdependent manner. *Id.*

Isely was considered by the PTO during prosecution of the ’949 patent. JX-0008.1748-51. “[A] party challenging validity shoulders an enhanced burden if the invalidity argument relies on the same prior art considered during examination by [the PTO].” *Tokai Corp. v. Easton Enterprises, Inc.*, 632 F.3d 1358, 1367 (Fed. Cir. 2011). Google has not met this burden.

The evidence shows that the volume control in Isely is always a type of group volume control. JX-0442 at ¶¶ 15, 49, 53, 56; CX-0015C at Q/A 78. As Dr. Rinard conceded, “when you change the volume of the reference device[], the volume of the other devices change.” Rinard, Tr. at 952:7-19. As such, Isely does not disclose an “independent playback device” or the elements of limitation 1.3.

Google does not introduce clear and convincing evidence that this understanding is incorrect. Instead, Google introduces a hypothetical scenario in which a user could create a zone with just two players, designate one player as the “reference device,” and program the other player to have a “static” relationship. RX-1480C at Q/A 213. In this scenario, according to Google, the static device would maintain a steady volume in response to the reference device’s changes. *Id.*

PUBLIC VERSION

Then, if the user wishes to change the volume of the static device, he would designate that device to be the reference device. *Id.* at Q/A 214. This scenario is not disclosed in Isely. CX-0015C at Q/As 397-398; *see also* Rinard, Tr. at 530:2-18. Additionally, as explained by Dr. Weissman, “the configuration in Dr. Rinard’s hypothetical would result in a more complicated, impractical variation of the configuration described at paragraphs 15 and 53 of Isely, and thus Isely would not teach this hypothetical to a POSITA and a POSITA would not be motivated to modify Isely’s teachings in this fashion.” CX-0015C at Q/A 399. Further, Dr. Weissman testified that “Isely teaches away from Dr. Rinard’s hypothetical.” *Id.* at Q/A 396. Thus, the undersigned finds this hypothetical does not provide the clear and convincing evidence that Isely does, in fact, disclose an “independent playback device” and the limitations of claim 1.3.

Because Isely does not disclose these claim limitations, it does not anticipate claim 1 of the ’949 patent. Additionally, because Isely does not anticipate claim 1, it cannot anticipate dependent claims 2 and 4.

2. Obviousness

Google argues that the asserted claims are rendered obvious by: (1) Bose alone; (2) Bose and Isely; (3) Bose and Crestron; (4) Bose and U.S. Patent No. 5,761,320 (“Farinelli”); (5) Isely and Bose; (6) Isely and Crestron; (7) Isely and Farinelli; and (8) the cd3o Network mp3 Player (“cd3o”) and Isely. RIB at 183-196.

a) Bose

Google asserts that Bose alone renders obvious claims 1, 2, 4, and 5 of the ’949 patent. RIB at 184. Google explains that, if the undersigned finds that Bose does not anticipate claims 1-2 because it fails to disclose a ‘player group’ or a ‘local area network,’ . . . ‘it would be obvious to modify Bose to operate on a two-way network such as wired Ethernet or wireless 802.11” *Id.*

PUBLIC VERSION

Google asserts that “[i]n the years preceding the alleged invention (2003-04), home networks were exploding in popularity, leading to the development of numerous audio systems built to operate on such networks.” *Id.* Thus, “a POSITA would have been motivated to modify the Bose system to operate over wired Ethernet or Wi-Fi and to implement a coordination-based synchronization mechanism based on known techniques.” *Id.* at 184.

Sonos argues that Bose “is a fundamentally different type of multi-room audio system” and that a person of ordinary skill in the art would not “have been motivated to reinvent the entire system.” CIB at 173. Specifically, Sonos explains that one of skill would not have been motivated to replace “Bose’s discrete ‘hard wires’ – which do not constitute a ‘data communications network,’ - with a more complex ‘network protocols such as Ethernet, Wi-Fi, TCP/IP, or UDP.’” *Id.* at 174. Sonos asserts that “Bose discourages such a change.” *Id.* Sonos also notes that “a POSITA would need to redesign the Acoustimass modules to incorporate a network interface – a prohibitively burdensome enterprise in its own right . . . and one that would introduce new technical challenges like jitter and drift.” *Id.*

Staff agrees with Sonos and argues that “[t]he evidence shows that a person of ordinary skill would not have been motivated to make the proposed modifications to Bose.” SIB at 128.

Even assuming that the proposed modification of Bose would result in a system that met all of the limitations of the asserted claims,⁷⁴ the undersigned finds that Google has not demonstrated that one of ordinary skill in the art would have motivation to modify Bose to operate on a two-way network such as wired Ethernet or wireless 802.11. To successfully invalidate the asserted claims, Google must provide “an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418; *see also InTouch Techs. v. VGO*

⁷⁴ Sonos disputes that the modified version of Bose discloses the missing limitations of claim 1. CRB at 83.

PUBLIC VERSION

Comm’n’s, 751 F.3d 1327, 1351 (Fed. Cir. 2014) (“A reason for combining disparate prior art references is a critical component of an obviousness analysis.”) Here, the evidence shows that to modify the Bose system to allow for individual volume control “would require a wholesale redesign of the Bose system.” CX-0015C at Q/A 271. Bose teaches a proprietary communication protocol which is “not compatible” with other Bose systems, let alone open standards such as Ethernet or 802.11 WiFi. *See* JX-129C.4; *see also* CX-0015C at Q/A 277. For example, while Dr. Rinard contends that a person of ordinary skill in the art would have replaced Bose’s “hard wires” with more complex “network protocols such as Ethernet, Wi-Fi, TCP/IP, or UDP,” Bose discourages such a modification. Instead, “Bose emphasizes its propriety communication protocol.” CX-0015C at Q/A 277; JX-0129C.00004 (“The demands of both transmitting and receiving data necessary to convey all the information on the Personal music center required that Bose develop a different and new two-way radio frequency protocol.”).

The evidence further shows that the Acoustimass modules of the Bose system would need to be redesigned to incorporate a network interface. CX-0015C at Q/A 274. This would have required a person of ordinary skill in the art to either “try to design the system to create its own data network” or “redesign the system so that it could join a user’s home data network.” *Id.* Both options would have been “technologically challenging” and expensive. *Id.*

For these reasons, the undersigned finds that there is not clear and convincing evidence that a person of ordinary skill in the art would have been motivated to modify Bose. As such, the undersigned finds that claims 1, 2, 4, and 5 are not rendered obvious by Bose.

b) Bose and Isely

Google asserts that Bose in combination with Isely renders obvious claim 4 of the ’949 patent. RIB at 186. Google explains that “Isely itself anticipates claim 4.” *Id.* It asserts: “A person

PUBLIC VERSION

of ordinary skill would be motivated to add this feature into Bose because of the benefit of Isely's 'in-scale' volume adjustments." *Id.* According to Google, "[a] person of ordinary skill would have looked to combine Isely with Bose because both are in the same field of endeavor, offering residential multi-zone audio systems that allow users to create and control player groups." *Id.* According to Google, "implementing the group-level command called for by claim 4 is a mere design choice." *Id.*

Sonos asserts that "Google offers no argument that [Isely] include[s] a type of player that 'adjusts its volume' as required by limitation 1.3." CIB at 175. Sonos further notes: "As for the features Google does identify in Isely, there is no clear and convincing evidence that a POSITA would have been motivated to combine them with Bose." *Id.* For example, "even if Isely's system uses a 'digital network,' . . . Google points to no disclosure that addresses or overcomes the specific reasons not to implement such a network in Bose." *Id.* at 176. Sonos also asserts that "Google points to no disclosure that provides a reason to retrofit Bose with" the leader/follower technique. *Id.*

Staff argues that "[t]he evidence shows that a person of ordinary skill in the art would not have been motivated to modify the Bose system in order to incorporate the teaching of Isely and/or could not have done so without undue experimentation." SIB at 129.

The undersigned finds that Google has not introduced clear and convincing evidence of a motivation to combine. As Dr. Weissman testified:

[R]eplacing the hard-wired connections in Bose and, introducing Wi-Fi or some other form of a data communications network would introduce a host of new problems, such as jitter and echo, that a POSITA would have to attempt to solve. While it may be possible that a POSITA might eventually be able to use what Dr. Rinard calls Isely's leader/follower technique, to attempt to do so would require a fundamental change to the Bose system and substantial work and experimentation and there is no evidence that a POSITA would be able to accomplish it.

PUBLIC VERSION

CX-0015C at Q/A 322. While Mr. Rinard offers some evidence that a person of ordinary skill in the art would have motivation, he does not address why one of skill would fundamentally change the Bose system. *See* RX-1480C at Q/As 171-173. Without such testimony, the undersigned finds that Google has failed to meet its burden.

As such, the undersigned finds that claim 4 is not rendered obvious by this combination.

c) Bose and Crestron

Google asserts that Bose in combination with Crestron⁷⁵ renders obvious claim 5 of the '949 patent. RIB at 186. Google explains that "Crestron is a home-based multi zone entertainment system with audio players set up throughout the home." *Id.* Google contends that "Crestron teaches the ability to create player groups and assign them custom names." *Id.* According to Google, "a person of ordinary skill would be motivated to add the 'naming' feature into Bose because the user benefits from a custom-naming feature and because it is common sense to allow users to assign intuitive names to custom player groups." *Id.* at 187. Google also asserts that "[a] person of ordinary skill would have looked to Crestron for the solution because, like Bose, Crestron is a consumer-facing multi-zone audio system that allow users to control multiple audio players throughout the home." *Id.*

Sonos notes that "Google does not allege that [Crestron] disclose[s] the limitations of claim 1 missing from Bose." CIB at 177. "Thus, [this] combination [cannot] invalidate claim 5." *Id.* Sonos also asserts that "Google has failed to establish a clear and convincing motivation to combine Bose with [Crestron], offering no evidence that addresses or overcomes the specific reasons not to implement this distinct technology within Bose." *Id.*

⁷⁵ Google asserts that Crestron's "functionality is described in an Operations Guide with a 2007 copyright date." RIB at 186. Google therefore contends that Crestron qualifies as prior art under U.S.C. § 102(a). *Id.* Sonos disagrees that Crestron qualifies as prior art. CIB at 177.

PUBLIC VERSION

Staff argues that “the evidence shows that Bose fails to disclose or render obvious elements of claim 1 of the ’949 patent. Yet, Google failed to demonstrate that Bose in combination with Crestron renders obvious claim 1.” SIB at 132. Staff also argues that “the evidence shows that a person of ordinary skill in the art would not have been motivated to modify the Bose system in order to incorporate the teachings of Crestron.” *Id.* at 133.

The undersigned finds that Google has failed to show that Bose in combination with Crestron invalidates claim 5. The undersigned previously found that Bose did not disclose all of the elements of claim 1, on which claim 5 depends. Google does not assert that Crestron discloses the missing elements. *See* RIB at 186-187; RRB at 86-88. As such, this combination cannot invalidate dependent claim 5.

d) Bose and Farinelli

Google asserts that Bose in combination with Farinelli⁷⁶ renders obvious claim 5 of the ’949 patent. RIB at 187. Google argues that “Farinelli teaches a residential multi-zone audio system in which a given zone may have multiple speakers.” *Id.* Google contends that “Farinelli teaches the ability to ‘customize’ the name of each zone, such as by ‘label[ing] a zone as any alphanumeric seven-digit name.’” *Id.* According to Google, “[a] POSITA would be motivated to add the ‘naming’ feature into Bose” and “would have looked to Farinelli for the solution because, like Bose, Farinelli teaches a home-based audio system that sends audio to different rooms in the home.” *Id.* at 187-188.

Sonos notes that “Google does not allege that [Farinelli] disclose[s] the limitations of claim 1 missing from Bose.” CIB at 177. “Thus, [this] combination [cannot] invalidate claim 5.” *Id.* Sonos also asserts that “Google has failed to establish a clear and convincing motivation to

⁷⁶ Google asserts that Farinelli was filed June 26, 1995 and issued June 2, 1998. RIB at 187. Google therefore contends that Farinelli qualifies as prior art under U.S.C. § 102(b). Sonos does not dispute this. CIB at 177, 180.

PUBLIC VERSION

combine Bose with [Farinelli], offering no evidence that addresses or overcomes the specific reasons not to implement this distinct technology within Bose.” *Id.*

Staff argues that “the evidence shows that Bose fails to disclose or render obvious elements of claim 1 of the ’949 patent. Yet, Google failed to demonstrate that Bose in combination with Farinelli renders obvious claim 1.” SIB at 133-134. Staff also argues that “Google failed to present clear and convincing evidence that one of ordinary skill in the art would have been motivated to modify the Bose system in order to incorporate the teachings of Farinelli.” *Id.* at 134.

The undersigned finds that Google has failed to show that Bose in combination with Farinelli invalidates claim 5. The undersigned previously found that Bose did not disclose all of the elements of claim 1, on which claim 5 depends. Google does not assert that Farinelli discloses the missing elements. *See* RIB at 187-188; RRB at 86-88. As such, this combination cannot invalidate dependent claim 5.

e) Isely and Bose

Google asserts that Isely in combination with Bose renders obvious claims 1, 2, and 4 of the ’949 patent. RIB at 188. According to Google, even if Isely does not disclose the player-specific volume adjustment required by claim limitation 1(c), “Isely renders this feature obvious in view of Bose, which discloses player-specific volume control.” *Id.* Google asserts that “[a] POSITA would be motivated to add player-specific control into Isely, and would have had a reasonable expectation of success given that every Isely player[] is individually addressable and therefore able to receive player-specific changes.” *Id.* Google also argues that “[a] POSITA would look to combine Bose with Isely because they share the same field of endeavor, multi-zone audio systems.” *Id.*

PUBLIC VERSION

Sonos asserts that “[l]ike Google’s Bose and Isely combination, the Isely and Bose combination cannot supply the features missing in both references.” CIB at 179. Sonos further argues that “Google still offers no meaningful (let alone clear and convincing) evidence that a POSITA would have been motivated to import” player-specific control volume into Isely. *Id.*

Staff argues that the combination of Isely and Bose does not render the ’949 patent obvious for the same reasons as Staff argued for the combination of Bose and Isely. SIB at 135.

The undersigned finds that there is not clear and convincing evidence of a motivation to combine. Dr. Rinard testified that “[a] person of ordinary skill would recognize the value to users of allowing the user to adjust the volume of only one specific player.” RX-1480C at Q/A 220. Merely recognizing the value in a feature does not, however, constitute clear and convincing evidence that one would be motivated to add the feature. Indeed, Dr. Rinard calls “[t]he decision to implement a ‘defined relationship’ between the volumes of audio devices” a “design choice.” *Id.* at Q/A 221. Having made such a design choice, there is no evidence that a person of ordinary skill in the art would then alter this design choice by removing a feature entirely or making an option without any additional motivation to do so.

Accordingly, the undersigned finds that there is not clear and convincing evidence that a person of ordinary skill in the art would have been motivated to combine Isely and Bose. As such, the undersigned finds that claims 1, 2, and 4 are not rendered obvious by this combination.

f) Isely and Crestron

Google asserts that Isely in combination with Crestron renders obvious claim 5 of the ’949 patent. RIB at 189. Google argues that “Crestron discloses accepting an input to name a player group” and “a POSITA would recognize the need to assign names to easily distinguish” the

PUBLIC VERSION

multiple player groups of Isely. *Id.* Google also asserts that “Isely and Crestron are in the same field of endeavor, residential multi-zone audio systems.” *Id.*

Sonos notes that Google does not contend that Crestron supplies the limitations missing from Isely. CIB at 180. Sonos further asserts that “Google . . . lacks clear and convincing evidence of a motivation to combine the references, given that various differences in their architectures . . . would have made integration difficult.” *Id.*

Staff argues that “the evidence shows that Isely fails to disclose or render obvious elements of claim 1 of the ’949 patent.” SIB at 139. Staff notes that “Google failed to demonstrate that Isely in combination with Crestron . . . renders obvious claim 1.” *Id.* Staff also argues that “Google failed to present clear and convincing evidence that a person of ordinary skill would have been motivated to modify Isely’s system in order to incorporate the teachings of Crestron.” *Id.*

The undersigned finds that Google has failed to show that Isely in combination with Crestron invalidates claim 1. The undersigned previously found that Isely did not disclose all of the elements of claim 1. Google does not assert that Crestron discloses the missing elements. *See* RIB at 189-190; RRB 86-88. As such, this combination cannot invalidate dependent claim 5.

g) Isely and Farinelli

Google asserts that Isely in combination with Farinelli renders obvious claim 5 of the ’949 patent. RIB at 190. Google explains that “Farinelli discloses accepting an input to name a player group, and because Isely allows users to create multiple player groups, a POSITA would recognize the need to assign names to easily distinguish those groups.” *Id.* Google also notes that “Isely and Farinelli are in the same field, residential multi-zone audio systems.” *Id.*

Sonos notes that Google does not contend that Farinelli supplies the limitations missing from Isely. CIB at 180. Sonos further asserts that “Google . . . lacks clear and convincing evidence

PUBLIC VERSION

of a motivation to combine the references, given that various differences in their architectures . . . would have made integration difficult.” *Id.*

Staff argues that “the evidence shows that Isely fails to disclose or render obvious elements of claim 1 of the ’949 patent.” SIB at 139. Staff notes that “Google failed to demonstrate that Isely in combination with . . . Farinelli renders obvious claim 1.” *Id.* Staff also argues that “Google failed to present clear and convincing evidence that a person of ordinary skill would have been motivated to modify Isely’s system in order to incorporate the teachings of . . . Farinelli.” *Id.*

The undersigned finds that Google has failed to show that Isely in combination with Farinelli invalidates claim 1. The undersigned previously found that Isely did not disclose all of the elements of claim 1. Google does not assert that Farinelli discloses the missing elements. *See* RIB at 190; RRB 86-88. As such, this combination cannot invalidate dependent claim 5.

h) cd3o and Isely

Google asserts that cd3o⁷⁷ combined with Isely renders obvious claims 1, 2, 4, and 5 of the ’949 patent. RIB at 191. Google explains that cd3o “is a portable, networked MP3 player, one or more of which could be placed anywhere throughout a residence and used to play audio streamed over a home network from a personal computer.” RIB at 191. Google states that it is undisputed that “[e]ach cd3o player is an independent playback device.” *Id.* at 192. Google notes that the cd3o player “could not be synchronized,” but that such a modification “was obvious in view of Isely, which discloses player groups as well as group-level volume instruction.” *Id.*

⁷⁷ Google asserts “[t]he cd30 player was made publicly available in February 2003” and “[t]he company sold its first player in the United States on [REDACTED].” RIB at 191. Google further explains that “cd30 released a software update, to version 2.2.9.1, on June 7, 2003” and “[t]he operation of the cd30 player is described by its Product Manual, published in 2003.” *Id.* Google therefore contends that cd30 qualifies as prior art under 35 U.S.C. § 102(a) and (b). *Id.* Sonos disputes that cd30 qualifies as prior art. CIB at 181.