

NONCONFIDENTIAL VERSION

**UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.**

In the Matter of

**CERTAIN ELECTRONIC DEVICES,
INCLUDING STREAMING PLAYERS,
TELEVISIONS, SET TOP BOXES,
REMOTE CONTROLLERS, AND
COMPONENTS THEREOF**

Investigation No. 337-TA-1200

COMMISSION OPINION

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I. INTRODUCTION

On September 9, 2021, the Commission determined to review in part the final initial determination (“ID”) issued on July 9, 2021, by the presiding administrative law judge (“ALJ”). 86 Fed. Reg. 51381 (Sept. 15, 2021). On review, the Commission affirms the ID’s finding that there is a violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 (“Section 337”), with respect to U.S. Patent No. 10,593,196 (“the ’196 patent”). The Commission further affirms the ID’s findings that there is no violation of Section 337 with respect to U.S. Patent Nos. 7,589,642 (“the ’642 patent”) or 10,600,317 (“the ’317 patent”), for the reasons stated in the ID, as modified herein.

The Commission has determined to issue a limited exclusion order and cease and desist order against respondent Roku Inc. (“Roku”), and it finds the public interest does not preclude issuing such a remedy. The Commission has also determined to set a bond in the amount of zero (0) percent of entered value of subject imports during the period of Presidential review. This opinion sets forth the Commission’s reasoning in support of its final determination.

II. BACKGROUND

A. Procedural History

The Commission instituted the present investigation on May 22, 2020, based on a complaint filed by Universal Electronics, Inc. (“UEI”) of Scottsdale, Arizona. 85 Fed. Reg. 31211-212 (May 22, 2020). The complaint, as supplemented, alleges violations of Section 337 in the importation into the United States, sale for importation, or sale in the United States after importation of certain electronic devices, including streaming players, televisions, set top boxes, remote controllers, and components thereof, by reason of infringement of one of more of the asserted claims of the ’196 patent, the ’317 patent, the ’642 patent, and other patents that were

originally asserted but subsequently withdrawn and terminated from the investigation.¹ The notice of investigation named Roku of Los Gatos, California, as a respondent, among others that were later terminated from this investigation.² The Office of Unfair Import Investigations is not a party in this investigation. *Id.*

On August 19, 2020, the presiding ALJ held a technology tutorial and *Markman* hearing. ID at 2. The ALJ issued a *Markman* order on October 1, 2020. *Id.*; Order No. 24 (Oct. 1, 2020).

On January 25, 2021, the ALJ issued Order No. 40, granting Roku's motion for summary determination that UEI lacks standing to assert the '196 patent. Order No. 40 (Jan. 25, 2021). The Commission reversed Order No. 40 and remanded the standing issue to the ALJ for further proceedings. Comm'n Notice (Feb. 24, 2021); Comm'n Op. (Mar. 3, 2021).

¹ The Commission partially terminated the investigation with respect to certain originally asserted claims of the '196 patent, the '317 patent, and the '642 patent as well as U.S. Patent Nos. 7,696,514; 9,911,325; and 9,716,853 in their entirety. *See* Order No. 27 (Dec. 2, 2020), *unreviewed by* Comm'n Notice (Dec. 23, 2020); Order No. 32 (Dec. 21, 2020), *unreviewed by* Comm'n Notice (Jan. 5, 2021); Order No. 33 (Dec. 29, 2020), *unreviewed by* Comm'n Notice (Jan. 13, 2021); Order No. 34 (Jan. 4, 2021), *unreviewed by* Comm'n Notice (Jan. 21, 2021); Order No. 44 (Feb. 2, 2021), *unreviewed by* Comm'n Notice (Feb. 19, 2021); Order No. 49 (Feb. 9, 2021), *unreviewed by* Comm'n Notice (Feb. 24, 2021); Order No. 66 (March 23, 2021), *unreviewed by* Comm'n Notice (April 8, 2021); Order No. 67 (Apr. 6, 2021), *unreviewed by* Comm'n Notice (Apr. 22, 2021).

² In addition to Roku, the Commission's notice of investigation originally named the following respondents: TCL Electronics Holdings Ltd. of New Territories, Hong Kong; Shenzhen TCL New Technology Co. Ltd. of Shenzhen, China; TCL King Electrical Appliances Co. Ltd., Huizhou, China; TTE Technology Inc. of Corona, California; TCL Corp. of Huizhou City, China; TCL Moka Int'l Ltd. of New Territories, Hong Kong; TCL Overseas Marketing Ltd. of New Territories, Hong Kong; TCL Industries Holdings Co., Ltd. of New Territories, Hong Kong; TCL Smart Device Co. of Bac Tan Uyen District, Vietnam; Hisense Co. Ltd. of Qingdao, China; Hisense Electronics Manufacturing Co. of America Corp. of Suwanee, Georgia; Hisense Import & Export Co. Ltd. of Qingdao, China; Qingdao Hisense Electric Co., Ltd. of Qingdao, China; Hisense International Co., Ltd. of Shen Wang, Hong Kong; Funai Electric Co., Ltd. of Osaka, Japan; Funai Corp. Inc. of Rutherford, New Jersey; and Funai Co., Ltd. of Nakhon Ratchasima, Thailand (collectively, "Respondents"). 85 Fed. Reg. at 31212. The Commission subsequently terminated the investigation with respect to all of the respondents other than Roku. *See* Order No. 67 (Apr. 6, 2021), *unreviewed by* Comm'n Notice (Apr. 22, 2021).

The ALJ held an evidentiary hearing from April 19-23, 2021 and issued the final ID on July 9, 2021. The ID finds a violation of Section 337 based on infringement of the '196 patent because: (i) UEI has standing to assert the '196 patent; (ii) the accused Roku Ultra and Soundbar products infringe claims 1, 3, 11, and 13-15 of the '196 patent, although its revised Ultra and Soundbar products do not infringe the asserted claims; (iii) the asserted claims are not invalid as obvious; and (iv) UEI satisfied the technical and economic prongs of the domestic industry requirement with respect to the '196 patent. ID at 84, 88, 98, 101-02, 105-06, 118-21, 133, 137. The ID finds no violation with respect to the '642 patent or '317 patent because their asserted claims, though infringed, are invalid. *Id.* at 137-38.

On July 13, 2021, the Commission issued a notice soliciting public comments on the public interest factors, if any, that may be implicated if a remedy were to be issued. *See* 86 Fed. Reg. 38126 (July 19, 2021). The Commission did not receive any public comments in response to its notice. No party submitted public interest comments pursuant to Commission Rule 210.50(a)(4) (19 C.F.R. § 210.50(a)(4)).

On July 23, 2021, both UEI and Roku filed petitions for review of the final ID. The parties filed their respective replies on August 2, 2021.

On September 9, 2021, the Commission determined to partially review the ID with respect to: (i) all issues relating to the '196 patent (Questions A-D); (ii) whether UEI satisfied the technical prong of the domestic industry requirement with respect to the '317 patent (Question E); and (iii) whether UEI satisfied the economic prong of the domestic industry requirement under Section 337(a)(3)(B) for the '196 patent and '317 patent (Question F), as well

as the '642 patent.³ 86 Fed. Reg. 51381, 51382-83 (Sept. 15, 2021). The Commission did not review any other issues relating to the '317 patent or '642 patent. *See id.*

On September 24, 2021, UEI and Roku filed their initial responses to the Commission's questions on review and remedy, the public interest, and bonding.⁴ On October 1, 2021, the parties filed their replies to each other's initial submissions to the Commission.⁵

On October 26, 2021, while the investigation was still pending final determination by the Commission, Roku filed a Motion for a Limited Reopening of the Record and for a Shortened Response Time ("Motion") so that the Commission could consider allegedly contradictory deposition testimony from a certain UEI fact witness taken in another investigation involving the same parties, products, and technology. *See Certain Televisions, Remote Controls, and Components Thereof*, Inv. No. 337-TA-1263 ("the 1263 Investigation"). On the same date, Roku and UEI filed a Joint Motion to Amend the Protective Order to Add Provisions Relating to Materials from Inv. No. 337-TA-1263 ("Joint APO Motion").

On October 28, 2021, the Commission granted Roku's motion for a shortened response time, directing UEI to file its response by the close of business on November 2, 2021. Comm'n Order (Oct. 28, 2021). The Commission denied the parties' Joint APO Motion as moot. *Id.*

³ Although the Commission's review of the economic prong under Section 337(a)(3)(B) included the '642 patent, Question F itself did not mention that patent.

⁴ *See* Complainant's Response to the Commission's Notice of Review ("UEI's Resp."); Respondent Roku's Opening Submission on the Issues Under Review, Remedy, and Bonding, and Public Interest ("Roku's Resp.").

⁵ *See* Complainant's Reply to Respondent's Opening Submission Regarding the Commission Notice of Review ("UEI's Reply"); Respondent Roku's Reply Submission on the Issues Under Review, Remedy and Bonding, and Public Interest ("Roku's Reply").

On November 2, 2021, UEI filed its opposition to Roku's Motion, in accordance with the Commission's order.

The Commission, having reviewed the parties' submissions, the ID, and the deposition testimony at issue, has determined to deny Roku's motion to reopen the record. Roku argues that certain deposition testimony in the 1263 Investigation contradicts testimony given by the same witness in the present investigation, such testimony allegedly being material to the ID's findings on the technical and economic prongs of UEI's asserted domestic industry and UEI's evidence of secondary considerations of non-obviousness regarding the '196 patent. With regard to the technical prong for the '196 patent, the Commission finds that the proffered deposition testimony does not show that the Samsung DI Products never use UEI's QuickSet software or that they never practice the asserted claims of the '196 patent. Even if the proffered testimony were to be taken into consideration, it does not refute the ID's finding that UEI has satisfied the technical prong of the domestic industry requirement with respect to the '196 patent. Roku's other arguments are moot given that the Commission did not review the ID's findings that UEI satisfied the economic prong requirement under Section 337(a)(3)(C) and the Commission has determined to reverse the ID's finding that Roku made a *prima facie* showing of obviousness with respect to the '196 patent, as discussed below. Roku also has not cited any statute, rule, or precedent in support of such an extraordinary remedy. Accordingly, Roku has not shown sufficient grounds to warrant the extraordinary remedy of reopening the record at this late stage.

B. The Asserted Patents

The three patents at issue in the ID relate to remote control devices and systems that are capable of controlling multiple consumer media devices, such as televisions, set top boxes, digital video recorders ("DVRs"), digital video disc ("DVD") players, and other media devices.

See ID at 4-6. The UEI patents are also directed to systems for streamlining the process of setting up universal control devices or systems for controlling multiple media devices. *Id.*

The following patents and claims are asserted for infringement or domestic industry:

- '196 patent, claims 1-3, 11, and 13-15.
- '317 patent, claims 3, 6, 9, and 11, which all depend on unasserted claim 1.
- '642 patent, independent claim 19.

ID at 4.

C. The Accused Products

The accused products include certain Roku streaming boxes, soundbars, and associated remote control devices. ID at 6-7. UEI accused both the original and revised versions of the Roku Ultra and Roku Soundbar of infringing the '196 patent. *Id.* at 7. UEI originally accused the Roku Ultra, Soundbar, and Streaming Sticks of infringing the '317 patent, but later withdrew its infringement allegations with respect to the Roku Streaming Sticks. *Id.*

D. The Domestic Industry Products

For the '196 and '317 patents, UEI's domestic industry products include certain televisions manufactured by third party Samsung that incorporate UEI's QuickSet software ("Samsung DI Products"), which purportedly enables the Samsung DI Products to satisfy certain claim functions.⁶ ID at 6. UEI bases its domestic industry on its own investments in the development, maintenance, improvement, and integration of its QuickSet software into the Samsung DI Products (televisions). *Id.* at 122-37.

⁶ UEI relies on certain remote control devices for its domestic industry with respect to the '642 patent, which is not presently at issue. See ID at 6, 24 (discussing Order No. 38 (Jan. 19, 2021), *unreviewed by Comm'n Notice* (Feb. 18, 2021)).

III. COMMISSION REVIEW OF THE FINAL ID

When the Commission reviews an initial determination, in whole or in part, it reviews the determination *de novo*. *Certain Soft-Edged Trampolines and Components Thereof*, Inv. No. 337-TA-908, Comm’n Op. at 4 (May 1, 2015). Upon review, the “Commission has ‘all the powers which it would have in making the initial determination,’ except where the issues are limited on notice or by rule.” *Certain Flash Memory Circuits & Prods. Containing Same*, Inv. No. 337-TA-382, USITC Pub. No. 3046, Comm’n Op. at 9–10 (July 1997) (quoting *Certain Acid-Washed Denim Garments & Accessories*, Inv. No. 337-TA-324, Comm’n Op. at 5 (Nov. 1992)). With respect to the issues under review, “the Commission may affirm, reverse, modify, set aside or remand for further proceedings, in whole or in part, the initial determination of the administrative law judge.” 19 C.F.R. § 210.45(c). The Commission also “may take no position on specific issues or portions of the initial determination,” and “may make any finding or conclusions that in its judgment are proper based on the record in the proceeding.” *Id.*; *see also Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984).

IV. ANALYSIS

For the reasons set forth below, the Commission has determined to affirm the ID’s findings of infringement and validity of the ’196 patent, with some clarifications. The Commission also affirms the ID’s finding of no violation with respect to the ’317 patent, albeit with some modification to its finding that UEI satisfied the technical prong of the domestic industry requirement. The Commission takes no position on whether UEI satisfied the economic prong under Section 337(a)(3)(B) with respect to any of the asserted patents. The Commission determined not to review and thus adopted the ID’s findings that UEI satisfied the economic prong requirement with respect to all three patents under Section 337(a)(3)(C). *See ID at 134-*

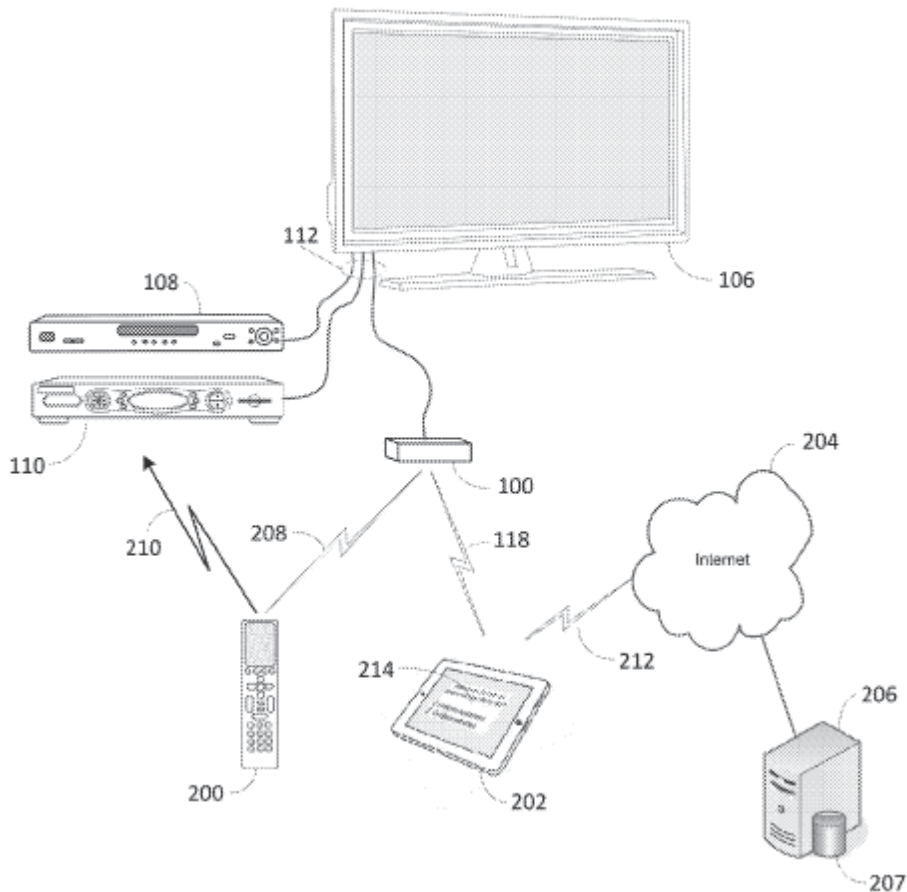
38; 86 Fed. Reg. at 51382. The Commission otherwise affirms and adopts the ID’s findings, conclusions, and supporting analyses that are not inconsistent with this opinion.

A. The ’196 Patent

The Commission determined to review all issues relating to the ’196 patent, including the construction and application of the term “for use in configuring the remote control device to transmit” in the final clause of claim 1, infringement, and invalidity. *See* Comm’n Notice, 86 Fed. Reg. at 51382 (Questions A-D). The Commission adopts the ID’s findings as to the ’196 patent not addressed below, including the ID’s finding that UEI has standing to assert the ’196 patent (ID at 86-88), that UEI has satisfied the technical prong of the domestic industry requirement (*id.* at 102-06), and that UEI has satisfied the economic prong of the domestic industry requirement under Section 337(a)(3)(C) with respect to the ’196 patent (*id.* at 134-37).

1. Background

The ’196 patent is directed to a hardware/software unit called a Universal Control Engine (“UCE”), which can identify and select the optimal communications pathway for transmitting command signals to control each target device, based on information about that device received from a remote control device. *See* ’196 patent at Abstract, 1:66-2:45, 4:15-20. For example, in Figure 2, below, the UCE (**100**) is a stand-alone device that can transmit consumer electronic control (“CEC”) commands over a high-definition multimedia interface (“HDMI”) connection to connected media devices, such as a television (**106**), or it can designate the remote control device (**200**) to transmit commands via infrared (“IR”) (**210**) or another wireless frequency to control other target devices, such as a DVD player (**108**) or DVR (**110**). *Id.* at 4:39-44, 6:62-7:4, Fig. 2.



'196 patent, Fig. 2. The UCE may be either a stand-alone device or it may be incorporated into a media device, such as a television. *Id.* at 2:46-55, 4:60-62, 5:7-12, Figs. 3, 4.

The claimed invention is directed to the set-up of the “first media device” (*e.g.*, UCE) and a remote control device for controlling a target device, such as a television or DVR. *See id.* at 17:1-32 (claim 1). After the user enters information identifying the type and brand of a target device (“second media device”), the remote control transmits “first data” to the UCE indicating whether that target device will be “responsive” or “unresponsive” to a “first command” (*e.g.*, a CEC command) sent over HDMI. *Id.* at 1:66-2:45, 3:42-4:59, 8:49-9:26. If the “first data” indicates that the target device will be responsive to commands sent over HDMI, then the “first media device” will be configured to transmit commands over HDMI to the target device. *See id.*

at 9:27-10:19, 11:40-55, Figs. 7, 9. This is referred to as the “responsive” case, as set forth in limitation 1[e][i] of claim 1, below. *See id.* at 17:13-21.

If, on the other hand, the “first data” indicates that the target device will not be responsive to a command sent over HDMI, then the UCE will transmit “second data” to the remote control “for use in configuring the remote control” to issue a command (*e.g.*, via IR) for directly controlling the target device. *See id.* at 11:28-38. This is the “unresponsive” case, as set forth in the final claim limitation 1[e][ii], below. *See id.* at 17:22-32 (limitation 1[e][ii]). As a result of the “responsive” and “unresponsive” cases, the system can be configured to control multiple devices using the most appropriate pathway for each device. *Id.* at Abstract, 2:7-45; ID at 91-92.

Claim 1 recites the following, with bracketed letters added to identify certain limitations, and the claim terms in dispute identified by italics:

1. [p] A first media device, comprising:
 - [a] a processing device;
 - [b] a high-definition multi-media interface [HDMI] communications port, coupled to the processing device, for communicatively connecting the first media device to a second media device;
 - [c] a transmitter, coupled to the processing device, for communicatively coupling the first media device to a remote control device; and
 - [d] a memory device, coupled to the processing device, having stored thereon processor executable instruction;
 - [e] wherein the instructions, when executed by the processing device,
 - [i] cause the first media device to be configured to transmit a first command directly to the second media device, via use of the high-definition multi-media [HDMI] communications port, to control an operational function of the second media device when a first data provided to the first media device indicates that the second media device will be responsive to the first command, and
 - [ii] cause the first media device to be configured *to transmit a second data to a remote control device*, via use of the transmitter, *for use in*

configuring the remote control device to transmit a second command directly to the second media device, via use of a communicative connection between the remote control device and the second media device, to control the operational function of the second media device when the first data provided to the first media device indicates that the second media device will be unresponsive to the first command.

'196 patent at 17:1-32 (bracketed letters, emphasis added).

2. Claim Construction

The parties' infringement dispute focuses primarily on limitation 1[e][ii], which states that if the "first data" indicates the target device ("second media device") will be "unresponsive" to a command sent via HDMI, then the "first media device" (*e.g.*, UCE) will transmit a "second data" to the remote control device "*for use in configuring the remote control device to transmit a second command*" to the target device for controlling that target device. *See* '196 patent at 17:22-32 (limitation 1[e][ii]) (emphasis added).

The parties did not seek a construction of "for use in configuring the remote control to transmit" during the *Markman* proceedings. *See* Order No. 24 (Oct. 1, 2020) (*Markman* order). The ALJ also did not provide a construction in either the *Markman* order or the ID, apart from applying that term according to its plain and ordinary meaning. *Id.*; ID at 86.

The ID addresses the term only as part of its infringement analysis, finding that "Roku mischaracterizes [claim 1's] requirements, and to the extent Roku's position implicates claim construction, its proposed construction is rejected." ID at 95. The ID finds no requirement that the "second data" must actually change the configuration, or settings, of the remote control, as Roku argued. *Id.* "It is enough that the second data is 'for use in configuring the remote control device,' to perform its particular operation," the ID finds. *Id.* at 95-96. The ID also finds it to be irrelevant whether additional data is communicated between the receipt of the "first data" and the transmission of the "second data," provided the "second data" is "for use in configuring the

remote control device” and “to control the operational function of the second media device.” *Id.* at 96 (discussing ’196 patent at 17:21-32).

The Commission asked the parties on review whether the term “for use in configuring the remote control device to transmit” requires construction and, if so, what construction should be adopted. Comm’n Notice, 86 Fed. Reg. at 51382 (Question A). UEI argued that the term does not require construction, as neither party identified it for construction during the *Markman* proceeding, and no party or expert has identified any special lexicography, disclaimer, or other evidence that would warrant departure from the term’s ordinary meaning. *See* UEI’s Resp. at 1-2. Roku argues that the term “for use in configuring the remote control” should be construed according to its plain and ordinary meaning to require that the “second data must be used in changing the settings of the remote control.” *See* Roku’s Resp. at 1-3.

On review of the parties’ briefs, the ID, and evidence of record, the Commission affirms the ID’s finding that “for use in configuring the remote control to transmit” should be understood and applied according to its plain and ordinary meaning in the art in the context of the patent’s intrinsic evidence, *i.e.*, its claim language, specification, and prosecution history. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-17 (Fed. Cir. 2005), *cert. denied*, 546 U.S. 1170 (2006). The Commission affirms the ID’s rejection of Roku’s attempt to narrow this term to mean the “second data” itself “must be used in changing the settings in the remote control.” *See* Roku’s Resp. at 1. There is nothing in the claim language or specification that requires the “second data” to change any settings or directly configure the remote control. In contrast, claim 1 states that the executed instructions must “*cause the first media device to be configured to transmit*” a “first command” or “second data,” respectively, in the “responsive” or “unresponsive case.” *See* ’196 patent at 17:14-16, 21-24 (emphasis added). The term “*for use in configuring*” is broader

than “*cause . . . to be configured*”; the term “for use in configuring” does not require the “second data” to directly or immediately change any settings or configuration of the remote control.

The parties have not identified, nor has the Commission found, any special definition or disclaimer in the intrinsic record of the ’196 patent that warrants departure from the term’s ordinary meaning. To the contrary, the specification says little about “configuring” the remote control device, apart from sending communications between the remote control and UCE. *See, e.g., id.* at 4:39-42, 4:62-5:2, 5:16-19, 6:17-22, 11:40-49. The specification also states that “the UCE may delegate the transmission of IR commands **210** to the remote control device **200**, *i.e.*, use remote control **200** as a *relay device* for those commands determined to be best executed via IR transmissions.” *Id.* at 4:44-50 (emphasis added). This passage makes no mention of “configuring” the remote control or changing its settings; it says only that the remote control may be used simply as a “relay device.” *See id.* To the extent this passage is relevant to claim 1, it does not require that the “second data” change any settings or configuration in the remote control, and thus does not support Roku’s more narrow construction.

The Commission also rejects Roku’s attempt to limit the scope of the claim term to a particular embodiment in related U.S. Patent Application Publication 13/198,072 (“the ’072 Application”) or dictionary definition. *See* Roku’s Resp. at 1-2. Roku has waived this argument by failing to raise it in its pre-hearing brief, post-hearing brief, or petition for review. *See* Order No. 2 (May 26, 2020) (Ground Rules 9.2, 13.1); 19 C.F.R. § 210.72 (Commission Rule 210.72).

Even if it were timely, Roku’s argument would fail on its merits. To the extent the ’196 patent mentions the ’072 Application, apart from a generic incorporation of this and other related applications (*see* ’196 patent at 1:28-32), the specification refers only to the teachings of the ’072 Application about scanning HDMI appliances to identify those that are CEC compatible (*id.* at

14:21-29). The passage Roku actually quotes to support its position, however, does not address such scanning but states only that the remote control device “may be configured” to include storing a pointer or downloading data from a remote server. The ’072 Application does not refer to data “for use in configuring” the remote control. *See* Roku’s Resp. at 2 (citing ’072 Application, ¶ 19). Thus, the intrinsic record does not show that a person skilled in the art would interpret the term “for use in configuring the remote control” as narrowly as Roku argues.

The Commission thus adopts the ID’s findings regarding construing and applying the term “for use in configuring the remote control device to transmit” according to its plain and ordinary meaning. The “second data” must be used in the process of configuring the remote control, but it does not need to actually or directly change any settings in the remote control, as the ID correctly finds. ID at 92-98.

3. Infringement

The Commission asked the parties whether, in view of their response to Question (A), above, the accused Roku products infringe claim 1 of the ’196 patent. *See* Comm’n Notice, 86 Fed. Reg. at 51382 (Question (B)). The Commission has determined on review to affirm the ID’s finding that the Roku Ultra and Soundbar products infringe the ’196 patent.⁷

a. Legal Standard

Section 337 prohibits “the importation into the United States, the sale for importation, or the sale within the United States after importation . . . of articles that infringe a valid and enforceable United States patent” 19 U.S.C. § 1337(a)(1)(B). Direct infringement includes

⁷ This section addresses only the original versions of the accused Roku Ultra and Soundbar products, currently in dispute. *See* ID at 6-7. The Commission affirms the ID’s findings that the revised Roku Ultra and Soundbar products do not infringe the ’196 patent. *See id.* at 98-102.

making, using, offering to sell, or selling a patented invention or importing a patented invention into the United States, without consent of the patent owner. 35 U.S.C. § 271(a).

To prove direct infringement, the plaintiff must establish by a preponderance of the evidence that one or more claims of the asserted patent read on the accused product or process, either literally or under the doctrine of equivalents.⁸ *Advanced Cardiovascular Sys., Inc. v. Scimed Life Sys., Inc.*, 261 F.3d 1329, 1336 (Fed. Cir. 2001). Each limitation in a patent claim is considered material and essential to an infringement determination. *See London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991). “Literal infringement of a claim exists when each of the claim limitations reads on, or in other words is found in, the accused device.” *Allen Eng. Corp. v. Bartell Indus.*, 299 F.3d 1336, 1345 (Fed. Cir. 2002). If any claim limitation is found to be absent from the accused product or process, then there is no literal infringement. *Bayer AG v. Elan Pharm. Research Corp.*, 212 F.3d 141, 1247 (Fed. Cir. 2000).

b. The Accused Roku Products

The ID finds that the accused Roku Ultra and Roku Soundbar are each media streaming devices (“first media device”) with a processor (“processing device”), a “memory device” coupled to the processor for storing “executable instructions,” an HDMI port coupled to the processor for communicating with a target device (“second media device”), and a “transmitter” coupled to the processor for communicating with a “remote control device.” *See* ID at 92-93.

The ID finds that during set-up, the Roku device transmits a CEC command over HDMI (*i.e.*, to mute the television or to turn it off) and queries the user to confirm whether that CEC command has been successful (*i.e.*, “is the television muted?” or “is the television off?”). *Id.* at 93. If the user confirms the HDMI/CEC test command was successful (*i.e.*, the television is

⁸ The doctrine of equivalents is not at issue here.

mute or off), then the accused Roku device is configured to transmit CEC commands directly to the television via the HDMI connection. *Id.* at 93, 95.

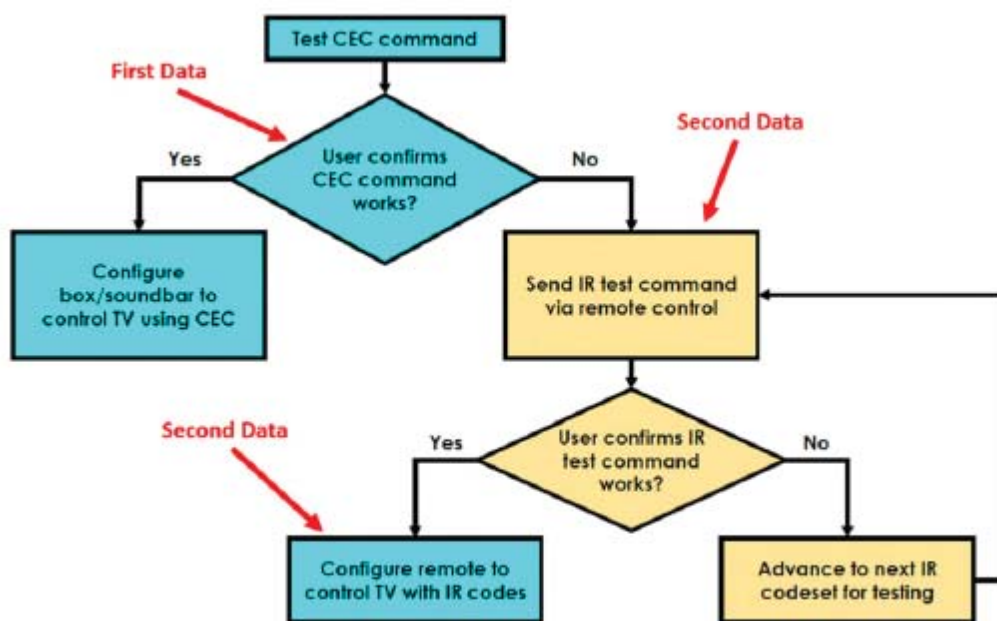
If, on the other hand, the user responds that the HDMI/CEC test command was not successful (*i.e.*, the television was not muted or turned off), then the accused Roku devices will send test codes to the remote control for sending IR commands from the remote control to directly control the television. *Id.* at 93-94. The process is iterative, the ID explains, in that the accused Roku devices may send multiple code sets successively until it identifies the code set that will effectively control the target television, the user abandons the process, or the user starts over by identifying a different brand of television. *Id.* at 94. Roku acknowledges that the successful IR code set, whether identified the first time or after multiple tries, “is for use in configuring the remote control” because it is stored in the settings of the remote control and is used to generate all subsequent transmissions of IR commands. Roku’s Resp. at 5-6.

c. Analysis

The Commission affirms the ID’s finding that the accused Roku Ultra and Soundbar products infringe independent claim 1 and dependent claims 3, 11, and 13-15 of the ’196 patent. ID at 98. There is no dispute that the accused Roku products satisfy the hardware limitations of claim 1 (the preamble and limitations [a]-[d]), for the reasons given in the ID. *Id.* at 92-93.

The ID also properly finds that the user’s response (yes or no) to the query from the accused Roku device (*i.e.*, “is the television muted?” or “is the television off?”) corresponds to the “first data” in claim 1. ID at 93, 95. The ID’s application of this term is consistent with the specification, which describes the invention in terms of a flowchart, wherein the user is prompted to respond to various inquiries in the flowchart’s decision tree. *See, e.g.*, ’196 patent at 9:46-53 (soliciting user’s responses to certain effects-observable commands during testing **920** in Fig. 9), 15:57-63 (soliciting user’s responses during testing **1528** in Fig. 15).

The Commission also affirms the ID’s finding that the accused Roku products practice the “responsive” part of limitation 1[e][i]. *See* ID at 92-98. If the user responds affirmatively (“first data”) that the HDMI/CEC test command was successful (*e.g.*, television is muted or turned off), then the accused Roku device (“first media device”) is configured to transmit commands (“first command”) to the television (“second media device”) via the HDMI connection, as required by limitation 1[e][i]. *See id.* at 92-95 (applying ’196 patent at 17:14-21 (limitation 1[e][i])). This “responsive” part is depicted on the left side of the flowchart below (starting with “yes” to “User confirms CEC command works?”):



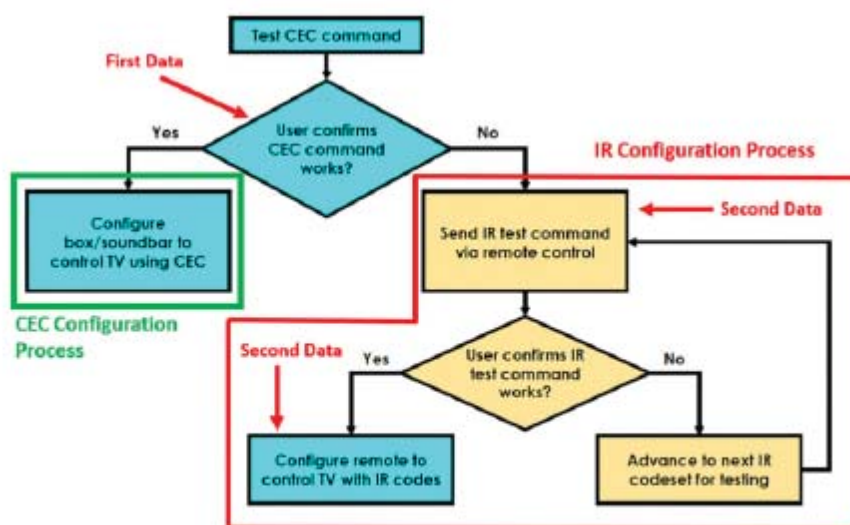
(RDX-0007C.21 (annotated).)

UEI’s Resp. at 8. This flowchart was initially prepared as a demonstrative (RDX-0007C.21) for Roku’s expert, Mr. Lipoff, and was later annotated in red by UEI to identify the “first data” and “second data” of claim 1 in the Roku Soundbar and Ultra devices. *Id.*; Roku’s Resp. at 7 (citing Hr’g Tr. (Lipoff) at 549:15-550:13, 553:13-554:18; Tr. (Peters) at 470:20-471:1).

The Commission also affirms the ID's finding that the accused Roku products practice the "unresponsive" part of limitation 1[e][ii]. *See* ID at 95-98. Referring again to the flowchart above, the "unresponsive" portion corresponds to the right-side branch ("no") after the "first data" ("User confirms CEC command works?"). UEI identifies two candidates for the "second data," marked in red above. *See* UEI's Resp. at 3, 5-8. If the target device is "unresponsive" to the CEC test command, the Roku Ultra or Soundbar device transmits an RF signal (the initial "second data") to the remote control device that contains the parameters for an IR test command. *See id.* at 4. Roku acknowledges that the remote control device extracts those parameters and uses them to generate and transmit a corresponding IR signal. Roku's Resp. at 5-6 (citing Hr'g Tr. (Lipoff) at 551:12-553:12; Hr'g Tr. (Peters) at 60:18-61:11, 469:13-470:13); Hr'g Tr. (Rosenberg) at 136:20-137:13). Roku argues, however, that this RF signal is not "for use in configuring the remote control" because it is not stored in the remote control and does not change its settings, but only passes through it like "water through a pipe." *See id.*

UEI's second candidate for the "second data" is the final IR configuration data that the Roku Ultra or Soundbar device transmits to the remote control after the user confirms that an IR test command successfully controls the target television. *See id.* at 6; UEI's Resp. at 6-8. Roku acknowledges that this latter "second data" is "for use in configuring the remote control" because it is stored in the settings of the remote control and used to generate all subsequent transmissions of IR commands. Roku's Resp. at 5-6 (citing Hr'g Tr. (Lipoff) at 553:13-554:18; Hr'g Tr. (Peters) at 470:14-471:1); Roku's Reply at 5 (citing Hr'g Tr. (Mendenhall) at 522:12-523:4). Nonetheless, Roku argues that this IR configuration data does not satisfy the "second data" limitations in claim 1 because it is not "based on" the "first data." *See* Roku's Resp. at 5-6; Roku's Reply at 4-5.

The Commission finds it unnecessary to divide the “unresponsive” branch, above, into two parts for purposes of infringement. As shown below, the entire right-side branch of the flowchart describes the process of configuring the remote control to transmit IR commands (“second command”) using an appropriate IR code set, regardless of whether the operative IR code set is identified after testing only one IR test command or multiple IR test commands in succession (as represented by the feedback loop at right). See ID at 98 (citing Hr’g Tr. (Rosenberg) at 137:11-13); see also Hr’g Tr. (Rosenberg) at 112:21-113:23, 203:4-23.



(RDX-0007C.21 (annotated).)

UEI’s Reply at 10 (original demonstrative by Roku; annotations added by UEI).

Limitation 1[e][ii] does not require that the “second data” directly or immediately result in the successful configuration of the remote control to transmit a “second command” (e.g., via IR) for controlling the target device (“second media device”). See ’196 patent at 17:21-32; ID at 95-96. Nor does limitation 1[e][ii] preclude transmitting additional data or commands between the “second data” and the ultimate configuration of the remote control to transmit a “second command” for controlling the target device, as long as the “second data” is “for use in

configuring the remote control” to ultimately transmit a “second command” to control the target device. ID at 96, 98. There is also no merit to Roku’s argument that the “second data,” “second command,” or configuration of the remote control must be “based on” the “first data,” as there is no such requirement in the claim. *See* ’196 patent at 17:13-32.

Accordingly, the Commission finds that the initial RF signal, which contains the parameters for generating the initial IR test command, corresponds to the “second data” in limitation 1[e][ii]. The remote control extracts those parameters and uses them to generate and transmit the IR test signal that is part of the configuration process, as Roku acknowledges. Roku’s Resp. at 5-6 (citing Hr’g Tr. (Lipoff) at 551:12-553:12; Hr’g Tr. (Peters) 469:13-470:13). This “second data” is sufficient to satisfy the limitation “for use in configuring the remote control” because the initial RF signal is used the process of configuring the accused remote control devices, specifically in identifying the appropriate IR code set, which is then loaded, stored, and used to configure the remote control, regardless of whether that IR code set was identified after testing the initial IR test command or multiple IR test commands, as needed. *Id.*

The Commission thus finds that the initial RF signal used to generate the IR test command is the “second data” that is “for use in configuring the remote control to transmit a second command” for directly controlling the target device, as set forth in limitation 1[e][ii]. The Commission affirms the ID’s findings that the accused Roku products infringe claim 1 and the asserted dependent claims of the ’196 patent. ID at 92-98, 101-02, 137.

The Commission recognizes that the ID’s finding of infringement rests on resolving the parties’ dispute as to whether “tak[ing] the RF coming from the Roku Box, converting it to IR, and then sending it back down” (*i.e.*, sending the IR test command from the remote control to the target device for testing) qualifies as “configuring” the remote control. *See* ID at 97-98 (quoting

Hr’g Tr. (Lipoff) at 553:12-21)). Although the Commission’s analysis above is sufficient to conclude that limitation 1[e] is satisfied, the Commission further affirms the ID’s finding that “converting” the RF signal to IR (in Roku’s terms) and transmitting that IR signal to the target device also satisfies this claim limitation, even under Roku’s narrow interpretation of “for use in configuring.” Some internal “settings” must be changed, even temporarily, within the remote control to cause it to receive an RF signal, extract the appropriate parameters from it, use them to generate a specific IR test command, and then transmit that IR test command to the television. *See* Roku’s Resp. at 3, 5-6. In other words, changing the remote control’s settings to receive an RF signal, deconstruct it, and use its parameters to generate and transmit a new signal in a different format (IR) is more complicated than “water flowing through a pipe,” as Roku contends. These changes are thus sufficient to amount to “configuring” the remote control, even temporarily, in the context of claim 1. *See* ID at 96-97 (quoting Hr’g Tr. (Rosenberg) at 209:12-21); *see also* Roku’s Resp. at 5.

In sum, the Commission affirms the ID’s finding that the Roku Ultra and Soundbar products infringe claims 1, 3, 11, and 13-15 of the ’196 patent. ID at 92-98, 101-02, 137.

4. Validity

The Commission also determined to review the ID’s findings on validity, specifically, whether the asserted claims of the ’196 are obvious over Chardon (U.S. Patent Appl. Pub. No. 2012/0249890) in combination with Mishra (U.S. Patent Appl. Publ. No. 2001/0005197). *See* 86 Fed. Reg. at 51382 (Questions C, D). ID at 106-121. Upon review of the prior art, the ID, the parties’ submissions, and evidence of record, the Commission has determined to affirm, with some modification, the ID’s finding that Roku failed to prove by clear and convincing evidence that the asserted claims are invalid as obvious over Chardon in combination with Misha.

a. Legal Standard

A party cannot be held liable for infringement if the asserted patent claim is invalid. *See Pandrol USA, LP v. AirBoss Railway Prods., Inc.*, 320 F.3d 1354, 1365 (Fed. Cir. 2003). Patent claims are presumed valid (35 U.S.C. § 282), so a party challenging validity must present “clear and convincing evidence” of invalidity to overcome this statutory presumption. *Checkpoint Systems, Inc. v. Int’l Trade Comm’n*, 54 F.3d 756, 761 (Fed. Cir. 1995).

A patent is invalid as obvious if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103 (pre-AIA). Obviousness is a legal conclusion that is based on underlying findings of fact. *Motorola Mobility, LLC v. Int’l Trade Comm’n*, 737 F.3d 1345, 1348 (Fed. Cir. 2013). These factual findings, known as the *Graham* factors, are: (1) the scope and content of the prior art; (2) the difference between the prior art and the claims at issue; (3) the level of ordinary skill in the art at the time the invention was made; and (4) any objective indicia of non-obviousness. *Id.* (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966)). All four *Graham* factors must be considered where evidence is offered, and it is error to reach a conclusion of obviousness until all of those factors are considered. *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1071-72 (Fed. Cir. 2018).

A party challenging a patent as obvious through a combination of references must also demonstrate by clear and convincing evidence that a person of ordinary skill in the art would have been motivated to combine the teachings of the prior art to achieve the claimed invention and would have had a reasonable expectation of success in doing so. *OSRAM Sylvania, Inc. v. Am. Induction Techs., Inc.*, 701 F.3d 698, 706-707 (Fed. Cir. 2012). A flexible teaching, suggestion, or motivation test can be useful to prevent hindsight bias when determining whether

a combination of known elements would have been obvious. *Norgren Inc. v. Int'l Trade Comm'n*, 699 F.3d 1317, 1322-23 (Fed. Cir. 2012). Obviousness, however, cannot be confined to a rigid application of a teaching, suggestion, or motivation test, however, as consideration of the common sense and ordinary creativity of one of ordinary skill in the art must also be part of the analysis. *Id.* (discussing *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 419-21 (2007)). Even so, the party asserting obviousness must still show there was an apparent reason or motivation to combine the known elements in the fashion claimed by the patent at issue. *See KSR*, 550 U.S. at 418-19.

When a patent is being challenged for obviousness, a patentee may respond by presenting evidence of “objective indicia” (or “secondary considerations”) of non-obviousness, such as the commercial success of the invention, long-felt but unmet need for the solution it provides, failure of others to achieve the invention, praise of the invention, or copying by others. *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1372-73 (Fed. Cir. 2019) (citing *inter alia Graham*, 383 U.S. at 17-18). The patentee must also demonstrate that there is a “nexus,” *i.e.*, a legally and factually sufficient connection, between the objective indicia and the merits of the invention. *Id.* at 1373. A rebuttable presumption of a nexus exists if the patentee can show that the objective evidence is tied to a specific product that is the invention disclosed and claimed in the patent. *Id.*; *Immunex Corp. v Sandoz, Inc.*, 964 F.3d 1049, 1067 (Fed. Cir. 2020). Such a showing is not required, however, as the patentee may prove a nexus by showing that the objective indicia, if any, are the direct result of the unique characteristics of the claimed invention. *Fox Factory*, 944 F.3d at 1373. However, where the secondary considerations “actually result from something other than what is both claimed and novel in the claim, there is no nexus to the merits of the claimed invention.” *In re Huai-Hung Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011).

b. The ID

Chardon. Chardon, Roku’s primary prior art reference, is directed to a “remote control system” (140) for identifying and selecting the most appropriate control codes (e.g., HDMI/CEC or wireless IR) for controlling the media devices in a home entertainment system (100).

Chardon, ¶¶ 1-3, 5, 6. In Figure 1, below, a remote control system (140) with a software component known as a remote control engine (145), is installed on each media device, such as a “multi-media gateway” (110), a remote control device (115), an HDMI display (e.g., television) (105a), and other media devices (105b). *Id.*, ¶¶ 8, 32, 39-40, 88.

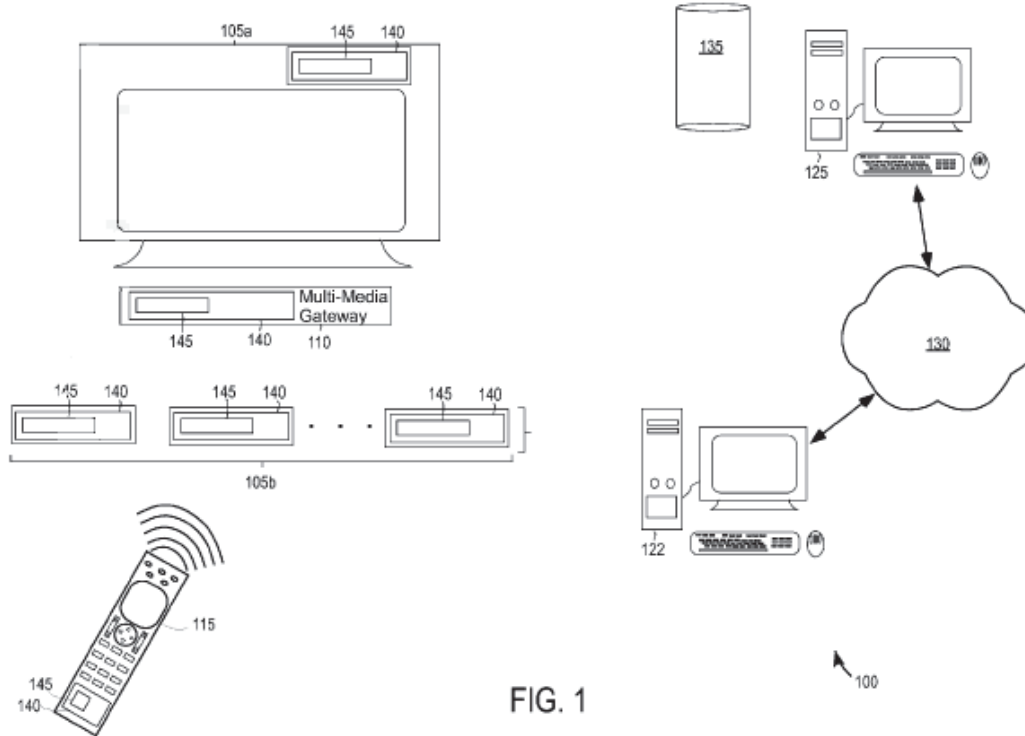


FIG. 1

The ID identifies Chardon’s “multi-media gateway” as the “first media device” in claim 1 because it includes a processor (“processing device”), transceivers, memory (“memory device”), and a CEC bus (“HDMI port”). ID at 109-10. The multi-media gateway (110) serves as a bridge for receiving command codes (e.g., IR) from a remote control device (115), translating those

command codes from one medium to another medium (*e.g.*, IR to CEC or RF), as necessary, and then transmitting the codes to the target device (“second media device”). Chardon, ¶¶ 1, 29-31.

The ID finds that Chardon satisfies the hardware limitations 1[a]-[d] in claim 1. ID at 113-14.

The ID also finds that Chardon discloses the “responsive” part in limitation 1[e][i]. *Id.* Chardon discloses two ways in which the “remote control system” chooses between CEC and IR codes. *Id.* at 107; Chardon, ¶¶ 12, 14, Fig. 5. The first way involves monitoring a CEC bus to determine whether the target HDMI device responds to a CEC test command, and if it does not, determining a corresponding IR command code, transmitting it to the target device, and storing the appropriate CEC or IR codes for future use in controlling that device. ID at 107-08, 112-13 (citing Chardon, ¶¶ 14, 20, 33-34, 58-59, 68). In the second way, the remote control system uses identifying information (*e.g.*, an Extended Display Identification Data Standard or a CEC vendor ID) to determine whether or not the target device will be responsive to specific CEC commands, and then transmits commands via CEC or IR, accordingly. ID at 108, 112-13 (citing Chardon, ¶¶ 10-12, 20, 49, 50, 59, 62).

Roku admits, and the ID agrees, that Chardon does not disclose the “unresponsive” part in limitation 1[e][ii]. *See* ID at 113; Roku’s Resp. at 11-12. Each of Chardon’s embodiments, the ID finds, uses either the multi-media gateway or the remote control, but not both, to issue commands for controlling the target device. ID at 114-15. Even though Chardon discloses a remote control (**115**) that may be configured to transmit and receive command codes, Chardon’s multi-media gateway sends IR codes directly to the target device and does not transmit them to the remote control for configuring that remote control. *Id.* at 113 (citing Chardon, ¶¶ 38-40). Furthermore, Chardon does not disclose an embodiment that selects between two devices (*e.g.*, the multi-media gateway or the remote control) to transmit commands to different target devices,

nor does it make any such selection based on the same “first data,” as in claim 1 of the ’196 patent. *Id.* at 111-13 (citing Chardon, ¶¶ 5, 38-40); Hr’g Tr. (Rosenberg) at 1239:7-19. Thus, the ID finds, and Roku agrees, that Chardon fails to disclose a “first media device” that “transmit[s] a second data to a remote control device, via use of a transmitter, for use in configuring the remote control device to transmit a second command directly to the second media device,” as in limitation 1[e][ii]. *Id.* at 113; Roku’s Resp. at 11-12.

Mishra. The ID finds that Mishra discloses the elements that are missing from Chardon. Mishra discloses an embodiment in which a set top box (**12**) sends codes and protocols to a remote control, either all at once or on an as-needed basis, which the remote control uses for controlling home theater devices. Mishra, ¶¶ 37-39. The ID finds that Mishra thus discloses a transmitter for transmitting “second data” from a “first media device” (set top box) to a remote control, which may receive that second data and uses it to transmit a “second command” directly to a target device (“second media device”). *See* ID at 114-15.

Combination of Chardon and Mishra. The ID finds that a skilled artisan would have been capable of adding Mishra’s transmitter and remote control to Chardon. ID at 115. The ID further accepts Roku’s argument that a person skilled in the art would have been motivated to combine Chardon with Mishra to address purportedly known “problems” with Chardon’s “IR blasters” by replacing those IR blasters with Mishra’s remote control to directly control the target device. *Id.* The ID concludes that Roku established a *prima facie* case of obviousness, albeit a “marginal” one, due to the relatively “substantial” differences between the prior art and the claimed invention, and the need to engage in “a certain amount of cherry-picking” to identify the claim elements in each prior art reference. *See* ID at 114-16.

Nonetheless, the ID finds UEI's evidence of objective indicia of non-obviousness is "substantial; indeed they are dispositive," and outweighs Roku's "marginal" *prima facie* case of obviousness. ID at 116. The ID concludes that Roku failed to prove by clear and convincing evidence that the '196 patent claims are invalid as obvious. *Id.* at 118, 137-38.

c. Analysis

The Commission affirms the ID's finding that Roku failed to prove by clear and convincing evidence that the '196 patent claims are obvious over Chardon combined with Mishra, including its finding that UEI's secondary considerations of non-obviousness are "substantial" and "dispositive." *See* ID at 116-18, 138. The Commission writes separately, however, to reverse the ID's finding that Roku made a *prima facie* showing of obviousness. *Id.* at 116, 118.

The ID acknowledges that a "certain amount of cherry-picking is required" to find the limitations of claim 1 in either Chardon or Mishra because the references are "not especially analogous to the '196 patent" and the differences between the claimed invention and the prior art are "substantial." *See id.* at 114-15. In particular, neither Chardon nor Mishra discloses the "fundamental tenet" of the '196 patent's invention, namely, a system configured to choose between two different control devices to transit commands over different pathways (e.g., HDMI vs. IR) to different target devices, based on whether the "first media device" determines that the target device will be responsive or unresponsive to the "first command" over HDMI. *See* '196 patent at 4:39-40, 17:14-32 (limitation 1[e]); Hr'g Tr. (Rosenberg) at 1218:21-1219:8, 1224:24-1225:5, 1226:6-24, 1239:7-19. Also, neither Chardon nor Mishra discloses transmitting "second data" to the remote control "for use in configuring the remote control device to transmit" commands in the manner set forth in limitation 1[e]. *See* Hr'g Tr. (Russ) at 938:10-24; ID at 110, 113-14, 118. Mishra also does not disclose using an HDMI connection. ID at 115.

The Commission further finds that combining Chardon with Mishra does not involve a simple substitution of known elements, as Roku argues. Roku identifies no teaching, suggestion, or motivation in Chardon or Mishra to divide control of the target devices between two different control devices, as it would run contrary to Chardon’s teaching that either the multi-media gateway or the remote control, but not both, is used to control all of the target devices. *See, e.g.,* Chardon, ¶¶ 32, 38, 43-44; ID at 111, 114; Hr’g Tr. (Russ) at 935:9-936:25. Moreover, Chardon’s remote control engine can already control the target device over HDMI/CEC or IR (or another pathway), so it would be “duplicative” and “wasteful” to add a second IR command path that involves the remote control. *See* Hr’g Tr. (Rosenberg) at 1240:20-1241:1.

The Commission also finds that Roku’s evidence of alleged problems with IR blasters does not suffice to show that a person skilled in the art would have been motivated to combine Chardon and Mishra in the manner required to render the invention obvious. Roku, citing its expert Dr. Russ, argues that IR blasters have certain “limitations,” such as being difficult to line up effectively or connect inside an entertainment cabinet. *See* Roku’s Resp. at 17 (citing, *e.g.,* Hr’g Tr. (Russ) at 832:16-833:2, 945:7-18). Yet Dr. Russ testified that IR blasters also have “some advantages,” and indicated that their alleged problems can be alleviated by arranging the media devices in a proper way or through other means. *See* Hr’g Tr. (Russ) at 940:5-941:7. The Commission also finds no evidence to suggest that the alleged problems with IR blasters would have motivated a person skilled in the art to replace the single control device disclosed in Chardon with a more complicated system that uses two controlling devices (*e.g.,* a set top box and a remote control) to control different media devices, particularly where both devices are selected according to the same “first data,” as in claim 1.

For these reasons, the Commission finds that Roku has not established even a “marginal” *prima facie* case for obviousness and reverses the ID on that point. *See* ID at 116, 118. The Commission also finds that UEI’s evidence of secondary considerations is even more “substantial,” “impressive,” or “dispositive” than the ID recognizes. *See id.* at 116-18. This evidence, which includes industry praise for the invention and widespread adoption, identifies the use of two controlling devices (such as a set top box and a separate remote control) and thus exhibits a clear nexus between the invention and the secondary considerations, for the reasons stated in the ID. *See id.* at 116-17. UEI is also entitled to a presumption of a nexus because it has shown that this objective evidence is tied to specific Samsung products that practice the invention disclosed and claimed in the ’196 patent. *See Immunex Corp. v Sandoz, Inc.*, 964 F.3d 1049, 1067 (Fed. Cir. 2020). Roku has not overcome this presumption, made a *prima facie* showing of obviousness, or dispelled UEI’s substantive evidence of secondary considerations.

The Commission thus affirms the ID’s conclusion that Roku failed to prove by clear and convincing evidence that the ’196 patent claims are invalid as obvious, albeit it reverses the ID’s finding that Roku made even a *prima facie* showing of obviousness.

B. The ’317 Patent

The Commission adopted the ID’s findings that there is no violation of Section 337 with respect to the ’317 patent because the asserted claims are invalid as anticipated, obvious, and directed to patent-ineligible abstract subject matter, pursuant to 35 U.S.C. §§ 101-103. ID at 36-50, 57-83, 138-39. Nonetheless, the Commission determined to review the ID’s finding that UEI satisfies the technical prong of the domestic industry requirement with respect to the ’317 patent to correct an item in the ID’s analysis. *Id.* at 51-57.

1. Legal Standard

When a Section 337 investigation is based on allegations of patent infringement, the complainant must show that “an industry in the United States, relating to the articles protected by the patent . . . exists or is in the process of being established.” 19 U.S.C. § 1337(a)(2). “[A]n industry is considered to exist if there is in the United States, with respect to the articles protected by the patent . . . concerned –

(A) significant investment in plant and equipment;

(B) significant employment of labor or capital; or

(C) substantial investment in its exploitation, including engineering, research and development, or licensing.” 19 U.S.C. § 1337(a)(3).

The “domestic industry requirement” consists of a so-called “technical prong” and an “economic prong.” A complainant satisfies the technical prong by showing it is practicing, licensing, or otherwise exploiting the patents at issue. *Certain Microsphere Adhesives, Process for Making Same and Products Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Comm’n Op. at 8 (Jan. 16, 1996). The test for “practicing” a patent is essentially the same as it is for infringement, only it involves comparing the complainant’s own “domestic industry products” to one or more claims of the patent. *Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1375 (Fed. Cir. 2003). It is sufficient that the domestic industry product practices at least one claim of each patent that serves as a basis for relief; it is not necessary for the complainant to practice the same claims it is asserting against the respondent. *Certain Male Prophylactic Devices*, Inv. No. 337-TA-546, Comm’n Op. at 38 (Aug. 1, 2007).

2. The ID

The ’317 patent is directed to a system for setting up a universal remote control device by using an interactive instruction set and controllable appliance, such as a set top box. ’317 patent

at Abstract, 3:3-5, 4:55-6:28, Figs. 5, 7. In pertinent part, the ID finds that UEI satisfies the technical prong of the domestic industry requirement by relying on certain Samsung televisions (“Samsung DI Products”) that incorporate and use UEI’s QuickSet software. *See* ID at 51-53.

The “primary dispute,” the ID explains, is whether the Samsung DI Products satisfy limitation 1[b], which requires “a transmitter for transmitting communications to a display device coupled to the controlled device.” ID at 54. UEI identified the Samsung television as the “controlled device” and its internal LCD panel as the “display device.” *Id.* Roku, however, argued that the internal LCD panel cannot be “coupled to the controlled device” (television) because “a part of something is not ‘coupled to’ the whole.” *Id.* (citing *inter alia Cutsforth, Inc. v. Motivepower, Inc.*, 643 F. App’x 1008, 1012 (Fed. Cir. Apr. 6, 2016) (non-precedential)).

The ID make two alternative findings. First, the ID finds that even if the “controlled device” must be physically separate from the “display device,” as Roku argues, then claim 1 is satisfied by identifying the “main board” in the Samsung DI Products as the “controlled device,” and the LCD panel as the “display device.” ID at 55-56. The ID finds that the main board is “a distinct component or set of components inside the Samsung RU8000 [television] that is physically separate from the LCD display panel” and “electrically connected to [*i.e.*, “coupled to”] the display panel,” as shown in the figures below. *Id.* The ID finds the main board also includes a “transmitter for sending display signals to the display panel,” as required by claim 1.



ID at 55 (reproducing CX-0647C.1).

Second, the ID finds that the '317 patent expressly states that the claimed invention may be contained within the same housing as the display device, as in a television, and does not necessarily have to be a stand-alone device. *See id.* at 56 (citing '317 patent at 8:39-44). The ID finds that in this context, then, the “display device” may be “coupled to” the television, and thus the Samsung DI Products satisfy limitation 1[b] under either interpretation. *Id.* at 56-57. The ID thus rejects Roku’s argument that, if the “controlled device” is the television, the “display device” cannot be part of the “controlled device” (television). *Id.* at 56.

Roku argues that the ID errs in finding that the LCD panel can be “coupled to” the Samsung television under either theory. First, Roku argues that the ID errs in finding that limitation 1[b] can be satisfied by identifying the main board as the “controlled device” because the main board does not have “a receiver for receiving communications from a remotely located controlling device,” as required by claim 1. *See Roku’s Resp.* at 20. Second, Roku reiterates that the LCD panel cannot be “coupled to” the television that contains that panel. *See id.*

3. Analysis

The Commission has reviewed the ID’s findings as to whether the Samsung DI Products practice claim 1 of the '317 patent, focusing on the term “coupled to” and the proper identification of the hardware limitations in the Samsung DI Products. *See* 86 Fed. Reg. at

51383 (Question E). Upon review of the ID and the parties' submissions, the Commission adopts the ID's conclusion, but modifies certain findings. *See* ID at 55-56.

There is no dispute that the Samsung DI Products contain each of the hardware components recited in the asserted claims (*e.g.*, a “receiver,” “remotely located controlling device,” “transmitter,” “display device,” “processing device,” “memory,” etc.) and use the QuickSet software to perform the claimed functionalities. *See* ID at 53-54, 56-57. The only question is whether they can be properly aligned with the limitations as needed to satisfy claim 1.

The Commission finds the parties have not disputed the meaning of “device” or sought to impose any specific or narrowing constructions on that term. The ordinary meaning of “device,” as used in claim 1 (*e.g.*, “controlled *device*,” “controlling *device*,” “display *device*,” “processing *device*,” etc.), has a broad and flexible scope. The Commission further notes that Roku has not objected conceptually to identifying a component, such as the main board, as the “controlled device,” other than to argue that it does not satisfy all the applicable limitations of claim 1.

In this context, then, the Commission finds that UEI correctly proposes that the LCD screen could be identified as the “display device” and the main board plus Bluetooth transceiver (“receiver”) could be the “controlled device.” *See* UEI's Reply at 22-23; UEI's Resp. at 20-22. Alternatively, the LCD screen could be identified as the “display device” and the rest of the Samsung television, including the main board, transceiver, and all other components, as the “controlled device,” given the breadth of the term “device.” Thus, there are multiple ways in which the Samsung DI Products can satisfy limitation 1 [b] and all other limitations needed to practice claim 1.

As for the “coupled to” limitation, the Commission recognizes that terms like “coupled to” may be construed in certain contexts to require that the coupled components are separate

components. *See, e.g., Certain Collapsible and Portable Furniture*, Inv. No. 337-TA-1178, Comm'n Op., 2021 WL 2010902 at *13 n.13 (USITC May 18, 2021) (collecting cases).

Nonetheless, the ID properly finds in this case that the '317 patent teaches that the claimed invention (the “controlled device”) may be implemented as either a stand-alone set top box or integrated into a television or other media device. ID at 55-56 (citing '317 patent at 8:39-48).

Dependent claim 2, for example, is limited to a “controlled device compris[ing] a set-top box and the display device compris[ing] a television.” *See* '317 patent at 9:12-14. This means that claim 1, as the independent claim, should be construed more broadly to cover both embodiments, in which the “controlled device” can be either a set top box or integrated into the target device. *See Eko Brands, LLC v. Adrian Rivera Maynez Enterprises, Inc.*, 946 F.3d 1367, 1373 (Fed. Cir. 2020) (construing a claim to exclude a preferred embodiment is rarely, if ever correct, and would require highly persuasive evidentiary support). In this context, the Commission finds that the intrinsic evidence shows that an internal “display device” (LCD panel) may be “coupled to” to the television containing the invention for purposes of practicing claim 1, as UEI argued. *See* UEI's Resp. at 20; UEI's Reply at 21-23.

The Commission thus affirms the ID's findings that the Samsung DI Products, which contain UEI's QuickSet software, practice the asserted claims of the '317 patent. UEI thus satisfies the technical prong of the domestic industry requirement with respect to this patent.

C. Domestic Industry: Economic Prong

The Commission determined to review the ID's finding that UEI satisfied the economic prong of the domestic industry requirement under Section 337(a)(3)(B) with respect to the '196 and '317 patents, 86 Fed. Reg. at 51382 (Question F), as well as the '642 patent. The Commission, having reviewed the ID, the parties' submissions, and the evidence of record, has determined to take no position as to whether UEI satisfied the economic prong with respect to

any of the three patents under Section 337(a)(3)(B).⁹ The Commission determined not to review and thus adopted the ID's findings that UEI satisfied the economic prong of the domestic industry requirement with respect to all three patents under Section 337(a)(3)(C). *See* ID at 134-38; 86 Fed. Reg. at 51382.

V. REMEDY, THE PUBLIC INTEREST, AND BONDING

The Commission has “broad discretion in selecting the form, scope, and extent of the remedy.” *Viscofan, S.A. v. US. Int’l Trade Comm’n*, 787 F.2d 544, 548 (Fed. Cir. 1986).

A. Limited Exclusion Order

Section 337(d)(1) provides that “[i]f the Commission determines, as a result of an investigation under this section, that there is a violation of this section, it shall direct that the articles concerned, imported by any person violating the provision of this section, be excluded from entry into the United States, unless, after considering the [public interest], it finds that such articles should not be excluded from entry.” 19 U.S.C. § 1337(d)(1).

The Commission, having found a violation of Section 337 with respect to the ’196 patent, has determined to issue a limited exclusion order (“LEO”) precluding the importation of televisions, set top boxes, remote control devices, streaming devices, and sound bars that incorporate Roku components that infringe one or more of asserted claims 1, 3, 11, and 13-15 of the ’196 patent, pursuant to Section 337(d)(1). The Commission has determined to include “televisions” in its LEO because the ’196 patent, as explained earlier, may cover embodiments in

⁹ Vice Chair Stayin joins the Commission’s determination to take no position on this issue. If the Commission were to reach the issue, he would affirm the ID’s findings that UEI satisfied the economic prong with respect to all three patents under Section 337(a)(3)(B). In his view, UEI is not required to show its QuickSet investments are significant in comparison to the Samsung DI Products, and UEI demonstrated that its investments are significant as set forth in the ID. *See* ID at 133-34.

which the “second media device” (here, the Roku Soundbar or Ultra) is either a stand-alone device or incorporated into a television. The LEO also includes the standard certification provision allowing U.S. Customs and Border Protection (“CBP”), at its discretion, to require an importer seeking to import to certify that, to the best of its knowledge and after having obtained a determination from the Commission, that the articles it seeks to import are not excluded from entry under the LEO.

The Commission, as is customary, is not limiting the LEO to covered products that were actually adjudicated to infringe the ’196 patent so that it may ensure that the exclusion order affords complainant “complete relief” and cannot be “easily circumvented.” *See Certain Graphics Systems, Components Thereof, and Consumer Products Containing Same*, Inv. No. 337-TA-1044, Comm’n Op. at 66 (Sept. 18, 2018) (LEO covers any of respondents’ products that infringe the patent at issue and is not limited to particular models); *Certain Human Milk Oligosaccharides and Methods of Producing Same*, Comm’n Op. at 19-20, 2020 WL 3073788 at *11 (June 20, 2020) (redesigned products may still fall within the scope of the remedial orders even if they were not adjudicated for infringement in the original investigation), *aff’d*, *Jennwein Biotechnologie GmbH v. Int’l Trade Comm’n*, 2021 WL 4250784 (Fed. Cir. Sept. 17, 2021) (unpublished); *Certain Hardware Logic Emulation Systems and Components Thereof*, Inv. No. 337-TA-383, Comm’n Op., 1998 WL 307240 at *9 (Mar. 9, 1998) (Commission’s remedial orders typically extend to products covered by the patent claims at issue and are not limited only to specific models selected for the infringement analysis in order to avoid easy circumvention).

On agreement of the parties, the Commission includes an exemption for those revised Roku products that were adjudicated in this investigation and found to be non-infringing, specifically, the Roku Ultra (Bryan 2) and Roku Soundbar (Fruitland). This exemption does not

apply to any products that were not adjudicated in this investigation or not found to be non-infringing. The Commission also declines to extend this exemption to Roku products that allegedly “contain the same functionality” as these non-infringing products, because such a clause would be too broad and vague and thus complicate, rather than facilitate, enforcement.

The Commission also declines Roku’s request to include an exemption for warranty, service, and repair, as Roku failed to provide sufficient evidence to support such a provision. The Commission declines to include an exemption for spare parts or other components because Roku did not provide any evidence to support such an exemption, identify any spare parts to be exempted, or explain the importance of such spare parts. *See Certain Non-Volatile Memory Devices and Products Containing Same*, Inv. No. 337-TA-1046, Comm’n Op. at 50, 2018 WL 6012622 at *31 (Oct. 26, 2018) (finding exemption for service or repair was not warranted when the respondent did not identify any specific replacement parts or explain what repairs were needed).

B. Cease and Desist Order

Section 337(f)(1) provides that in addition to, or in lieu of, the issuance of an exclusion order, the Commission may issue a cease and desist order (“CDO”) as a remedy for violation of Section 337. *See* 19 U.S.C. § 1337(f)(1). CDOs are generally issued when, with respect to the imported infringing products, respondents maintain commercially significant inventories in the United States or have significant domestic operations that could undercut the remedy provided by an exclusion order.¹⁰ *See, e.g., Certain Table Saws Incorporating Active Injury Mitigation*

¹⁰ When the presence of infringing domestic inventory or domestic operations is asserted as the basis for a CDO under Section 337(f)(1), Commissioner Schmidlein does not adopt the view that the inventory or domestic operations needs to be “commercially significant” in order to issue the CDO. *See, e.g., Certain Magnetic Tape Cartridges and Components Thereof*, Inv. No. 337-TA-1058, Comm’n Op. at 65, n.24 (Mar. 25, 2019); *Table Saws*, Comm’n Op. at 6-7, n.2 (Feb. 1, 2017). In Commissioner Schmidlein’s view, the presence of some infringing domestic

Technology & Components Thereof (“*Table Saws*”), Inv. No. 337-TA-965, Comm’n Op. at 4-6 (Feb. 1, 2017); *Certain Protective Cases & Components Thereof*, Inv. No. 337-TA-780, USITC Pub. No. 4405, Comm’n Op. at 28 (Nov. 19, 2012). Complainants bear the burden on this issue. “A complainant seeking a cease and desist order must demonstrate, based on the record, that this remedy is necessary to address the violation found in the investigation so as to not undercut the relief provided by the exclusion order.” *Table Saws*, Comm’n Op. at 5 (collecting cases); *see also* H.R. REP. No. 100-40, at 160 (1987).

The Commission has determined to issue a CDO directed to respondent Roku, with the standard language and the exemption noted above for products adjudicated in this investigation and found to be non-infringing. The Commission finds that a cease and desist order is warranted in view of Roku’s [REDACTED] of domestic inventory of products that infringe the ’196 patent. RD at 142-43. Although Roku disputes whether this inventory is “commercially significant,” it does not dispute its total value, which is substantial.

C. Public Interest

Section 337 requires the Commission, upon finding a violation of Section 337, to issue an LEO “unless, after considering the effect of such exclusion upon the public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumers, it finds that such articles

inventory or domestic operations, regardless of its commercial significance, provides a basis to issue a CDO. *Id.*

should not be excluded from entry.” 19 U.S.C. § 1337(d)(1). The Commission must also consider these public interest factors before issuing a CDO. 19 U.S.C. § 1337(f)(1).

Under appropriate facts and circumstances, the Commission may determine that no remedy should issue because of the adverse impacts on the public interest. *See, e.g., Certain Fluidized Supporting Apparatus & Components Thereof*, Inv. Nos. 337-TA-182/188, USITC Pub. 1667, Comm’n Op. at 1–2, 23–25 (Oct. 1984) (finding that the public interest warranted denying complainant’s requested relief). Moreover, when the circumstances of a particular investigation so require, the Commission has tailored its relief in light of the statutory public interest factors.

The statute requires the Commission to consider and make findings on the public interest in every case in which a violation is found regardless of the quality or quantity of public interest information supplied by the parties. 19 U.S.C. § 1337(d)(1), (f)(1). The Commission publishes a notice inviting the parties as well as interested members of the public and interested government agencies to gather and present evidence on the public interest at multiple junctures in the proceeding.¹¹ 19 U.S.C. § 1337(d)(1) & (f)(1). The Commission received no response to its request for comments on the public interest from any interested third parties. *See* 86 Fed. Reg. 38126 (July 19, 2021).

Roku admits that the statutory public interest factors do not preclude issuance of a remedial order if the Commission finds a violation. Roku’s Resp. at 34. The Commission also finds the public interest does not warrant the repair and replacement provisions, broader exemptions, or other provisions Roku sought to include in the remedial orders. *See id.* at 33.

¹¹ The Commission did not ask the ALJ to make findings regarding the public interest when it instituted the investigation. *See* 85 Fed. Reg. at 31211-12.

1. Public Health and Welfare

The covered products are certain media streaming products, remote controls, and related components imported, sold for importation, or sold in the United States after importation by Roku that infringe one or more claims of the '196 patent. The Commission finds, and Roku does not contend otherwise, that these consumer products do not implicate any public health, national security or welfare, or other public interest concerns. Thus, an exclusion order will not adversely impact public health or welfare under Section 337(d)(1), (f)(1).

2. Competitive Conditions in the United States

The Commission finds, and Roku does not dispute, that there are multiple manufacturers and importers of similar and media streaming devices. *See* UEI's Resp. at 27. The exclusion of Roku's covered products will not adversely affect competitive conditions in the United States or the ability of other companies to innovate or compete in this space. To the contrary, effective enforcement of legitimate patent rights encourages competition among providers and innovation in new technologies and competing products. Moreover, the exemption for Roku products that were adjudicated and found to be non-infringing will offset Roku's concerns regarding potentially denying consumers access to lawful, non-infringing products. *See* Roku's Resp. at 33. Thus, the Commission finds that issuing an exclusion order will not adversely impact competitive conditions in the U.S. economy under Section 337(d)(1), (f)(1).

3. The Production of Like or Directly Competitive Articles in the United States

The Commission finds, and Roku does not dispute, that the exclusion of Roku's covered products will not adversely affect the production of like or directly competitive articles in the United States. Neither party, in fact, presents any evidence that any competitive articles are produced in the United States, apart from UEI's investments in R&D and engineering labor

relating to QuickSet. Moreover, the exclusion of an unlawfully infringing product may encourage the development, marketing, and sale of products in lawful domestic competition. The Commission finds that an exclusion order will not adversely impact the production of like or directly competitive articles in the United States under Section 337(d)(1), (f)(1).

4. United States Consumers

The Commission finds, and Roku does not deny, that there are multiple providers of media streaming devices or other competitive products, including UEI and its licensees Samsung and Sony, and other third parties. UEI's Resp. at 27. Exclusion of the covered products will not adversely impact U.S. consumers, who will be able to purchase other competitive products from these and other providers. *See id.* The Commission also finds that the public and U.S. competitive interests generally benefit from enforcement of intellectual property rights. *Certain Two-Handle Centerset Faucets & Escutcheons & Components Thereof*, Inv. No. 337-TA-422, Comm'n Op. at 9 (July 21, 2000). Thus, the Commission finds that an exclusion order will not adversely impact U.S. consumers under Section 337(d)(1), (f)(1).

E. Bond

If the Commission enters an exclusion order or a cease and desist order, a respondent may continue to import and sell its products during the 60-day period of Presidential review under a bond in an amount determined by the Commission to be "sufficient to protect the complainant from any injury." 19 U.S.C. § 1337(j)(3); see also 19 C.F.R. § 210.50(a)(3).

When reliable price information is available in the record, the Commission has often set the bond in an amount that would eliminate the price differential between the domestic product and the imported, infringing product. *See Certain Microsphere Adhesives, Processes for Making Same, & Prods. Containing Same, Including Self-stick Repositionable Notes*, Inv. No. 337-TA-

366, USITC Pub. No. 2949, Comm'n Op. at 24 (Jan. 16, 1996). The Commission has also used a reasonable royalty rate to set the bond amount where a reasonable royalty rate could be ascertained from the evidence in the record. *See, e.g., Certain Audio Digital-to-Analog Converters & Prods. Containing Same*, Inv. No. 337-TA-499, Comm'n Op. at 25 (Mar. 3, 2005). Where the record establishes that the calculation of a price differential is impractical or there is insufficient evidence in the record to determine a reasonable royalty, the Commission has imposed a 100 percent bond. *See, e.g., Certain Liquid Crystal Display Modules, Prods. Containing Same, & Methods Using the Same*, Inv. No. 337-TA-634, Comm'n Op. at 6-7 (Nov. 24, 2009). The complainant bears the burden of establishing the need for a bond. *Certain Rubber Antidegradants, Components Thereof & Prods. Containing Same*, Inv. No. 337-TA-533, USITC Pub. No. 3975, Comm'n Op. at 40 (July 21, 2006).

The Commission has determined to impose a bond in the amount of zero (0) percent of entered value during the period of Presidential review. UEI does not set out any price comparisons in its briefs on review, but it did argue in its post-hearing brief that “the Accused Products can vary dramatically in price (\$12 for Roku remote to \$100 for a Roku Ultra to \$149 for a Roku Soundbar to thousands of dollars for Roku TVs) as do the DI Products (versus thousands of dollars for some Samsung televisions).” Complainant’s Initial Post-Hearing Brief at 144. UEI, however, does not explain which of the accused Roku products, how many, or to what extent they actually compete against downstream products (televisions) made by UEI’s licensees, including Samsung.

Thus, UEI has not carried its burden of establishing the need for a bond or the amount of any bond. *See Rubber Antidegradants*, Comm'n Op. at 40; *Certain Digital Video Receivers and*

Related Hardware and Software Components, Inv. No. 337-TA-1103, Comm'n Op. at 32 (May 13, 2020) (denying bond due to lack of evidence on price differentials or reasonably royalties).

VI. CONCLUSION

For the reasons set forth herein and in the ID, the Commission determines that UEI has established a violation of Section 337 by Roku with respect to claims 1, 3, 11, and 13-15 of the '196 patent. The investigation is hereby terminated with a finding of a violation of Section 337. The Commission determines that the appropriate remedy is a limited exclusion order and cease and desist order. The Commission further finds that the public interest does not preclude issuance of a remedy, and it sets a bond of zero (0) percent applicable to imports during the Presidential review period.

By order of the Commission.



Secretary to the Commission

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