NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

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SONOS, INC.,
Appellant

v.

INTERNATIONAL TRADE COMMISSION,
Appellee

GOOGLE LLC,
Intervenor

GOOGLE LLC,
Appellant

v.

INTERNATIONAL TRADE COMMISSION,
Appellee

SONOS, INC.,
Intervenor

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2022-1421, 2022-1573

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Appeals from the United States International Trade Commission in Investigation No. 337-TA-1191.

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Decided: April 8, 2024

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RICHARD P. HADORN, Office of the General Counsel, United States International Trade Commission, Washington, DC, argued for appellee. Also represented by WAYNE W. HERRINGTON.

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Before DYK, REYNA, and STARK, *Circuit Judges*.

STARK, *Circuit Judge*.

Sonos, Inc. ("Sonos") filed a complaint at the International Trade Commission ("Commission") alleging that Google LLC ("Google") was violating Section 337 of the

Tariff Act of 1930, 19 U.S.C. § 1337, by importing audio players and controllers that infringed five of Sonos' patents: U.S. Patent Nos. 10,439,896 ("'896 patent"), 9,195,258 ("'258 patent"), 9,219,959 ("'959 patent"), 10,209,953 ("'953 patent"), and 8,588,949 ("'949 patent"). The Commission instituted an investigation and ultimately issued a final determination, holding that certain originally-accused products infringed each of the asserted patents. The final determination also held, however, that certain non-infringing alternatives ("NIAs" or "redesigns") proposed by Google did not infringe any of the claims of the Sonos patents. Sonos timely appealed the Commission's findings of non-infringement by the redesigns, and Google cross-appealed the Commission's findings of infringement by the originally-accused products. We affirm.

I

On January 7, 2020, Sonos filed a complaint with the Commission, alleging violations of Section 337 in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain audio players and controllers, components thereof, and products containing the same. On February 11, 2020, the Commission instituted an investigation based on Sonos' complaint, to determine:

> whether there is a violation of subsection (a)(1)(B) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain products . . . by reason of infringement of one or more of claims 17, 21-24, and 26 of the '258 patent; claims 7, 12-14, and 22-24 of the '953 patent; claims 1, 2, 4, and 5 of the '949 patent; claims 5, 9, 10, 29, and 35 of the '959 patent; and claims 1, 3, 5, 6, and 12 of the '896 patent, and whether an industry in the United States exists as required by subsection (a)(2) of section 337[.]

85 Fed. Reg. 7783 (Feb. 11, 2020). The Commission named Alphabet Inc. and Google as respondents, although Alphabet Inc. was later terminated from the investigation. The Commission's Office of Unfair Import Investigations was also named as a party.

On March 12, 2021, the Commission partially terminated the investigation after Sonos withdrew allegations of infringement as to certain claims in each of the asserted patents. The remaining patents and claims at issue at the time of the Commission's evidentiary hearing were as follows:

Asserted Patent	Remaining Asserted Claim(s)
'258 patent	17, 21, 24, and 26
'953 patent	7, 14, and 22-24
'959 patent	10
'949 patent	1, 2, 4, and 5
'896 patent	1, 5, 6, and 12

J.A. 4.

After the evidentiary hearing, the chief administrative law judge ("CALJ") made an initial determination that each of the asserted patents was infringed by one or more of the originally-accused Google products. The CALJ also found, however, that redesigns of each of these products avoided infringement and were, hence, NIAs. J.A. 58-255. The Commission declined the parties' petitions for review of the initial determination and issued a final determination adopting the CALJ's determination while also providing "supplemental reasoning" as to how Google's originally-

accused products infringed the '258 and '953 patents.[1]
J.A. 2, 18-22. The Commission then entered a limited exclusion order, "precluding the importation of audio players and controllers . . . that infringe one or more of [Sonos'] claims." J.A. 23; *see also* J.A. 37-40.

Sonos appealed the Commission's final determination finding non-infringement of the '896 patent, '258 patent, and '959 patent by Google's redesigns that were labelled '896 NIA 2, '258 NIA 1, and '959 NIA 4, respectively. Google cross-appealed the Commission's final determination that found infringement of each of the asserted patents by certain of the originally-accused products. We have jurisdiction under 28 U.S.C. § 1295(a)(6).

II

We review the Commission's legal determinations de novo and its factual findings for substantial evidence. *See Guangdong Alison Hi-Tech Co. v. Int'l Trade Comm'n*, 936 F.3d 1353, 1358 (Fed. Cir. 2019). In particular, the "[d]etermination of the meaning and scope of patent claims" is a matter of law reviewed de novo (when based entirely on intrinsic evidence) and "[i]nfringement of correctly construed claims" is "a question of fact" reviewed for substantial evidence. *Kinik Co. v. Int'l Trade Comm'n*, 362 F.3d 1359, 1361 (Fed. Cir. 2004). Substantial evidence "means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Consol. Edison Co. v. N.L.R.B.*, 305 U.S. 197, 229 (1938). "[W]here two different, inconsistent conclusions may reasonably be drawn from the evidence in record, an agency's decision to

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[1]   Because the Commission adopted the CALJ's initial determination in full, we do not distinguish between the findings in the CALJ's initial determination and the findings in the Commission's final determination. We treat both as the findings of the Commission.

favor one conclusion over the other is the epitome of a decision that must be sustained upon review for substantial evidence." *In re Jolley*, 308 F.3d 1317, 1329 (Fed. Cir. 2002).

"[W]e review the factual findings underlying the Commission's invalidity determinations for 'substantial evidence' by ascertaining whether those findings 'were established by evidence that a reasonable person might find clear and convincing,' and whether those findings 'form an adequate predicate for the legal determination of invalidity.'" *Guangdong*, 936 F.3d at 1359 (quoting *Checkpoint Sys., Inc. v. U.S. Int'l Trade Comm'n*, 54 F.3d 756, 761 n.5 (Fed. Cir. 1995)).

III

A

We first address issues in Sonos' appeal, which challenges the Commission's findings that certain Google redesigns do not infringe the '896 patent, '258 patent, and '959 patent. We are not persuaded by Sonos' contentions that the Commission misconstrued disputed claim terms or lacked substantial evidence for its findings. Accordingly, we affirm.

1

The '896 patent is directed to techniques enabling users to easily add new smart speakers to an existing home network in a way that requires a "minimum of human intervention and technical ability." '896 patent 2:48-50; *see also id.* at 2:16-27, 17:60-18:35. Pertinent to Sonos' appeal, claim 1 of the '896 patent requires, among other things, "transmitting, to the given playback device via the initial communication path, *at least a second message containing* network configuration parameters, wherein the network configuration parameters comprise *an identifier of the secure WLAN [i.e., wireless local area network] and security key for the secure WLAN.*" *Id.* at 18:19-24 (emphasis

added). The Commission construed this limitation as requiring transmission of at least one single "second message" containing both the claimed "identifier" and the claimed "security key." J.A. 304. Because, in Google's redesigned '896 NIA 2, the identifier and the security key are transmitted in two separate messages, the Commission found that the redesign does not infringe the '896 patent. J.A. 230-32.

On appeal, the parties do not dispute that, in '896 NIA 2, the identifier and the security key are sent in two different messages. *See e.g.,* Google Br.[2] at 11 ("Google's '896 NIA 2 sends the two network configuration parameters in separate messages rather than together."); Sonos Br. at 28. Sonos' challenge on appeal is directed to the Commission's construction of the "transmitting" step as requiring the same "second message" to contain both the identifier and the security key. Sonos argues the correct construction must permit the identifier and security key to be distributed among multiple second messages. Specifically, Sonos argues the "transmitting" limitation requires at least one second message, where the one *or more* second messages *collectively* contain the identifier and the security key. *See* Sonos Br. at 28-32; J.A. 3624-28 (Sonos proposing limitation be construed as "one or more additional messages that *collectively* contain an identifier of the secure WLAN and a security key for the secure WLAN") (emphasis added).

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[2]   We refer to the various briefs as follows: "Sonos Br." (ECF No. 20) is Sonos' principal brief; "Google Br." (ECF No. 28) is Google's principal brief in its cross appeal and response brief in Sonos' appeal; "ITC Br." (ECF No. 40) is the Commission's response in both the Sonos appeal and Google cross-appeal; "Sonos Reply Br." (ECF No. 42) is Sonos' reply brief in its appeal and response brief in Google's cross appeal; and "Google Reply Br." (ECF No. 48) is Google's reply brief in its cross-appeal.

Google counters, citing both the plain language and the specification, that the claim limitation requires "a second message containing network configuration parameters," *each* of which contains *both* the identifier and the security key. In Google's view, "at least" indicates there can be more than one such "second message.[3] *See* Google Br. at 53 (advocating for construction where "a 'second message' must include both recited network configuration parameters even though there may be more than one such 'second message'").

Google has the better reading of the claim language, and much the better reading of the specification. The claim recites network configuration *parameters,* which are defined to include *both* an identifier of the WLAN and a security key. We agree with the CALJ that this language "makes clear that 'at least a second message' has the network configuration parameters and that the network configuration parameters include both" the identifier and the security key. J.A. 304 (quoting '896 patent cl. 1).

The specification provides strong support for this construction, and essentially none for Sonos' proposal. Google and the Commission point to the patent's Figure 3B and the patent's description of it, which both teach a single message containing both the identifier and the security key. *See* Google Br. at 54-57; ITC Br. at 18-20; *see also* '896 patent Figure 3B & 14:15-17; J.A. 3699 (Sonos conceding that specification describes sending network identifier and security key "in a single 'SetNetParams message'"). Google also identifies a passage in the specification that

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[3]   The possibility of more than one "second message," provided that each "second message" contains the identifier and the security key, suggests that the "at least" portion of the disputed claim term is not superfluous, contrary to Sonos' contention. *See* Sonos Br. at 34-35.

contemplates resending a message containing both the identifier and the security key. *See* Google Br. at 56 (citing '896 patent Fig. 3B & 13:38-42, 19:5-7). A person of ordinary skill in the art would view these examples as evidence that the patentee understood the claims as involving one or more "second message," where each second message contains both the identifier and the security key.

By contrast, Sonos does not identify any passage or figure in the specification supporting its proposed construction. Sonos merely argues "[n]othing in the specification *modifies* the claim language," Sonos Br. at 33 (emphasis added), but this does not aid its case.

Rather than the specification, Sonos directs us to precedent, arguing that in *01 Communique Laboratory, Inc. v. LogMeIn, Inc.*, 687 F.3d 1292 (Fed. Cir. 2012), we construed claim terms similar to the one at issue here as having their "ordinary meaning." Sonos Br. at 31. The issue in *LogMeIn* was whether the claim term "a locator server computer" encompassed multiple servers and, if so, whether the recited functions for the "location facility" software could be distributed among them. While we held there that the term "a computer" must be interpreted – as a matter of "ordinary meaning" – as "one or more computers," our holding that a "location facility" may be distributed among "more than one computer" was based on the express disclosure in the specification there, to the effect that "'such facilities can be sub-divided into separate facilities.'" *LogMeIn*, 687 F.3d at 1297 (quoting specification); *see also id*. ("[T]he disclosures that facilities may be subdivided . . . support a construction that the location facility may be distributed among multiple physical computers."). Here, however, Sonos does not identify any similar disclosure in the '896 patent.

We do not agree with Sonos that the Commission improperly imported a limitation from the specification into the claims. Instead, we agree with the Commission, and

Google, that the claim language and specification support the Commission's construction.[4]

Since Sonos does not dispute that the '896 NIA 2 sends the identifier and the security key in separate messages, and the proper construction of the "second message" term does not encompass such an embodiment, we affirm the Commission's finding that '896 NIA 2 does not infringe the '896 patent.

2

The '258 patent is directed to techniques for ensuring that multiple wireless speakers play in unison. Pertinent to Sonos' appeal, the patent claims a technique for synchronizing smart speakers with each other by transmitting "clock time information." '258 patent 40:14-21. The clock time information enables the wireless speakers to adjust for sound mismatches resulting from the speakers' independent internal clocks. At the Commission, Sonos and Google agreed that "clock time information" means "information representing a time value indicated by a device's clock," J.A. 280, a construction the Commission adopted, *see* J.A. 95-96. Based on this agreed-upon construction, the Commission found that one of Google's redesigns, '258 NIA 1, does not infringe the '258 patent because it used an incrementing counter. J.A. 95-97. In the Commission's view, this incrementing counter/integer is not information representing a time value and, thus, cannot be the claimed "clock time information." J.A. 95.

On appeal, Sonos challenges this finding, which it frames as a claim construction issue. It is not. Instead, "whether the accused device [or a redesign] infringes properly interpreted claims" is a factual issue – which is

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[4]   Neither party argues that the prosecution history or any extrinsic evidence impact the proper construction.

just how it was presented to the Commission.[5] *Martin v. Barber*, 755 F.2d 1564, 1566 (Fed. Cir. 1985). Thus, we review the Commission's finding for substantial evidence, which we find.

In support of its non-infringement finding, the Commission cited testimony from one of Google's engineers and other testimony from Google's expert. *See* J.A. 94-96. Together, these individuals explain that the redesign transmits an incrementing counter and that such a counter does not represent a time value – and, therefore, cannot represent a time value indicated by a device's clock. This constitutes substantial evidence for the Commission's finding that the incrementing integer in '258 NIA 1 is not "clock time information" as that term was construed by the Commission, based on the parties' agreement. Thus, we affirm the Commission's finding of non-infringement.[6]

3

The '959 patent is directed to techniques for pairing individual playback devices to create a multi-channel listening environment and to performing equalization of audio data depending on the type of pairing. On appeal, Sonos challenges the Commission's construction of

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[5]   Among the indications that this is a factual issue, and not a claim construction dispute, are that neither side sought to modify the agreed-upon construction but, instead, presented expert testimony on whether '258 NIA 1's transmitted integer satisfied the agreed-upon construction.

[6]   Given our conclusions, we need not reach Sonos' additional contention that the Commission erred in finding that the redesign would not infringe even if the incrementing integer were "clock time information." *See* Sonos Br. 49-58.

"equalization," recited in claim 10, as requiring "alteration of the relative strength of certain frequency ranges in the audio data by performing one or more of the following: adjusting one or more parameters related to speaker drivers, such as gain, frequency response, channel output, phase, or time delay; adjusting amplifier gain of the playback device; or using one or more filters." J.A. 312 (internal emphasis omitted). Sonos argues the Commission construed the term too narrowly. In Sonos' view, "equalization" includes any "modifying" of the output audio data, including changing of channel output without changing the strengths of a frequency range. Sonos Br. at 60-62.

We agree with the Commission's construction. Relying in part on Google's expert testimony and various dictionaries, the Commission found that "'[e]qualization' is a well-known technique that allows one to emphasize or diminish a specific range of frequencies." J.A. 307. The Commission's subsidiary factual finding on this point was not clearly erroneous. *See DeLorme Publ'g Co. v. Int'l Trade Comm'n*, 805 F.3d 1328, 1331 (Fed. Cir. 2015) ("We review claim construction de novo except for subsidiary facts based on extrinsic evidence, which we review for clear error.").[7]

The specification confirms that the patent is not using the term "equalization" in a way that departs from its well-known meaning. In particular, the specification discloses that, when "both mid-range drivers and both tweeters have the *same equalization* (or substantially the same equalization), . . . they are both sent the *same frequencies*, just from different channels of audio." '959 patent 8:36-39 (emphasis

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[7]   Sonos did not meaningfully challenge this factual determination. *See* J.A. 307 (CALJ noting "[n]either Sonos nor Staff appear to dispute that 'equalization' has a well-known meaning to persons of ordinary skill in the art, at least outside the context of the patent itself").

added); *see also id.* at 16:57-59 ("[T]he equalization of each S5 device is changed in an attempt to reduce or eliminate certain constructive or destructive interference."); *id.* at 12:15-16 (describing equalization in terms of adjusting bass and treble). These passages suggest that "equalization" necessarily includes alteration of a speaker's frequencies and that changing the "channels of audio" does not necessarily result in "equalization."

The well-known meaning of the term "equalization" is also consistent with the specification passage Sonos argues "defines equalization to include changes to channel output and, separately, changes to frequency response." Sonos Br. at 22; *see also id.* at 63 (quoting '959 patent 16:20-27). That passage teaches:

> Changing the equalization of the playback device might include any of: turning on or off (or effectively muting) one or more specific speaker drivers, changing the channel output of one or more speaker drivers, changing the frequency response of one or more specific speaker drivers, changing the amplifier gain of any particular speaker driver, [and] changing the amplifier gain of the playback device as a whole.

'959 patent 16:20-27. We do not read this passage as *defining* "equalization." "To act as its own lexicographer, a patentee must clearly set forth a definition of the disputed claim term other than its plain and ordinary meaning" and must "clearly express an intent to redefine the term." *Thorner v. Sony Comput. Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). The passage on which Sonos relies, instead, merely provides a list of operations that equalization "might include." This non-exclusive recitation does not evince the required clear intent to adopt a definition different from the term's ordinary meaning. *See* J.A. 305-12 (Commission construing "equalization" to mean "alteration of the relative strength of certain frequency ranges in the

audio data *by performing one or more of the following*: adjusting one or more parameters related to speaker drivers, such as gain, frequency response, channel output, phase, or time delay; adjusting amplifier gain of the playback device; or using one or more filters") (internal emphasis altered).

The language of other claims further supports the Commission's construction of "equalization." In particular, claims 2, 26, and 34 require "equalization" to be performed using a "pass filter to modify the audio data." J.A. 10149 (1:21- 29); J.A. 10151-52 (6:64-7:5, 7:50-59). Sonos agrees that a pass filter is a "mechanism for altering the relative strength of frequency ranges." Sonos Br. at 70 (citing J.A. 311 n.19). Thus, these dependent claims confirm that, while equalization can be performed using different mechanisms (e.g., pass filter), the process of equalization is about altering the relative strengths (i.e., emphasizing or diminishing) of certain frequencies in audio.

The prosecution history does not alter our conclusions. Sonos points to the examiner's statement that "the subject matter 'equalization' is defined as including" the five techniques listed in the specification. Sonos Br. at 66-67 (citing J.A. 17198 n.2). The examiner was required to apply the broadest reasonable interpretation standard, which is different from the *Philips v. AWH Corporation* standard the Commission and we apply. 415 F.3d 1303 (Fed. Cir. 2005); *see also MPHJ TECH. v. Ricoh Americas Corp.*, 847 F. 3d 1363, 1374 (Fed. Cir. 2017) (noting that at Patent Office "claims are given their broadest reasonable interpretation consistent with the specification") (internal quotation marks omitted). In any case, "arguments based on the prosecution history which allegedly shows that the examiner viewed claim [differently] . . . are insufficient . . . to overcome our strong sense" of claim scope based on claim

language and the specification. *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 93 F.3d 1572, 1578 (Fed Cir. 1996).[8]

In sum, we agree with the Commission that the term "equalization" means "alteration of the relative strength of certain frequency ranges." Sonos does not dispute that, under this construction, '959 NIA 4 does not infringe claim 10. Thus, we affirm the Commission's finding that '959 NIA 4 does not infringe claim 10.

B

We turn now to Google's cross-appeal, which challenges the Commission's findings relating to the '896 patent and '949 patent.

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a

While Sonos' appeal with respect to the '896 patent involved the claim element "transmitting . . . at least a second message containing network configuration parameters," Google's cross-appeal – of the Commission's finding that its originally-accused products infringe – arises from the '896 patent's recitation of "receiving . . . user input indicating that a user wishes to set up a

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[8]   Sonos also argues its construction is supported by the examiner's rejection of several proposed claims requiring "equalization," based on references teaching "changing channel output only, with no mention of altering frequency response." Sonos Br. 66-67. These rejections, Sonos asserts, indicate that the Patent Office understood equalization as requiring either "changing the channel output" or "changing the frequency response. *Id.* As Google and the Commission point out, however, Sonos did not present this argument to Commission, *see* Google Br. 80; ITC Br. 42, so it was forfeited, *see In re Google Tech. Holdings LLC*, 980 F.3d 858, 863 (Fed. Cir. 2020).

playback device to operate on the secure WLAN." '896 patent 18:3-9. At the Commission, the parties agreed that "user input" means "an 'objectively verifiable indication' of the user's desire to use the controller's secure network." J.A. 60329-31; J.A. 70103. The claim also recites "transmitting a response . . . that facilitates establishing an initial communication path with the given playback device," which the parties agree must occur after the "receiving" step. '896 patent 18:14-16.

The Commission found that Google's originally-accused products practice the "receiving" step based on a screen called "Device Found Screen," which appears after a user selects on her mobile controller (e.g., a mobile phone, tablet, or laptop) a button that says "[s]et up new devices [i.e., speakers] in your home." J.A. 220-21; *see also* J.A. 225.
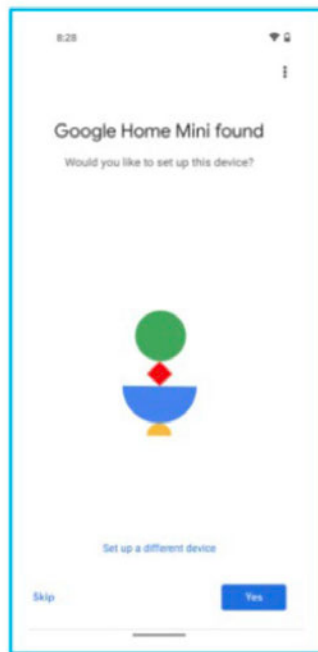
In the Device Found Screen, J.A. 221 (reproducing J.A. 60501), which is shown above, the user is asked, "Would you like to set up this device?" and given the options of choosing "Yes," "Skip," or "Set up a different device." J.A. 220-21. If the user selects "Yes," the mobile controller retrieves "the Wi-Fi network that the mobile [controller] is connected to." J.A. 227 (citing J.A. 70118 (452:7-453:5)). This information is "save[d] . . . so it can be fetched later in the setup process." *Id.* Then, the mobile controller performs a step that the parties agree is the "transmitting" step, as it establishes the "initial communication path" with the new device (i.e., speaker) being added. J.A. 223.

Thereafter, at a screen called "Connect to Wi-Fi Screen," the mobile controller lists the Wi-Fi networks that are available for the new speaker device to connect to. J.A. 70078 (299-300).
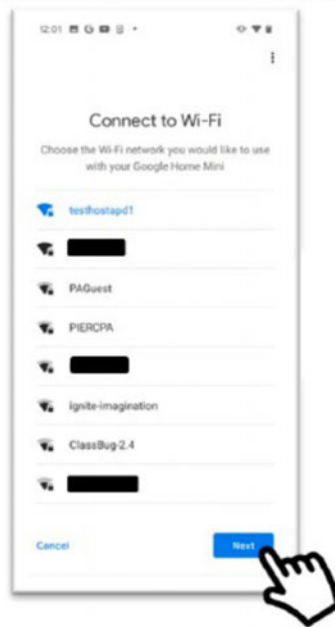
J.A. 222-23 (reproducing J.A. 60504).

As shown above, on this list, the network that was previously saved – that is, the network the mobile controller

was connected to when the user selected "Yes" at the Device Found Screen – is highlighted (in blue) and pre-selected among the list of available Wi-Fi networks. J.A. 70078-79; J.A. 70252.

Also pertinent to the Commission's analysis is a setup instruction that Google formerly provided to users, directing them to "[c]onnect your mobile [controller] device to the Wi-Fi network that you'll use for your speaker or display." J.A. 226 (reproducing J.A. 50706). In the Commission's view, this instruction confirmed that Google's originally-accused products "were designed to assume that the playback device [i.e., the new speaker] should be connected to the same network as the computing device[i.e., the mobile controller]." J.A. 226. It is undisputed that Google deleted this step from its published instruction prior to the Commission's hearing and that the Commission was presented with no evidence that any user of the accused devices (i.e., the mobile controllers) had ever seen the instruction. *See* J.A. 226 n.81.

The Commission's finding that Google's originally-accused products infringe the '896 patent is based on its determination that a user's selection of "Yes" at the Device Found Screen satisfies the "receiving" step. Substantial evidence supports the Commission's application of the claim construction to the Google accused product. As the Commission explained, when a user selects "Yes" on the Device Found Screen, the accused products are "designed to assume that the user wishes to set up the playback device on the same Wi-Fi network" the accused devices are actually connected to at that moment. J.A. 225.[9] In

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[9]   We are not persuaded by Google's insistence that the Commission clearly erred by allowing a mere "assumption" to serve as the objectively verifiable "indication." The Commission relied on substantial evidence to reach its

support of its conclusion, the Commission relied on testimony from Google's expert, who opined that after the user selects "Yes" on the Device Found Screen, and thereafter clicks "Next" on the Connect to Wi-Fi Screen, the user "confirm[s] that the network [he] wanted to use was highlighted or selected" and there is no need to "make another selection." J.A. 225-26 (citing J.A. 70252) (alterations in original). In other words, while the "receiving" step (including the required verifiable indication that the user wishes to set up a playback device on the controller's network) is completed at the Device Found Screen, further confirmation of the fact that step has been completed is provided in connection with the Device Connected and Connect to Wi-Fi Screens.

The Commission also cited Google's setup instructions, which provide further support for its finding. *See* J.A. 226 (reproducing J.A. 50706). The instruction expressly directed the user to "[c]onnect your mobile device to the Wi-Fi network that you'll use for your speaker or display," before launching the Google Home application and reaching the Device Found Screen. J.A. 226. In this way, the instruction to users is probative of the fact that a user's selection of "Yes" on the Device Found Screen is an indication that the user wishes to set up a playback device to operate the same network as the mobile controller.

Accordingly, we affirm the Commission's finding that Google's originally-accused products infringe the claims of the '896 patent.

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conclusion that the user's selection of "Yes" at the Device Found Screen is an objectively verifiable indication that the user wishes to use the network to which the new device is then connected.

b

Google also challenges the Commission's conclusion that it failed to prove that the challenged claims of the '896 patent are invalid as obvious over the prior art "cd3o" system, which 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." J.A. 213 (internal quotation marks omitted). Once again, we affirm.

The Commission held that Google failed to identify in the cd3o system the "initial communication path" component of the '896 patent claims' "transmitting" step. The Commission did not expressly construe "initial communication path." But Google argues that the Commission "effectively," and erroneously, construed "initial communication path" as the *first-ever* communication path between the controller and the playback device. Google Br. at 38-39, 54. That erroneous construction, according to Google, led the Commission to overlook Google's contentions that, even after the user plugs in an ethernet cable between the controller and the playback device, there are "other, later-created paths provid[ing] that capability [i.e., enabling communication between the controller and device] and thus satisfied the 'initial communication path' limitation." Google Br. at 38. Specifically, Google argues that even if the prior art ethernet connection does not meet the "initial communication path" limitation (because the ethernet connection is made too soon, i.e., before the required "user input" and "first message" have been received) the Commission should have assessed whether other connections – specifically, a "point-to-point UDP" connection or a TCP connection – which are established at later times, might satisfy the "initial communication path"

requirement. Google Br. at 42-44.[10] In Google's view, how-
ever, the Commission never considered or discussed these
contentions.

We disagree. The Commission, in agreeing with Sonos
that the '896 patent claims do not "require connection with
a particular application or on a specific layer of the network
stack," J.A. 240 (internal quotation marks omitted), neces-
sarily had to have considered – and rejected – Google's con-
tention that UDP and TCP connections (made at non-
physical layers within a network stack) can create new
communication paths distinct from the communication
path formed when an ethernet cable is plugged in (a con-
nection that occurs at the physical layer of a computer net-
work). *See* Oral Arg. at 19:46-20:04 (Commission counsel:
"[i]f by using an addressing protocol such as UDP or TCP,

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[10]   To the extent Sonos or the Commission are con-
tending that Google failed to adequately present these al-
ternative theories to the Commission, we disagree. It is
clear from the record that Google repeatedly argued that
the connections at the UDP and TCP layers could satisfy
the "initial communication path" requirement even if the
ethernet connection did not. *See, e.g.*, J.A. 1877 ("[U]sing
point-to-point UDP messages . . . thereby establishing an
initial, point-to-point UDP communication path"); J.A.
1904 ("TCP SYN-ACK message facilitate[s] establishing a
TCP connection ('the initial communication path')"); J.A.
4635 ("cd3o discloses this limitation because it establishes
an initial point-to-point UDP path after receiving the re-
quired 'user input' and 'first message.'") (internal emphasis
omitted); J.A. 4637 ("If the CALJ finds that cd3o's point-to-
point UDP path is not 'an initial communication path,' it
would have been obvious to use a TCP connection . . . to
send network configuration parameters . . . and obvious to
replace cd3o's wired 'initial communication path' with a
wireless path . . . .").

if that doesn't create a new communication path, then we are left with what the communication path is – the plugging in of the ethernet cable"). That is, UDP and TCP are merely parts of the communication path established when the ethernet cable is plugged in, so when the Commission rejected the ethernet cable as being the claimed initial communication path it was likewise rejecting the UDP and TCP meeting this same requirement.

The '896 patent specification, as well as testimony from the co-founder of cd3o, provide substantial evidence support for the Commission's conclusion. *See* '896 patent 10:18-19 (explaining that "communication path" may operate over "Ethernet protocols"); *id.* at 6:39-52 (describing "TCP" as example of protocol (or special set of rules) that facilitates data flow); *id.* at 6:53-61 (describing "Ethernet cable" as means to provide network interface functions, where network interface functions are used to communicate with other devices using communication protocol); J.A. 70130 (cd3o co-founder testifying and rejecting characterization of UDP and TCP as communication paths).

Accordingly, we affirm the Commission's determination that the claims of the '896 patent are valid over the cd3o system.

2

The '949 patent is directed to techniques allowing both collective and individual adjustment of the volumes of players within a group. Pertinent to Google's cross-appeal, the original claims in the application that became the '949 patent required the ability to adjust player volumes individually and by group. *See* J.A. 58045. During prosecution, in view of a prior art reference, Isely,[11] Sonos amended the claims to require "independent" playback devices.

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[11] U.S. Patent Application Publication No. 2002/0124097 A1.

J.A. 58044-53. After multiple discussions with Sonos, the examiner allowed the amended claims on the basis that Isely disclosed "tethered or interdependent" operation rather than "independent" operation.   J.A. 58066-69; J.A. 58145. Google argues that Sonos disclaimed certain claim scope during prosecution.

Google's argument is predicated on a series of three statements contained in the prosecution history. First, the examiner summarized his interview with Sonos as follows:

> Discussed support for the independent operation of the claimed individual player and Applicant distinguished the individual operation over the *tethered or interdependent operation*[]of [Isely].

J.A. 58069 (emphasis added). Second, in his Reasons for Allowance, the Examiner discussed Isely's disclosure and clarified how Sonos had distinguished the reference:

> [T]he prior art is enabling for an individually addressable independent playback device, such as that depicted in Figure 2A of the instant application, functionally grouped into ad hoc networks for designation, receipt and playback of particular audio streams in concert with user directed characteristics such as volume (see at least [Isely]: 20020124097: ¶ 6, 60-64; Figure 2, 5, 6: zones are formed and volume control applied to a zone and thereby selectively to individual zone players based on a user determined relationship). However where [Isely] controls volume in an interdependent manner *the instant application . . . teaches the system functional to provide groupwise and individual control of each of the groupwise addressable and independently addressable playback devices*.

J.A. 58066-58067 (emphasis added). Third, Sonos summarized its telephone interview with the examiner as follows:

"Applicants' representative discussed the *Isely* reference and reiterated that the reference did not disclose or suggest independent playback devices." J.A. 58145.

Based on these statements, the Commission found:

[w]hile 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.

J.A. 191 (citing J.A. 58069). Google argues the Commission erred finding that Sonos only made a narrow disclaimer. Instead, in Google's view, Sonos broadly disclaimed all "tethered or interdependent operation."

"The party seeking to invoke prosecution history disclaimer bears the burden of proving the existence of a clear and unmistakable disclaimer that would have been evident to one skilled in the art." *Genuine Enabling Tech. LLC v. Nintendo Co.*, 29 F.4th 1365, 1374 (Fed. Cir. 2022) (internal quotation marks omitted). We review the Commission's assessment of a prosecution disclaimer de novo. *See id.* at 1372.

Undertaking such review here, we agree with the Commission that the three statements quoted above do not amount to a "clear and unmistakable disclaimer" of *all* "tethered or interdependent operation." The examiner's statement in the Reasons for Allowance indicates that both the examiner and Sonos understood that a system providing "groupwise and individual control of each of the groupwise addressable and independently addressable playback devices," which is a form of a "tethered or interdependent operation," was within the scope of the allowed claims.

J.A. 58066-67. This point alone is sufficient to cast doubt on the breadth of the disclaimer argued for by Google, as the record is far from "clear and unmistakable" as to such scope.

Google offers no argument for non-infringement if its broad disclaimer contention is rejected. Hence, we affirm the Commission's finding that Google's accused controllers installed with the Google Home application infringe the '949 patent.

C

Finally, Google argues the originally-accused products do not infringe the '896, '949, '959, '258, and '953 patents because Sonos' infringement theories rely on features or steps that are added or performed by users after Google imports the devices into the United States. Google asserts that the Commission's authority under section 337 "is limited to cases in which the accused articles infringe at the time of importation, and that district courts are the proper forum for allegations of inducing post-importation infringement." Google Br. at 51. As Google concedes, however, we have already rejected this contention. *See Suprema, Inc. v. Int'l Trade Com'n*, 796 F.3d 1338 (Fed. Cir. 2015) (en banc); *see also* Google Br. at 50. We are bound by this precedent and, accordingly, reject Google's argument.

IV

We have considered the parties' remaining arguments and find them unpersuasive. Because we reject each of the challenges raised by Sonos in its appeal and by Google in its cross-appeal, we affirm.

AFFIRMED

COSTS

No costs.