PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of **CERTAIN WET DRY SURFACE CLEANING DEVICES**	**Investigation No. 337-TA-1304**

COMMISSION OPINION

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PUBLIC VERSION

COMMISSION OPINION

I. INTRODUCTION

On August 1, 2023, the Commission determined to review in part a final initial determination ("FID") of the presiding Chief Administrative Law Judge ("CALJ"), finding a violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 ("section 337"), by way of infringement of U.S. Patent Nos. 11,076,735 ("the '735 patent") and 11,071,428 ("the '428 patent") (collectively, the "Resch patents"), and finding no infringement, and hence no violation, with respect to the other asserted patents, U.S. Patent Nos. 11,122,949 ("the '949 patent"); 11,096,541 ("the '541 patent"); or 10,820,769 ("the '769 patent") (collectively, the "Xia patents"). *See* 88 Fed. Reg. 52208-09 (Aug. 7, 2023).

On review, the Commission has determined to adopt the FID's findings, as modified and supplemented below, that the respondents violated section 337 with respect to the Resch patents but not the Xia patents. The Commission has determined that the appropriate remedy is the issuance of an LEO and CDOs to each of Respondents. The Commission finds that the public interest does not preclude issuance of a remedy. The Commission sets a bond of $99.01 for each covered iFloor 3 product, $99.01 for each covered Floor One S3 product, and $0 for any other covered product imported during the 60-day period of Presidential review.[1] This opinion sets forth the Commission's reasoning in support of its determination.

II. BACKGROUND

A. Procedural History

On March 9, 2022, the Commission instituted this investigation based on a complaint, as supplemented, filed by Bissell Inc. and Bissell Homecare, Inc., of Grand Rapids, Michigan

[1] Product terms are defined in section II(C), *infra*.

(collectively, "Complainants"), alleging violations of section 337 based on the importation, sale for importation, and sale within the United States after importation of certain wet dry surface cleaning devices (*e.g.*, vacuum cleaners) that infringe one or more asserted claims of the Xia patents or Resch patents. 87 Fed. Reg. 13311-12 (March 9, 2022). The complaint alleges that a domestic industry ("DI") exists. *Id*. The notice of investigation names Tineco Intelligent Technology Co., Ltd. of Suzhou City, China; TEK (Hong Kong) Science & Technology Ltd. of Hong Kong, China; and Tineco Intelligent, Inc. of Seattle, Washington (collectively, "Respondents") as respondents. *Id*. The Office of Unfair Import Investigations is not participating in this investigation. *Id.*

The presiding CALJ held a claim construction hearing on August 26, 2022. FID at 3. The CALJ held an evidentiary hearing on December 5-9, 2022. *Id.* at 4.

On March 24, 2023, the CALJ issued the FID, finding that Respondents violated section 337 with respect to asserted claims 1, 13, and 15 of the '735 patent and asserted claim 1 of the '428 patent (the Resch patents), but finding no violation with respect to the Xia patents. *See* FID at 268-70. In particular, the FID finds that the asserted claims[2] of the Resch patents are infringed but the asserted claims of the Xia patents are not infringed. *See id.* at 269. The FID finds that Respondents failed to prove that any of the asserted claims of the Xia patents is invalid as anticipated or obvious, or any of the asserted claims of the Resch patents is obvious. *See id.* The FID also finds that Complainants have satisfied the technical prong of the DI requirement

[2] The FID finds that Complainants failed to include in their initial post-hearing brief any contentions regarding several claims that were within the scope of the investigation, and thereby abandoned any contentions based on those claims. *See* FID at 15-16 and accompanying table of claims (citing Order No. 2 at 26, Ground Rules ("G.R.") 14.1, 14.2 (March 9, 2022) ("Any contentions for which a party has the burden of proof that are not set forth in detail in the post-hearing initial [or responsive] brief shall be deemed abandoned or withdrawn.")).

with respect to the Resch and Xia patents, with the exception of the Xia '541 patent. *Id.* The FID further finds that Complainants have satisfied the economic prong of the DI requirement for all of the patents under subsections 337(a)(3)(B) (labor and capital) and 337(a)(3)(C) (exploitation, including engineering, research and development, and licensing). *Id.* at 270.

On April 7, 2023, the CALJ issued the Recommended Determination on Remedy and Bond ("RD"), recommending that the Commission issue a limited exclusion order covering Respondents' infringing products and cease and desist orders directed to each of Respondents, if a violation is found. RD at 2-3, 6-8. The RD also recommends setting a bond of $49.01 on each covered iFloor 3 product and $99.01 on each covered Floor One S3 product imported during the period of Presidential review, but no bond ($0) on any other covered product imported during that time. *Id.* at 14-15.

On April 7, 2023, Complainants filed a petition for review of the FID's findings that: (1) Respondents' accused products do not infringe the Xia patents; (2) Complainants have not satisfied the DI technical prong requirement for the '541 patent; (3) Respondents' redesigned products do not infringe the Resch patents; and (4) a contingent petition for review of certain economic prong findings adverse to Complainants.[3] On the same date, Respondents filed a petition for review of the FID's findings that: (1) Respondents' original accused products infringe the Resch patents; (2) the asserted claims of the Resch and Xia patents are not invalid; (3) Complainants have satisfied the DI technical prong requirement for the Resch patents; and (4) Complainants have satisfied the economic prong of the DI requirement for both the Xia and

[3] Complainants' Petition for Review of the Initial Determination (Apr. 7, 2023) ("CPet.").

Resch patents.[4] Complainants and Respondents filed their respective responses to the opposing party's petition for review on April 17, 2023.[5]

On April 10, 2023, the Commission issued a notice requesting submissions from non-parties on the public interest. *See* 88 Fed. Reg. 22479-80 (April 13, 2023). On May 8, 2023, Representative Hillary J. Scholten responded to the Commission notice seeking public interest submissions. EDIS Doc. ID 795898 (May 8, 2023). On May 9, 2023, Bissell filed a submission on the public interest, pursuant to Commission Rule 210.50(a)(4). 19 C.F.R. § 210.50(a)(4).

On August 1, 2023, the Commission determined to review the FID in part regarding its findings that: (1) Respondents do not infringe the Xia patents; (2) Complainants have not satisfied the DI technical prong requirement for the Xia '541 patent; (3) the asserted claims of the Resch patents are not invalid as obvious; and (4) Complainants have satisfied the economic prong of the DI requirement under subsections 337(a)(3)(B) and (C). *See* 88 Fed. Reg. at 52208. The Commission determined not to review, and thus adopted, the FID's other findings. *See id.* The Commission requested briefing on remedy, the public interest, and bonding from the parties, interested government agencies, and other interested persons, but it did not request additional briefing on the issues under review. *Id.* at 52208-09.

[4] Respondents' Petition and Contingent Petition for Commission Review of the Initial Determination (Apr. 7, 2023) ("RPet.").

[5] Complainants' Response to Tineco's Petition and Contingent Petition for Review of the Initial Determination (Apr. 17, 2023) ("CResp."); Respondents' Response to Complainants' Petition and Contingent Petition for Commission Review of the Initial Determination (Apr. 17, 2023) ("RResp.").

On August 15, 2023, Complainants and Respondents filed their respective responses to the Commission's request for briefing on remedy, bond, and the public interest.[6] On August 22, 2023, Complainants and Respondents filed their replies to each other's responses.[7]

B. The Patents at Issue

The patents at issue are directed to vacuum cleaning devices that can clean both wet and dry surfaces in a single pass. As noted above, Complainants' asserted patents fall into two families: (1) the Xia family of patents, comprising the related '949, '541, and '769 patents; and (2) the Resch family of patents, comprising the related '735 and '428 Patents. FID at 6. These patents will be described in more detail below. *See, e.g*., section V.A.1. (Xia patents) and section V.B.1. (Resch patents).

C. The Accused Products

The FID identifies two overlapping categories of accused Tineco cleaning devices, the "Xia Accused Products" and the "Resch Accused Products." FID at 16, 19. The Xia Accused Products consist of three groups of accused Tineco cleaning devices, which are represented by the Tineco iFloor ("iFloor"), Tineco Floor One S3 ("S3"), and Tineco Floor One S5 Pro ("S5 Pro") products. *Id.* at 16-17. The Resch Accused Products consist of two groups of accused cleaning devices, represented by the S3 and S5 Pro products.[8] *Id.* at 18-19. In particular, the

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[6] *See* Complainants' Opening Submission in Response to the Commission's August 1, 2023 Notice of a Commission Determination to Review in Part a Final Initial Determination ("CRem."); Respondents' Brief to the Commission on Remedy and Bonding ("RRem.").

[7] *See* Complainants' Reply Submission in Response to the Commission's August 1, 2023 Notice of a Commission Determination to Review in Part a Final Initial Determination ("CReply"); Respondents' Responsive Submission to the Commission's Notice Requesting Written Submissions on Remedy, Public Interest, and Bonding ("RReply").

[8] According to the FID, Respondents redesigned the source code for the Resch Accused Products shortly after institution to avoid the claimed battery charging lockout feature (discussed later). FID at 19, 95-102, 111-12. The FID refers to the versions produced before the redesign as the

FID finds that, with respect to the Resch patents, Respondents' S3 is representative of certain versions of the iFloor 3 (including the original and certain "Complete," "Ultra," and "Plus" models (collectively, the "iFloor 3")), the Floor One S3 (including the original and certain "Extreme" and "+ Pure" models (collectively, the "Floor One S3")), the Floor One S5 (including the original and certain "Extreme," "Blue," "Combo," and "Combo Power Kit" models (collectively, the "Floor One S5"), and the Floor One S7 Pro. *Id.* at 18-19; RRem. at 2-3. The S5 Pro is representative of itself and the S5 Pro 2 model. FID at 18. A complete list of Xia and Resch Accused Products can be found in the FID at 16-19. *See also* RResp. at 2-3.

D. The Domestic Industry Products

The FID finds that Complainants identified two groups of DI products that allegedly practice both the Xi patents and the Resch patents. FID at 19-20. These DI products are represented by the "Bissell CrossWave Cordless Max (CrossWave 3.0)" and the "Bissell CrossWave X7 Cordless Pet Pro (CrossWave 4.0)." *Id.* at 19-20.

III. COMMISSION REVIEW OF A 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

"original" Resch Accused Products and versions produced after redesign as the "redesigned" Resch Accused Products. *Id.*

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 findings 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. LEGAL PRINCIPLES

A. Claim Construction

Claim terms are normally construed according to their ordinary and customary meaning in the art, as understood by a person of ordinary skill in the art in the context of the entire patent. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*). Claim construction focuses mainly on the intrinsic evidence, which consists of the claims themselves, the specification, and the prosecution history. *Id.* at 1313-1317. If the intrinsic evidence does not establish the meaning of a claim, then extrinsic evidence may be considered. Extrinsic evidence consists of all evidence external to the patent and the prosecution history, and includes inventor testimony, expert testimony, and learned treatises, and it may be considered if a court deems it helpful in determining the true meaning of language used in the patent claims. *Id.* at 1317.

B. Infringement

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 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. *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).

C. Validity: Obviousness

A party cannot be held liable for infringement if the patent claim is invalid. *See Pandrol USA, LP v. AirBoss Railway Prods., Inc*., 320 F.3d 1354, 1365 (Fed. Cir. 2003). A patent is presumed valid. 35 U.S.C. § 282; *Microsoft Corp. v. i4i Ltd. P'ship*, 131 S. Ct. 2238, 2242 (2011). A respondent who raises patent invalidity as an affirmative defense has the burden of overcoming this presumption by clear and convincing evidence. *Microsoft,* 131 S. Ct. at 2242.

Under 35 U.S.C. § 103, a patent may be found invalid for obviousness if "the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains." 35 U.S.C. § 103. Obviousness is evaluated by considering the so-called *Graham* factors: (1) the scope and content of the prior art; (2) the difference between the prior art and the claimed invention; (3) the level of ordinary skill in the field of the invention; and (4) any relevant objective considerations. *Graham v. John Deere Co*., 383 U.S. 1 at 17-18 (1966). Obviousness is a question of law based

on underlying facts. *Soverain Software LLC v. NewEgg, Inc*., 705 F.3d 1333, 1336 (Fed. Cir. 2013) (discussing *Graham,* 383 U.S. at 17-18).

A party challenging a patent as obvious must demonstrate by clear and convincing evidence that a skilled artisan would have been motivated to combine the teachings of the prior art to achieve the claimed invention, and that the skilled artisan 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); *see also KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007) ("a combination of elements 'must do more than yield a predictable result'; combining elements that work together 'in an unexpected and fruitful manner' would not have been obvious"). The Supreme Court has cautioned that while an analysis of any teaching, suggestion, or motivation to combine known elements is useful to an obviousness analysis, the application of the teaching-suggestion-motivation test must not become overly rigid, for the overall obviousness inquiry must remain expansive and flexible. *See KSR*, 550 U.S. at 418-19; *OSRAM Sylvania*, 701 F.3d at 707.

A factfinder should also avoid "the distortion caused by hindsight bias" in evaluating obviousness. *See KSR*, 550 U.S. at 421 (cited in *Netflix, Inc. v. DivX, LLC*, 80 F.4th 1352, 1358-59 (Fed. Cir. 2023) (prior art must be analyzed with the foresight of a person of ordinary skill, not the hindsight that comes from an inventor's successful achievement)). For example, using the claim "as a frame" to assemble "naked parts of separate prior art references [] as a mosaic to recreate a facsimile of the claimed invention, without showing why persons skilled in the art would have found that mosaic obvious improperly, employs hindsight bias." *See W.R. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1552-53 (Fed. Cir. 1983) (quoted in *Knauf Insulation, Inc. v. Rockwool Int'l A/S*, 788 Fed. Appx. 728, 732-33 (Fed. Cir. 2019)). "[T]he

prejudice of hindsight bias often overlooks that the genius of invention is often a combination of known elements which in hindsight seems preordained." *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1068 (Fed. Cir. 2018) (internal quotation marks omitted)).

D. Domestic Industry

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."[9]

19 U.S.C. § 1337(a)(3).

The "domestic industry requirement" consists of a so-called "technical prong" and a so-called "economic prong." A complainant satisfies the technical prong by showing that at least one of its (or its licensee's) products practice the patents at issue, *i.e.*, "articles protected by the patent[s]." *InterDigital Commc'ns, LLC v. ITC*, 707 F.3d 1295, 1297-98 (Fed. Cir. 2013). The test for "practicing" a patent is essentially the same as it is for infringement, except that it involves comparing the complainant's (or a licensee's) "domestic industry products" (or "DI

[9] The term "its" in the last clause of section 337(a)(3)(C) refers to the intellectual property at issue. *InterDigital*, 707 F.3d at 1297-99. Subsection 337(a)(3)(C) thus requires a showing that the expenditures in exploiting the intellectual property, *e.g.*, through engineering, R&D, or licensing, pertain to an actual article(s) protected by the patent being asserted, regardless of whether the article is manufactured domestically or abroad. *See id.* at 1295, 1299, 1304 (cited in *Microsoft Corp. v. ITC*, 731 F.3d 1354, 1361-62 (Fed. Cir. 2013)).

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 if the domestic industry product practices at least one claim of each patent that serves as a basis for relief; it does not need to practice the same claims that the complainant is asserting against the respondent. *Certain Male Prophylactic Devices*, Inv. No. 337-TA-546, Comm'n Op. at 38 (Aug. 1, 2007).

Satisfaction of the economic prong is not analyzed according to a rigid mathematical formula, minimum monetary expenditure, or absolute mathematic terms; rather, it must be established by examining the facts of each investigation, the article of commerce, and the realities of the marketplace. *See Certain Wearable Electronic Devices With ECG Functionality and Components Thereof*, Inv. No. 337-TA-1266, Comm'n Op. at 2023 WL 372372 at *7 (Jan. 20, 2023). Even so, the complainant must include a quantitative analysis to demonstrate that its investments are "significant" under subsections 337(a)(3)(A) or (B) or "substantial" under subsection 337(a)(3)(C). *Lelo Inc. v. ITC*, 786 F.3d 879, 883 (Fed. Cir. 2015). Qualitative factors may also be used to show that a complainant's investments are significant or substantial, but a complainant may not rely on qualitative data alone to satisfy the DI requirement. *Id.* at 884-85.

V. ANALYSIS

A. The Xia Patents

The Commission determined to review the FID's findings that: (i) the Xia Accused Products do not infringe any of the asserted claims of the Xia patents and (ii) Complainants did not satisfy the technical prong of the DI requirement for the '541 patent. 88 Fed. Reg. at 52208. The Commission did not request additional briefing on these issues. The Commission did not review, and thus adopted, the FID's findings that the asserted claims of the Xia patents are not

invalid for obviousness, and that Complainants have satisfied the technical prong of the DI requirement for both the Xia ’949 and ’769 patents. *See id.*; FID at 268-69.

On review, the Commission has determined to adopt the FID’s findings, as supplemented below, that Respondents do not infringe the Xia patents and that Complainants do not satisfy the DI technical prong requirement for the ’541 patent, and, thus, there is no violation of section 337 with respect to those patents. Having found no violation with respect to the Xia patents, the Commission has determined to take no position on whether Complainants have satisfied the economic prong of the DI requirement for the Xia patents. *See Beloit*, 742 F.2d at 1423.

1. The Xia “Foot Architecture” Patents

The three Xia patents are related, in that they all claim priority to the same grandparent applications and share essentially the same specification.[10] FID at 5. The invention of Xia patents principally involves certain features of the “foot,” or “base **14**,” of a surface cleaning device, which is the portion of the surface cleaning device that rests on the floor.

[10] All three Xia patents claim priority to U.S. Pat. Appl. No. 15/331,041 (“the ’041 application”) and U.S. Provisional Appl. No. 62/247,503. The ’769 patent issued from U.S. Pat. Appl. No. 16/045,057 (“the ’057 application”), which is a continuation of the ’041 application. ’769 patent (cover). The ’949 patent issued from U.S. Pat. Appl. No. 17/130,087, which is a continuation of the ’057 application. ’949 patent (cover). The ’541 patent issued from U.S. Pat. Appl. No. 17/130,140, which is also a continuation of the ’057 application. ’541 patent (cover).

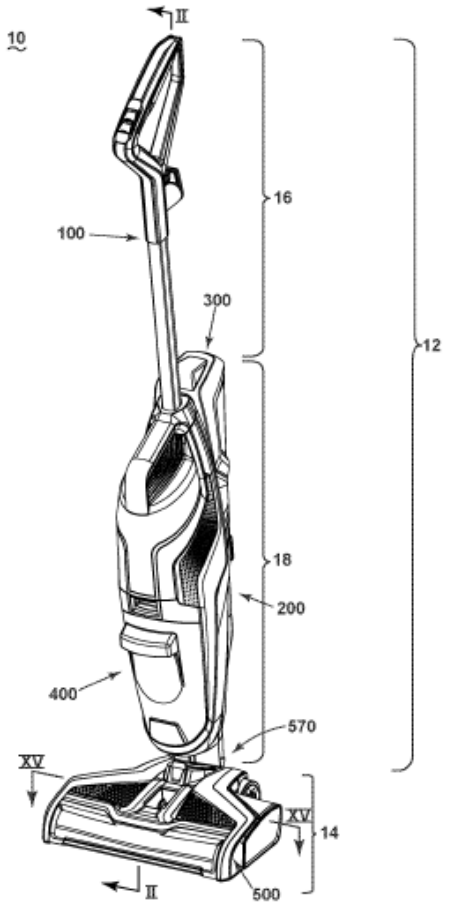


FIG. 1

Id. at 5-6; *see* '949 patent at 2:17-24, Fig. 1.[11]

The foot includes the "suction nozzle assembly," which enables the cleaning device to vacuum, mop, and dry all in a single pass. *See* '949 Patent at 8:34-56, 10:23-52, 10:64-11:18, Figs. 10, 14. As shown in Figure 10, below, the suction nozzle assembly **580** includes: (i) the suction nozzle **594** (as defined by brushroll chamber **565**); (ii) the front interference wiper **560**, for scraping excess fluid off the brushroll **546** as it rotates; and (iii) the rear wiper squeegee **538**, which wipes excess fluid from the surface to be cleaned so that it can be drawn into the fluid recovery pathway by suction nozzle **594**, thereby leaving the surface moisture and streak-free.

[11] For simplicity, citations will be made to the '949 patent as representative of the Xia patents.

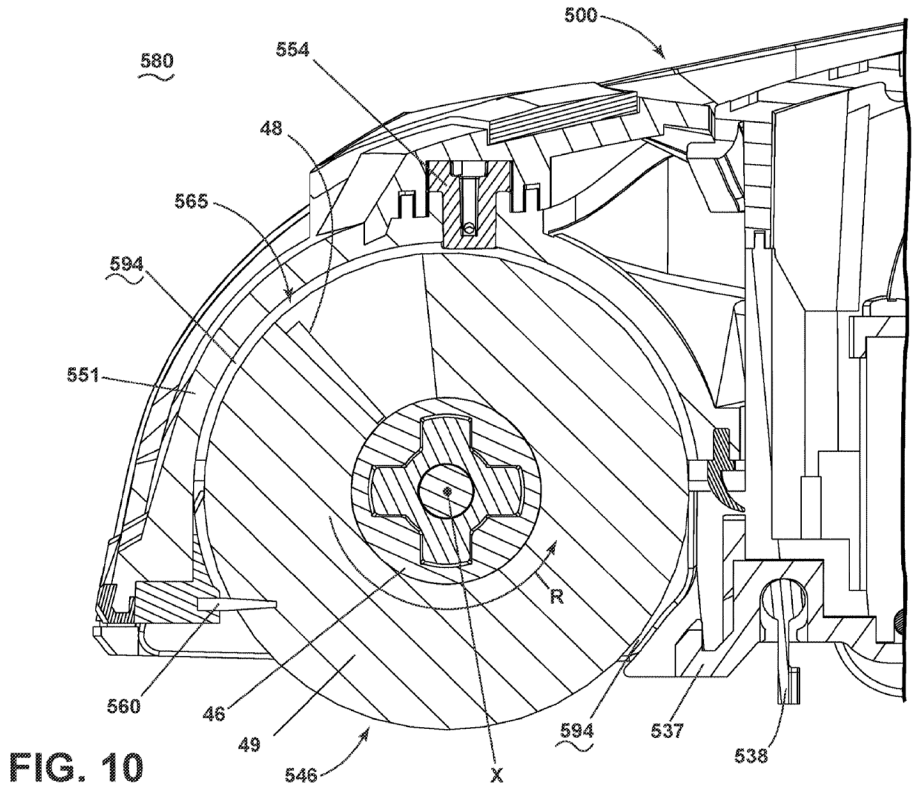


FIG. 10

Id. at Fig. 10.

The specification also explains that the suction nozzle **594** is "configured to extract liquid and debris from the brushroll **546** and the surface to be cleaned." *Id.* at 10:26-30. The suction nozzle **594** is both a dirty air inlet and "in fluid communication" with a dirty tank assembly, via a "foot conduit" in the base and a flexible hose conduit (not shown). *Id.* at 10:26-35.

a. <u>'949 Patent: Asserted Claims 7 and 19</u>

Complainants accuse Respondents of infringing dependent claims 7 and 19 of the '949 patent, which depend, respectively, on unasserted independent claims 1 and 18. FID at 7. These claims are recited below, with bracketed letters added for identification of individual claim elements, as in the FID, and claim terms of interest identified by italics:

'949 Patent Claim Element	**Claim Language**
1 [preamble] [unasserted]	A surface cleaning apparatus, comprising:
1[a]	a housing including an upright handle assembly and a base operably coupled to the upright handle assembly;
1[b]	an agitator provided with the base;
1[c]	a suction source;
1[d]	a *suction nozzle assembly provided on the base and defining a suction nozzle in fluid communication with the suction source*, the suction nozzle assembly include a nozzle housing defining an underside of the suction nozzle assembly, and wherein at least a portion of the underside is adjacent the agitator; and
1[e]	a fluid delivery system provided on the housing, the fluid delivery system, comprising:
1[f]	a fluid supply chamber adapted to hold a supply of liquid;
1[g]	a fluid dispenser provided with the suction nozzle assembly, the fluid dispenser in fluid communication with the fluid supply chamber, the fluid dispenser including at least one outlet provided on the at least a portion of the underside of the suction nozzle assembly, the at least one outlet adapted to dispense fluid onto at least one of the agitator or a surface to be cleaned;
1[h]	a fluid delivery pathway between the fluid supply chamber and the fluid dispenser; and
1[i]	at least one fluid delivery channel located within the suction nozzle assembly, the at least one fluid delivery channel forming a portion of the fluid delivery pathway.
7 [asserted]	The surface cleaning apparatus of claim 1 wherein the suction nozzle assembly defines a chamber at least partially housing the agitator.
18 [preamble] [unasserted]	A surface cleaning apparatus, comprising:
18[a]	a housing including an upright handle assembly and a base mounted to the upright handle assembly;

'949 Patent Claim Element	**Claim Language**
18[b]	an agitator provided with the base;
18[c]	a suction source;
18[d]	*a suction nozzle assembly provided on the base and defining a suction nozzle in fluid communication with the suction source*; and
18[e]	a fluid delivery system provided with the housing, the fluid delivery system comprising:
18[f]	a fluid supply chamber provided on the upright handle assembly and adapted to hold a supply of liquid;
18[g]	a fluid dispenser provided on the base, the fluid dispenser in fluid communication with the fluid supply chamber, wherein the fluid dispenser includes at least one outlet oriented to dispense fluid directly onto the agitator, which transfers fluid to a surface to be cleaned;
18[h]	a fluid delivery pathway between the fluid supply chamber and the fluid dispenser; and
18[i]	at least one fluid delivery channel provided with the base or the suction nozzle assembly, the at least one fluid delivery channel forming a portion of the fluid delivery pathway.
19 [asserted]	The surface cleaning apparatus of claim 18 wherein the suction nozzle assembly comprises a brush chamber at least partially housing the agitator and the agitator includes at least one brushroll rotatably mounted therein.

FID at 7-8 (citing '949 patent at 16:30-58 (claim 1), 17:11-13 (claim 7), 18:8-35 (claims 18, 19) (emphasis added)).

b. <u>'541 Patent: Asserted Claims 1 and 13</u>

Complainants accuse Respondents of infringing independent claim 1 and dependent claim 13 (which depends indirectly on claim 1) of the '541 patent. FID at 9-10. These claims are recited below, with bracketed letters added for identification of individual claim elements, as in the FID, and claim terms of interest identified by italics:

'541 Patent Claim Element	**Claim Language**
1 [preamble] [asserted]	A surface cleaning apparatus, comprising:
1[a]	a housing including an upright handle assembly and a base operably coupled to the upright handle assembly;
1[b]	an agitator mounted within the base;
1[c]	a suction source;
1[d]	*a suction nozzle assembly provided on the base and defining a suction nozzle in fluid communication with the suction source*;
1[e]	a fluid delivery system provided on the housing and comprising:
1[f]	a fluid supply chamber adapted to hold a supply of liquid;
1[g]	a fluid dispenser provided on the base in fluid communication with the fluid supply chamber; and
1[h]	a fluid delivery pathway between the fluid supply chamber and the fluid dispenser; and
1[i]	a dual wiper configuration provided with the base and comprising a first wiper adapted to contact the agitator and *a second wiper at least selectively adapted to contact a surface to be cleaned*.
11 [unasserted]	The surface cleaning apparatus of claim 1 wherein the suction nozzle assembly defines a chamber at least partially housing the agitator.
12 [unasserted]	The surface cleaning apparatus of claim 11, further comprising at least one fluid delivery channel forming a portion of the fluid delivery pathway, the at least one fluid delivery channel provided on the suction nozzle assembly.
13 [asserted]	The surface cleaning apparatus of claim 12 wherein the at least a portion of the at least one fluid delivery channel is an integrated fluid delivery channel forming a portion of the fluid delivery pathway.

FID at 9-10 (citing '541 patent at 16:14-33 (claim 1), 17:1-11 (claims 11-13) (emphasis added)).

c. ’769 Patent: Asserted Claims 1 and 4

Complainants accuse Respondents of infringing independent claim 1 and dependent claim 4 (which depends on claim 1) of the ’769 patent. FID at 10-11. These claims are recited below, with bracketed letters added for identification of individual claim elements, as in the FID, and claim terms of interest identified by italics:

’769 Patent Claim Element	Claim Language
1 [preamble] [asserted]	A surface cleaning apparatus, comprising:
1[a]	a housing including an upright handle assembly and a base mounted to the upright handle assembly and adapted for movement across a surface to be cleaned,
1[b]	wherein the base comprises a brush chamber and at least one brushroll mounted therein;
1[c]	a suction source;
1[d]	*a suction nozzle assembly provided on the base and defining a suction nozzle in fluid communication with the suction source*;
1[e]	a fluid delivery system comprising:
1[f]	a fluid supply chamber provided on the upright handle assembly and adapted to hold a supply of liquid;
1[g]	a fluid dispenser provided on the base in fluid communication with the fluid supply chamber, wherein the fluid dispenser is configured to dispense fluid onto the at least one brushroll;
1[h]	a fluid delivery pathway between the fluid supply chamber and the fluid dispenser; and
1[i]	at least one fluid delivery channel forming a portion of the fluid delivery pathway, the at least one fluid delivery channel extending adjacent to a portion of the suction nozzle assembly; and
1[j]	an interference wiper provided on the base and adapted to interface with a portion of the at least one brushroll to remove excess liquid from the at least one brushroll.

’769 Patent Claim Element	Claim Language
4 [asserted]	The surface cleaning apparatus of claim 1, wherein the fluid dispenser is mounted to the suction nozzle assembly and oriented to deliver fluid substantially horizontally.

FID at 10-11 (citing ’769 patent at 4-29 (claim 1), 36-38 (claim 4) (emphasis added)).

2. “Suction Nozzle Assembly Provided on the Base”

The FID finds that the Xia patents are not infringed because Complainants failed to prove that the Xia Accused Products have “a suction nozzle assembly provided on the base” of the cleaning device. *See* FID at 30-46, 51-52 (’949 patent, element 1[d], 18[d]); 59, 65 (’541 patent, element 1[d]); 73, 78, 81 (’769 patent, element 1[d]). The limitation is recited in the independent claims of the Xia patents and incorporated into the dependent claims, as shown below:

’949 patent (Xia)	
Limitation 1[d]	**Limitation 18[d]**
“a *suction nozzle assembly provided on the base* and defining a suction nozzle in fluid communication with the suction source, the suction nozzle assembly include a nozzle housing defining an underside of the suction nozzle assembly” ’949 patent at 16:35-40 (emphasis added)	“a *suction nozzle assembly provided on the base* and defining a suction nozzle in fluid communication with the suction source” ’949 patent at 18:13-15 (emphasis added)

’541 patent (Xia)	**’769 patent (Xia)**
Limitation 1[d]	**Limitation 1[d]**
“a *suction nozzle assembly provided on the base* and defining a suction nozzle in fluid communication with the suction source” ’541 patent at 16:19-21 (emphasis added)	“a *suction nozzle assembly provided on the base* and defining a suction nozzle in fluid communication with the suction source” ’769 patent at 16:11-13 (emphasis added)

The Commission has determined to adopt the FID's finding that the Xia Accused Products do not infringe the Xia patents, with the following modified and supplemental analysis. *See* 19 C.F.R. § 210.45(c). The Commission adopts the FID's findings to the extent they do not conflict with this Opinion. *See id.*; *see also* FID at 37-81.

a. Claim Construction

The FID notes that "[n]either party contends that their dispute regarding the suction nozzle assembly term in limitation 1[d] should be resolved as a matter of claim construction." FID at 40 n.14. The parties did not identify "suction nozzle assembly" as a claim term in need of construction during the *Markman* proceedings, nor did they propose a construction. *Id.* at 28-29 (identifying claim terms in dispute and their constructions). The FID thus analyzed infringement according to the plain and ordinary meaning of the claim term. *See id.* at 39-45.

Complainants argued in their petition for review that the FID fails to adopt and apply the allegedly "agreed-upon construction" of "suction nozzle assembly." CPet. at 1-2, 15-16, 22. In particular, Complainants asserted that "[t]he parties' technical experts agreed that, at a minimum, the claimed suction nozzle assembly must comprise multiple assembled parts, with each part shaping or directing suction within the cleaning device." *Id.* at 17 (citing Hr'g Tr. (Singhose) at 95:4-14, 146:8-147:1; Hr'g Tr. (Conley) 816:12-817:18); *see also id.* at 2 ("The experts from both parties agreed on a plain and ordinary meaning for the term: multiple components assembled together, with each part having a suction-related function within the cleaning device."), 22 ("the parties' agreed-upon plain and ordinary meaning of suction nozzle assembly . . . an assembly of components that are brought together, with each part having a role related to suction within the cleaning device").

The Commission finds that Complainants' argument does not accord with the record. There was no agreed-upon construction of the term "suction nozzle assembly," and, therefore, no

such agreed-upon construction for the FID to consider or adopt. Complainants do not dispute the FID's finding that neither party identified "suction nozzle assembly" as a term in need of construction during the *Markman* proceedings or proposed such a construction, regardless of whether such a construction was "agreed upon." *See* FID at 28-29, 40 n.14. While Complainants asserted in their post-hearing brief that the parties' experts allegedly agreed that a "suction nozzle assembly" comprises multiple parts, they did not allege or show where this was supposedly an "agreed upon" construction by the parties, as noted in the FID. *See id.*; *see also* Complainants' Initial Post-Hearing Brief ("CPHB") at 6. Accordingly, Complainants' argument that the parties themselves allegedly agreed to such a construction is unsupported by the record. Such an argument is also waived because Complainants failed to present the parties' alleged construction first to the presiding CALJ. *See* Order No. 2, G.R. 14.1 ("Any contentions for which a party has the burden of proof that are not set forth in detail in the post-hearing initial brief shall be deemed abandoned or withdrawn."); *Broadcom Corp. v. ITC*, 542 F.3d 894, 900-01 (Fed. Cir. 2008) (party waived an argument by not raising it before the ALJ).

As for the parties' experts, the Commission finds that they agreed on nothing more than that a "suction nozzle assembly" consists of an assembly of "multiple components" that have "some role" in connection with suction. *See* Hr'g Tr. (Conley) at 816:12-817:18; Hr'g Tr. (Singhose) at 95:10-14, 146:8-147:1 (cited in CPet. at 17). There was no "agreement" on a specific construction even by the experts, let alone the construction proposed by Complainants. More to the point, the Commission finds that Complainants' proposed construction of "suction nozzle assembly" as an "assembly of components having responsibility for shaping and directing suction force within the cleaning device" is not particularly useful or necessary. *See* CPet. at 15-17, 22. Complainants' supposed construction ("assembly of components having responsibility

for shaping and directing suction force") is essentially a restatement of the claim term itself ("suction nozzle assembly," or assembly comprising a suction nozzle), without adding any further clarification or explanation as to what components would or would not be part of that "assembly." Complainants essentially read the term "nozzle"[12] out of the claim term and replace it with a more ambiguous phrase—"assembly of components having responsibility for shaping and directing suction force"—without further explanation or delineation of the covered components, with reference to the claims, specification, or prosecution history. *Id*.

Moreover, the Commission finds that Complainants' proposed construction of "suction nozzle assembly" does not address the main disputed issue—whether a "suction nozzle assembly" can include, or overlap with, a portion of the "base" and still be "provided on the base," as required by the claims. *See*, *e.g.*, '949 patent at 16:35-36. The FID finds that "suction nozzle assembly provided on the base" means that the "suction nozzle assembly" and "base" should be construed as two "separate and distinct" components. *Id.* at 40 (collecting cases). The FID notes that none of the embodiments in the Xia patents describes the "suction nozzle assembly" as physically overlapping with or including the "base" or any of its components. FID at 43-44. Instead, the Xia patents describe the "suction nozzle assembly" as being separate and distinct from the base. *See*, *e.g.*, '949 patent at 8:34-41, 10:23-35, 10:64-67, Figs. 8, 10, 11 (discussed in FID at 43-44).

Complainants originally opposed this position, arguing in their post-hearing brief that "distinct portions of a singular-molded plastic component can include both parts of the SNA [suction nozzle assembly] and portions forming part of the claimed 'base.'" CPHB at 9. In their

[12] The parties did not construe "nozzle" or identify evidence suggesting ambiguity in the term such that it would require construction.

petition for review, however, Complainants changed their position and conceded they are not challenging the FID's findings that "suction nozzle assembly" and "base" are separate and distinct components. CPet. at 20 n.6. Accordingly, the Commission finds there is no longer any dispute that the "suction nozzle assembly" and "base" are separate and distinct components.

In sum, the Commission finds that the FID does not err in interpreting "suction nozzle assembly provided on the base" according to its plain and ordinary meaning.

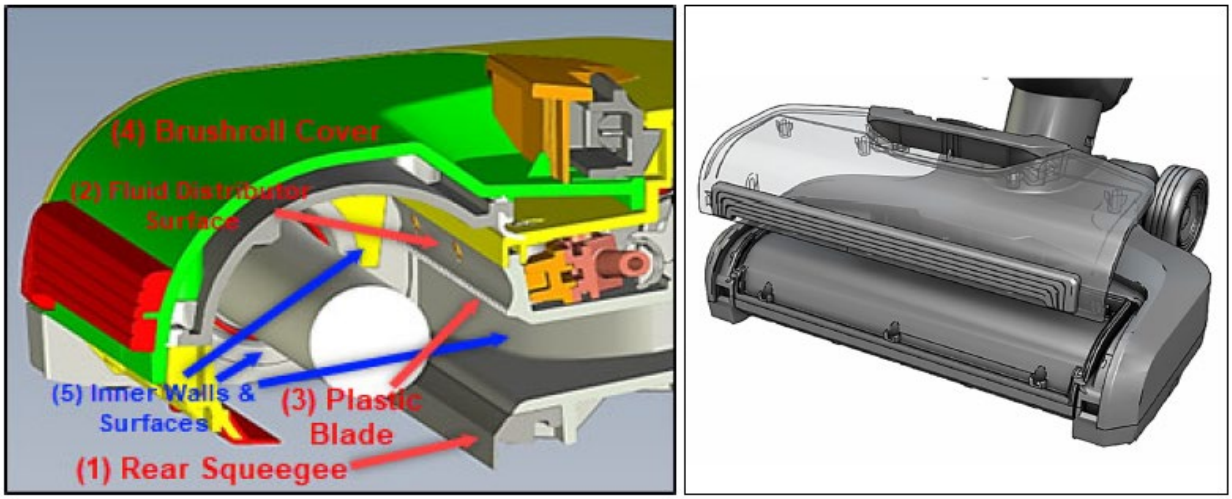
b. Non-Infringement Analysis

The FID finds that Complainants failed to prove by a preponderance of the evidence that the Xia Accused Products include "a suction nozzle assembly provided on the base," as required by claim elements 1[d] and 18[d] of the '949 patent, element 1[d] of the '541 patent, and element 1[d] of the '769 patent. *See* FID at 39-46, 51-52, 59, 73. The FID explains that Complainants had argued that the claimed "suction nozzle assembly" comprises several components, one of which—the so-called "V-shaped component"—is also part of the "base" in the Xia Accused Products.[13] *Id.* at 39-40. The FID finds, based on its construction of "suction nozzle assembly" and "base" as separate and distinct components, that Complainants failed to prove that the Xia Accused Products have a "suction nozzle assembly provided on the base." *Id.* at 39-46, 49, 51-52, 56, 59, 65, 69-70, 73, 78, 81.

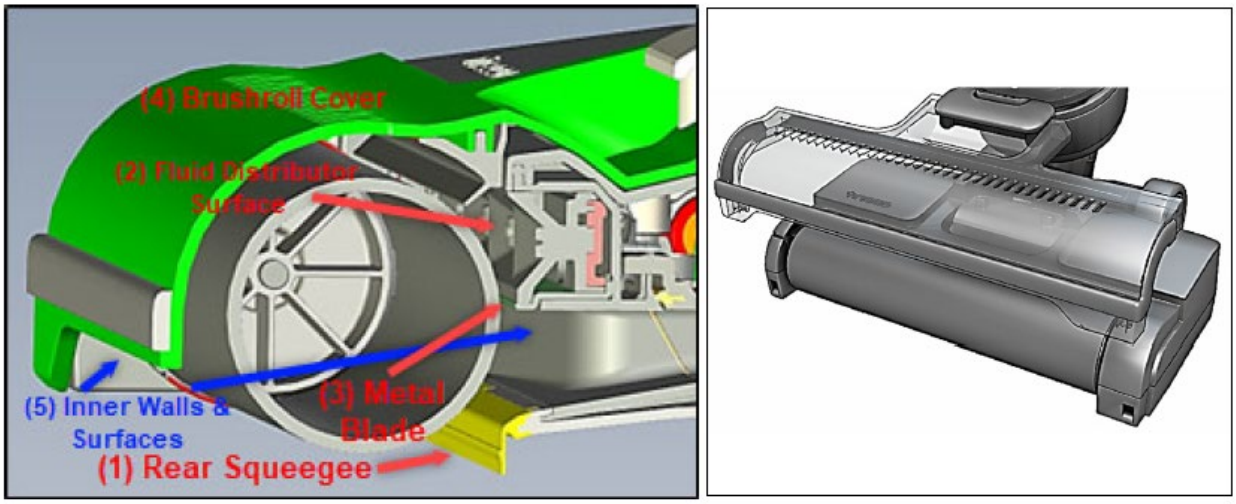
Complainants petitioned for review of the FID's finding that the Xia Accused Products do not satisfy the Xia patents. CPet. at 1-2, 15-27. Complainants argued before the CALJ that

[13] Complainants argued that the "suction nozzle assembly" is comprised of: (1) a rear squeegee wiper; (2) the surface of the fluid distributor; (3) a metal or plastic scraper blade; (4) the brushroll cover that connects to and extends over the brushroll to form the brushroll chamber; and (5) the contiguous inner walls/surfaces of the chamber and brushroll mounting along which suction force is ultimately shaped and directed in a volume of negative pressure air. CPet. at 18. The "V-shaped component" is part of component (5), near the rear of the brushroll chamber. *Id.*

the "suction nozzle assembly" in the Xia Accused Products is comprised of five components,[14] which are identified in the following computer-aided design ("CAD") images:

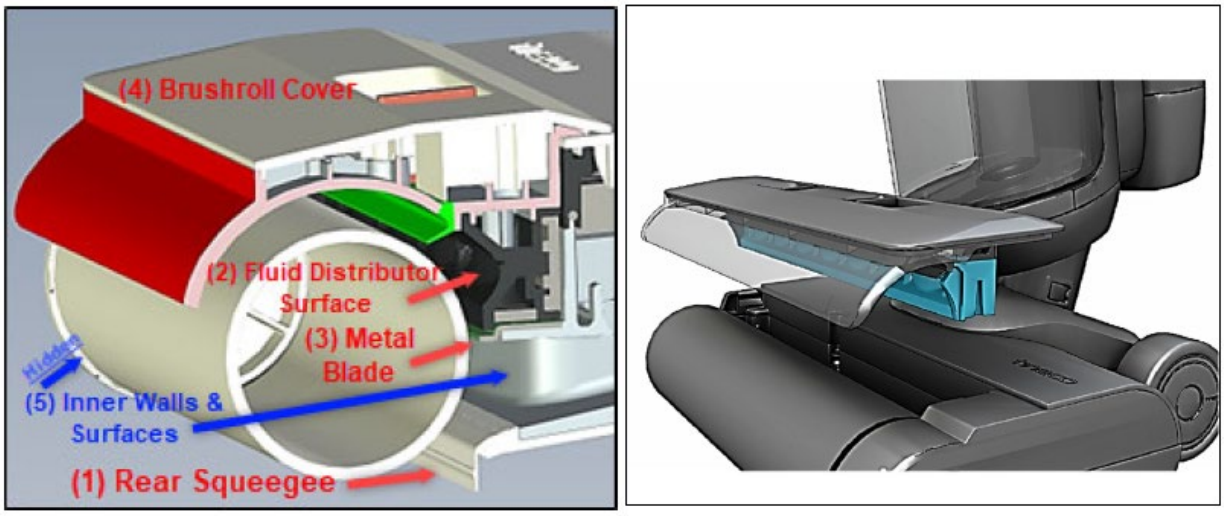


JPX-0020C (iFloor CAD model, annotated); *see also* CPX-0003 (iFloor physical product).



JPX-0021C (S3 CAD model, annotated); *see also* CPX-0004 (S3 physical product).

[14] *See* note 13, *supra.*

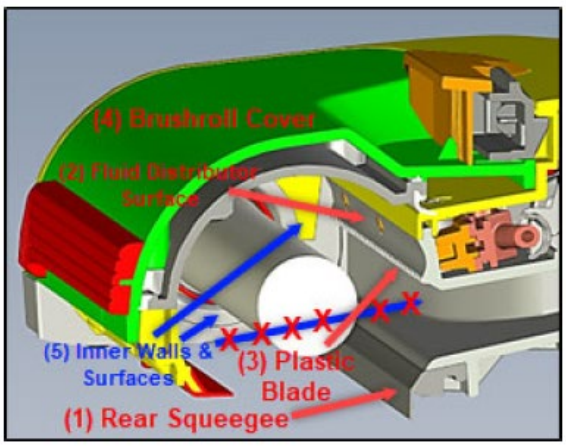


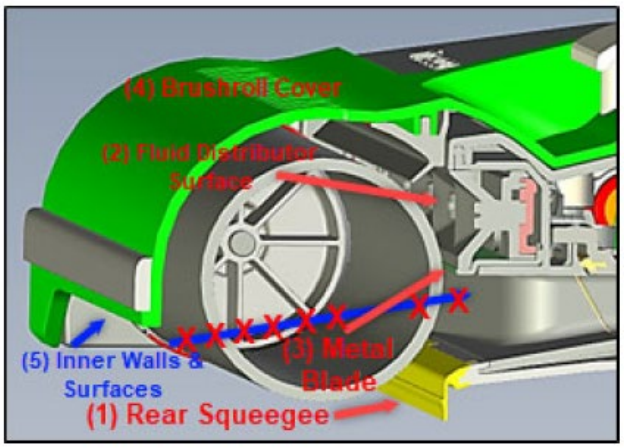
JPX-0022C (S5Pro CAD model, annotated); *see also* CPX-0005 (S5Pro physical product).

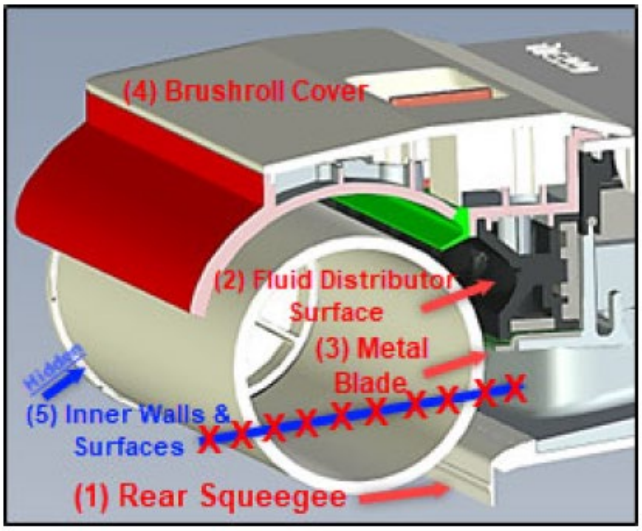
Id. at 18-19 (reproducing JPX-0020C, JPX-0021C, JPX-0022C). In particular, Complainants originally argued that component (5) of the "suction nozzle assembly" includes "a 'funnel shape[d]' or 'V-shaped' plastic piece near the rear of the brushroll chamber." *Id.* at 18 (citing Hr'g Tr. (Singhose) at 101:9-19, 153:12-16). This is the argument that the FID rejects, based on its interpretation of "suction nozzle assembly provided on the base." *See* FID at 39-45.

As noted above, Complainants no longer dispute that the claim terms "base" and "suction nozzle assembly" are construed as separate and distinct components. CPet. at 20 n.6 (discussing FID at 40-44). Instead, Complainants argued in their petition for review that the FID errs by failing to consider whether they proved that a "suction nozzle assembly" is "provided on the base" once the V-shaped piece is omitted from the analysis of the components alleged to comprise the "suction nozzle assembly." *Id.* at 20-22. In particular, Complainants argued that they met their evidentiary burden by identifying the same assembly of five components but without the V-shaped component, namely: (1) the rear squeegee wiper; (2) the surface of the fluid distributor; (3) the metal/plastic blade; (4) the brushroll cover; and (5) the contiguous inner walls/surfaces of the chamber "***other than*** the 'V-shaped component.'" *Id.* at 23 (emphasis in

original); *see also id.* at 24-25 (discussing Hr'g Tr. (Singhose) at 97:22-99:14, 100:17-101:19, 150:16-153:23). In other words, Complainants argued that when the "V-shaped component" is excluded from the assembly, per the FID's finding, "***the remaining components***" are sufficient to form a "suction nozzle assembly" that is "provided on the base" and "shapes and directs suction force in each of the Xia Accused Products," as required by the asserted claims. *Id.* at 24-25 (emphasis in original). Complainants presented their revised theory by adding red "X's" to their original slides to indicate the omission of the "V-shaped component," as shown below:







JPX-0020C (iFloor CAD model, annotated); JPX-0021C (S3 CAD model, annotated); JPX-0020C (S5Pro CAD model, annotated).

Id.

In sum, Complainants admitted that they changed their infringement theory from their post-hearing brief to their petition for review, where they now argue that the "suction nozzle assembly" comprises the "***remaining components*** of the "suction nozzle assembly," without the "V-shaped component" in the base. *Id.* at 24 (emphasis in original). As a result, Complainants have abandoned their original infringement theory, which included the V-shaped component, by not including that theory in their petition for review. 19 C.F.R. § 210.43(b)(2).

In addition, Complainants effectively admit that they failed to present their revised infringement theory first to the CALJ. As a result, Complainants have waived their right to present their revised theory before the Commission. *See* Order No. 2, G.R. 14.1 ("Any contentions for which a party has the burden of proof that are not set forth in detail in the post-hearing initial brief shall be deemed abandoned or withdrawn."); *Certain Artificial Eyelash Extension Systems, Products, and Components Thereof*, Inv. No. 337-TA-1226, Comm'n Op. at 62 (Oct. 24, 2022) (finding waiver of new argument raised for the first time in a petition in response to ID's rejection of prior arguments); *Certain Smart Thermostat Systems, Smart HVAC Systems, Smart HVAC Control Systems, and Components Thereof*, Inv. No. 337-TA-1258, Comm'n Op. at 15 (July 19, 2022) (finding "Complainant waived any reliance on its proposed construction, raised for the first time in its petition for review, for failing to present it before the ALJ."); *Broadcom*, 542 F.3d at 900-01 (party waived argument by not raising it before the ALJ).

The Commission also finds that Complainants did not preserve their revised infringement theory merely because their expert, Dr. Singhose, testified that the V-shaped component "*could* be" included as part of the suction nozzle assembly. CPet. at 18 (citing Tr. (Singhose), 101:9-19; 153:12-16) (emphasis added)). This single statement does not provide notice of or support for Complainants' new argument because Dr. Singhose repeatedly and unambiguously testified that

the V-shaped component is part of the "suction nozzle assembly." *See* Hr'g Tr. (Singhose) at 97:17-99:14, 100:17-101:19, 152:11-153:23; CPX-0003; CPX-0004; CPX-0005.

Accordingly, the Commission finds that Complainants have waived both their original and their revised infringement theories. The Commission thus adopts the FID's findings that Complainants failed to prove that the Xia Accused Products do not have a "suction nozzle assembly provided on the base." The Commission supplements the FID's findings with the foregoing findings, per Commission Rule 210.45(c). 19 C.F.R. § 210.45(c).

3. Non-Infringement: "Suction Nozzle in Fluid Communication With the Suction Source"

The asserted claims of the Xia patents require that the "suction nozzle assembly . . . defines a suction nozzle in *fluid communication with the suction source*." *See* '949 patent at 16:35-40 (claim element 1[d]), 18:13-15 (element 18[d]); '541 patent at 16:19-21 (element 1[d]); '769 patent at 16:11-13 (element 1[d]) (discussed in FID at 37, 39-46) (emphasis added). These "fluid communication" limitations are recited below:

'949 patent (Xia)	
Limitation 1[d]	**Limitation 18[d]**
"a suction nozzle assembly provided on the base and defining *a suction nozzle in fluid communication with the suction source*, the suction nozzle assembly include a nozzle housing defining an underside of the suction nozzle assembly" '949 patent at 16:35-40 (emphasis added)	"a suction nozzle assembly provided on the base and defining *a suction nozzle in fluid communication with the suction source*" '949 patent at 18:13-15 (emphasis added)

'541 patent (Xia)	**'769 patent (Xia)**
Limitation 1[d]	**Limitation 1[d]**
"a suction nozzle assembly provided on the base and defining *a suction nozzle in fluid communication with the suction source*" '541 patent at 16:19-21 (emphasis added)	"a suction nozzle assembly provided on the base and defining *a suction nozzle in fluid communication with the suction source*" '769 patent at 16:11-13 (emphasis added)

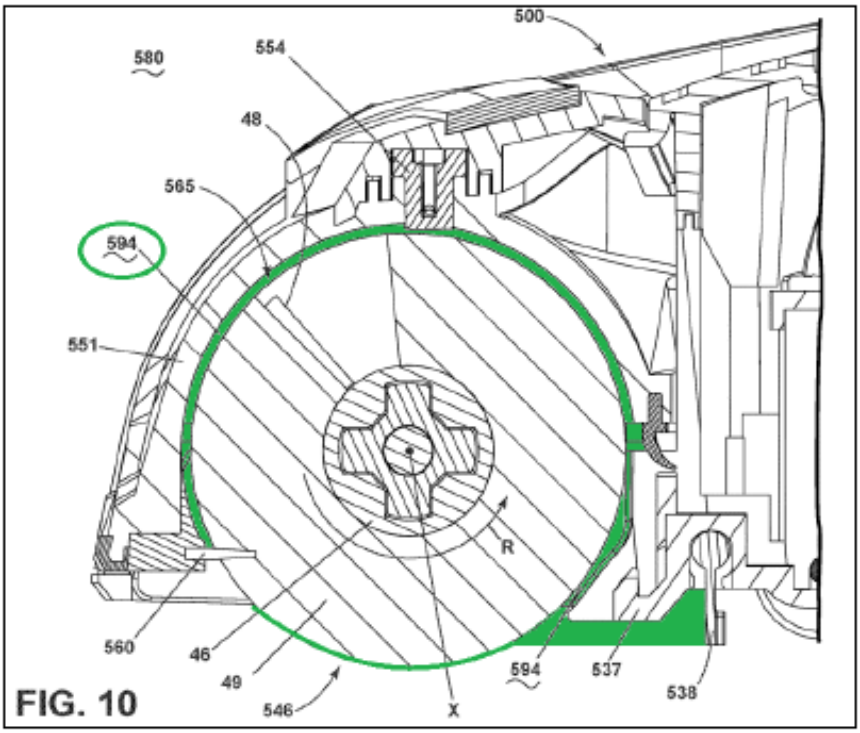
The FID finds no dispute that the accused iFloor cleaning device satisfies the "fluid communication" portion of this claim element. FID at 45 n.15. As for the accused S3 and S5 Pro devices, however, the FID finds that Complainants failed to prove that they have a "suction nozzle" in "fluid communication with the suction source." *Id.* at 45. The FID finds that Complainants asserted, but failed to prove, that there is suction above the "entire length of metal blade [in the suction nozzle] in the S3 and S5 Pro." *Id.* (citing CPHB at 15-24). The FID finds that neither party actually tested the suction above the middle part of the metal blade in the accused S3 and S5 Pro products. *Id.* The FID finds that the only suction test performed in that middle region was performed on the accused iFloor product. FID at 45 (citing Hr'g Tr. (Singhose) at 107:25-109:15; CDX-0005.0039). The FID finds those suction tests are not applicable to the accused S3 or S5 Pro devices because "the iFloor's structure is significantly different than the structures of the S3 and S5 Pro in the pertinent area," based on the CALJ's own "visual inspection" of the accused products. *Id.*

Accordingly, the FID concludes that Complainants failed to prove that the accused S3 and S5 Pro devices practice the "fluid communication" limitation or infringe the Xia patents. *Id.* 44-46, 49, 51-52, 56, 59, 65, 69-70, 73, 78, 81.

Complainants argued that the FID errs in construing "fluid communication with the suction source" to require that the suction source experience suction force "at ***every single point***

along the metal blade positioned between them," or "above the ***entire length*** of the metal blade." CPet. at 27, 29 (citing FID at 45-46 (emphasis added by Complainants)). Complainants argued it has never been their contention that there must be a suction force along the entire length of the blade, as the FID states. *Id.* at 30 n.9. Instead, Complainants argued that this term simply means the "suction nozzle" must experience some non-zero suction force attributable to the "suction source," regardless of the magnitude or specific location of that suction force. *Id.* at 27, 29-30 (citing Hr'g Tr. (Singhose) at 110:13-21, 171:24-172:9; Hr'g Tr. (Conley) at 798:2-800:15).

Complainants argue the "suction nozzle" **594** is characterized by the inner surfaces of the suction nozzle assembly's components, as outlined in green in the figure below:



CPet. at 27-28 (citing '949 patent, Fig. 10 (annotations added by Complainants); Hr'g Tr. (Singhose) at 95:4-9, 146:8-147:1).

Complainants argue that manometer tests and flame tests performed by their expert, Dr. Singhose, demonstrated that the Xia Accused Products exhibit suction at multiple locations

beneath the brushroll cover (and hence above the metal blade) in the S3 and S5 Pro products. *Id.* at 30-33 (citing JPX-0169; Hr'g Tr. (Singhose) at 102:18-104:1, 110:22-111:23, 147:14-149:2). The photographs below show an example of Dr. Singhose's flame demonstrations:

Id. at 33 (CDX-0005_35.Media3.mov (Singhose demonstrative) at ~3.1 and ~4.5 seconds).

Complainants noted that Respondents' expert, Dr. Conley, conducted a "rebuttal" flame demonstration, which allegedly yielded "***identical results***" showing the presence of a suction force (negative air pressure) under the cover. *Id.* Complainants argued that Dr. Conley provided no evidence to quantify his theory that these were only "edge" or "fan" effects. *Id.* at 34 (citing Hr'g Tr. (Conley) at 810:6-811:2). A photograph from Dr. Conley's flame tests is below:

In light of this evidence, Complainants argue that the FID's non-infringement findings rest solely on its extraneous conclusion that Complainants did not show there is suction "***above the middle part*** of the metal blade." CPet. at 30, 34-35 (quoting FID at 45-46 (emphasis added by Complainants)). Complainants argued that, when the FID's erroneous claim construction is corrected, the evidence shows that the S3 and S5 Pro devices exhibit "suction from the suction source within the volume of air beneath the brushroll and, hence, above the blade" and thus have a "suction nozzle in fluid communication with the suction source." *Id.* at 30-31, 35.

The Commission has determined to adopt the FID's findings that Complainants failed to prove that the accused S3 and S5 Pro devices have a "suction nozzle in fluid communication with the suction source." The Commission supplements the FID by finding that it does not construe "fluid communication" to require the presence of a suction force across the entire length of the metal blade, as Complainants contend. CPet. at 27. Rather, the record shows it was Complainants' expert, Dr. Singhose, who introduced this concept when he testified that the "suction nozzle" in the S3 and S5 Pro wraps around the brushroll, underneath the plastic

brushroll cover and above the blade, so that "there is suction above the metal blade." *See* Hr'g Tr. (Singhose) at 147:14-149:2, 150:12-16, 154:7-10. Complainants likewise argued that the accused S3 and S5 Pro infringe the Xia patents because there is allegedly suction *above* their metal blades, underneath the cover. CPHB at 15-24 (cited in FID at 45). Thus, the FID is simply repeating Complainants' own infringement theory rather than espousing its own claim construction. *See* FID at 45-46.

The Commission further finds that the FID is correct in finding that Complainants' evidence was incomplete and unpersuasive because its expert did not perform manometer testing in the region above the middle portion of the metal bade in the S3 and S5 Pro. *Id.*; *see also* Hr'g Tr. (Singhose) at 109:6-15, 156:23-157:3, 158:11-159:7. In contrast, Respondents' expert offered affirmative evidence that there is a lack of suction force in the area above the metal blade and below the plastic brushroll cover in both the S3 and S5 Pro. Hr'g Tr. (Conley) at 721:13-725:18, 729:1-10; RDX-0001.21-25.

The Commission also adopts and supplements the FID's findings regarding the differences between the accused iFloor and the S3 and S5 Pro devices. *See* FID at 45. The evidence shows that the suction nozzle in the S3 and S5 Pro includes a metal blade, which confines the suction force below that metal blade by pressing and squeezing the brushroll to scrape off water and debris, so that it can be suctioned toward the suction nozzle. RResp. at 15 (citing Hr'g Tr. (Zhou) at 547:1-548:24; Hr'g Tr. (Conley) at 718:19-722:9, 727:23-728:25; RDX-0001-16, 23-26; JX-0088.0014; JX-0084.0030; RPX-0253; RPX-0254; JPX-0021). In contrast, the iFloor has a less dense brushroll and a plastic comb (not a metal blade), so that suction is not confined below the plastic comb, as it is in the S3 or S5 Pro. *See* Hr'g Tr. (Zhou) at 543:10-545:18; JX-0088.00014; JX-0084.0030; JPX-0020; JPX-0021; JPX-0022; RPX-0253;

RPX-0254; RPX-0262; RDX-0008-3-10. The Commission thus adopts and supplements the FID's findings that tests of the suction force in the iFloor devices are not applicable to the S3 or S5 Pro devices. FID at 45.

The Commission further notes that the claims do not speak of a "suction force"; rather, the claims require "a suction nozzle *in fluid communication* with the suction source." *See*, *e.g.*, '949 patent at 16:35-37 (claim element 1[d]), 18:23-25 (claim element 18[d]) (emphasis added). The Commission finds the flame demonstrations conducted by Dr. Singhose near the outer edges of the cover do not suffice to prove that there is "fluid communication" from the suction nozzle to the suction source. As Respondents' expert, Dr. Conley, explained, there may be "edge effects" that affect the flame, yet those effects do not establish "fluid communication" of the suction nozzle with the suction source. *See* Hr'g Tr. (Conley) at 726:2-727:22; RDX-0001-26.

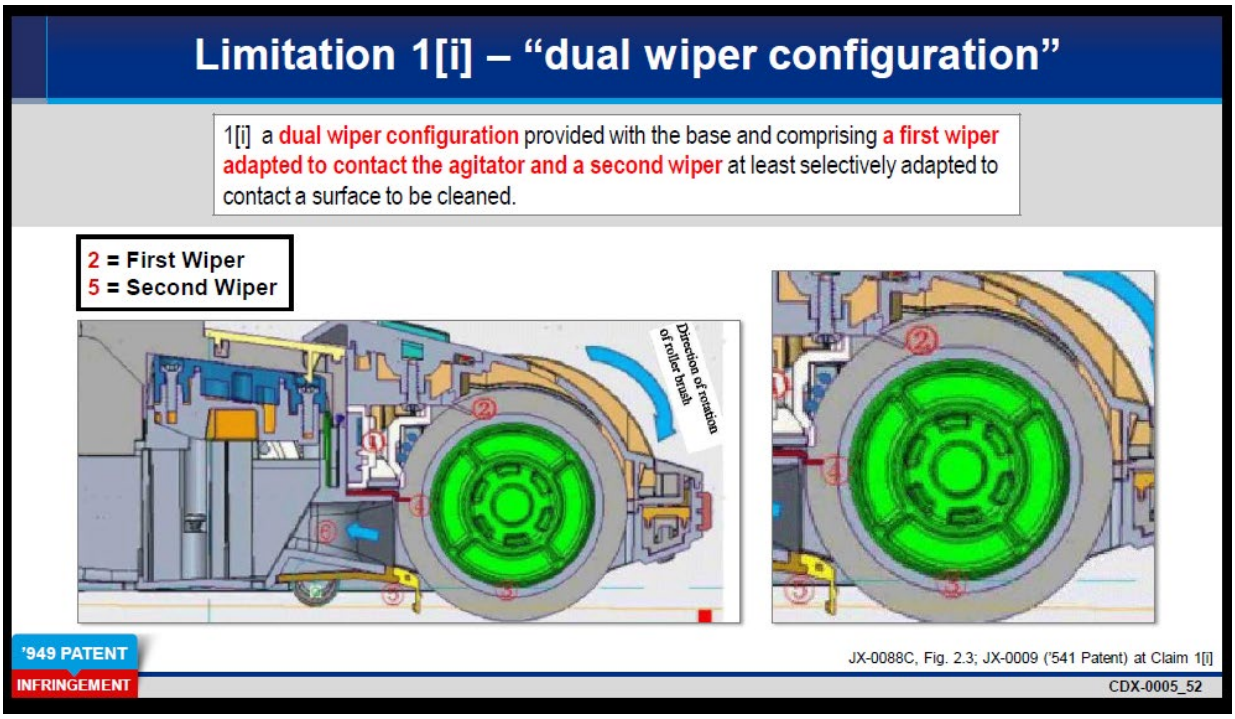
The Commission also finds that Complainants' argument that Dr. Conley's tests lack quantification has no merit. CPet. at 34-35. It is Complainants' burden to prove infringement; it is not Respondents' burden to prove otherwise. *Medtronic, Inc. v. Mirowski Family Ventures, LLC*, 571 U.S. 191, 199 (2014) (the burden of proving infringements rests on the patentee and never shifts to the alleged infringer (collecting cases)). Complainants' criticisms of Dr. Conley's tests actually underscore the weakness in Complainants' own case, as Complainants did not provide any such quantitative measurements in connection with their own flame tests either.

For these reasons, the Commission adopts the FID's findings that Complainants failed to prove by a preponderance of the evidence that the accused S3 and S5 Pro satisfy the "fluid communication" limitation in the Xia patents, while modifying those findings to include the supplemental views expressed above. *See* 19 C.F.R § 210.45(c).

4. Non-Infringement: "A Second Wiper At Least Selectively Adapted to Contact a Surface to be Cleaned" ('541 Patent Only)

Claim 1 of the '541 patent requires a "a dual wiper configuration" that includes "a second wiper at least selectively adapted to contact a surface to be cleaned." *See*, *e.g.*, '541 patent at 16:32-33 (claim element 1[i]). The Commission has determined to adopt the FID's findings that the Xia Accused Products do not meet this "selectively adapted to contact" limitation, while modifying those findings to include the supplemental findings set forth below.

As noted in the FID, the parties agreed that the term "selectively adapted to contact" means "configured to contact [a surface] in response to a selection." FID at 62 (citing Order No. 17 at 7). The FID further notes that there is no dispute the Xia Accused Products have a "dual wiper configuration" comprising: (i) a first squeegee that flattens the water at the surface of the roller brush and (ii) a second squeegee that collects water and debris from the floor. *Id.* at 62-63. These two wipers are identified as components "(2)" and "(5)," respectively, in the figure below:



CDX-0005_52C (discussed in FID at 63).

The FID finds, however, that Complainants failed to prove that the second wiper (5) is "selectively adapted to contact a surface to be cleaned." FID at 63-65. Complainants' expert, Dr. Singhose, testified that "during normal operation" a user may "push their hand" down while holding the device's handle so that they "lift the front of the machine up" as shown below:

Id. at 64 (citing Tr. (Singhose) at 123:16-18; discussing CPX-0003, CPX-0004, CPX-0005).

The FID, however, finds Dr. Singhose's testimony unpersuasive and his usage "quite abnormal" because it requires lifting the front so high off the floor that the plastic housing on the upright portion of the vacuum is dragged across the floor, as shown above. *Id.* at 65. Finding no other evidence that the Xia accused devices are adapted or designed to allow the second wiper to be "selectively adapted to contact" the floor, the FID finds they do not practice limitation 1[i] of the '541 patent and thus do not infringe that patent. *Id.*

Complainants petitioned for review of the FID's findings, arguing that the FID improperly limits the claim to "normal operations," which Complainants argue is a "vague, arbitrary, and subjective standard." CPet. at 35-37. Complainants further argue that Dr.

Singhose's tilting action does resemble "normal operations," as when the user moves the cleaning device from hardwood to carpet. *Id.* at 38-39.

The Commission has determined to adopt the FID's findings, as modified below to reflect the following supplemental views. The Commission finds no support in the claim language or specification for interpreting "at least selectively adapted to contact a surface to be cleaned" (or "configured to contact [a surface] in response to a selection" by a user) to cover tilting the cleaning device so far back that its front portion is lifted off the floor while its back portion is dragged on the surface to be cleaned. The claim language states that it is the "second wiper," not the claimed "surface cleaning apparatus" or its "base" or any other component, that must be "selectively adapted to contact a surface." *See* '541 patent at 16:30-33. In particular, the specification explains that the front (or first) wiper **560** scrapes excess cleaning fluid from the brushroll **546** before it reaches the surface, while the rear (or second) wiper **568** wipes residual cleaning fluids and dry debris from the surface so they can be drawn into the suction nozzle, leaving the surface free of moisture and streaks. '541 patent at 2:54-64, 10:23-34, 14:60-15:3, 16:23-26, Fig. 10. The specification does not explain, however, how, when, or why the "second wiper" (or rear wiper **538**) is "at least selectively adapted to contact" the surface. *See id.* at 1:58-61, 16:30-33 (claim 1[i]). Neither does the specification disclose or support tilting the frame of the cleaning device to accomplish such selective adaption to contact a surface to be cleaned.

Furthermore, the Commission finds no merit to Complainants' argument that the FID is supposedly injecting an extraneous limitation ("normal operation") into the claim. *See* CPet. at 38-39. As the FID notes, it was Complainants' expert, Dr. Singhose, who testified that "during *normal operation* of this [device] the user would essentially push their hand a little further down so they can lift the front of the machine up." Hr'g Tr. (Singhose) at 123:6-18 (cited in FID at 63

(emphasis added)). The Commission agrees with the FID's evaluation of the credibility of Dr. Singhose's tests and his testimony regarding the allegedly "normal operation" of the accused devices. *Id.* at 63-65.

The Commission further finds that it is appropriate under the law for the FID to consider the "normal operation" of an accused device when assessing infringement:

> The question is not what [an accused device] might have been made to do, but what it was intended to do and did do . . . that a device could have been made to do something else does not of itself establish infringement.

Ormco Corp. v. Align Tech., Inc., 463 F.3d 1299, 1307 (Fed. Cir. 2006) (quoting *High Tech Med. Instruments, Inc. v. New Image Indus., Inc.,* 49 F.3d 1551, 1555 (Fed. Cir. 1995). In this case, Complainants have not shown that the Xia accused devices were "intended" to be tilted so far back that the upright portion scrapes the floor, or that such a usage is consistent with the patent. *See id.* Additionally, "tests of an accused device performed under unusual conditions are not necessarily relevant to an infringement analysis." *Hilgraeve Corp. v. Symantec Corp.*, 265 F.3d 1336, 1343-44 (Fed. Cir. 2001) (vacating summary judgment of non-infringement where the tests were not performed under normal operating conditions and thus "inconclusive on the issue of infringement"); *see also Typhoon Touch Techns., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1380 (Fed. Cir. 2011) ("that a device is capable of being modified to operate in an infringing manner is not sufficient, by itself, to support a finding of infringement" (collecting cases)). In contrast, the cases Complainants cite in their petition for review focus on unrelated issues of indefiniteness and do not address whether infringement may be analyzed according to a device's "normal operations."[15] *See* CPet. at 37 (collecting cases).

[15] *See*, *e.g.*, *Datamize LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1352-53 (Fed. Cir. 2005) (finding claim term "aesthetically pleasing" lacks a reasonable, definite construction and is indefinite); *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1372-73 (Fed. Cir. 2014)

Complainants' argument that Dr. Conley, Respondents' expert, allegedly "***admitted***" on cross-examination that the cleaning device may not contact the floor during "normal operations" is also without merit. *See* CPet. at 39 (emphasis added by Complainants). The Commission finds that it was Complainants' counsel, not Dr. Conley, who referred to pushing a cleaning device in a "normal operation." *See* Hr'g Tr. (Conley) at 811:3-812:12 (see counsel's question). Dr. Conley, for his part, testified on cross examination that the user manual did not recommend going over rough surfaces, meaning that this is not a "normal operation." *Id.* at 811:18-812:12. Dr. Conley also testified on direct examination that the second squeegee "is not selectively adapted" as required by claim element 1[i] because "it's always in contact with the surface during regular surface cleaning operations." *Id.* at 731:20-733:21 (discussed in FID at 65 n.19).

For these reasons, the Commission adopts the FID's findings, as modified above, that the Xia Accused Products do not practice limitation 1[i] of the '541 patent and thus do not infringe that patent. *See* FID at 62-65. The Commission also adopts the FID's findings that Complainants failed to prove that the Xia Accused Products have a "suction nozzle assembly provided on the base," or that the accused S3 and S5 Pro devices have a "suction nozzle in fluid communication with the suction source," for the reasons stated previously. Accordingly, the Commission adopts the FID's findings that Respondents do not infringe the Xia patents, and there is no violation with respect to those patents.

5. Technical Prong, Domestic Industry ('541 Patent Only)

Complainants contend that their DI products satisfy the technical prong of the '541 patent because they practice claims 1 and 13 of the '541 patent. The FID finds that Complainants failed

(finding term "unobstructive manner" lacks a reasonably clear definition and is indefinite); *Sonix Tech. Co. v. Publications Int'l, Ltd.*, 844 F.3d 1370, 1380-81 (Fed. Cir. 2017) (finding term "visually negligible" is not purely subjective and not indefinite) (discussed in CPet. at 37).

to satisfy the DI technical prong for the ’541 patent for essentially the same reason they failed to prove infringement of the ’541 patent, namely, Complainants failed to show that the DI products satisfy claim elements 1[d] and 1[i] of the ‘541 patent and therefore failed to show they practice either claim 1 or 13, which depend from claim 1. FID at 198-200, 202 (discussing ’541 patent at 16:30-33). Accordingly, the Commission adopts the FID’s findings regarding the ’541 patent, as modified by the Commission’s supplemental findings, Dr. Singhose’s “abnormal” tests, and the caselaw described in the preceding subsection. In view of these supplemental findings, the Commission concludes that Complainants have not satisfied the technical prong of the domestic industry requirement for the ’541 patent and there is no violation with respect to the ’541 patent.

B. The Resch Patents: Obviousness

The Commission also determined to review the FID’s findings that the asserted claims of the Resch patents are not invalid as obvious, and whether Complainants satisfied the economic prong of the DI requirement under either section 337(a)(3)(B) or (C). 88 Fed. Reg. at 52208. Upon review of the FID, the parties’ submissions, and the evidence of record, the Commission has determined to adopt the FID’s findings, as modified and supplemented below. The Commission has previously determined not to review, and thus adopted, the FID’s findings that the original, but not the redesigned, Resch accused products infringe the Resch patents, and that Complainants satisfied the technical prong of the DI requirement for both Resch patents. *See id.* Accordingly, the Commission has determined to adopt the FID’s findings, as supplemented, that Respondents violated section 337 by way of infringing the Resch patents. *See* FID at 1, 269.

1. The Resch "Self-Cleaning" Patents

The Resch patents are related, in that they claim priority to the same parent application and share the same specification.[16] *See* FID at 6. The Resch patents claim "a floor cleaning system" comprising a surface cleaning device and a storage tray configured to dock with the surface cleaning device for recharging the battery and initiating the self-cleaning of the surface cleaning device. *See, e.g.*, '735 patent at 27:51-67 (claim 1). The storage tray is shown docked with the cleaning device **10** in Figure 19, below at top, and undocked in Figure 26, at bottom:

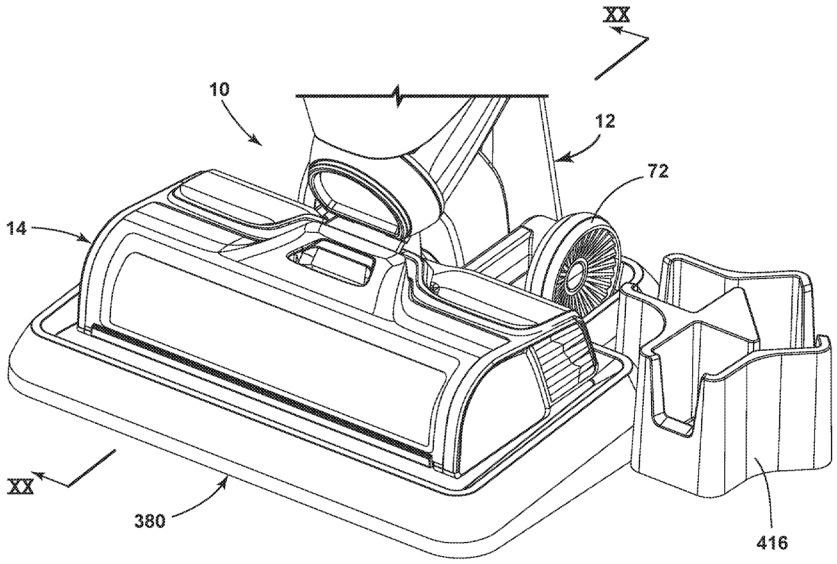


FIG. 19

[16] The '735 patent issued from U.S. Appl. No. 17/016,814, which is a continuation of U.S. Appl. No. 16/734,708 ("the '708 application"). '735 patent (cover). The '428 patent issued from U.S. Appl. No. 17/016,824, which is also a continuation of the '708 application. '428 patent (cover).

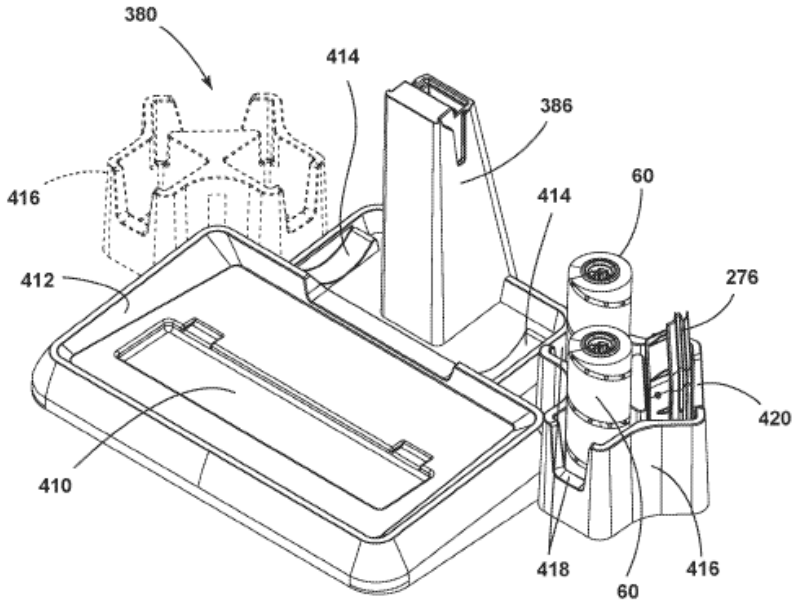


FIG. 26

See ’735 patent at 3:44-46, 3:60-61, 22:24-55, 24:38-45, Figs. 19, 26.

Two claim elements of the Resch patents are of particular importance on review. First, the ’735 patent claims a controller that is configured to perform an “unattended automatic self-cleaning mode of operation,” which “is operable only when the surface cleaning apparatus is docked on the storage tray.” *See* ’735 patent at 28:6-11 (claim element 1[o]), 29:66-30:6 (claim element 13[k]). Second, both Resch patents claim a “battery charging circuit” for recharging the device’s rechargeable battery, “wherein the battery charging circuit is disabled by the actuation of the self-cleaning mode input control and remains disabled during the unattended automatic clean-out cycle.” *Id.* at 28:12-17 (claim element 1[p]), 30:7-12 (claim element 13[l]); ’428 patent at 28:1-4 (claim element 1[p]).

a. ’735 Patent: Claims 1, 13, and 15

Complainants assert independent claims 1 and 13 and dependent claim 15 (which depends indirectly on claim 13) of the ’735 patent. *Id.* at 13-14. These claims are recited below,

with bracketed letters added for identification of individual claim elements, as in the FID, and claim terms of interest identified by italics:

'735 Patent Claim Element	**Claim Language**
1 [preamble] [asserted]	A floor cleaning system, comprising:
1[a]	a surface cleaning apparatus comprising:
1[b]	an upright body comprising a handle and a frame;
1[c]	a base coupled with the upright body and adapted for movement across a surface to be cleaned;
1[d]	a moveable joint assembly mounting the base to the upright body, wherein the upright body is pivotable via the joint assembly between an upright storage position and a reclined use position;
1[e]	a fluid delivery system comprising a supply tank removable from the frame, a pump, and a fluid distributor;
1[f]	a recovery system comprising a recovery pathway, a recovery tank, a suction nozzle, and a vacuum motor;
1[g]	a brushroll within the recovery pathway of the recovery system;
1[h]	a brushroll motor operably coupled to the brushroll for rotating the brushroll, wherein the suction nozzle is configured to extract fluid and debris from the brushroll;
1[i]	a rechargeable battery selectively powering the pump, the vacuum motor, and the brushroll motor;
1[j]	a user interface disposed on the handle, the user interface comprising a power button and a cleaning mode button;
1[k]	a self-cleaning mode input control disposed on the upright body and configured to initiate an unattended automatic cleanout cycle for a self-cleaning mode of operation during which the pump, the brushroll motor, and the vacuum motor are energized, wherein the self-cleaning mode input control is separate from the power button and the cleaning mode button; and

'735 Patent Claim Element	**Claim Language**
1[l]	a controller controlling the operation of the fluid delivery and recovery systems, and operably coupled with the self-cleaning mode input control;
1[m]	a storage tray configured to dock the surface cleaning apparatus in the upright storage position for recharging the battery of the surface cleaning apparatus and for self-cleaning of the surface cleaning apparatus, the storage tray comprising at least one charging contact, a power cord, and a wall charger configured to be plugged into a household outlet;
1[n]	the surface cleaning apparatus comprises at least one corresponding charging contact configured to couple with the at least one charging contact of the storage tray when the surface cleaning apparatus is docked with the storage tray;
1[o]	wherein the controller is configured to execute the unattended automatic cleanout cycle for the self-cleaning mode of operation upon actuation of the self-cleaning mode input control, and *wherein the self-cleaning mode is operable only when the surface cleaning apparatus is docked on the storage tray*; and
1[p]	wherein the surface cleaning apparatus comprises a battery charging circuit controlling the recharging of the rechargeable battery, *wherein the battery charging circuit is disabled by the actuation of the self-cleaning mode input control and remains disabled during the unattended automatic cleanout cycle*.
13 [preamble] [asserted]	A floor cleaning system, comprising:
13[a]	a surface cleaning apparatus comprising:
13[b]	a fluid delivery system comprising a supply tank, a pump, and a fluid distributor;
13[c]	a recovery system comprising a recovery pathway, a recovery tank and a vacuum motor;
13[d]	an upright body comprising a handle, the supply tank and the recovery tank;
13[e]	a base coupled with the upright body and adapted for movement across a surface to be cleaned, the base comprising the fluid distributor, a brushroll, a brushroll motor operably coupled to the brushroll for

'735 Patent Claim Element	**Claim Language**
	rotating the brushroll, and a suction nozzle configured to extract fluid and debris from the brushroll;
13[f]	a rechargeable battery selectively powering the pump, the vacuum motor, and the brushroll motor;
13[g]	a user interface disposed on the handle, the user interface comprising a power button disposed on a forward side of the handle and a cleaning mode button disposed on a forward side of the handle adjacent to the power button;
13[h]	a self-cleaning mode input control on the upright body which initiates an unattended automatic cleanout cycle for a self-cleaning mode of operation during which the pump, the brushroll motor, and the vacuum motor are energized, wherein the self-cleaning mode input control is separate from the user interface; and
13[i]	a controller controlling the operation of the fluid delivery and recovery systems;
13[j]	a storage tray configured to dock the surface cleaning apparatus for recharging the battery of the surface cleaning apparatus and for self-cleaning of the surface cleaning apparatus;
13[k]	wherein the controller is configured to execute the unattended automatic cleanout cycle for the self-cleaning mode of operation upon actuation of the self-cleaning mode input control, and *wherein the controller is configured to lock-out the automatic cleanout cycle when the surface cleaning apparatus is not docked with the storage tray and prevent initiation of the automatic cleanout cycle*; and
13[l]	wherein the surface cleaning apparatus comprises a battery charging circuit controlling the recharging of the rechargeable battery, *wherein the battery charging circuit is disabled by the actuation of the self-cleaning mode input control and remains disabled during the unattended automatic cleanout cycle*.
14 [unasserted]	The floor cleaning system of claim 13, wherein the controller is configured to activate the pump and the brushroll motor during the unattended automatic cleanout cycle, whereby the pump draws cleaning fluid from the supply tank, the fluid distributor sprays cleaning fluid, and the brushroll motor rotates the brushroll.

’735 Patent Claim Element	Claim Language
15 [asserted]	The floor cleaning system of claim 14, wherein the controller is configured to activate the vacuum motor after the pump and the brushroll motor during the unattended automatic cleanout cycle, and the vacuum motor extracts cleaning fluid from the storage tray for collection in the recovery tank.

FID at 11-14 (citing ’735 patent at 27:26-28:17 (claim 1), 29:32-30:25 (claims 13-15) (emphasis added)).

b. ’428 Patent: Claim 1

Complainants accuse Respondents of infringing claim 1 of the ’428 patent. *Id.* at 14-15. This claim is recited below, with bracketed letters added for identification of individual claim elements, as in the FID, and claim terms of interest identified by italics:

’428 Patent Claim Element	Claim Language
1 [preamble]	A floor cleaning system, comprising:
1[a]	a surface cleaning apparatus comprising:
1[b]	a fluid delivery system comprising a supply tank, a pump, and a fluid distributor;
1[c]	a recovery system comprising a recovery pathway, a recovery tank, a suction nozzle, and a vacuum motor;
1[d]	a brushroll within the recovery pathway of the recovery system;
1[e]	a brushroll motor operably coupled to the brushroll for rotating the brushroll, wherein the suction nozzle is configured to extract fluid and debris from the brushroll;
1[f]	a rechargeable battery selectively powering the pump, the brushroll motor, and the vacuum motor;
1[g]	a battery charging circuit controlling the recharging of the rechargeable battery;

’428 Patent Claim Element	Claim Language
1[h]	a self-cleaning mode input control which initiates an unattended automatic cleanout cycle for a self-cleaning mode of operation during which the pump, the brushroll motor, and the vacuum motor are energized; and
1[i]	a controller controlling the operation of the fluid delivery and recovery systems and configured to execute the unattended automatic cleanout cycle for the self-cleaning mode of operation upon actuation of the self-cleaning mode input control; and
1[j]	a storage tray configured to dock the surface cleaning apparatus for recharging the battery of the surface cleaning apparatus and for self-cleaning of the surface cleaning apparatus;
1[k]	wherein, to execute the unattended automatic cleanout cycle for the self-cleaning mode of operation, the controller is configured to:
1[l]	power the brushroll motor and the pump by the battery, whereby cleaning liquid is sprayed on the brushroll while the brushroll rotates, without the vacuum motor being powered; and
1[m]	power the vacuum motor by the battery after the brushroll motor and the pump are powered, whereby cleaning liquid is extracted and deposited into the recovery tank and a portion of the recovery pathway is flushed out; and
1[n]	*wherein the battery charging circuit is disabled by the actuation of the self-cleaning mode input control and remains disabled during the unattended automatic cleanout cycle*.

FID at 14-15 (citing ’428 patent at 27:26-28:4 (claim 1) (emphasis added)).

2. Claim Elements at Issue

The Resch patents are directed to a surface cleaning device that includes, in pertinent part: (i) a rechargeable battery and battery charging circuit; (ii) a “self-cleaning input control” connected to a controller for executing an “unattended automatic cleanout cycle for [a] self-cleaning mode of operation”; and (iii) and a storage tray with a power cord, wall charger, and charging contact(s) for recharging the battery in the cleaning device while the device is docked

in the storage tray. *See, e.g.*, '735 patent at 27:27-28:18 (claim elements 1[i], 1[k]-1[n]), 29:32-30:13 (claim elements 13[f], 13[h]-13[k]); '428 patent at 27:26-28:4 (claim elements 1[f]-[j]).

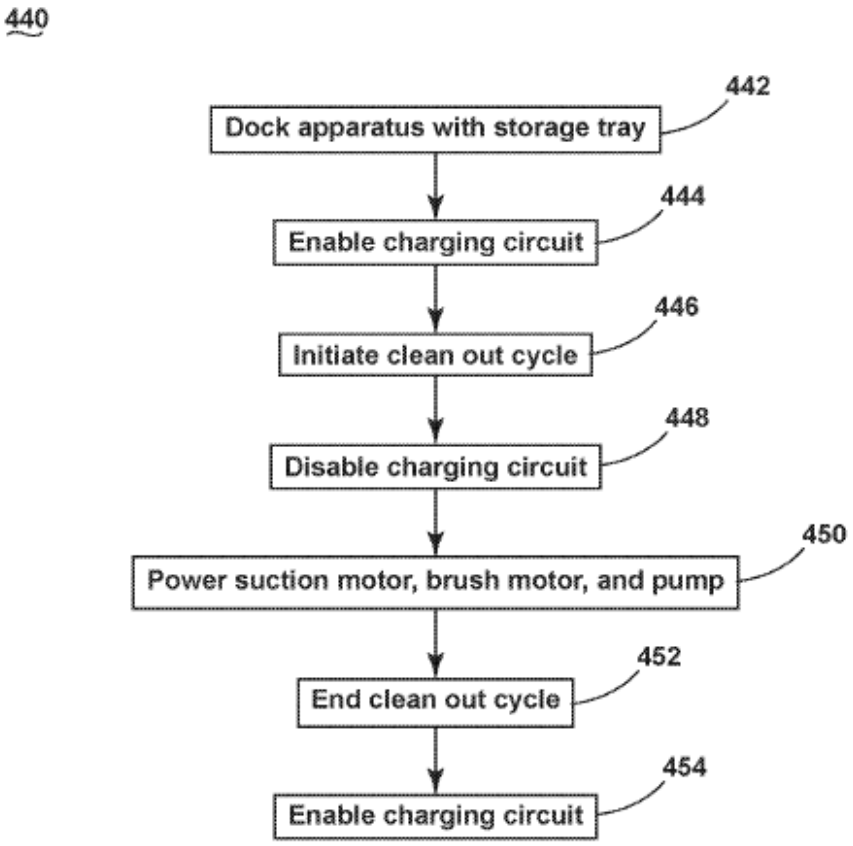
The disputes over non-obviousness focus on certain limitations regarding the self-cleaning and battery charging modes, namely: (i) the self-cleaning mode of operation is operable only when the cleaning device is docked on the storage tray (the "self-clean lockout feature"); and (ii) the battery charging circuit is disabled by actuation of the self-cleaning mode input control and remains disabled during the unattended automatic cleanout cycle (the "battery charging lockout feature"). *See id.* The limitations at issue are recited below:

Claim Element	**Claim language ("self-cleaning lockout feature")**
'735 patent, element 1[o]	"wherein the controller is configured to execute the unattended automatic cleanout cycle for the self-cleaning mode of operation upon actuation of the self-cleaning mode input control, and *wherein the self-cleaning mode is operably only when the surface cleaning apparatus is docked on the storage tray*." ('735 patent at 28:6-11 (emphasis added))
'735 patent, element 13[k]	"wherein the controller is configured to execute the unattended automatic cleanout cycle for the self-cleaning mode of operation upon actuation of the self-cleaning mode input control, and *wherein the controller is configured to lock-out the automatic cleanout cycle when the surface cleaning apparatus is not docked with the storage tray and prevent initiation of the automatic cleanout cycle*" ('735 patent at 29:66-30:6 (emphasis added))

Claim Element	**Claim language ("battery charging lockout feature")**
'735 patent, element 1[p]	"wherein the surface cleaning apparatus comprises a battery charging circuit controlling the recharging of the rechargeable battery, *wherein the battery charging circuit is disabled by the actuation of the self-cleaning mode input control and remains disabled during the unattended automatic cleanout cycle*" ('735 patent at 28:12-17 (emphasis added))
'735 patent, element 13[l]	"wherein the surface cleaning apparatus comprises a battery charging circuit controlling the recharging of the rechargeable battery, *wherein the battery charging circuit is disabled by the actuation of the self-cleaning mode input*

	control and remains disabled during the unattended automatic cleanout cycle" ('735 patent at 30:7-12 (emphasis added))
'428 patent, element 1[n]	"*wherein the battery charging circuit is disabled by the actuation of the self-cleaning mode input control and remains disabled during the unattended automatic cleanout cycle*" ('428 patent at 28:1-4 (emphasis added))

An example of the self-cleaning cycle **440** with the battery charging lockout and **448** and reactivation **454**, are illustrated in the flow chart below:



'735 patent, Fig. 29; '428 patent, Fig. 29.

3. Asserted Prior Art

According to the FID, Respondents argued that the asserted claims of the Resch patents are invalid as obvious over various combinations of the following prior art references:

(i) TEK iFloor CL1762A ("iFloor" (RX-0094)) (primary reference);

(ii) iFloor in combination with U.S. Patent Application Publication No. 2019/0254495A1 ("Zhang" (RX-0125));

(iii) iFloor with Zhang and Japanese Patent Application 2004-105273A ("Seno" (RX-0138));

(iv) iFloor with Zhang and International Patent Application WO 2018/012912A1 ("Jang" (RX-0137));

(v) iFloor with Zhang and U.S. Patent No. 8,925,142 ("Orubor 142" (RX-0127));

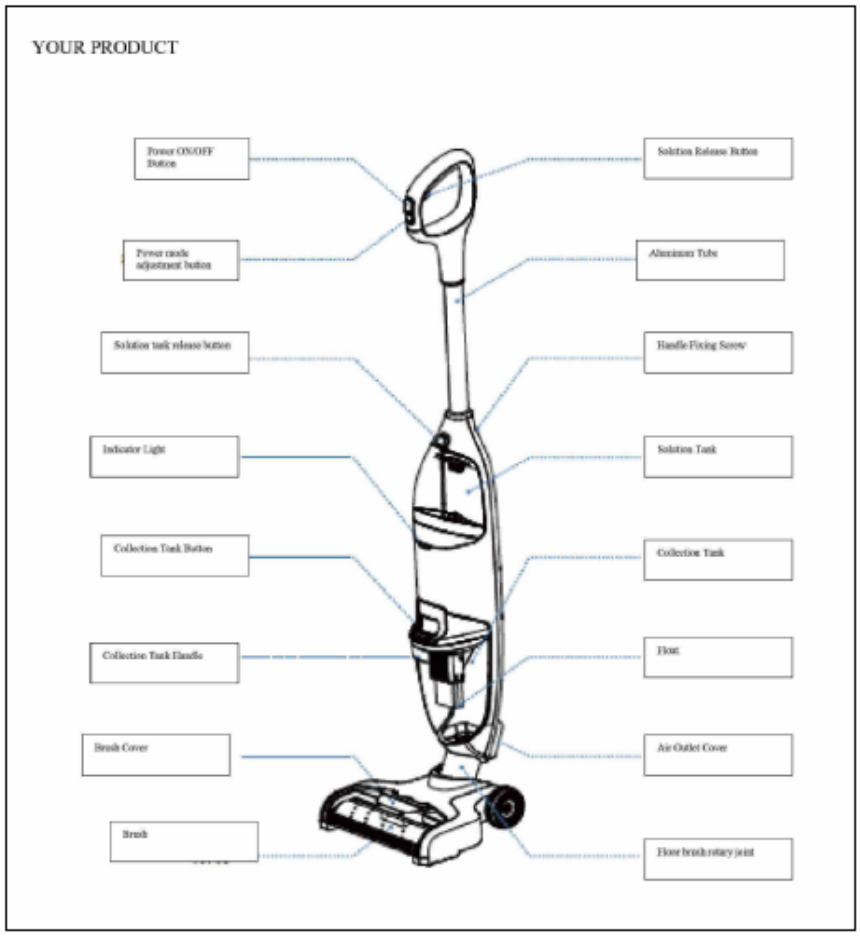
(vi) iFloor with Zhang and U.S. Patent No. 8,776,304 ("Orubor 304" (RX-0132));

(vii) iFloor with Zhang and combinations of Seno, Jang, Orubor 142, or Orubor 304.

Respondents' Post-Hearing Br. at 81; FID at 162-63, 180.

a. <u>iFloor Cleaning Device</u>

As noted in the FID, Respondents rely on the iFloor cleaning device as the primary prior art reference. *See* FID at 162-63 (citing RX-0094 (user manual)). The iFloor discloses, among other things, a surface cleaning device with an upright body and base connected by a movable joint assembly, fluid delivery and recovery systems, a rechargeable battery, and a storage tray for self-cleaning the device. *See* RX-0094.0029. These and other elements are depicted below:



FID at 166 (citing RX-0094.0029 (translation of iFloor user manual)).

The iFloor device can perform a "self-cleaning function," which is described as follows:

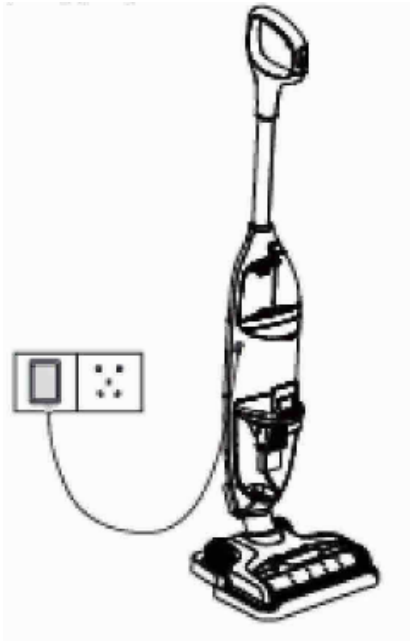
> - Before self-cleaning, please place the appliance in the tray . . . . Press and hold the ON/OFF button of the appliance for 3 seconds to start the self-cleaning program . . . . After self-cleaning, the appliance will automatically shut down. Each cleaning time is about 40 seconds.

RX-0094.0043.

The iFloor also includes a rechargeable battery and battery charger that plugs into the body of the cleaning device, not the storage tray. RX-0094.0039 ("Connect one end of the charger to the main body of the appliance and the other end to the power socket in the home."). Respondents concede that the iFloor does not have charging contacts in the storage tray or

corresponding charging contacts on the cleaning device. *See* RPHB at 98-99 (citing Hr'g Tr. (Smith) at 915:22-916:1). The battery charging device is depicted in the drawing below, at left, and the battery charger in operation with cleaning device below, at right:

RX-0094.0032



RX-0094.0039

b. <u>Zhang</u>

The FID states that the Zhang reference discloses a "roller mop" (below), or motorized sweeper, in which a motor drives a roller backwards to sweep debris off the floor into a trash bin. FID at 167 (discussing Zhang, ¶¶ 0029, 0032). Zhang does not have a vacuum motor or fluid system for cleaning the floor. *Id.* at 168 (citing Hr'g Tr. (Sorensen) at 1109:20-1110:24).

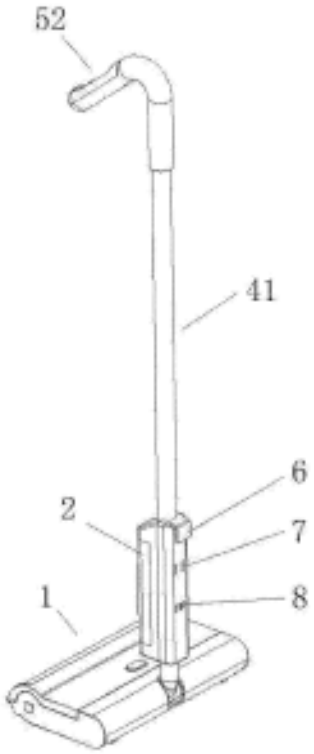


Figure 2

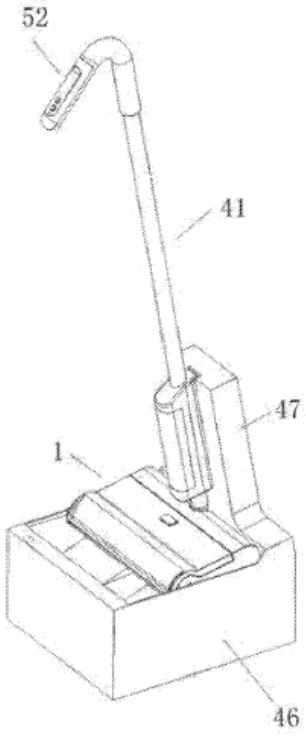


Figure 10

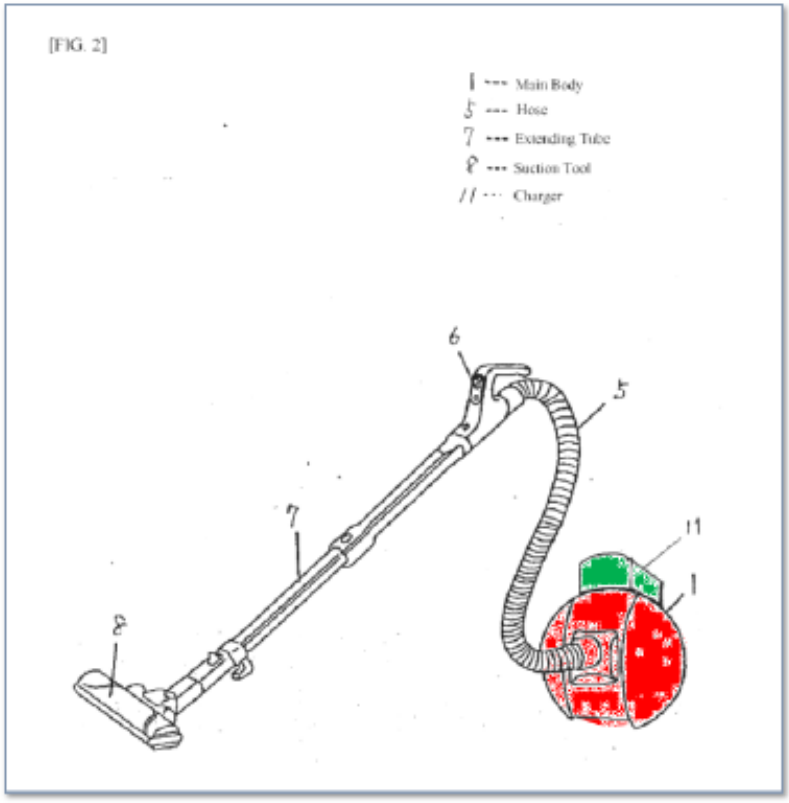
Zhang, Abstract, ¶¶ 0029, 0032, Figs. 2, 10 (discussed in FID at 167).

Zhang also discloses a "self-cleaning process," in which the roller and trash basin can be cleaned by placing the mop head in a cleaning basin attached to an external water source. Zhang, ¶¶ 0030, 0039 (discussed in FID at 168). When the user presses the self-cleaning button **4** (not shown), inlet and outlet valves are opened, so that tap water can flow into the basin to clean the rollers and basin, and then be flushed out into a trash bin. *Id.*

Zhang also discloses a "control circuit" comprising a rechargeable battery **2**, a power-on button **5** (not shown), a charging contact piece **7**, and a signal contact piece **8**, which electrically connects the cleaning device to the cleaning basin when it is placed in that basin. *Id.*, ¶ 0028. The roller mop automatically enters the charging mode after the cleaning cycle has ended. *Id.*, ¶ 0039.

c. Seno

Seno, the FID finds, discloses a rechargeable battery-powered portable vacuum cleaner, having a main body (in red, below) and a battery charger (in green, below):

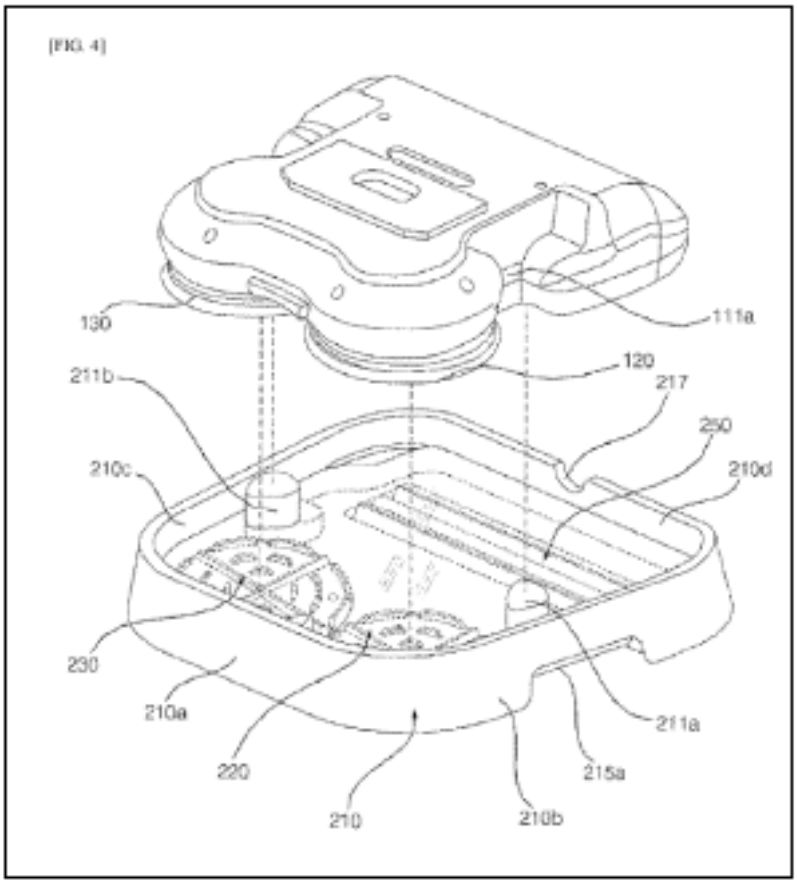


Seno, Abstract, ¶ 0007, Fig. 2 (discussed in FID at 168).

Seno teaches that the charger can be left in place while the vacuum is running, in order to avoid the problem of conventional vacuums of having to remove the charger before each use, and the remounting to recharge the device. *Id.*, ¶ 0005. Seno teaches that this may create another set of problems, however, such as degradation of the battery due to simultaneous charging and discharging over time. *Id.*, ¶¶ 0007-0008. Seno teaches these problems can be avoided by enabling the device to determine whether vacuum is running and disabling the battery charger when the device is in use. *Id.*, ¶¶ 0006-0008; Hr'g Tr. (Sorensen) at 1111:2-1112:21.

d. Jang

Jang is directed to a washing device with a tray **210** for washing a robotic cleaning device. Jang, Abstract, ¶¶ 3, 5, 7, 9, 10, 57 (discussed in FID at 169-70). The Jang device is depicted below:



Jang, Abstract, Fig. 4 (discussed in FID at 169-70).

Jang discloses a "seating sensing unit" **185** that can detect whether the robotic cleaning device is seated in the washing device and automatically turn on the clean-out process when the device is in the tray. *Id.*, ¶¶ 132-34; Hr'g Tr. (Sorensen) at 1112:2-1113:20. The user may also activate the clean-out process manually. Hr'g Tr. (Sorensen) at 1113:13-20.

Jang also discloses a "control unit" that controls the rotation of the "mopping unit(s)" (**120**, **130**) in the robotic cleaning device while it is being washed. *See id.*, ¶¶ 11, 46, 135-142.

The "control unit" may also control the "water supply device" **260**, which feeds washing water into the tray **210**. *Id.*, ¶¶ 156-57.

e. Orubor 142

Orubor 142 is directed to a compact, handheld vacuum device **10** for vacuuming up waste, particularly animal waste. Orubor 142 at 1:13-16, 31-35 (discussed in FID at 170). During vacuuming, the blue "suction head cover/wash basin" **67** is pivoted backwards to expose the vacuum suction head (or nozzle) **16** to vacuum up waste into a collection receptacle **20**, where it is treated with a waste treatment solution **36** from a fluid reservoir **34**. *Id.*, Abstract, 3:7-24, 62-66; Hr'g Tr. (Sorensen) at 1113:23-1114:16. The device **10** is shown below:

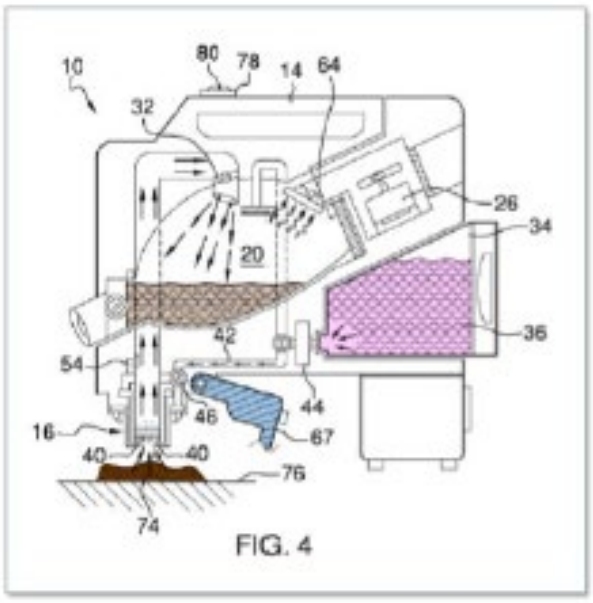


FIG. 4

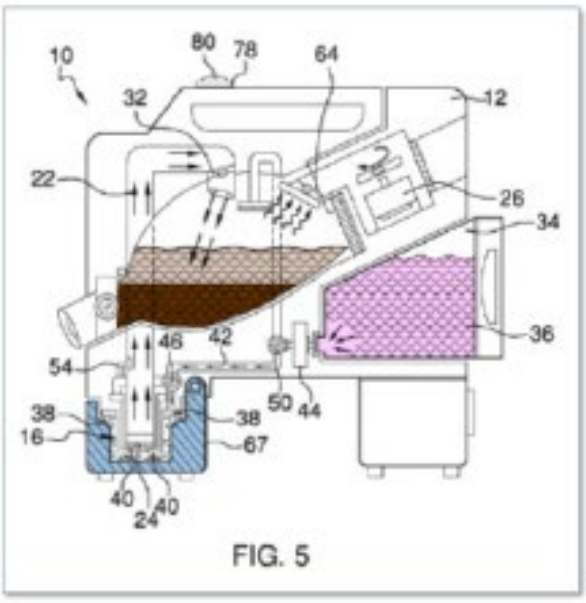


FIG. 5

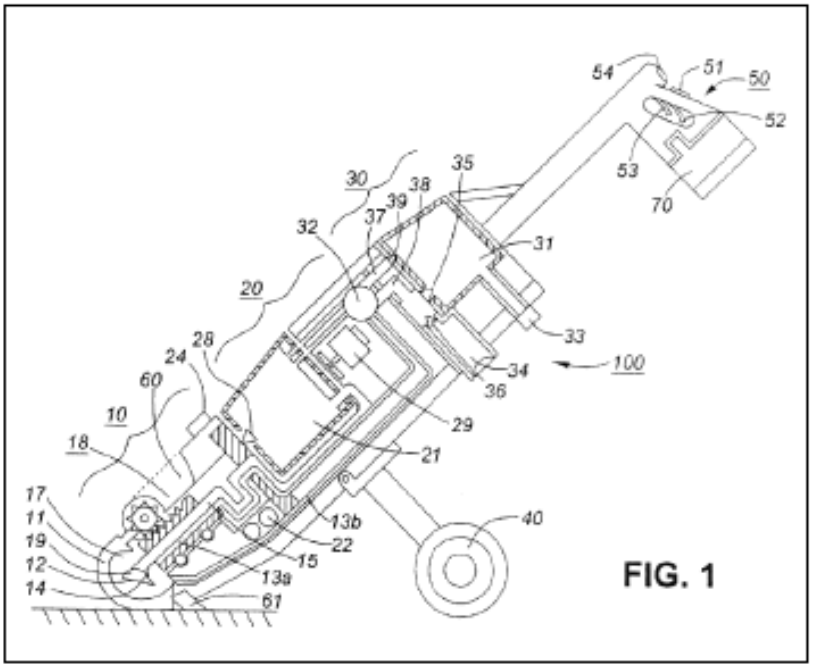
FID at 169-70 (citing Orubor 142 at 1:31-35, Figs. 4, 5 (annotations added by Complainants)).

Orubor 142 also discloses a "self clean" mode of operation, as depicted in Figure 5, above right. Orubor 142 at 6:16-24 (discussed in FID at 170). The suction head cover **67** is pivoted forward to cover the suction head **16** and locked into place for cleaning. *Id.* at 6:18-21 (discussed in FID at 170); Hr'g Tr. (Sorensen) at 1114:17-1115:2. The cleaning operation can then be commenced either manually (by pushing a control button **80**) or automatically (by a

processor, not shown above), which causes the vacuum motor **26** and pump **44** to start, and treatment solution **36** to be discharged through spray nozzles **38** to remove waste from the suction head **16**, protective grill **24**, and vacuum passage **22**. Orubor 142 at 6:33-40, 45-48. The treatment solution is retained within the washing basin **67**, where it is vacuumed into the vacuum receptacle for disposal. *Id.* at 6:41-44, 48-50.

f. Orubor 304

Orubor 304, like Orubor 142, discloses a vacuum device for vacuuming and collecting animal waste in a waste receptacle, treating and disintegrating it with a cleaning fluid, and then discharging the disintegrated waste from the device. Orubor 304, Abstract, 1:63-2:3 (discussed in FID at 171-72). The Orubor 304 device, depicted below, includes spray jets **14** in the collection hose **15** for breaking down waste and cleaning the interior of the collection hose **15**:



Orubor 304 at 3:14-17, Fig. 1 (discussed in FID at 172); *see* Hr'g Tr. (Sorensen) at 1115:3-21.

Orubor 304 also discloses a self-cleaning system for cleaning the device after use. Orubor 304 at 5:12-25, 6:50-53. A pump **22** sprays pressurized fluid from a fluid reservoir **31** or

chemical reservoir **34** through spray jets **14** into collection hose **15**, where the fluid breaks down waste to clean the collection hose **15** and then flushes it out through the discharge system **20**. *Id.*

g. Prior Art Combinations

Respondents argued that the following prior art combinations disclosed the elements of the asserted claims of the Resch patents, including the self-cleaning lockout feature and the battery charging lockout feature:

Prior Art Combinations Addressed in the FID	Self-Cleaning Lockout Feature ('735 patent, 1[o], 13[k])	Battery Charging Lockout Feature ('735 patent, 1[p], 13[l]; '428 patent, 1[o])
iFloor	X	X
iFloor with Zhang	X	X
iFloor with Orubor 142	X	
iFloor with Jang	X	
iFloor with Seno		X

See FID at 173-81.

4. Self-Cleaning Lockout Feature

The FID finds that Respondents failed to prove by clear and convincing evidence that the iFloor, either singly or in combination with any of the other asserted prior art references, discloses the self-cleaning lockout feature of claim elements 1[o] and 13[k] of the '735 patent. FID at 172-81. Limitation 1[o] provides that the "self-cleaning mode of operation" can be executed only when the cleaning device is docked in the storage tray. '735 patent at 28:13-17 (limitation 1[o]). Limitation 13[k] recites a similar limitation in negative terms, stating that the "self-cleaning mode of operation" is "lock[ed]-out," *i.e.*, *cannot* be executed, when the device is *not* docked in the storage tray. *Id.* at 29:66-30:6 (limitation 13[k] (emphasis added)).

The Commission, on review, has determined to adopt the FID's findings. The Commission modifies those findings with the supplemental findings set forth below.

a. <u>iFloor</u>

The iFloor teaches that the user can activate the self-cleaning operation by pressing and holding the ON/OFF button for three seconds. FID at 174 (citing RX-0094.0043). The FID finds that the iFloor device can perform a self-cleaning operation when the cleaning device is either on the storage tray or not on the tray. *Id.* (citing Hr'g Tr. (Smith) at 895:13-23, 919:1-13). The FID thus finds that the iFloor does not satisfy either claim element 1[o] or 13[k], as stated above, because the iFloor is not limited to performing self-cleaning only when the device is on its storage tray. *Id.* As set forth below, the FID proceeds to find that these missing "lock-out" limitations are not disclosed in Zhang, Orubor 142, or Jang. *Id.*

The Commission adopts these findings, and further notes that the iFloor does not disclose a "self-cleaning mode input control," which is separate from the "power button" and a "cleaning mode button." *See* '735 patent at 27:51-57 (claim element 1[k]), 29:53-59 (claim element 13[h]). Instead, the self-cleaning operation in the iFloor is activated by pressing and holding the ON/OFF (power) button. FID at 174 (citing RX-0094.0043). Neither does the iFloor disclose "a controller . . . operably coupled with the self-cleaning mode input control." *See* '735 patent at 27:58-60 (claim element 1[l]), 29:66-30:6 (limitation 13[k]). Respondents also have not explained why a person skilled in the art would have been motivated to modify the iFloor to remove a functionality, *i.e.*, its ability to perform its self-cleaning function when the cleaning device is not on its storage tray, to produce the claimed invention, in which the self-cleaning operation can be performed only when the device is docked on the storage tray. *See* FID at 174-75 (citing Hr'g Tr. (Smith) at 895:13-23, 919:1-13); *see also Phillip Morris Prods. S.A. v. ITC*,

63 F.4th 1328, 1345-46 (Fed. Cir. 2023) (affirming non-obviousness where the evidence did not show that it would have been obvious to modify the prior art to practice the claimed invention).

The Commission thus adopts the FID's finding that the asserted claims of the Resch patents are not invalid as obvious over the iFloor alone or in combination with the knowledge of a person of ordinary skill in the art (without other cited prior art). Respondents also rely on other specific pieces of prior art (*e.g.*, Zhang, Orubor 142, or Jang) to disclose the self-cleaning lockout feature, as discussed below.

b. iFloor with Zhang

The FID finds that Respondents did not show why or how a person skilled in the art would reconfigure the iFloor to combine it with Zhang in such a way as to accomplish the claimed self-cleaning operation. FID at 174-75 (citing Hr'g Tr. (Smith) at 920:16-921:12). The FID finds that Zhang discloses a self-cleaning operation that is operable only when the device is in the tray. *Id.* at 174. However, the FID finds that Zhang discloses "a significant amount of componentry that is external to the cleaning device" to achieve this operation, whereas the self-cleaning componentry of the iFloor is located within the cleaning device itself, not the tray. *Id.* at 175 (citing Hr'g Tr. (Smith) at 919:1-21; Tr. (Sorensen) at 1128:25-1130:13). The FID finds that a person skilled in the art would not have been motivated to make "a significant overhaul of the iFloor's structure," *e.g.*, by moving the self-cleaning components in the iFloor to the tray, that would be required to combine it with Zhang. *Id.* at 174-75.

Respondents petitioned for review of the FID's findings, arguing that it is irrelevant that Zhang uses "a significant amount" of external componentry to perform a self-cleaning operation because the iFloor already has its own internal self-cleaning operation. RPet. at 15 (citing FID at 174). Respondents argue that this combination requires only Zhang's teaching that the self-cleaning mode is operable only when docked. *Id.* Respondents also argue that the

"corresponding signal contacts (**8** and **8a**) on the device and cleaning basin" in Zhang were "well-known in the art" and would have required only a "routine modification." *Id.* (citing Zhang, ¶ 0030, claim 1, Figs. 2 & 7; Hr'g Tr. (Smith) 920:16-921:12, 928:3-25)).

The Commission finds Respondents' arguments are without merit and adopts the FID's findings. The FID properly finds that Zhang's self-cleaning apparatus relies on an external cleaning basin, so that the cleaning operation can be performed only when the cleaning device is in the basin. *See* FID 174-75. Zhang discloses a structural limitation on the cleaning system, not an electronic control system. *See* Hr'g Tr. (Sorensen) at 1121:15-1122:25. The Commission finds that Respondents have not proven by clear and convincing evidence that a person skilled in the art would have been motivated to combine Zhang's relatively "primitive" external self-cleaning system with the iFloor's internal cleaning system to produce the claimed invention. *See id.* at 1123:9-1126:6, 1127:20-1131:19. Such a combination represents improper hindsight bias. *See id.*; *W.R. Gore*, 721 F.2d at 1552-53 (using a patent claim "as a frame" to assemble "naked parts of separate prior art references [] as a mosaic to recreate a facsimile of the claimed invention, without showing why persons skilled in the art would have found that mosaic obvious, improperly employs hindsight bias"); *Polaris*, 882 F.3d at 1068 ("the prejudice of hindsight bias often overlooks that the genius of invention is often a combination of known elements which in hindsight seems preordained" (internal quotation marks omitted)).

The Commission further finds that neither the iFloor nor the Zhang reference discloses an *automatic* cleanout cycle or an electronic self-cleaning lockout feature as required by the claims. Instead, the self-cleaning function in the iFloor is activated by manually pressing and holding the ON/OFF button for three (3) seconds. RX-0094.0043. Zhang teaches that the cleaning mode is

actuated manually when the user pushes the self-cleaning button **4** while the device is on the tray. *Id.*, ¶¶ 0034, 0028, 0039.

Zhang also does not disclose a "controller" that is "configured to execute the unattended automatic cleanout cycle for the self-cleaning mode of operation upon actuation of the self-cleaning mode input control," as required by limitations 1[o], 13[k]. *See id.*, ¶¶ 0027-0030, 0039. Zhang prevents self-cleaning when the device is not physically present on tray, not because of an internal controller. *See* Hr'g Tr. (Sorensen) at 1128:3-1130:13. Instead, Zhang discloses a "control circuit" comprising a rechargeable battery **2**, a self-clean button **4**, a separate power-on button **5**, a charging contact piece **7**, and signal contacts **8** and **8a**. Zhang, ¶ 0028. The signal contacts **8** and **8a** do not serve as a "controller" or perform the claimed self-clean lockout operation. *Cf.* RPHB at 106-07 (describing signal contacts) *with* Hr'g Tr. (Sorensen) at 1129:1-1131:19 (explaining absence of controller). Thus, even if the iFloor could be combined with Zhang, the combination would not have disclosed the self-clean lockout feature.

The Commission thus adopts the FID's findings, as supplemented above, that Respondents failed to prove by clear and convincing evidence that the combination of the iFloor with Zhang discloses limitations 1[o] and 13[k], or that a person skilled in the art would have been motivated to combine those two references without the benefit of hindsight.

c. <u>iFloor with Orubor 142</u>

The FID finds that Respondents failed to prove by clear and convincing evidence that the '735 patent claims are invalid as obvious over the iFloor with Orubor 142. FID at 175-76, 181. The FID finds it would not have been obvious to combine the iFloor with Orubor 142 because the "head cover/wash basin **67**" in Orubor 142 does not correspond to the "storage tray" in the Resch patent, does not look like a storage try, and does not serve as a "storage tray" in the

context of the '735 patent, as Respondents argued. *Id.* (citing Orubor 142 at 4:63-67, 6:16-24, 6:45-50). The FID finds instead that it amounts to a cap on the device, as shown below:

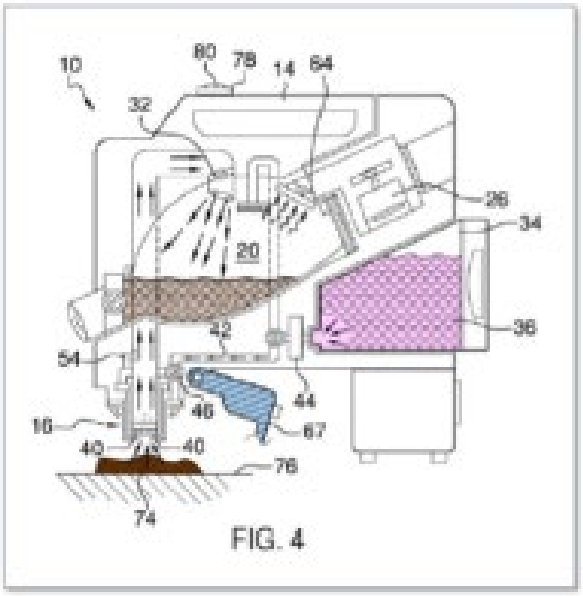


FIG. 4

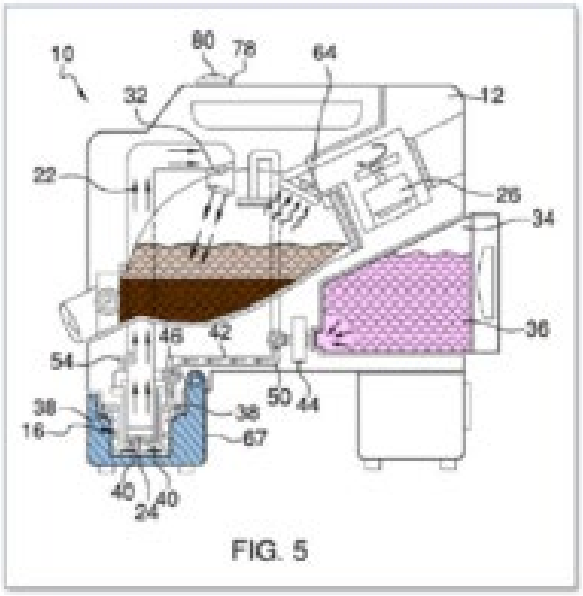


FIG. 5

FID at 175-76 (citing Orubor 142, Figs. 4, 5 (annotated by Complainants)).

Given that Orubor 142 does not disclose a "storage tray," the FID proceeds to find that Respondents could not prove that the apparatus is "docked on the storage tray," or that Orubor 142's self-cleaning operation occurs only when the device is docked in a storage tray, as required by claim elements 1[o] and 13[k]. *Id.* at 175-76. The FID also finds that even if Orubor 142 did disclose a storage tray, its handheld device is so significantly different from the iFloor that a person skilled in the art would not have been motivated to make the significant modifications to the iFloor that would have been required to incorporate Orubor 142's self-cleaning lockout and practice the claimed invention. *Id.* (citing Hr'g Tr. (Smith) at 920:16-921:15)).

Respondents argued that it is irrelevant whether Orubor 142 has a storage tray because the iFloor already has a storage tray. RPet. at 15 (citing FID at 175-176). Respondents also argued that the iFloor and Orubor 142 both include a controller that controls the self-cleaning process, so the combination only needs to use Orubor 142's controller and safety switch that

locks out the self-clean operation of a vacuum device when it is not docked with a washbasin. *Id*. at 15-16 (citing Orubor 142 at 4:63-67, 6:45-50; Hr'g Tr. (Xu) at 577:9-15, 578:10-579:1; Hr'g Tr. (Smith) at 914:14-25, 918:22-919:13, 919:22-920:7, 920:16-921:12). Respondents argued that a safety switch is well-known and would have required only a routine modification of the iFloor's self-cleaning mode. *Id.* (citing Tr. (Smith) 920:16-921:12, 928:3-25).

The Commission adopts the FID's findings and supplements those findings as follows. In addition to adopting the FID's finding that the "suction head cover/wash basin **67**" in Orubor 142 does not correspond to the "storage tray" in the '735 patent, the Commission reiterates that the iFloor does not have a battery charger or charging contacts in the storage tray, as required by the claims. *Cf.* RX-0094.0039 *with* '735 patent at 27:61-67 (element 1(m)), 29:62-65 (element 13[j]); '428 at 27:52-55 (element 1[j]). The Commission finds these features are not disclosed in Orubor 142 either, which does not disclose a storage tray, let alone a tray with charging contacts or a battery charger.[17] *See* Orubor 142 at 5:44-6:24, Figs. 4, 5; Hr'g Tr. (Sorensen) at 1131:20-1134:5. Thus, Respondents have not proven that a person skilled in the art would have found it obvious to combine the iFloor with Orubor 142 to produce the claimed invention.

The Commission further finds that the cover **67** operates with a physical "safety switch," or latch, which ensures the suction head cover/washbasin **67** is securely latched prior to beginning the self-clean operation." *See* Orubor 142 at 6:48-50; Hr'g Tr. (Sorensen) at 1132:23-1134:5. The cover **67** is not connected to, or operate under the control of, a controller or sensor. *See* Hr'g Tr. (Sorensen) at 1132:23- 1134:5. Thus, even though Orubor 142 (unlike Zhang)

[17] The Commission also notes that the cover **67** in Orubor 142 does not disclose the following limitations for the "storage tray": (i) the cover does not "dock" with the cleaning device because it is part of the cleaning device; and (ii) the cover does not support the cleaning device in an upright position. *Cf.* '735 patent at 27:61-28:5 (claim elements 1[n], [o]), 29:62-65 (claim element 13[j]) *with* Orubor 142 at 5:44-6:24, Figs. 4, 5; Hr'g Tr. (Sorensen) at 1131:20-1134:5.

discloses a "processor," or controller, that is "programmed to control the 'self-clean' mode of operation according to a programmed self-clean function" (Orubor 142 at 6:45-50), it does not teach that the controller is configured such that "the self-cleaning mode is operable only when the surface cleaning apparatus is docked on the storage tray" (*see* claim element 1[o]), nor does it "lock-out the automatic clean-out cycle when the surface cleaning apparatus is not docked with the storage tray (*see* claim element 13[k]).[18] *See id.*; Hr'g Tr. (Sorensen) at 1133:6-8. In any event, the "safety switch" is not a controller that is configured to prevent execution of the self-cleaning mode (as opposed to ensuring the head cover is latched), as required by the claims. *Id.*

For these reasons, the Commission adopts and supplements the FID's findings that the iFloor in combination with Orubor 142 does not disclose claim elements 1[o] or 13[k], even if these very different references could be combined.

d. <u>iFloor with Jang</u>

The FID finds that Respondents failed to prove by clear and convincing evidence that the '735 patent claims are invalid as obvious over the iFloor in combination with Jang. FID at 177-78. Jang, the FID finds, discloses a washing tray that is automatically activated when a robot vacuum is placed in the tray. *Id.* at 177 (citing Jang at ¶¶ 0009, 132-34; Hr'g Tr. (Smith) at 920:8-15). The FID finds, however, that Respondents did not show whether Jang can lock the washing operation when a robot vacuum is not in the tray, as required by claim elements 1[o] and 13[k] of the '735 patent. *Id.* The FID also finds that Respondents did not adequately explain how or why a person skilled in the art would modify the iFloor to incorporate the teachings of

[18] Orubor 142 does not describe the programming of the processor. The specification suggests (but does not expressly state) that the processor would be programmed to regulate the fluid flow, valve controls, operation of the suction motor, spray nozzles, and other physical functions during the self-clean operation. *See generally* Orubor 142 at 6:25-54. Orubor 142 does not teach that the processor is programmed to lock-out the cleaning operation when the cover is not latched.

Jang's robotic cleaning basin. *Id.* (citing Hr'g Tr. (Smith) at 920:8-921:12). Accordingly, the FID finds that Jang does not disclose the elements missing from the iFloor. FID at 177.

Respondents argued that "Jang discloses a sensor (seating sensing unit **185**) for turning on a washing device when it detects a cleaning device." *Id.* at 16 (citing Jang, ¶¶ 9, 132-34; Tr. (Smith) at 897:7-14, 920:8-15). Respondents argued that Jang's sensor acts like a power switch in turning the washing device on and off based on whether the cleaning device is seated in the washing device. *Id.* at 17. Respondents argued that a person skilled in the art would have been motivated to incorporate the well-known sensors of Jang into the iFloor to ensure the self-cleaning mode is operable only when the cleaning device is docked on the storage tray. *Id.* (citing Tr. (Smith) at 920:16-921:15, 928:3-25).

The Commission adopts the FID's findings that Respondents failed to show by clear and convincing evidence that a person skilled in the art would have been motivated to combine two such dissimilar references to produce the claimed invention with the self-cleaning lockout feature. FID at 177 (citing Hr'g Tr. (Smith) at 920:9-921:12); Hr'g Tr. (Sorensen) at 1112:22-1113:20, 1134:6-1135:1, 1137:13-1138:20 (discussing Jang's external cleaning system).

The Commission further notes that Jang discloses a "control unit" that controls the rotational speed and water supply for the washing device, as well as a "seating sensing unit" that can turn on the washing device when the cleaning device is seated in the washing device. *See generally* Jang, ¶¶ 9, 11, 46, 132-42, 156-57. Jang, however, does not teach that the "control unit" is configured to "lock out" the automatic cleanout cycle when the cleaning device is not docked on the storage tray (limitation 13[k]). *See* Hr'g Tr. (Smith) at 920:8-15; Hr'g Tr. (Sorensen) at 1137:13-1138:20. Jang also discloses a manual option for starting the cleaning process, not an automatic lock-out. *See* Hr'g Tr. (Sorensen) at 1113:13-20. Thus, Respondents

failed to prove by clear and convincing evidence that a person skilled in the art would have been motivated to combine the iFloor with Jang to produce the claimed invention, with the self-cleaning lockout feature recited in the asserted claims of the '735 patent.

In sum, the Commission adopts the FID's findings, as supplemented above, that Respondents failed to prove by clear and convincing evidence that the asserted claims of the '735 patent, including the self-cleaning lockout feature, are invalid as obvious over the iFloor, either singly or in combination with Zhang, Orubor 142, or Jang. FID at 177, 181.

5. Battery Charging Lockout Feature

The Commission adopts the FID's findings that Respondents failed to prove by clear and convincing evidence that the asserted claims of the Resch patents, including the battery charging lockout feature, are invalid as obvious over the iFloor, either singly or in combination with the other prior art. The Commission modifies and supplements the FID's findings as follows.

a. iFloor

The Commission adopts the FID's finding that the battery-charging circuit in the iFloor is not disabled by the actuation of the self-cleaning mode input control, nor does it remain disabled during the "unattended automatic cleanout cycle," as required by the claims. *See* FID at 178 (citing Hr'g Tr. (Smith) at 922:5-13). The Commission also finds that, while the iFloor disables all other operations while the device is recharging, it does not disable the battery charging circuit during the self-cleaning operation. *See* Hr'g Tr. (Smith) at 974:20-22. Respondents do not explain why or how a person skilled in the art would have reversed these processes and modified the iFloor to disable the battery-charging circuit while it is self-cleaning.

b. iFloor with Zhang

The Commission adopts the FID's finding that Zhang does not teach that the battery charging circuit is disabled by actuation of the self-cleaning mode input control, nor does it teach

that the battery charging circuit remains disabled during the automatic cleanout cycle. *Id*. at 179. The FID finds that "Zhang, at most, discloses that the cleaning device charges when placed in the cleaning basin and also charges about a minute after 'the drain solenoid valve is opened, the roller stops rotating and the roller mop automatically enters the charging mode.'" *Id.* (quoting Zhang, ¶ 0039). The FID also finds that Zhang does not disclose what happens to the battery charging circuit at other points in time. *Id.* (discussing Hr'g Tr. (Sorensen) at 1139:24-1142:19). Thus, Zhang does not disclose a battery charging circuit that becomes disabled once the self-cleaning operation has begun or remains disabled during the entire cleanout cycle. *Id.* at 179-80.

Respondents argued that the FID errs in finding that Zhang does not disclose "whether charging is disabled when the user presses the self-cleaning button" or "whether charging remains disabled during the entire unattended automatic cleanout cycle." *Id.* at 18 (citing FID at 179). Respondents argued that "Complainants' expert conceded that Zhang's battery charging may be disabled during the entire self-clean operation and that, at a minimum, the battery does not charge for at least some time during the self-clean operation." *Id.* (citing Tr. (Sorensen) at 1141:4-8, 11:41:20-21, 1142:5-8). Respondents further argued that the combination can disclose a limitation even if neither reference individually discloses the limitation, and the evidence showed that a person of ordinary skill would have been motivated to combine Zhang's teaching of disabling the battery charging circuit during self-cleaning with iFloor to disable the battery charging circuit during the entire cleanout cycle. *Id.* at 18-19.

The Commission adopts the FID's findings that Zhang teaches only that the charging mode is automatically initiated about a minute after the drain valve is opened and the roller stops rotating (*i.e.*, when the cleaning mode is over). FID at 179 (discussing Zhang, ¶ 0039). The Commission further finds that Zhang's battery-charging circuit is not "disabled" within the

meaning of the Resch '735 patent. The '735 patent explains that the battery-charging circuit is activated, or enabled, when the cleaning device is docked with the storage tray. *See* '735 patent at 25:7-31, 27:56-59, Figs. 27-29. The '735 patent discloses that the battery-charging circuit is "disabled," or shut off, when the self-cleaning mode is activated, and remains "disabled" to avoid overloading the wall charger. *Id.* at 25:31-38, 26:1-4. Thus, "disabling" the battery charger after it has already been activated, as in the Resch patents, is substantially different from Zhang, which states that the battery charger is not activated at all until at least a minute after the self-cleaning operation has ended. Zhang, ¶ 0039.

The Commission further finds that Complainants' expert did not concede that "Zhang's battery charging may be disabled during the entire self-clean operation and that, at a minimum, the battery does not charge for at least some time during the self-clean operation." *See* RPet. at 18 (citing Hr'g Tr. (Sorensen) at 1141:4-8, 1141:20-21, 1142:5-8). Respondents admit that disabling the battery charging circuit during the entire self-cleaning operation is "not explicitly disclosed by Zhang." *Id.* Thus, Respondents' obviousness arguments do not rise to the level of clear and convincing evidence, as they rest on what Respondents asserted Zhang "may" disclose and not on what it actually discloses to a person skilled in the art.

Accordingly, the Commission adopts the FID's findings, as supplemented above, that the iFloor in combination with Zhang does not disclose the battery charging lock-out limitation. *See* FID at 178-79 (citing Hr'g Tr. (Smith) at 922:5-1 (conceding that the iFloor does not disable battery charging during self-cleaning), 922:17-923:11 (discussing battery charging in Zhang)).

c. <u>iFloor with Seno</u>

The Commission adopts the FID's findings that Seno does not disclose an "unattended automatic cleanout feature," or that its battery charging circuit is disabled by pressing a button. *Id.* at 180 (discussing Seno, ¶¶ 0021-0022; Hr'g Tr. (Sorensen) at 1142:20-1144:6). The FID

concludes that Respondents failed to prove that the iFloor, singly or in combination with Seno or Zhang, would disclose the battery charging lockout feature recited in claim elements 1[p] and 13[l] of the '735 parent or element 1[n] of the '435 patent. *Id*.

Respondents argued that the FID errs in disregarding Seno just because it "does not have an unattended automatic cleanout." *Id.* at 19 (citing FID at 180). Respondents also argued that Seno is analogous to the Resch patents because "it is undisputed that Seno discloses a vacuum cleaner with a rechargeable battery and that Seno further discloses disabling battery charging." *Id.* (discussing Seno, ¶¶ 0001, 0021-0022; Hr'g Tr. (Smith) at 896:24-897:6, 923:12-24). Respondents further argued that it is not relevant whether "Seno's battery charging circuit is disabled by pressing a button," as the FID finds, because the asserted combination needs to use only Seno's teaching that battery charging is disabled while the device is running. *Id.* (citing FID at 180; Seno, ¶¶ 0021-0022; Hr'g Tr. (Smith) at 896:24-897:6, 921:16-924:19).

The Commission adopts and supplements the FID's findings that the iFloor in combination with Seno does not disclose the battery-charging cut-off limitations in claim elements 1[p] and 13[l]. The FID correctly finds that Seno does not disclose a self-cleaning operation; thus, it does not disclose disabling the battery-charging circuit or keeping it disabled while a self-cleaning operation is being performed. FID at 180 (citing Hr'g Tr. (Smith) at 923:12-24, Hr'g Tr. (Sorensen) at 1143:3-1144:6).

Seno also teaches that the battery charger is not disabled until after it detects the device is running. *See* Seno, Abstract, ¶¶ 0007, 0009. Respondents did not explain how or why Seno could be adapted to disable the battery-charging circuit while a (non-existent) self-cleaning mode is in operation. Thus, even if a person skilled in the art would look to Seno to modify the iFloor, Respondents have not shown that such a combination would result in the claimed invention.

The Commission also adopts the FID's findings that Seno is not analogous art. Seno is directed to enabling a user to use the cleaning device while it is still attached to the charger. *See* Hr'g Tr. (Sorensen) at 1142:25-1143:12. The iFloor, in contrast, cannot be used while it is connected to the charger. *See id.* Thus, a person skilled in the art would not have looked to Seno to modify the iFloor to accomplish the claimed invention, which requires disabling the battery-charging circuit while the self-cleaning operation is running. *See id.*

d. iFloor with Orubor 304

The FID does not explicitly address Respondents' proposed combinations of the iFloor with the Orubor 304. *See* FID at 171-72 (discussing Orubor 304). The Orubor 304, like the Orubor 142, is directed to a handheld vacuum device for collecting and disintegrating pet waste or similar messes. *See* Orubor 304 at abstract, 3:14-27, Fig. 1.

Respondents' petition for review makes only passing mention of Orubor 304 in connection with claim element 1[l] (storage tray for recharging the battery) and element 1[m] (controller configured to initiate the self-cleaning operation) of the '428 patent. *See* RPet. at 26-27 (discussing '428 patent at 27:52-58). Respondents also mentioned Orubor 304 in connection with dependent claim 15 of the '735 patent. *See id.* at 25 (discussing '735 patent at 30:20-25).

The Commission finds that Respondents did not rely on Orubor 304 as a primary or secondary reference, but only tertiary at best. Respondents thus waived any arguments beyond those they raised in their petition regarding claim element 1[l] of the '428 patent and dependent claim 15 of the '735 patent. *See* 19 C.F.R. § 210.43(a)(3). In addition, Respondents have not shown that a person skilled in the art would have been motivated to combine the iFloor with the Orubor 304, which, like the Orubor 142, is directed to a substantially different pet waste vacuum device. *See* Hr'g Tr. (Sorensen) at 1144:14-1145:7. Accordingly, the Commission finds that Respondents failed to prove by clear and convincing evidence that a person skilled in the art

would have been motivated to combine the portable, handheld vacuum in Orubor 304 (or Orubor 142) with the iFloor's stand-up vacuum. *See* FID at 175-76 (discussing Orubor 142).

e. Combinations of Three or More Prior Art References

The Commission recognizes that a *Graham* analysis includes, among other things, examining the scope and content of the prior art and comparing it to the claimed invention. *See Graham v. John Deere Co*., 383 U.S. 1, 17-18 (1966) (cited in, *e.g.*, *Motorola Mobility, LLC v. Int'l Trade Comm'n*, 737 F.3d 1345, 1348 (Fed. Cir. 2013)). Obviousness, however, ultimately requires demonstrating that "the differences between the claimed invention and the prior art are such that *the claimed invention as a whole* would have been obvious" at the time of its effective filing date. *See* 35 U.S.C. § 103 (emphasis added).

In this case, Respondents have relied on different prior art combinations to address the self-cleaning lockout feature (*e.g.*, the iFloor with Zhang, Orubor 142, or Jang) and the battery charging lockout feature (*e.g.*, the iFloor with Zhang or Seno). *See* FID at 173, 175-77, 180; RPet. at 14-20. Given that the Commission was not convinced by Respondents' reliance on a combination of the iFloor with Zhang, Respondents would have to rely on a combination of at least three prior art references (*e.g.*, iFloor plus Zhang plus Orubor 142 or Jang or Seno) to identify all of the elements of the Resch patent claims in their attempt to prove the obviousness of the claimed invention as a whole.[19] *See* FID at 173, 177-78; RPet. at 110, 114.

The Commission finds that, in addition to the deficiencies identified earlier, Respondents have failed to explain, let alone prove, that a person skilled in the art would have been motivated to combine three or more very diverse references, such as the self-contained cleaning device in

[19] Respondents relied unsuccessfully on Zhang for both the self-cleaning lockout feature and the battery charging lockout feature. *See* FID at 173-75 (elements 1[o], 113[k]), 178-80 (elements 1[p], 13[l]); RPet. at 14-15 (element 1[o], 113[k]), 18-19 (elements 1[p], 13[l]).

the iFloor *and* Zhang's cleaning basin *and* Orubor 142's handheld vacuum (or Jang's cleaning tray for robotic vacuums or Seno's device-mounted battery charger), to produce the claimed invention with all its features. The Commission finds Respondents' proposed combinations smack of hindsight bias, in that they improperly use the Resch inventions as a template to construct improbable combinations of prior art to try to render the claims obvious. *See Orexo AB v. Actavis Elizabeth LLC*, 903 F.3d 1265, 1271 (Fed. Cir. 2018).

For the foregoing reasons, the Commission adopts the FID's findings, as modified and supplemented above, that Respondents failed to prove by clear and convincing evidence that the asserted claims of the Resch patents are invalid as obvious over the iFloor, singly or in combination with Zhang, Jang, Seno, Orubor 142, or Orubor 304. *See* FID at 181-83, 269.

C. Economic Prong of the Domestic Industry Requirement

The Commission also determined to review the FID's findings that Complainants satisfied the economic prong of the DI requirement pursuant to subsections 337(a)(3)(B) (labor or capital) and 337(a)(3)(C) (exploitation, including engineering, research and development ("R&D"), or licensing).[20] 88 Fed. Reg. at 52208; FID at 229-30.

On review, the Commission adopts the FID's finding that Complainants have satisfied the economic prong of the DI requirement under subsections 337(a)(3)(B) and (C), as modified and supplemented below. *See* FID at 231-35, 250-270. In particular, the Commission has determined that the economic prong of the domestic industry requirement is satisfied under sections 337(a)(3)(B) and (C) based on Complainants' investments in product development and

[20] Having found that Complainants satisfied the economic prong of the DI requirement under subsections 337(a)(B) and (C), the FID does not find it necessary to consider whether Complainants also satisfied the economic prong under subsection 337(a)(3)(A) (plant and equipment), FID at 229-30, 231-50, 264.

engineering ("PD&E") labor and capital alone without taking a position on whether either Complainants' investments in development, production, and packing of its specially designed cleaning fluids ("consumables") or their investments in refurbishment, service, and product support operations at their facilities in Pharr, Texas should be considered toward their domestic industry investments in this case. *See Beloit*, 742 F.2d at 1423; FID at 230-31, 240-250, 255-59. The Commission also takes no position on Complainant's investments in plant and equipment for PD&E in the Walker facility that Complainants asserted, and the FID includes (plus the above-noted investments in PD&E labor and capital at the Walker facility), to support a finding of substantial investments under subsection 337(a)(3)(C).[21] FID at 231, 237-40, 250, 259-60.

Given its determination that Complainants satisfied the economic prong of the DI requirement under sections 337(a)(3)(B) and (C), the Commission takes no position on whether Complainants satisfied the economic prong of the under section 337(a)(3)(A) as well. *See Beloit*, 742 F.2d at 1423. The Commission has also determined to take no position on whether Complainants satisfied the economic prong with respect to the Xia patents, because there is no infringement, and hence no violation, with respect to those patents. *Id*.

1. <u>The FID</u>

As relevant to the Commission's determination, the FID finds that from 2019-2021, Complainants invested approximately $[ ] in labor and capital in its product development and engineering ("PD&E") facility in Walker, Michigan that is allocable to the Resch patents at issue. FID at 250, 254-55, 259, 264-68. The FID finds that these investments in labor and

[21] The FID finds that Complainants' asserted investments in plant and equipment for PD&E in the Walker facility totaled only $[ ]. FID at 250. The Commission finds that Complainants' investments in plant and equipment, whether included or not, would not have changed its conclusion that Complainants' $[ ] investments in PD&E labor and capital were substantial and satisfied the economic prong under subsection 337(a)(3)(C). *See id.* at 259-61.

capital relating to the Resch patents are cognizable and significant under subsection 337(a)(3)(B) and thus demonstrate that Complainants satisfied the economic prong of the DI requirement. *Id.*

With respect to exploitation of the Resch patents through research and development, the FID finds that from 2019-2021, Complainants invested approximately $[ ] in PD&E labor and capital and $[ ] in PD&E plant and equipment for a total of $[ ] that is allocable to the Resch patents. *Id.* at 259-61, 264-68. The FID finds that these investments in the exploitation of the Resch patents are cognizable and substantial under subsection 337(a)(3)(C) and thus demonstrate that Complainants satisfied the economic prong of the domestic industry requirement under that prong.

a. Spreadsheet (JPX-0001C)

The FID's findings regarding Complainants' PD&E labor expenses rest primarily on a spreadsheet (JPX-0001C) that Complainants prepared for this investigation. *Id.* at 231-32. The FID finds that JPX-0001C was prepared by Complainants' accounting firm, Deloitte Touche Tohmatsu Ltd. ("Deloitte"), to summarize Complainants' qualified research expenses ("QREs") (*i.e.*, R&D labor and expenses eligible for a research tax credit) for tax years 2016-2021. FID at 231-32 (citing Hr'g Tr. (Hess) at 345:6-24). The FID finds that JX-0001C is based on data Complainants provided to Deloitte in the ordinary course of business, as well as Deloitte's own annual surveys and interviews of Complainants' PD&E workforce to track their involvement in their projects. *See id.* at 233 (citing Hr'g Tr. (Hess) at 345:17-24, 348:17-349:6).

The spreadsheet JPX-0001C includes three categories of expenses – PD&E labor, supplies, and contract research – which are listed according to product name and number. *Id.* (citing Hr'g Tr. (Hess) at 345:25-346:4; Hr'g Tr. (Akemann) at 381:9-382:19). An excerpt from JX-0001C showing Complainants' 2021 PD&E labor expenses is below:

JPX-0001C (from the 2021 entries).

The FID finds that the parties' main disputes were over the reliability and accuracy of the data presented in JPX-0001C. *Id.* The FID finds that Complainants have two methodologies for tracking their PD&E labor costs: (i) a weekly method in which engineers enter the time they spent on particular projects and (ii) an annual time-capture method, based on employee surveys and interviews, to identify time spent on each project because not all engineers enter their time on a weekly basis. *Id.* at 233 (citing Hr'g Tr. (Hess) at 347:19-348:4; JPX-0097C (Hess) at 147:2-16; Hr'g Tr. (Akemann) at 395:3-396:5). The FID also finds that Deloitte identifies contract labor costs and supply expenses relevant to the projects to which those expenses apply. *Id.* The FID further finds that Deloitte calculated the expenses in JPX-0001C at year end based on records and other evidence from Complainants to ensure it accurately captures Complainants'

research expenses that may be eligible for research tax credits. *Id.* at 233. The FID finds that Complainants' Vice President for Financial Planning, Mr. Hess, testified that he had no reason to doubt the accuracy of the data collected and validated by Deloitte in the ordinary course of business in JPX-0001C. *Id.* (citing Hr'g Tr. (Hess) at 345:17-24, 348:17-349:6).

The FID rejects Respondents' argument that Deloitte's survey methodology is less accurate than, or contradicted by, Complainants' weekly timekeeping data. *Id.* at 251-52 (citing Hr'g Tr. (McGavock) at 638:13-640:2). The FID finds that Complainants' witnesses testified that their internal timekeeping data does not fully capture all of their engineering hours because not all engineers record their time in that manner. *Id.* (citing Hr'g Tr. (Hess) at 347:15-348:4; Hr'g Tr. (Akemann) at 395:3-396:5). The FID finds the testimony of Complainants' witnesses to be more reliable and persuasive than the largely unsupported testimony of Respondents' expert. *Id.* (citing Hr'g Tr. (McGavock) at 640:22-643:20).

The FID also finds no merit to Respondents' criticisms that the data underlying JPX-0001C were overstated or unreliable. *Id.* at 232, 233-34. The FID finds that even though JPX-0001C was prepared specifically for this investigation, the document is reliable because Deloitte extracted the underlying data from Complainants' database kept in the ordinary course of business that was used to calculate research expenses for purposes of preparing tax submissions to the Internal Revenue Service ("IRS"), an issue which Complainants take very seriously. *Id.* at 233-34 (citing Hr'g Tr. (Hess) at 348:20-349:6, 360:16-361:1; Hr'g Tr. (Akemann) at 439:14-21, 440:2-17).

The FID further rejects Respondents' argument that JPX-0001C is unreliable because it supposedly includes expenses not allowable under the IRS code, such as expenses made after a product release. *Id.* at 234. The issue, the FID finds, is not whether the expenses listed in JPX-

0001C can be properly claimed as research expenses under the IRS code, but whether they provide reliable, relevant evidence of Complainants' domestic industry. *Id.* at 234-35.

Accordingly, the FID finds that the data underlying JPX-0001C reliably describe Complainants' relevant domestic investments in PD&E. *Id.* at 232-33.

b. Nexus Between Investments and Exploitation of Patents

The FID also finds that a nexus between the PD&E investments and the Resch patents may be inferred because the claimed investments are in the DI products, which are physical embodiments of the patents.[22] *Id.* at 231, 259-63 (citing *Certain Integrated Circuit Chips & Prods. Containing Same*, Inv. No. 337-TA-859, Comm'n Op. at 38, 40 (Aug. 22, 2014)). In addition, the FID finds that the primary source for data on labor expenses (JPX-0001C) lists qualifying labor expenses by specific project number that relate to the DI products. *Id.* at 262-63 (citing, *e.g.*, Hr'g Tr. (Akemann) at 381:9-382:19, 391:6-14, 404:14-405:18, 408:14-409:6). The FID also finds that a nexus can be inferred because virtually the entire structure of the DI products is required to practice the claimed inventions, and there is no evidence to suggest that the target activities of the PD&E group are unrelated to the patented features. *Id.* at 263.

In so holding, the FID rejects Respondents' argument that the Commission raised the standard for establishing a nexus between investments and the intellectual property at issue in *Certain Electronic Candle Products*, Inv. No. 337-TA-1195, Comm'n Op. (Oct. 4, 2022). *Id.* at 262. According to the FID, the Commission found that the complainants in *Electronic Candle Prods.*, *supra*, had failed to tie their investments to the specific claims of the asserted patents, even after having been given an opportunity to supplement the record on remand. *Id.* (discussing

[22] As noted above, the Commission did not review the FID's finding that Complainants have satisfied the technical prong with respect to both Resch patents. *See* FID at 185-229, 269; 88 Fed. Reg. at 52208.

Electronic Candle Prods., Comm'n Op. at 23-28). The FID finds that although a nexus may not be inferred in every case, a nexus inference may be appropriate when the evidence shows the investments are made in DI products that embody and practice the asserted patents, despite any countervailing evidence. *Id.* (citing *Electronic Candle Prods.*, Comm'n Op. at 23-29).

c. Significance/Substantiality of Complainants' Investments

The FID recognizes that Complainants initiated their CrossWave line of DI products based on [

], that all six inventors are from China, and none of the vacuums embodying the patent claims are manufactured in the United States. *Id.* at 264-65. Nonetheless, the FID finds that these facts do not defeat Complainants' "strong showing" that its DI investments in labor and capital (subsection 337(a)(3)(B)) and exploitation of the Resch patents (subsection 337(a)(3)(C)) are also significant and substantial. *Id.* at 265.

The FID finds that Complainants' relevant investments in labor and capital and exploitation of the patents amount to [ ] and involve scores of engineering and research personnel employed in the United States. *Id.* at 265. The FID concludes that Complainants' investments are quantitatively significant "*per se*." *Id.* at 265-66.

The FID also finds that Complainants' domestic investments are substantial and significant when compared to their total global investments in PD&E labor. *Id.* at 266. For example, the FID finds that two-thirds of Complainants' employees, including [ ] percent of its PD&E employees are based in the United States. *Id.*

The FID further finds that Complainants' investments in its DI products are significant when compared to their total domestic activity. *Id.* at 266-267. Complainants estimated that roughly [ ] percent of its total investment in its PD&E labor is attributable to exploitation of the Resch patents. *Id.* The FID finds that Respondents' calculations of those figures do not reduce

them by more than a percentage point, and that Respondents do not cite any case in which [ ] in investment and scores of employees were found to be insignificant. *Id.*

The FID also finds that Complainants' domestic investments are qualitatively significant. *Id.* at 264-68; CDX-0008C_19. The FID explains that Complainants' CrossWave line of products is a major product for Complainants, their "hero" product that represents a particularly notable innovation in cleaning up messes. *Id.* at 267-68 (citing Hr'g Tr. (Bissell) at 31:16-32:4, 32:22-33:12; Hr'g Tr. (Hess) at 344:6-11). The FID also finds that Complainants' PD&G activities for the Resch patents represent a significant investment in R&D. *Id.* (citing Hr'g Tr. (Hess) at 345:17-345:24).

The FID concludes that Complainants has satisfied the economic prong of the DI requirement under subsections 337(a)(3)(B) and (C) for both Resch patents. *Id.* at 268.

2. Respondents' Petition for Review

Respondents petitioned for review of the FID's findings, arguing that Complainants' domestic investments are *de minimis* because the domestic industry products are all [ ] manufactured in China, not the United States, and all six inventors are located in China. RPet. at 30, 33, 53-54. Respondents further argued that the FID errs in assuming that Complainants' labor investment is relevant "simply because it was labeled PD&E" (*id.* at 38), "especially when the [ ] and the evidence of cognizable post-launch [domestic] PD&E is completely lacking." *Id.* at 36-37.

a. Spreadsheet (JPX-0001C)

Respondents also argued that the FID errs in relying on essentially a single summary document (JPX-0001C), which Complainants allegedly created for this litigation. *Id.* at 30, 35. Respondents argued that Complainants produced no other data, documents, or information to corroborate approximately [ ] percent of the alleged PD&E expenses listed in JPX-0001C. *Id.* at

30, 33-36 (citing *e.g.*, Hr'g Tr. (Akemann) at 439:17-21, 440:5-13, 449:12; Hr'g Tr. (Hess) at 358:15-21, 440:18-441:1). Respondents further argued that JX-0001C is unreliable because it was purportedly prepared based on qualified research expenditures ("QREs") that Complainants submitted to the IRS for research tax credits. *Id.* at 38-39. Respondents argued, however, that Complainants' QREs included [ ] in PD&E labor that they performed after the DI products were launched, even though the tax code states that "qualified research" may not include research conducted after commercial production. *Id.* (discussing 26 U.S.C. § 41).

Respondents further argued that the PD&E labor expenses recorded in JPX-0001 are too high and unreliable, because they are allegedly based on annual surveys conducted by Complainants' external accounting firm (Deloitte) and are too high by a factor of about ten. *Id.* at 29-30, 40-41. Respondents argued that Complainants' internal time-tracking system is more reliable than Deloitte's annual surveys because each PD&E employee records the time they spent on each project(s). *Id.* at 41-42. Respondents argued that Complainants' internal time-tracking system shows that Complainants' relevant PD&E labor expenses are only a tenth of the amount Complainants estimated using Deloitte's less reliable annual surveys. *Id.* at 41-42, 50-52.

b. Nexus Between Complainants' Investments and the Patents

Respondents also argued that the FID improperly infers that a nexus exists between Complainants' alleged PD&E expenses and the Resch patents merely because its domestic industry products are cleaning devices, like those described in the Resch patents. *Id.* at 65-67 (citing FID at 262). Respondents argued that Complainants never attempted to describe its investments in any detail or provide any supporting evidence to prove there is a nexus between their investments in PD&E labor and the Resch patents. *Id.* at 66-67. As a result, Respondents argued that Complainants have failed to prove that their U.S. expenditures relate to patented features of the DI products, as opposed to unpatented features. *Id.*

c. Significance/Substantiality of Complainants' Investments

Respondents argued that once Complainants' PD&E labor investments are corrected, the remaining investments are no longer quantitatively or qualitatively significant. *Id.* at 69. For example, Respondents argued, Complainants' DI investments account for less than [ ] percent of its sales and cost of goods sold ("COGS") if the consumables and Pharr facility are excluded, and less than [ ] of sales and COGS if consumables and the Pharr facility are included. *Id.* at 69-70. Respondents argued that none of these investments is quantitatively significant, particularly since Complainants' [ ] and manufacturing all occurred in China. *Id.* at 70. Respondents argued that, even if Complainants' PD&E investments were fully credited, they account for less than [ ] of sales and COGS for the DI products. *Id.* at 73-74.

For all these reasons, Respondents argued that the FID's findings that Complainants satisfied the economic prong is flawed and should be reversed. *Id.* at 75.

3. Commission Determination

The Commission has determined that Complainants have satisfied the economic prong of the domestic industry analysis for the Resch patents under both subsection 337(a)(3)(B) and (C). As noted above, the Commission makes this determination based on Complaint's investments in PD&E labor and capital expenditures alone, while taking no position on whether Complainants' investments with respect to either consumables or refurbishment, service, and product support operations in Pharr, Texas.[23] With these modifications, the Commission adopts the FID's findings, as modified. *See* FID at 250-55, 259.

[23] As noted above, the Commission makes its determination for subsection 337(a)(3)(C) without taking a position on Complainant's investments in plant and equipment for PD&E at its Walker facility.

a. Spreadsheet (JPX-0001C)

The Commission adopts the FID's findings that JPX-0001C is a reliable and probative recording of data for these calculations supporting Complainants' asserted domestic industry investments. The Commission further finds that Respondents overstated their case when they argued that there is no evidence to support JX-0001C. Complainants, in fact, produced two witnesses, including an expert (Mr. Akemann) and their Vice President for Financial Planning (Mr. Hess), who testified about the document, how it was created, and why it is accurate, reliable, and credible. *See id.* (citing, *e.g.*, Hr'g Tr. (Hess) at 345:6-346:23, 347:15-348:4, Hr'g Tr. (Akemann) at 381:9-382:19, 391:15-392:4, 395:3-396:5, 404:11-504:18). Mr. Akemann also interviewed a number of people familiar with Complainants' financial data. *See* Hr'g Tr. (Akeman) at 381:9-382:19, 392:6-17; CDX-0008C_2. Those interviewees testified that JX-0001C was produced using data that was collected and validated by Complainants' accounting firm, Deloitte, in the ordinary course of business.[24] *Id.* at 233 (citing Hr'g Tr. (Hess) at 345:17-24, 347:15-18, 348:17-349:6, 361:16-362:1).

Regarding Respondents' criticisms of Complainants' choice of financial data (*e.g.*, internal, contemporaneous timekeeping vs. annual surveys by Deloitte), the Commission adopts the FID's findings that Complainants did not merely choose to rely, but had to rely, on two different methodologies to estimate their PD&E labor investments. *See* FID at 231-35, 251-53 (citing Hr'g Tr. (Hess) at 347:19-348:4, JX-0097C (Hess) at 147:2-16; Hr'g Tr. (Akeman) at

[24] It does not appear that Respondents filed a motion to compel production of any related evidence or a motion *in limine* to preclude admission of JX-0001C at the hearing or took any other action to challenge the evidence provided by Complainants. Although Respondents do not have the burden of proof on this issue, Respondents provided no contrary evidence, beyond opinion and conjecture, that JX-0001C is inaccurate or unreliable.

395:3-396:5). Respondents offered no rebuttal to Complainants' explanation that they had to use both methodologies because not all engineers track their time by project or week in the contemporaneous timekeeping system. *See id.* at 239 (citing Hr'g Tr. (Akemann) at 381:9-382:19; 395:3-396:5, 400:7-402:10; 442:5-8; 449:15-22; Hr'g Tr. (Hess) at 347:15-348:4).

The Commission is also unpersuaded by Respondents' argument that certain alleged post-production R&D expenses recorded in JX-0001C cannot be credited as QREs under the IRX tax code. *See* RPet. at 38-40. Regardless of whether that is the case (a question on which the Commission takes no position), it does not follow that the data in JX-0001C is inaccurate, unreliable, or not creditable for purposes of establishing Complainants' domestic industry. *See* FID at 234 n.46. Section 337 does not limit economic prong investments to only those cognizable as QREs under the tax code.

The Commission thus finds that there is no merit to Respondents' argument that Complainants' actual PD&E labor expenses are only about a tenth of what Complainants calculated and the FID credits toward the economic prong of the DI requirement. Respondents improperly relied on only Complainants' contemporaneous timekeeping system and ignored the annual surveys conducted by their accounting firm Deloitte, even though both systems are required to provide an accurate estimate of Complainants' relevant PD&E labor expenses.

b. A Nexus Exists Under Subsection 337(a)(3)(C)

The Commission also adopts the FID's findings that Complainants proved that a nexus exists between their PD&E labor and capital investments and the Resch patents for purposes of satisfying the economic prong requirement under subsection 337(a)(3)(C).

As noted in the FID, "[b]ecause practically the entire structure of the DI products is required to practice the patented inventions, a nexus can be inferred between the investments made in the products and asserted patents." *Id.* at 263. This finding does not conflict with the

Commission's opinion in *Electronic Candle Products*, which involved a failure of proof rather than a new standard, as argued by Respondents (RPet. at 65-66). Although the Commission declined to infer a nexus on the facts of that case, it did not state that a nexus could never be inferred. *See Electronic Candle Products*, Comm'n Op. at 23, 27-28.

In contrast, there is no serious question that Complainants' PD&E labor investments are related to the DI products at issue. *See* FID at 251-53, 261-63. As explained in the FID, PD&E projects included in JX-0001C are assigned a QRE product number and a name, which can be used to correlate the project to specific DI products that practice the Resch patents. *See* FID at 231-32, 262-63 (citing, *inter alia*, Hr'g Tr. (Hess) at 346:5-23; Hr'g Tr. (Akemann) at 381:9-382:19, 387:15-389:13, 391:6-14, 392:5-19, 393:9-394:11, 404:14-405:18). As the FID notes, this data was collected by Deloitte during the ordinary course of business. *Id.* at 234 (citing Hr'g Tr. (Hess) at 345:9-16, 360:16-361:1; Hr'g Tr. (Akemann) at 439:14-21, 440:2-17).

The Commission recognizes that while JX-0001C identifies the DI products for which each project is associated, it provides little or no information as to what specific activities are involved in each project, or how they specifically relate to the inventions claimed in the Resch patents. The Commission finds this is not fatal, however, given that the claims of the Resch patents cover almost every aspect of the claimed surface cleaning devices, from the "upright body" and "joint assembly" and "base" to the fluid supply and recovery system, the brushroll and its motor, rechargeable battery, storage tray, controller, and other structural features. *See, e.g.*, '735 patent at 27:26-28:17 (representative claim 1); '428 patent at 27:26-28:4 (claim 1). The Commission thus adopts the FID's findings that there is a nexus between Complainants' investments in their domestic PD&E labor and the Resch patents for purposes of satisfying the economic prong of the DI requirement under subsection 337(a)(3)(C).

c. Substantiality/Significance of Complainants' Investments

The FID finds that Complainants' DI investments are "quantitatively significant and substantial *per se*." FID at 265. The Commission declines to adopt the FID's usage of the term "*per se*" and vacates the references to "*per se*" that appear on page 265 of the FID. *See Certain Automated Put Walls and Automated Storage and Retrieval Systems, Associated Vehicles, Associated Control Software, and Component Parts Thereof*, Inv. No. 337-TA-1293, Comm'n Op. at 24-25 (July 21, 2023) (striking FID's findings that certain DI investments as "*per se* significant").

The Commission's vacatur of the term "*per se*," however, does not alter the FID's substantive finding that Complainants have invested $[ ] for domestic PD&E labor and capital from 2019-2022 that is allocable to the Resch patents and cognizable under either subsection 337(a)(3)(B) or (C). *See* FID at 250-55, 259-60. Even though the DI products were [ ] and are still being manufactured in China, not the United States, the FID finds that approximately [ ] percent of Complainants' PD&E employees were based in the United States during the relevant timeframe. *Id.* at 266 (citing Hr'g Tr. (Akemann) at 425:22-426:9 (discussing CDX-0008C_20)). The FID also finds that Complainants' approximately $[ ] investment in PD&E labor represents salaries for "scores of [domestic] engineering and research personnel," based on available wage data. *See id.* at 266 (citing Hr'g Tr. (Akemann) at 425:22-426:9; JPX-0012C; JPX-0013C). The FID finds that these amounts are understated by as much as [ ] because the data in JPX-0001C from which those investments were totaled do not include benefits. *Id.*

The Commission further notes Complainants' DI investments of at least about $[ ] account for approximately [ ] of the cost of goods sold. *See*, *e.g.*, FID at 267; RPet. at 73-74. The parties all acknowledge that there is no minimum threshold or bright line

that the Complainants' DI investment must cross. *See Certain Carburetors and Products Containing Such Carburetors*, Inv. No. 337-TA-1123, Comm'n Op. at 17, 26-27 (Oct. 28, 2019). The Commission further notes that Complainants are investing in DI products that are enjoying rapidly increasing sales and rising in importance with respect to the company's overall business, growing from [ ] percent of sales in 2018 to [ ] percent of sales in 2021. *See* FID at 247, 267-68; Hr'g Tr. (Akemann) at 423:14-425:3, 426:10-427:9 (discussing CDX-0008C_21, 22).

For the foregoing reasons, the Commission adopts the FID's findings, as modified above, that Complainants' investments in PD&E labor and capital relevant to the Resch patents are significant and substantial and thus satisfy the economic prong of the DI requirement under either subsection 337(a)(3)(B) or (C). *See* FID at 250-68. The Commission thus adopts the FID's findings, as modified above, that Complaints have satisfied the economic prong of the DI requirement. Given that the Commission has also adopted the FID's finding that Complainants also satisfied the DI technical prong (*see* FID at 208-29), the Commission finds that Complainants satisfied the DI requirement with respect to the Resch patents under 19 U.S.C. § 1337(a)(3)(B), (C).[25]

VI. REMEDY, BOND, AND THE PUBLIC INTEREST

A. Remedy

The Commission has "broad discretion in selecting the form, scope, and extent of the remedy." *Viscofan, S.A. v. US. Int'1 Trade Comm'n*, 787 F.2d 544, 548 (Fed. Cir. 1986).

[25] Commissioner Kearns finds that Complainants satisfied the domestic industry requirement with respect to the Resch patents under subsection 337(a)(3)(C), and takes no position on whether the domestic industry requirement is satisfied under subsection 337(a)(3)(B).

1. 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 RD recommends issuance of an LEO with a standard certification provision for non-infringing products but without the warranty and repair exemption requested by Respondents. RD at 2, 4-5.

Before the Commission, Respondents do not argue that the LEO should include a warranty and repair provision, other than a provision specifically authorizing them to update the code in their original Resch products (those products predating the redesign) in order to first convert those original products into non-covered, redesigned products and then repair and service those non-covered, redesigned products. RRem. at 6. Respondents argued that such a provision is "[f]or the avoidance of doubt." *Id.* Respondents recognized, however, that the Commission has previously held that such exemptions are not necessary for software updates because remedial orders do not cover electronic transmissions in the United States. *Id.* at 6 (citing *Certain Fitness Devices, Streaming Components Thereof, and Systems Containing Same*, Inv. No. 337-TA-1265, Comm'n Op. at 76 (March 23, 2023)). Respondents confirmed their position, stating, "As the only products found to infringe have been redesigned (by a modification to their source code) and adjudicated as non-infringing, no repair or warranty exception is necessary. In particular, the Commission has found that no exemption is necessary

for updating software when the update is by electronic transmission or when the software already is in the United States." RReply at 3 (citation omitted).[26]

The Commission, having found a violation of section 337 with respect to the Resch patents, has determined to issue an LEO barring importation of certain wet dry surface cleaning devices that infringe one or more of asserted claims 1, 13, and 15 of the '735 patent and claim 1 of the '428 patent. The LEO includes a standard certification provision allowing U.S. Customs and Border Protection ("Customs"), at its discretion, to require an importer to certify that, to the best of its knowledge and after having obtained a determination from the Commission or Customs, the articles it seeks to import are not excluded from entry under the LEO.

2. 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.[27] *See, e.g.*, *Certain Table Saws Incorporating Active Injury Mitigation*

[26] Respondents go on to argue that "[a]s there is no dispute that Tineco could replace a customer-returned, original product with a redesigned product, there should be no dispute that Tineco can update the code to convert the original product to an adjudicated, redesigned product and then repair such redesigned product, which was adjudicated as non-infringing." RReply at 4. Respondents characterize their proposal as one to "provide certainty." *Id*.

[27] When the presence of infringing domestic inventory or domestic operations is asserted as the basis for a CDO under section 337(f)(1), Commissioner Schmidtlein 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 (Apr. 25, 2019) (Pub Vers.); *Table Saws*, Comm'n Op. at 6 n.2 (Feb. 1, 2017) (Pub. Vers.). In Commissioner Schmidtlein's view, the presence of some

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) (citing *Certain Laser Bar Code Scanners & Scan Engines, Components Thereof & Prods. Containing Same*, Inv. No. 337-TA-551, Comm'n Op. at 22 (June 24, 2007)). 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 (citing *Certain Integrated Repeaters, Switches, Transceivers, & Prods. Containing Same*, Inv. No. 337-TA-435, USITC Pub. No. 3547 (Oct. 2002), Comm'n Op. at 27 (Aug. 16, 2002); *see also* H.R. REP. No. 100-40, at 160 (1987)).

The RD finds that Respondents stipulated that they maintain commercially significant inventories of the accused products in the United States. RD at 7. The RD finds no dispute that the Commission should issue a CDO against each Respondent in the event it finds a violation of section 337. *Id.* The RD finds a certification provision would serve no purpose because CDOs are not enforced by Customs. *Id.* at 8. The RD also does not recommend including an exemption for service, warranty, repair, or replacement of products sold before issuance of the order. *Id.*

Respondents made the same arguments for a certification provision and with respect to a repair provision for avoidance of doubt concerning both CDOs and LEOs, which they discussed together. *See* RRem. at 3-6.

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

The Commission has determined to issue CDOs to each Respondent.[28] As noted above, each Respondent has stipulated that it has commercially significant inventories of the accused products in the United States. *See* RD at 7. The CDOs will not include a certification provision because CDOs are not enforced by Customs. *See id.* at 8.

B. 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 should not be excluded from entry." 19 U.S.C. § 1337(d)(l). Similarly, the Commission must consider these public interest factors before issuing a CDO. 19 U.S.C. § 1337(f)(1).

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)(l), (f)(l). Thus, 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. *See* 19 U.S.C. § 1337(d)(l) & (f)(l); 19 C.F.R. §§ 210.46(a), 210.50(a)(4)(i).

Respondents did not respond to the Commission's request for submissions on the statutory public interest factors, nor did they identify any public interest factors that would weigh

[28] Commissioner Schmidtlein agrees that CDOs should issue directed to each of the Respondents, but she differs from the majority with respect to the basis for that determination. *See supra* note 27 (". . . the presence of some infringing domestic inventory or domestic operations, regardless of its commercial significance, provides a basis to issue a CDO.").

against entering the remedial orders. Thus, as discussed below, there has been no showing that an exclusion order would adversely impact any public interest considerations.

1. Public Health and Welfare

There is no information in the record to indicate that the exclusion of the infringing wet dry surface cleaning devices could potentially have a direct or adverse impact on public health and welfare. There are multiple suppliers of such products in the United States, including those of Complainants, as well as alternative devices and methods for cleaning floors, carpets, and other surfaces, as pertinent to public health considerations. The Commission finds that exclusion of Respondents' covered products will not adversely impact the public health or welfare under Section 337(d)(1), (f)(1).

2. Competitive Conditions in the United States

As noted above, there are multiple manufacturers and importers of similar wet dry surface cleaning devices, including Complainants, as well as alternative devices and methods for cleaning floors, carpets, and other surfaces. Additionally, Respondents' products that were adjudicated and found to be non-infringing are exempt from exclusion pursuant to certification. 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 that the exclusion of Respondents' covered products will not adversely affect the production of like or directly competitive articles in the United States. There is no information in the record that like or directly competing articles are manufactured in the United States. Indeed, the exclusion of an unlawfully infringing product may encourage the

development and production of these cleaning devices in the United States through lawful domestic competition under sections 337(d)(1), (f)(1).

4. United States Consumers

As noted above, consumers have a range of choices among the multiple providers of wet dry surface cleaning devices and the many alternative devices and methods for cleaning floors, carpets, and other surfaces. 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, including Respondents' products adjudicated as non-infringing and imported pursuant to certification. Thus, the Commission finds that an exclusion order will not adversely impact U.S. consumers under Section 337(d)(1), (f)(1).

The Commission, however, has determined not to include a provision regarding repair in the remedial orders, where, as Respondents identify in their submissions to the Commission, no provision is necessary.

C. Bond

When 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 also has 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, however, 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).

As noted in section II(C), *supra*, the infringing Resch products consist of two groups of products, represented by Respondents' S3 and S5 Pro products. FID at 18-19. With respect to the Resch patents,[29] the accused S3 product group includes certain versions of the iFloor 3, the Floor One S3, the Floor One S5, and the Floor One S7 Pro. *Id.*; RRem. at 2-3. The S5 Pro is representative of itself and the S5 Pro 2 model. FID at 18.

The RD recommends that the Commission set a bond of $49.01 for each covered iFloor 3 product and $99.01 for each covered Floor One S3 product imported during the period of Presidential review. RD at 11-12, 15. The RD recommends that no bond be imposed on any other accused products imported during the period of Presidential review, such as the redesigned products (which no longer infringe the Resch patents) or the iFloor, iFloor2, and iFloor Breeze, which do not infringe the Resch patents. *Id.* at 12. The RD does not recommend adopting Complainants' proposed bond rate of $100-$104 per unit, because Complainants' calculations included the iFloor, iFloor2, and iFloor Breeze, which do not infringe the Resch patents. *Id.* at

[29] The list of S3 products is somewhat different for the Xia patents, which are not infringed.

12. The RD also finds it would not be appropriate to impose a bond on any covered products (*e.g.*, Respondents' S5 Pro) that are priced higher than Complainants' products. *Id.* at 12-13.

Complainants argued that a bond rate of $101.39 should be imposed on each imported article to protect Complainants from injury during the period of Presidential review. CRem. at 6-7, 9. Complainants explained that this proposed bond rate represents the weighted average of the price differentials (between $101-$104) between the DI products and comparable Accused Products based on "reliable pricing information as well as an interview with Ms. Lauren Aylsworth, BISSELL's Director of Marketing, who has direct knowledge of BISSELL's products and competing products." CRem. at 6-7 (citing Hr'g Tr. (Akemann) at 428:13-429:1, 430:4-431:10; CDX-0008C_23). Complainants argued that the RD errs in excluding non-infringing products because the Commission might reverse the FID's non-infringement findings. *Id.* at 8. Complainants further argued that including Respondents' S5 models, where "at least one of Tineco's products, the S5 Pro, is actually priced higher than the highest priced BISSELL product," would "have little bearing on Dr. Akemann's overall analysis." *Id.* (internal quotations omitted). Complainants argue that even if the S5 models were taken into consideration, and the weighted average recalculated to include the negative price differential between higher-priced imported models and Complainants' comparable DI products, the average price differential would be reduced by only about $5, from $101.39 to $96.60. *Id.* at 8-9.

Respondents did not oppose the RD's recommended bond rate of $99.01 per covered Floor One S3 product and further agreed that no bond should be imposed on products that do not infringe the Resch patents (*e.g.*, the redesigned Resch Accused Products or the iFloor, iFloor 2, and iFloor Breeze products). RRem. at 8-9. Respondents argued that no bond is warranted for the original iFloor 3 products, however, because Complainants failed to make the requisite

showing for a bond based on those products. *See id*. at 9-10. More specifically, Respondents argued that Complainants failed to compare the prices of the original iFloor 3 to any competing DI product that practices the Resch patents. *Id.* at 9 (citations omitted). Respondents argued that the $49.01 bond rate is based instead on the price differential between the iFloor 3 and Complainants' CrossWave 2.5 DI product, which Complainants identified as a DI product for only the Xia patents but not the Resch patents. *Id.* at 9 (citing Hr'g Tr. (Akemann) at 430:4-431:10; CDX-0008C at 23; CX-1036C at 3-4).

The Commission has determined to set a bond of $99.01 for each covered iFloor 3 product and each covered Floor One S3 product, and $0 for any other covered product imported during the 60-day period of Presidential review. RD at 11-12, 15. The Commission will not impose a bond in this case on imported products that do not infringe the Resch patents. Nor will the Commission impose a bond in this case on infringing products imported by Respondents during the Presidential review period that are priced higher than Complainants' domestic counterparts because, for purposes of this investigation, Complainants have not shown a need for a bond to protect it from any injury.

As noted above, Complainants argued for a bond based upon only a weighted average of the price differentials between the DI products and comparable Accused Products. *See* CRem. at 5-9. Concerning each covered Floor One S3 product, the Commission finds, as recommended by the RD, that a bond of $99.01 is appropriate in this case, based on reliable price data from which a bond could be calculated to protect Complainants from injury and where Respondents do not oppose the RD's recommendation. *See* RD at 12, 14; CDX-0008C_23; RRem. at 8-10. The Commission also sets a bond of $99.01 with respect to each covered iFloor 3 product reflecting

the price differential between the imported, infringing product and Complainants' CrossWave 3.0 product. *See* CDX-0008C_23.

In sum, the Commission has determined to impose a bond of $99.01 on each covered iFloor 3 product and $99.01 on each covered Floor One S3 product imported during the period of Presidential review. These bond rates are based on reliable price data involving Respondents' products that infringe the Resch patents and Complainants' domestic industry products that practice the Resch patents and are calculated to protect Complainants from injury.

VII. CONCLUSION

For the reasons set forth herein and in detail in the FID, the Commission has determined that Respondents have violated section 337 by way of infringing claims 1, 13, and 15 of the '735 patent and claim 1 of the '428 patent. The Commission has determined that the appropriate remedy is the issuance of an LEO and CDOs directed to each of the Respondents. The Commission finds that the public interest does not preclude issuance of a remedy. The Commission sets a bond of $99.01 on each covered iFloor 3 product, $99.01 for each covered Floor One S3 product, and $0 on any other covered product imported during the 60-day period of Presidential review.

This investigation is hereby terminated.

By order of the Commission

Lisa R. Barton
Secretary to the Commission

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