


**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

SONOS, INC.)	
)	
Plaintiff,)	
)	Civil Action No. 24-131-JNR
v.)	
)	
LINKPLAY TECHNOLOGY INC. and)	
LINKPLAY TECHNOLOGY, INC.,)	
NANJING)	
)	JURY TRIAL DEMANDED
)	
Defendants.)	

**PLAINTIFF SONOS, INC.’S OBJECTIONS AND RESPONSES TO
LINKPLAYS’ FIRST SET OF INTERROGATORIES (NOS. 1-17)**

Pursuant to Federal Rules of Civil Procedure 26 and 33 and the Local Rules of the U.S. District Court for the District of Delaware, Plaintiff Sonos, Inc. (“Sonos”) hereby objects and responds to the First Set of Interrogatories (Nos. 1-17) served by Defendant Linkplay Technology Inc. (“Linkplay”) as follows:

GENERAL OBJECTIONS

Sonos asserts each of the following General Objections to each of Linkplay’s Interrogatories. In addition to these General Objections, Sonos may also state Specific Objections to specific Interrogatories where appropriate. By setting forth such additional Specific Objections, Sonos does not in any way intend to limit or restrict its General Objections. Moreover, to the extent Sonos provides a response to any of Linkplay’s Interrogatories to which Sonos objects, such response shall not constitute a waiver of any General or Specific Objection.

[REDACTED]

enablement of an asserted claim at issue, Sonos will respond to this Interrogatory as additional information is discovered and/or becomes available.

Sonos reserves the right to revise, correct, add to, supplement, or clarify its response to this Interrogatory as additional information is discovered and/or becomes available.

INTERROGATORY NO. 3

For each asserted claim, state the complete factual and legal bases for any contention by Sonos that secondary considerations or other objective evidence or indicia of non-obviousness are relevant to whether the asserted claims are obvious pursuant to 35 U.S.C. § 103, and identify all materials that support Sonos' contention.

RESPONSE:

Sonos objects to this Interrogatory, especially its reference to “asserted claim,” as premature to the extent it seeks Sonos’s Identification of Accused Products and Asserted Patents, Sonos’s infringement contentions, and/or expert discovery in advance of the date(s) set forth in the Federal Rules of Civil Procedure and/or the Court’s Scheduling Order.

Sonos also objects to this Interrogatory as premature to the extent it seeks information concerning the scope of any asserted claim that will be the subject of claim construction proceedings before the Court.

Sonos further objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege and/or work product doctrines.

Sonos objects to this Interrogatory as overbroad, unduly burdensome, and not reasonably proportional to the needs of the case insofar as it purports to require Sonos to “state the *complete* legal and factual bases for any contention that secondary considerations or other objective evidence

[REDACTED]

or indicia of non-obviousness are relevant . . .” and “identify *all* materials that support Sonos’ contention.”

Sonos further objects to this Interrogatory as premature to the extent it seeks expert discovery in advance of the date set forth in the Federal Rules of Civil Procedure and/or the Court’s Scheduling Order.

Sonos further objects to this Interrogatory on the ground that it is a premature contention interrogatory that has been filed before a substantial amount of discovery has been conducted in this lawsuit. *See* Fed. R. Civ. P. 33(a)(2) (“[T]he court may order that [a contention] interrogatory need not be answered until after designated discovery is complete . . .”).

Sonos further objects to this Interrogatory as premature to the extent that some of the information called for by this Interrogatory is in the possession of Linkplay (e.g., copying by Linkplay) or third parties and has not yet been produced in this case.

Subject to, and without waiving, the foregoing Specific and General Objections, Sonos responds as follows:

Sonos interprets “asserted claim” in Interrogatory No. 3 as described in Sonos’s response to Interrogatory No. 1.

In addition, Sonos further states the following:

A. Commercial Success

Sonos’s patented technologies that are embodied in Sonos’s commercial products provide significant advantages over other audio systems, are fundamental and foundational for networked multi-room audio systems, and drive consumer demand for Sonos’s products. As evidence of commercial success, and pursuant to Rule 33(d), Sonos relies on the documents produced as SONOS-LP-0010872; SONOS-LP-0010871; SONOS-LP-0011055; SONOS-LP-0011056 (each of the foregoing relating to Sonos’s products); *see also* Sonos’s Annual and Quarterly Filings with

[REDACTED]

the U.S. Securities and Exchange Commission, which are publicly available at <https://investors.sonos.com/reports-and-filings/default.aspx>.

Sonos's commercial success over the years has been driven by customers' demand for Sonos's patented features, including Sonos's synchronization technology, individual and group volume technology, and setup technology. *See, e.g.*, SONOS-LP-0010233 [REDACTED]

[REDACTED]

[REDACTED] SONOS-LP-0010146 [REDACTED]

[REDACTED]

[REDACTED] *id.* [REDACTED]

[REDACTED] SONOS-LP-0010172 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] SONOS-LP-0009211 [REDACTED]

[REDACTED]

[REDACTED] SONOS-LP-0009176 [REDACTED]

[REDACTED]

[REDACTED] SONOS-LP-0009141 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

At least some of the Accused Linkplay Products are also commercially successful because they have adopted the features claimed in the patents-in-suit. Linkplay has repeatedly touted the benefits and importance of the accused functionality. As evidence of this, Sonos incorporates by

[REDACTED]

reference herein its First Amended Complaint and all exhibits attached thereto. *See, e.g.*, D.I. 22, ¶¶81, 95, 121, 136. Thus, this evidence establishes that commercial products embodying the technologies that are the subject of the patents-in-suit provide significant advantages over other audio systems, are fundamental and foundational for networked multi-room audio systems, and drive consumer demand for Sonos's products. Therefore, this secondary consideration of non-obviousness establishes that the claimed inventions of Sonos's patents-in-suit were not, in fact, obvious to a person of ordinary skill in the art at the time of the claimed inventions.

B. Licensing of the Patents-In-Suit

Third parties have approached Sonos requesting to license Sonos's patented technology, which suggests that the patented technology is nonobvious. *See, e.g.*, SONOS-LP-0009940 (Bang & Olufsen requesting to license Sonos's patented synchronization technology after analyzing Sonos's commercial system); [REDACTED]

[REDACTED]

[REDACTED] Thus, this secondary consideration of non-obviousness suggests that the claimed inventions of Sonos's patents-in-suit were not, in fact, obvious to a person of ordinary skill in the art at the time of the claimed inventions.

[REDACTED]

[REDACTED]

[REDACTED].

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

C. Praise by Others

Sonos has received praise over the years for the technology that is the subject of the patents-in-suit. Consequently, this secondary consideration of non-obviousness establishes that the claimed inventions of Sonos's patents-in-suit were not, in fact, obvious to a person of ordinary skill in the art at the time of the claimed inventions.

For example, the following evidence exemplifies some of the praise for Sonos products embodying the technology that is the subject of the '532 and '357 Patents: SONOS-LP-0010357 (Sonos competitor exclaiming "I have had Sonos in my home since 2005. I think their synchronization is the best I've ever heard"); SONOS-LP-0010397 (Sonos competitor indicating Sonos has excellent synchronous playback feature"); SONOS-LP-0010255 (Sonos competitor asking "Do we have any idea how the can synchronize so perfectly?"); SONOS-LP-0008974 (praising Sonos's synchronization technology, "this company revolutionized the home audio world . . . the same song in every room, no problem, the tracks would be perfectly in sync"); SONOS-LP-0009042 (praising Sonos's early products); SONOS-LP-0009056 (praising Sonos's synchronization technology, "Sonos is the gold standard when it comes to multi-room audio," ; SONOS-LP-0009060 (praising Sonos's products, "Sonos's speakers may be the perfect conduits for streaming music services"); SONOS-LP-0009095 (praising Sonos's products,); SONOS-LP-0009103 ("It can play the same music throughout the house, perfectly synchronized. Even though that may seem drop-dead simple, other hubs don't do it . . . [t]hese are the brilliant touches . . ."); SONOS-LP-0009037 (same); SONOS-LP-0009108 (praising Sonos's products,); SONOS-LP-0009109 (praising Sonos's products, "[h]aving seen so many options for distributing audio in today's homes, I can't think of a better all-around product than the Sonos Digital Music System. The product is not only well-engineered with excellent build quality, but it offers customers the sonic performance and features the set it apart from anything else we have seen,"); SONOS-LP-

0009117 (praising Sonos's products,); SONOS-LP-0010400 (praising Sonos's products, "Sonos is the gold standard of wireless music distribution systems.").

The following evidence exemplifies some of the praise Sonos has received for its technology that is the subject of the '014 Patent: SONOS-LP-0010385 ("This all depends on how the volume tracking is implemented in the system. Sonos does this VERY well. It is intuitive, very fast, interactive, and patented"); SONOS-LP-0010381 ("[Expected behavior] The volume should always go up/down evenly regardless of how many speakers are grouped. Try this with a Sonos system. It is very fast, balanced, and synchronized"); SONOS-LP-0009042 (praising Sonos's products,); SONOS-LP-0009077 ("Once this has quickly been set-up, you can control the volume of speakers in their unique location, and you can also name each speaker for simplicity and convenience when attempting to control separate sounds within the one system . . . Here, you can manipulate the audio, including lowering and raising volume for the different zones in your network"); SONOS-LP-0009103 ("Once you're back to using the master volume control, the volume rises or falls relative to each room's existing setting. These are the brilliant touches . . ."); SONOS-LP-0009037 (same); SONOS-LP-0009108 (praising Sonos's products, "the whole-house music thing done right,"); SONOS-LP-0009109 ("Controlling the volume level of all linked zones is easy using the Group Volume control . . . The implementation of the level controls proved to work very well in our setup,").

After the jury returned a verdict in favor of Sonos finding, *inter alia*, that D&M willfully infringed the '014 Patent, D&M removed from its products the feature that allows the user to adjust the group-level volume (i.e., the feature that allows the HEOS controller to accept via the user interface a group-level input to adjust a volume associated with the player group, wherein the group-level input to adjust the volume associated with the player group causes each of the players

[REDACTED]

in the player group to adjust its respective volume). Shortly after D&M removed this feature, scores of users issued negative reviews on the Apple iOS App Store and the Google Play Store expressing frustration that the feature was removed, demanding it be returned, and noting that the HEOS product was much worse in its absence. *See, e.g.*, SONOS-LP-0010077 (referring negatively to a product that lacked group-volume features,); SONOS-LP-0010079 (same); SONOS-LP-0010080 (same). [REDACTED]

[REDACTED] Thereafter, D&M updated its products to add this feature back in. Users returned to the Apple iOS App Store and the Google Play Store to praise this decision and note that the product was better after this re-addition. In many cases, users adjusted a once negative review to a positive review once this feature returned. *See, e.g.*, SONOS-LP-0010078 (regarding a product that once lacked group-volume features, referring positively to that product upon the addition of group-volume features back into that product,).

The following evidence exemplifies some of the praise Sonos has received for its technology that is the subject of the '883 Patent: SONOS-LP-0010082 (praising setup functionality of Sonos's products); SONOS-LP-0010084 (praising setup functionality of Sonos's products); SONOS-LP-0010087 (praising setup functionality of Sonos's products); SONOS-LP-0010089 (praising setup functionality of Sonos's products); SONOS-LP-0010091 (praising setup functionality of Sonos's products); SONOS-LP-0011066 (praising setup functionality of Sonos's products); SONOS-LP-0011069 (praising setup functionality of Sonos's products); SONOS-LP-0011072 (praising setup functionality of Sonos's products); SONOS-LP-0011074 (praising setup functionality of Sonos's products); SONOS-LP-0011076 (praising setup functionality of Sonos's products); SONOS-LP-0011081 (praising setup functionality of Sonos's products); SONOS-LP-

0011083 (praising setup functionality of Sonos's products); SONOS-LP-0009095 (praising setup functionality of Sonos's products: "Initial setup is a master class in out-of-the-box simplicity").

The following evidence exemplifies some of the praise Sonos has received for its technology that is the subject of the '023 Patent: SONOS-LP-0006926 (labeling autoplay functionality of Sonos's product as "automatic magic"); SONOS-LP-0006933 (praising autoplay functionality of Sonos's product); SONOS-LP-0006936 (praising autoplay functionality of Sonos's product for being "handy" and "easier to manage"); SONOS-LP-0006942 (praising autoplay functionality of Sonos's product); SONOS-LP-0006947 (labeling autoplay functionality of Sonos's product as "automated magic"); SONOS-LP-0006925 (Linkplay customer complaining that "auto switching seems to be totally unreliable" after Linkplay modified its auto sense functionality); SONOS-LP-0006951 (Linkplay customer complaining after Linkplay modified its auto sense functionality: "I have a TV connected to Line-in and up to this point everything worked great.... After this update, every time I have to manually switch the sound source from WiFi to the TV which is very cumbersome. Why did you change that?").

Sonos has won dozens of awards over the years for the technology that is the subject of the patents-in-suit, including the following to name a few:



- Cult of Mac names Sonos #1 in 2010's Rockin'est OS X and iOS Audio Gear
- Paste Magazine names Sonos S5 one of Top 10 Gadgets of 2010
- Sonos S5 featured as #30 in PC World's Best Products 2010
- Sonos CR200 wins IDEA 2010 Silver Award in Interactive Product Experiences
- Sonos S5 honored as IDEA 2010 Finalist in Entertainment
- Sonos CR200 UX receives 2010 iF communication design award 2010
- Sonos named Multi Room Music System of the Year 2010

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- Sonos S5 wins 2009 Engadget Awards Editor's Choice for Best Home Entertainment Device
 - Sonos Zone Player S5 named CEA Innovations 2010 Design and Engineering Award Honoree in Audio Components category
 - Sonos Controller 200 named CEA Innovations 2010 Design and Engineering Award Honoree in the Multi Room Audio/Video product category
 - Sonos S5 wins a Here's How / Market News Gear of the Year Award in 2009
 - Sonos Multi Room Music System named 'Digital Audio Product of the Year 2009'
 - Sonos ZP90 named by Enjoythemusic.com as Best Of 2009 in Blue Note Equipment Awards
 - Plus X Award
 - iF product design award 2009 – gold selection
 - Sonos ZP120 wins CEA Innovations 2009 Design and Engineering Honoree Award
 - Sonos ZP120 Wins 2008 Popular Science Best of What's New Award
 - Sonos Wins Best of Audio Product/Service Category
 - Sonos BU150 wins What HiFi 2008 Product of the Year Award
 - AVReview - Best Media Server
 - Sonos BU150 wins Le Point Lauréat 2009
 - 2008/2009 Best of the Year - Hifi Video Home Cinema
 - Sonos BU150 wins 2009 Streaming Product of the Year Award from Sound & Image (Australia)
 - Sonos BU150 receives Sound & Vision Certified & Recommended Award
 - Sonos BU150 receives 2008 Custom Retailer Product of the Year Award
 - Sonos ZP120 Wins 2008 Electronic House Product of the Year Award
 - 2007 CNet Editors' Choice Award
 - 2007 SAVA Award in Innovation
 - CustomRetailer's 2007 Exc!te Awards

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- 2007 Plus X Awards in Innovation, Design, and Ease of Use
 - Wall Street Journal Technology Innovation Winner 2006, Consumer Electronics
 - Electronic House 2006 Product of the Year Award
 - Sound & Image Magazine - Most Innovative Product of the Year
 - 2006 PC World Innovations Award
 - E-Gear Editors' Choice Top 40
 - MAXIMUMPC Magazine Gear of the Year
 - Digital World Norway 2005 Product of the Year
 - CE Pro High Impact Products of the Year Award 2005
 - CNET Editors' Choice Award
 - 2005 California Design Biennial Showcase Participant
 - Resi Award 2005 Finalist
 - Electronic House Product of the Year 2005 Award
 - RetailVision Spring 2005 Best of Digital Home Award
 - 2005 reddot design award
 - 2005 CEA Mark of Excellence Finalist
 - iF Product Design Award 2005
 - 2005 CEA Innovations Award - Best of Audio
 - 2004 Popular Science Best of What's New

SONOS-LP-0009045 (documenting awards for Sonos products,); SONOS-LP-0009051 (same); SONOS-LP-0004813 (same); SONOS-LP-0004814 (same); SONOS-LP-0004815 (same).

Moreover, Sonos's patented technology has received other praise as well. *See, e.g.,*



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] SONOS-LP-0009942 (Microsoft employee exclaiming “[w]ow...” “I am listening to the 4 ZP80s all linked in Party Mode streaming content from Vista. I’ve got all four up on my mixer and all four are in perfect sync!! Sounds great,”); SONOS-LP-0009940 (Bang & Olufsen requesting to license Sonos’s synchronization technology after analyzing Sonos’s system,).

D. Copying of the Patents-In-Suit

Sonos’s competitors, including D&M, Google, Lenbrook Industries, and Linkplay itself, among others, have copied Sonos’s products and the technology that is the subject of Sonos’s patents-in-suit. Consequently, this secondary consideration of non-obviousness establishes that the claimed inventions of Sonos’s patents-in-suit were not, in fact, obvious to a person of ordinary skill in the art at the time of the claimed inventions.

1. D&M Copied Sonos’s Products and the Patents-In-Suit

In December 2017, a jury upheld the validity of, *inter alia*, the ’014 Patent and returned a verdict that D&M willfully infringed, *inter alia*, the ’014 Patent. SONOS-LP-0006540. This verdict was, in part, based on the overwhelming evidence presented that D&M heavily copied the patented technologies.

In particular, D&M copied the ’014 Patent and Sonos’s synchronization technology that is the subject of the ’532 and ’357 Patents. For example, a 2013 D&M strategy presentation identifies “Step 1” of “How to Win” is to “Make Sonos-copy products.” SONOS-LP-0010320 (tending to establish that D&M copied the functionality of Sonos’s products). A 2012 D&M email outlining

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D&M's plan to copy Sonos products stated, "[W]e recently completed a detailed analysis of the Sonos product line and features. Ichikawa-san sent you the summary presentation of the Sonos teardown. Engineering also developed an ADS product plan for reproducing the Sonos functionality. The ADS feature set details and resulting project plan are attached. The summary of the plan is 20 months, 439 man-months, and \$5.33M," or 70,240 hours based on a 40-hour work week. SONOS-LP-0010361 (tending to establish that D&M copied the functionality of Sonos's products). D&M's plan allocated 128 man-months (20,480 hours) to copying the patented synchronous playback feature. SONOS-LP-0010362 (tending to establish that D&M copied the functionality of Sonos's products (including the synchronization features)); [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

D&M extensively tracked and analyzed Sonos's patent filings leading up to and after the development and launch of the HEOS products. In 2012, D&M realized that it needed to make a change in its product offering to compete with Sonos. The "Sonos Virus" (referring to the commercial success of Sonos's products and Sonos's increasing market share) was taking full effect attracting customers that might have otherwise purchased a D&M product. *See, e.g.*, SONOS-LP-0010349. To combat the "Sonos Virus," D&M needed to play "catch up in distributed audio" and to "develop advanced networked audio technologies to succeed." *See, e.g., id.* at 573 (tending to establish that D&M copied the functionality of Sonos's products). Indeed, D&M's Chief Technology Officer went so far as to state, "D&M focuses entirely on multi-room audio and experiences or we will die (literally) within a couple of years." SONOS-LP-0010384 (tending to establish that D&M copied the functionality of Sonos's products). Thus, it appears that D&M had

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motivation to copy Sonos and its technology – the “[o]nly one real competitor” – rather than any other company because “[n]o one else [had] cracked the code.”

D&M performed a full-scale analysis of Sonos, including analyzing Sonos’s patented technology, its products, its branding, its marketing, and its user experience, prior to developing and launching HEOS. Prior to developing and launching HEOS, D&M conducted numerous patent searches for Sonos-specific patent filings, including the ’014 Patent filings, and analyzed the technology disclosed and claimed in those patent filings. For instance, D&M conducted a Sonos-specific patent search around October 2011 and analyzed the results. *See, e.g.*, SONOS-LP-0010259 (tending to establish that D&M copied the functionality of Sonos’s products); SONOS-LP-0010397 (tending to establish that D&M copied the functionality of Sonos’s products). Around March 2012, D&M discovered new Sonos patent information and circulated it in March 2012 (*see* SONOS-LP-0010251) and again in June 2012. *See* SONOS-LP-0010254. Then, in January 2013, D&M discovered new Sonos patent information, and in February 2013, D&M conducted another Sonos-specific patent search. *See, e.g.*, SONOS-LP-0010396. Again, in February 2014, D&M discovered new Sonos patent information, which resulted in another Sonos-specific patent search. A month later, D&M discovered and circulated new Sonos patent information, including a link to a USPTO patent assignment database search for Sonos patents. *See, e.g.*, SONOS-LP-0010383. D&M also performed a Sonos-specific patent search around June 2014, before HEOS launched. . Even after launching HEOS, D&M continued to search for Sonos-specific patent filings.

In addition to monitoring and analyzing Sonos’s patent activities, D&M extensively evaluated Sonos’s products before developing and launching HEOS. *See, e.g.*, SONOS-LP-0010391 (stating, on Dec. 7, 2012, that “[t]he D&M Team and Bain Capitol spent a considerable

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amount of time, money, and energy evaluating the Sonos user experience for more than a year,” thus tending to establish that D&M copied the functionality of Sonos’s products). [REDACTED]

[REDACTED]

[REDACTED] Other examples of D&M extensively evaluating specific functions of Sonos’s products are discussed in further detail below.

D&M attempted to position itself as a “Sonos Killer” – a company with products that would put Sonos out of business – but ultimately needed to acquire a company that represented itself as a Sonos Killer. Indeed, D&M’s stated goal for the project that ultimately resulted in HEOS was to “make Sonos-copy products ; SONOS-LP-0010320 (stating that step 1 of ADS project was to “[m]ake Sonos-copy products” and that step 1 for how to win was to “[m]ake copy products of SONOS,” tending to establish that D&M copied the functionality of Sonos’s products).

In effect, this meant that D&M would use Sonos as a benchmark for nearly every feature that went into the HEOS products, for which D&M was found liable for willful infringement of the ’014 Patent. ; SONOS-LP-0010361 (stating, in 2012, that D&M “completed a detailed analysis of the Sonos product line and features” and “developed an ADS product plan for reproducing the Sonos functionality,” thus tending to establish that D&M copied the functionality of Sonos’s products).

At a more specific level, D&M copied Sonos’s synchronization technology. [REDACTED]

[REDACTED]

[REDACTED]

Furthermore, D&M extensively analyzed Sonos’s products that implement the technology disclosed in the ’532 and ’357 Patents. Indeed, numerous D&M employees praised Sonos’s sync technology, which led to D&M using Sonos’s sync technology as the benchmark for its infringing

[REDACTED]

HEOS products. *See, e.g.*, SONOS-LP-0010397 (stating, in Nov. 2011, that “Sonos has excellent synchronous playback feature”); SONOS-LP-0010255 (stating, in Jan. 2012, that Sonos does synchronization “perfectly” and with “amazing” accuracy); SONOS-LP-0010357 (D&M employee stating, in Feb. 2012, that Sonos’s “synchronization is the best I’ve ever heard”).

D&M also copied the technology disclosed in the ’014 Patent filing. Prior to developing and launching the HEOS products, D&M conducted a detailed evaluation of the technology that is disclosed in at least the ’014 Patent. Indeed, in 2011, D&M evaluated Sonos’s issued ’014 Patent and designated that patent with a “severity” level of “critical,” meaning that that was a patent that D&M “need[ed] to think about how to avoid.” *See* SONOS-LP-0010259 (Sonos patent search report from Oct. 2011 designating the ’014 Patent with a severity level of “Critical,” thus providing a nexus to at least ’014 Patent claims 1-6);. In 2012, D&M’s IP team further evaluated the ’014 Patent and recommended for D&M “not to use the volume control UI which is written in the patent” and “not to use” the averaged volume aspect of claim 25. *See, e.g.*, SONOS-LP-0010252. Moreover, in evaluating Altec Lansing’s technology for D&M’s Mr. HESS project, D&M highlighted its understanding of Sonos’s Group Volume technology by expressing concern that Altec Lansing’s approach infringed Sonos’s patent. *See, e.g.*, SONOS-LP-0010387 (“[W]e have some concern on patent infringement against US-patent 7571014 on the Live app’s group management.”).

D&M was aware of, analyzed, and copied the ’014 Patent prior to the development and launch of the infringing HEOS products. Moreover, the ’014 Patent issued on November 29, 2013, which was well before HEOS’s group volume feature was defined and developed and before D&M conducted the Sonos-specific patent search in 2014; SONOS-LP-0010381 (requesting, in Dec.

[REDACTED]

2013, a change to the HEOS group volume UI to more closely track Sonos's feature, thus providing a nexus to at least '014 Patent claims 1-6).

Additionally, D&M extensively analyzed Sonos's products that implement the technology disclosed in the '014 Patent. In fact, at least some D&M employees praised Sonos's Group Volume technology well before HEOS launched. *See, e.g.*, SONOS-LP-0010385 (discussing, in Sept. 2013, Sonos's group volume feature and stating that "Sonos does this VERY well. It is intuitive, very fast, interactive, and patented,"); SONOS-LP-0010381 (stating, in Dec. 2013, that Sonos's group volume feature "is very fast, balanced, and synchronized,"). This might help explain why, despite D&M's IP team's recommendations on how to avoid Sonos's patent, the original HEOS App implemented a volume control UI directly in conflict with those recommendations. In fact, numerous D&M employees admitted that D&M modified its group volume UI after Sonos filed suit to avoid the '014 Patent. |

In sum, D&M extensively evaluated Sonos's commercial products and patent portfolio, specifically evaluated the technology that is the subject of the '532, '357, and '014 Patents, and had knowledge of the technology that is claimed in at least these Sonos patents. This is the same technology that D&M ultimately implemented in the HEOS products and for which D&M was found liable for willfully infringing, *inter alia*, Sonos's '014 Patent. Accordingly, this evidence establishes that D&M copied the inventions claimed in the patents-in-suit.

2. Lenbrook Industries Copied Sonos's Products and the Patents-In-Suit

In 2013, more than 10 years after Sonos was founded, Lenbrook Industries launched its own wireless audio system, called "Bluesound." Prior to launching its Bluesound System in 2013, Lenbrook Industries served as a distributor of Sonos's wireless audio products in Canada from 2007-2008. Thus, Lenbrook Industries had intimate knowledge of Sonos's wireless audio products and technology since at least 2007, more than six years before Lenbrook Industries released its

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first Bluesound products. Lenbrook Industries' experience as a Sonos distributor was a catalyst for Lenbrook Industries' decision to launch the Bluesound System in 2013 and to target the wireless audio market that Sonos created.

Since its launch, Lenbrook Industries' Bluesound System has competed directly with Sonos for the sale of wireless audio products. As correctly observed by *Digital Trends*, the Bluesound System is "aimed squarely at audio fans who like the Sonos model." See SONOS-LP-0008978 (tending to establish that Lenbrook copied the functionality of Sonos's products). Bluesound's targeting of Sonos led *Sound and Vision* to issue an article entitled "Is Bluesound an Audiophile Sonos Killer?," which stated that "Bluesound looks to have an array of products that might be the first true high-end challenger to Sonos' wireless music dominance." See SONOS-LP-0008950. Echoing this sentiment, *What Hi Fi?* stated that "[t]he first genuine threat to Sonos was Bluesound" (see SONOS-LP-0008937 (tending to establish that Lenbrook copied the functionality of Sonos's products)).

Instead of innovating to compete fairly with Sonos, however, Lenbrook Industries merely copied Sonos. For example, as *Digital Trends* explained: "Bluesound has gone out of its way to mimic Sonos's product line up." SONOS-LP-0008978 (tending to establish that Lenbrook copied the functionality of Sonos's products). In comparing/testing the Sonos and Bluesound products, *Digital Trends* "matched up a pair of [Sonos] Play:1s, a [Sonos] Play:5, a [Sonos] Play:3, and a [Sonos] PlayBar, against a pair of [Bluesound] Pulse Flexs, a [Bluesound] Pulse 2, a [Bluesound] Pulse Mini, and a [Bluesound] Pulse Soundbar. *Id.*

Like *Digital Trends*, other media outlets have also "matched up" various Sonos and Bluesound products due to their similarities. For example, in 2013, shortly after the launch of Bluesound, *Electronic House* stated that "[t]he Pulse (\$699) is Bluesound's all-in-one speaker unit,

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similar to the Sonos PLAY:5 or PLAY:3.” *See* SONOS-LP-0008958 (tending to establish that Lenbrook copied the functionality of Sonos’s products).

Lenbrook Industries’ copying extended beyond Sonos’s product lineup and product/marketing aesthetics, and also included the incorporation of Sonos’s patented innovations into the Bluesound System.

3. Google Copied Sonos’s Products and the Patents-In-Suit

Google had long been interested in bringing a streaming music device to homes. In June 2012, for instance, Google unveiled a product called the “Nexus Q” - a networked music streaming device lacking multiroom functionality. Google distributed samples of this device at the 2012 Google I/O developer conference. But in January 2013, the Nexus Q was quietly shelved and support for the device was phased out beginning in May 2013. While the Nexus Q was available for pre-order, the Nexus Q was never commercially sold. *See, e.g.,* <https://www.theverge.com/2012/6/29/3125551/google-nexus-q-review>.

Meanwhile, Google was having mixed success with its free music streaming app, originally called “Google Music (later rebranded as “Google Play Music”). *See* <https://www.cnet.com/news/google-music-not-living-up-to-expectations-exclusive/>. In May 2013, Google announced “Google Play Music All Access” – a paid version of the Google Play Music streaming service. At the announcement, Google acknowledged that one of the “most popular questions” Google received was about whether Google Play Music and Google Play Music All Access would support Sonos products. SONOS-LP-0005298 (tending to establish that Google had a motivation to and/or did copy the functionality of Sonos’s products).

[REDACTED]

Indeed, by this time, Sonos had been selling its wireless multiroom home audio players for over seven years and had captured an overwhelming majority of the market share for wireless multiroom home audio products.

Ultimately in 2015, now a full decade after Sonos's first product launch and a full two years after the Sonos-Google integration began, Google released its "Chromecast Audio" product – an audio adapter/dongle that can turn a speaker with an auxiliary port into a wireless, networked speaker. While the Chromecast Audio product did not initially launch with Sonos's patented multi-room audio functionality, covered by the '532 and '357 Patents, Google quickly released a multi-room audio software update just a couple of months after initial launch. *See* SONOS-LP-0008989 (2015 *The Guardian*: "Google is also working on multi-room audio streaming using the Chromecast Audio, but it will not support the popular feature out of the box.").

In announcing its multi-room software update, Google explained the importance of this added functionality, with striking similarity to the Sonos presentation shared with Google in June 2014:

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

Compare SONOS-LP-0008993 (December 2015 *Google Chrome Blog* by Tomer Shekel, tending to establish that Google had a motivation to and/or did copy the functionality of Sonos's products) *with* SONOS-LP-0005280.

As observed in a 2015 *Variety* article entitled "Google's Chromecast Audio Adapter Gets Multi-Room Support Similar to Sonos," Google's updated Chromecast Audio was considered a

[REDACTED]

“major” advancement for Google and was recognized as competing directly with Sonos because of its similar multi-room capability:

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

SONOS-LP-0008997 (tending to establish that Google had a motivation to and/or did copy the functionality of Sonos’s products).

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

[Chromecast Audio]’s been updated to make it more comparable to Sonos, a smart speaker system that wirelessly streams all your Hi-Fi music to any room, or every room. You control your Sonos experience with one app. Well, thanks to a new software rollout, Chromecast Audio can pretty much do the same thing.

SONOS-LP-0009000 (tending to establish that Google had a motivation to and/or did copy the functionality of Sonos’s products).

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

Moreover, as outlined, Google released the Chromecast Audio device merely two years after partnering with Sonos to integrate Google Play Music into the Sonos platform. Google blatantly and aggressively expanded its line of multi-room wireless audio products through new product releases and software updates over the next four years. With each iteration, Google’s

[REDACTED]

copying of Sonos's products and patented technology became more and more blatant. For example, [REDACTED] Google escalated its copying of Sonos and Sonos's patented features by releasing the Google Home multi-room audio player (which was controlled by Google's rebranded multi-room controller app – the Google Home app). Unlike the Chromecast Audio, the Google Home added an internal speaker driver making it an “all-in-one” audio player akin to Sonos's Play:1, Play:3, and Play:5 products of the time.

As with the Chromecast Audio, the Google Home was recognized as a clear and direct attack on Sonos. When the Google Home was announced, for example, *The Register* observed that “[n]o market is safe from [the] search engine monster” and that Google was in particular “offering new products to compete with Sonos in the music streaming market.” SONOS-LP-0009005 (tending to establish that Google had a motivation to and/or did copy the functionality of Sonos's products). *The Register* also further noted the conspicuous similarity that multiple “Google Homes will work with one another, allowing music to be spread into different rooms on command - like the very popular Sonos music system.” *Id.*

Like *The Register*, *The Verge* also recognized the similarities between the new infringing Google Home and Sonos's prior products: “You can also group multiple Home units together and play music through all of them simultaneously, similar to how Sonos works.” SONOS-LP-0009013 (tending to establish that Google had a motivation to and/or did copy the functionality of Sonos's products).

The Google Home product proved to be merely another forerunner to further copying by Google. In 2017, Google released two additional “all-in-one” wireless multi-room products – the Google Home Max and the Google Home Mini. Google's Home Max in particular was seen as a “Sonos Clone” and a “not-so-subtle copy of the [Sonos] Play:5 speaker” SONOS-LP-



0009023 (tending to establish that Google had a motivation to and/or did copy the functionality of Sonos’s products). As explained by *Gizmodo*, “[i]t’s also hard not to see the [Google Home Max] device as something of a jab at Sonos.” *Id.*; *see also, e.g.*, SONOS-LP-0009028 (2017 *Android Central*: “You can’t help but look at Google Home Max . . . and come to the conclusion that Google is sticking its nose where Sonos has been for years,” tending to establish that Google had a motivation to and/or did copy the functionality of Sonos’s products).

As with Google’s other prior infringing products, Google also copied Sonos’s patented technology for the Google Home Max. This patented technology includes, for example, Sonos’s patented technology for setting up a playback device on a wireless local area network, adjusting group volume of playback devices, and synchronizing playback of audio within groups of playback devices.

4. Linkplay Copied Sonos’s Products and the Patents-In-Suit

As evidence of Linkplay’s copying, Sonos incorporates by reference herein its First Amended Complaint and all exhibits attached thereto. *See, e.g.*, D.I. 22, ¶11-29.

5. Other Competitors Have Copied Sonos’s Patented Products and the Patents-In-Suit

There is abundant evidence that other competitors have also copied Sonos’s products and the claimed technology in Sonos’s patents-in-suit. *See, e.g.*, SONOS-LP-0010417; SONOS-LP-0010419; SONOS-LP-0010421; SONOS-LP-0010423; SONOS-LP-0010425; SONOS-LP-0010427; SONOS-LP-0010430; SONOS-LP-0010433; SONOS-LP-0010436; SONOS-LP-0010439; SONOS-LP-0010442; SONOS-LP-0010445; SONOS-LP-0010448; SONOS-LP-0010451; SONOS-LP-0010454; SONOS-LP-0010457; SONOS-LP-0010460; SONOS-LP-0010463; SONOS-LP-0010466; SONOS-LP-0010469; SONOS-LP-0010472; SONOS-LP-0010475; SONOS-LP-0010478; SONOS-LP-0010482; SONOS-LP-0010485; SONOS-LP-



0010488; SONOS-LP-0010491; SONOS-LP-0010494; SONOS-LP-0010497; SONOS-LP-0010500; SONOS-LP-0010809; SONOS-LP-0010813; SONOS-LP-0010818; SONOS-LP-0010821; SONOS-LP-0010827; SONOS-LP-0010830; SONOS-LP-0010834; SONOS-LP-0010840; SONOS-LP-0010843; SONOS-LP-0010849; SONOS-LP-0010855; SONOS-LP-0010862 (the compilation of the foregoing tending to establish the extent of third-party copying of Sonos's products); *see also* SONOS-LP-0010866 ("For those keeping score, the M5 looks to be Samsung's riff on either the Sonos Play:3 or Play:1, the Hub is the Sonos Bridge, the M7 is the Sonos Play:5, and the HW-H750 Soundbar with subwoofer is Samsung's take on the Sonos Playbar and Sub. Samsung did in a single financial quarter what took Sonos years to deliver. But that's exactly what Samsung does best: identify a product category where it wants to compete, copy what already works, and then overwhelm the incumbents with the vast resources of the Samsung Group," thus tending to establish that Samsung copied Sonos's products); SONOS-LP-0009088 ("LG's answer to Sonos is a lot like Sonos . . . LG debuted its Music Flow series of wireless speakers last summer, offering a range of speakers targeted squarely at competitor Sonos' products. More recently, it moved away from *copying* Sonos" thus tending to establish that LG copied Sonos's products) (emphasis added).

E. Unsuccessful Attempts (Failure) by Others

Many existing and would-be Sonos competitors have failed to solve the problems that were solved by Sonos's patents-in-suit and fail to teach or suggest numerous claim limitations of Sonos's patents-in-suit.

In the course of D&M developing its HEOS products, D&M tried, and failed for years, to successfully implement synchronized playback of audio, as claimed in the '532 and '357 Patents. SONOS-LP-0010255 (D&M engineer asking, "Do we have any idea how they can synchronize so perfectly?"; another D&M engineer replying "[a]s of now we do not have any concrete idea, but

[REDACTED]

Moreover, the numerous audio products that have failed commercially since Sonos was founded and/or that have failed at solving the challenges addressed by Sonos's patents-in-suit further demonstrate the objective non-obviousness of the patents-in-suit. For example, the following evidence exemplifies the failed attempts by others:

- [REDACTED]
- [REDACTED]
- SONOS-LP-0009941 (Sonos memorializing phone conversation with Bang & Olufsen in June 2005 and noting that “[Bang & Olufsen] have been trying to solve the problem of synch for a while and are stuck. Their measurements show us never out of synch by more than 3 ms. . . . They would like to know if we would be open to licensing the above.”)
- [REDACTED]
- SONOS-LP-0010267 (D&M employee stating, in Sept. 2013, regarding PURE Jongo that “[t]here is no idea of speaker groups but you can select multiple speakers to play simultaneously. . . . To the average person it will sound synchronized but it made me dizzy It sounds to me like it is drifting continuously back and forth . . . The app is horrible.”), 522 (concluding the PURE Jongo has “[p]oor audio synchronization” and is “[n]ot in the same class as [] Sonos”)
- [REDACTED]

(the compilation of the foregoing tending to establish the failure of certain third parties to successfully implement (without copying) features of the Sonos products).

Thus, the evidence establishes that numerous other companies unsuccessfully attempted to solve the problems that are addressed by Sonos's patents-in-suit. Therefore, this secondary

[REDACTED]

consideration of non-obviousness establishes that the claimed inventions of Sonos’s patents-in-suit were not, in fact, obvious to a person of ordinary skill in the art at the time of the claimed inventions.

F. Long-Felt But Unsolved Need

Prior to the filing dates of the patents-in-suit, there were indeed long-felt but unsolved needs in the audio industry that were addressed by the technology that is the subject of the patents-in-suit. *See, e.g.,* [REDACTED]

[REDACTED]

Indeed, despite the emergence of new technologies, such as networking technologies, many audio companies remained wedded to legacy audio technologies that had been commonplace in conventional audio systems for years. *See, e.g.,* [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] SONOS-LP-0010384 (D&M’s CTO acknowledging, in 2013, that D&M was late to transition from legacy products and adopt new technologies and that “D&M [needed to] focus [] entirely on multi-room audio and experiences or we will die (literally) within a couple of years,” implying an unmet need for ease of setup of wireless devices, synchronized playback among playback devices, and group volume control); SONOS-LP-0006947 (audio consumer explaining, in 2013, that an existing “home theater system would require [him] to power it on and then select the appropriate input ...”).

[REDACTED]

Indeed, conventional audio systems were typically based on a centralized device that was hard-wired via speaker wire to passive speakers that could be arranged in different rooms in a home. *See, e.g.,* SONOS-LP-0008974 (“If you’re not familiar with Sonos, this company revolutionized the home audio world a decade ago when it launched the first (rather expensive) Sonos kits: wireless nodes that you set up around the house that could play music tracks from a home computer or Internet radio. If you wanted the same song in every room, no problem, the tracks would be perfectly in sync, but you could also play different tracks in different rooms, too. At the time, this was mind blowing. Never before could you get music in every room without drilling a bunch of holes for wires, and never before was setting up a wireless network so simple,” implying an unmet need for ease of setup of wireless devices, synchronized playback among playback devices, and group volume control). These conventional audio systems often did not implement network technology nor required such technology because the speakers were all hard-wired back to the centralized device. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

In these conventional audio systems, the centralized device managed and controlled the system based on a user programming the centralized device before the passive speakers could playback audio. *See, e.g.,* SONOS-LP-0008974 (implying an unmet need for ease of setup of wireless devices, synchronized playback among playback devices, and group volume control).

[REDACTED]

Sonos's technology that is the subject of the patents-in-suit addressed these long-felt, unsolved needs. *See, e.g.*, SONOS-LP-0006947 ("Sonos aims to solve that problem by providing one device, the Playbar, that serves both purposes equally well.").

In fact, shortly after Sonos's products were released, many people realized that Sonos's system addressed a long-felt need that had yet to be solved. *See, e.g.*, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] SONOS-LP-

0009103 (PC Magazine stating, in Feb. 2005, that "[Sonos] can play the same music throughout the house, perfectly synchronized. Even though that may seem drop-dead simple, other hubs don't do it," implying an unmet need for synchronized playback among playback devices); SONOS-LP-0009941 (Sonos memorializing phone conversation with Bang & Olufsen in June 2005 and noting that "[Bang & Olufsen] have been trying to solve the problem of synch for a while and are stuck. . . . They would like to know if we would be open to licensing the above," implying an unmet need for synchronized playback among playback devices).

In view of the above, the evidence establishes that there were numerous long-felt but unsolved needs in the audio industry that were addressed by the technology that is the subject of the patents-in-suit. Thus, this secondary consideration of non-obviousness establishes that the claimed inventions of Sonos's patents-in-suit were not, in fact, obvious to a person of ordinary skill in the art at the time of the claimed inventions.

[REDACTED]

G. Unexpected or Superior Results

The technology that is the subject of Sonos’s patents-in-suit exhibit superior results and advantages compared to the prior art.

For example, industry participants have marveled at the superior performance of Sonos’s patented synchronization technology. *See, e.g.*, SONOS-LP-0010357 (D&M employee stating that “[Sonos’s] synchronization is the best I’ve ever heard”); SONOS-LP-0010397 (D&M employee stating that “Sonos has excellent synchronous playback feature” that is explained in Sonos’s patents); SONOS-LP-0010255 (D&M marveling at how “[Sonos] can synchronize so perfectly” and with “amazing” accuracy); SONOS-LP-0009942 (Microsoft employee exclaiming “[w]ow...” “I am listening to the 4 ZP80s all linked in Party Mode streaming content from Vista. I’ve got all four up on my mixer and all four are in perfect sync!! Sounds great”).

As another example, D&M and others have marveled at the superior performance of Sonos’s patented group volume technology. *See, e.g.*, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Accordingly, the evidence establishes that the technology that is the subject of Sonos’s patents-in-suit exhibit superior results and advantages compared to the prior art. As a result, this secondary consideration of non-obviousness establishes that the claimed inventions of Sonos’s patents-in-suit were not, in fact, obvious to a person of ordinary skill in the art at the time of the claimed inventions.

H. Lack of Independent Invention By Others

Sonos’s patents-in-suit are novel and non-obvious over the prior art. Indeed, as discussed before, numerous audio companies unsuccessfully attempted to develop networked multi-zone

[REDACTED]

audio systems and address the numerous challenges involved with developing such systems. Sonos's patented technology helped address these challenges, which led to Sonos's success and widespread praise.

I. Skepticism

There was skepticism in the audio industry around the time of the filing dates of the patents-in-suit, such as skepticism regarding the likely success or adequacy of Sonos's claimed solutions and of Sonos's products that embody those claimed solutions. *See, e.g.,* [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Thus, this evidence establishes that there was skepticism in the audio industry regarding the likely success or adequacy of the claimed solutions of Sonos's patents-in-suit. As such, this secondary consideration of non-obviousness establishes that the claimed inventions of Sonos's patents-in-suit were not, in fact, obvious to a person of ordinary skill in the art at the time of the claimed inventions.

[REDACTED]

Although much of the foregoing evidence has a direct nexus to the patented features, the evidence that is tied to a commercial product, such as one or more of the Accused Linkplay Products and/or one or more of Sonos's products or its earlier products, has a clear nexus to the patented features because such products practice the patents-in-suit. *See WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1329 (Fed. Cir. 2016).

Sonos also incorporates by reference its responses to Interrogatory No 4.

Moreover, for the '357 Patent, Sonos incorporates by reference the PTAB's Decision on Appeal during reexamination. *See D.I. 22-3*, p. 73-81.

Additionally, pursuant to Fed. R. Civ. P. Rule 33(d), Sonos has produced or will produce documents from which further information sought in this Interrogatory may be ascertained.

Sonos reserves the right to revise, correct, add to, supplement, or clarify its response to this Interrogatory as additional information is discovered and/or becomes available.

INTERROGATORY NO. 4

Identify each apparatus, product, device, process, method, act, or other instrumentality other than the accused products that Plaintiff contends practices, has ever practiced, or is contemplated for future practice of each of the patents-in-suit by product name, trade designation, and/or other appropriate description, by manufacturer, licensee, user, and/or source, specify in claim charts where each element of each asserted claim is allegedly found within each such instrumentality, and identify all persons with knowledge thereof and all documents and things referring or relating thereto.

RESPONSE:

Sonos objects to this Interrogatory as overbroad, unduly burdensome, and not reasonably proportional to the needs of the case insofar as it purports to require Sonos to (1) identify “*each apparatus, product, device, process, method, act, or other instrumentality other than the accused products that Plaintiff contends practices, has ever practiced, or is contemplated for future practice*

Dated: July 8, 2024

Respectfully submitted,

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