PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of **CERTAIN UNMANNED AERIAL VEHICLES AND COMPONENTS THEREOF**	**Investigation No. 337-TA-1133**

COMMISSION OPINION

Table of Contents

I. INTRODUCTION 1
II. BACKGROUND 2
A. Procedural History 2
B. The Asserted Patents 6
C. The Accused Products 8
D. The Domestic Industry Products 8
III. STANDARD ON REVIEW 8
IV. ANALYSIS 8
A. Infringement of the ’184 Patent 8
1. Infringement of Claim 1: Phantom 4 Pro 10
2. Infringement of Claim 1: Inspire 16
3. Infringement of Claim 2 18
B. DJI’s “New Designs” Will Not Be Adjudicated in This Investigation 21
C. Remedy, Bonding, The Public Interest, and Suspension 26
1. Remedy 26
2. Public Interest 29
3. Bond 33
4. Suspension of Remedial Orders 35
V. CONCLUSION 39

I. INTRODUCTION

The Commission has made its final determination that the respondents have violated section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 ("Section 337"), by importing, selling for importation, or selling in the United States after importation certain unmanned aerial vehicles ("UAVs") and components thereof that infringe the only patent still at issue, U.S. Patent No. 9,260,184 ("the '184 patent"). The Commission also affirms the presiding administrative law judge's ("ALJ's") decision not to adjudicate the respondents' allegedly new rotor or battery locking mechanisms.

The Commission has determined to issue a limited exclusion order and cease and desist orders with respect to the '184 patent and to impose a bond in the amount of 11.5 percent of the entered value of the covered UAVs and components thereof during the period of Presidential review. The Commission has also determined that the public interest considerations of Section 337(d)(1) and (f)(1) do not preclude the issuance of these remedies here. The Commission, however, has determined to suspend enforcement of those remedial orders, including the bond provision, pending resolution of the U.S. Patent and Trademark Office ("PTO") Patent Trial and Appeal Board's ("PTAB") Final Written Decision finding, *inter alia*, that claims 1, 2, and 5 of the '184 patent, the only claims still at issue, are unpatentable. *See SZ DJI Technology Co. v. Autel Robotics USA, LLC*, IPR2019-00343, Patent 9,260,184, Final Written Decision Determining All Challenged Claims Unpatentable (May 21, 2020) ("Final Written Decision").

This opinion sets forth the Commission's reasoning in support of its determinations. The Commission also affirms the findings in the final ID that are not inconsistent with this opinion.

II. BACKGROUND

A. Procedural History

The Commission instituted this investigation on October 2, 2018, based on a complaint filed by Autel Robotics USA, Inc. ("Autel") of Bothell, Washington. 83 Fed. Reg. 49575-76 (Oct. 2, 2018). The complaint alleges a violation of Section 337 in the importation into the United States, sale for importation, or sale in the United States after importation of certain UAVs and components thereof that infringe the asserted claims of the '184, '174, and '013 patents. *Id.* The complaint also alleges the existence of a domestic industry. *Id.*

The notice of investigation names the following respondents: SZ DJI Technology Co. Ltd. of Shenzhen, China; DJI Europe B.V. of Barendrecht, Netherlands; DJI Technology Inc. of Burbank, California; iFlight Technology Co., Ltd. of Hong Kong; DJI Baiwang Technology Co. Ltd. of Shenzhen, China; DJI Research LLC of Palo Alto, California; DJI Service LLC of Cerritos, California; and DJI Creative Studio LLC of Burbank, California (collectively, "DJI"). *Id*. The Office of Unfair Import Investigations is not a party to this investigation. *Id.*

On September 13, 2019, the presiding ALJ issued Order No. 21, granting in part Autel's motion to strike certain evidence that DJI produced after the close of discovery and expert opinions relying on such evidence relating to its allegedly "new designs" for rotor and battery locking mechanisms. *See* Order No. 21 at 2-4 (Sept. 13, 2019). The ALJ denied Autel's motion with respect to evidence DJI produced before the close of fact discovery. *Id.* at 8-9. The ALJ also found the parties had not produced sufficient evidence to find whether DJI's new designs were sufficiently "final" for adjudication in this investigation and thus authorized the parties to produce additional evidence and arguments on that issue. *Id.* at 9.

On October 17, 2019, the Commission determined not to review Order No. 22, which partially terminated the investigation with respect to certain claims withdrawn by Autel. Order No. 22 (Sept. 30, 2019), *unreviewed*, Comm'n Notice (Oct. 17, 2019). By the time of the hearing, the claims still at issue were claims 1, 2, and 5 of the '184 patent; claims 1, 7, 8, 14, and 17 of the '174 patent; and claims 1, 3-5, 8, 10, 13-16, 18, 22, or 23 of the '013 patent.

The ALJ held an evidentiary hearing on October 21-23, 2019. At the start of the hearing, the ALJ announced that DJI's new rotor and battery locking designs would not be adjudicated and precluded the introduction of any evidence relating to those new designs at the hearing.

On March 2, 2020, the ALJ issued a final ID finding a violation of Section 337 regarding the '184 patent but not the '174 or '013 patents.[1] ID at 149-50, 156. In sum, the ID finds the following:

- ***'184 patent.*** The ID finds the accused Mavic Pro, Spark, and Mavic Air UAVs infringe claim 1 of the '184 patent but not claims 2 or 5, while the Phantom 4 Pro and Inspire UAVs do not infringe any claims. The ID also finds that the claims are not invalid and Autel satisfied the domestic industry requirement. The ID thus finds a violation of Section 337 with respect to asserted claim 1 of the '184 patent as to the Mavic Pro, Spark, and Mavic Air UAVs. ID at 149-50, 156.

- ***'174 patent.*** The ID finds that the accused DJI UAVs do not infringe any asserted claims of the '174 patent, Autel failed to satisfy the technical prong of the domestic industry requirement, and the asserted claims are invalid. The ID concludes there is no violation of Section 337 with respect to the '174 patent. *Id.* at 149, 156.

- ***'013 patent.*** The ID finds that DJI's Mavic Pro, Mavic Air, and Phantom 4 Pro infringe at least claims 1, 3-4, 10, and 22 of the '013 patent; the Mavic Pro additionally infringes claims 5, 13-16, 18 and 23; the Phantom 4 Pro additionally infringes claims 8, 13-16, 18, and 23; but that the Spark does not infringe any asserted claims of the '013 patent. *Id.* at 150, 156. The ID finds that Autel satisfied the domestic industry requirement, but that all of the asserted claims of the '013 patent are invalid as obvious. *Id*. The ID concludes there is no violation of Section 337 with respect to the '013 patent. *Id.*

[1] On March 9, 2020, the ALJ issued an errata, which corrected a misstatement in the final ID but did not alter its material findings. Notice of Errata to Final Initial Determination (Mar. 9, 2020).

The ID also includes the ALJ's Recommended Determination ("RD") on remedy and bonding. *Id.* at 150-55. The RD recommends that the Commission issue a limited exclusion order covering DJI products that infringe the '184 patent claims and cease and desist orders against infringing respondents[2] because they maintain "commercially significant" inventories in the United States. *Id.* at 151-53. The RD recommends setting a bond in the amount of 9.9 percent of the entered value of covered UAVs imported during the period of Presidential review. *Id.* at 154-55. The Commission did not ask the ALJ to analyze, nor did the ALJ analyze, the statutory public interest factors under Section 337(d)(1) or (f)(1). *See* 83 Fed. Reg. at 49575-76.

On March 16, 2020, Autel and DJI each filed petitions for review of certain findings in the ID, pursuant to Commission Rule 210.43(a).[3] The parties filed their respective responses to the opposing petition for review on March 24, 2020, pursuant to Commission Rule 210.43(c).[4]

On May 15, 2020, the Commission issued a notice soliciting comments on any public interest factors that may be implicated if remedial orders are issued. Comm'n Notice (May 15, 2020); 85 Fed. Reg. 30735 (May 20, 2020). The Commission did not receive any comments in response to its notice. Neither did any party file a public interest submission pursuant to Commission Rule 210.54(a)(4). *See* 19 C.F.R. § 210.54(a)(4).

On May 29, 2020, while the petitions for review were still pending before the Commission, DJI's counsel informed the Commission that the PTAB had issued final written

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[2] The ALJ did not specify whether the recommendation was directed to all respondents or particular ones.

[3] *See* Complainant Autel Robotics USA LLC's Petition for Review (Mar. 16, 2020) ("Autel's Pet."); Respondents' Petition for Review (Mar. 16, 2020) ("DJI's Pet.").

[4] *See* Complainant Autel Robotics USA's Response to Respondents' Petition for Review (Mar. 24, 2020) ("Autel's Pet. Resp."); Respondents' Response to Autel's Petition for Review (Mar. 24, 2020) ("DJI's Pet. Resp.").

decisions in *inter partes* proceedings ("IPRs") challenging the '184, '174, and '013 patents and found all of the claims at issue, among others, unpatentable. Letter from S. Brittingham, Esq. to Secretary Barton (May 29, 2020) (Attachment 1 at 2, Attachment 2 at 2; Attachment 4 at 2).

On June 9, 2020, the Commission notified the parties that it had determined to partially review the subject ID with respect to: (i) the ID's findings on infringement of claims 1 and 2 (but not claim 5) of the '184 patent; (ii) the ALJ's decision not to adjudicate DJI's new rotor locking designs, and; (iii) the impact, if any, on this investigation of the PTAB's Final Written Decision with respect to the '184 patent, the only patent still at issue. Comm'n Notice at 1-3 (June 9, 2020) ("Comm'n Review Notice"). The Commission asked the parties to brief certain questions relating to these issues. The Commission also requested briefing from the parties, interested government agencies, and any other interested persons on the issues of remedy, the public interest, and bonding. *Id.* at 3-4. The Commission determined not to review, and thus adopted, the ID's findings that: (i) claims 1 and 2 of the '184 patent are not invalid; (ii) Autel satisfied both prongs of the domestic industry requirement with respect to the '184 patent; and (iii) there is no violation of Section 337 with respect to either the '174 or '013 patents. *Id*. at 2-3.

On June 24, 2020, Autel and DJI filed their initial responses to the Commission's questions on review and remedy, the public interest, and bonding.[5] On July 1, 2020, Autel and DJI filed their respective replies to each other's initial submissions to the Commission.[6]

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[5] *See* Complainant Autel Robotics USA LLC's Written Submission on the Issues Identified in the Notice of a Commission Determination to Review the Final Initial Determination in Part (June 24, 2020) ("Autel's Review Br."); Respondents' Brief to the Commission on Issues Under Review and on Remedy, Bonding, and the Public Interest (June 24, 2020) ("DJI's Review Br.").

[6] *See* Complainant Autel Robotics USA LLC's Reply to Respondents' Brief to the Commission on Issues Under Review and on Remedy, Bonding, and the Public Interest (July 1, 2020) ("Autel's Review Reply"); Respondents' Reply Brief to the Commission on Issues Under Review and on Remedy, Bonding, and the Public Interest (July 1, 2020) ("DJI's Review Reply").

B. The Asserted Patents

The following background discussion focuses on the ’184 patent, the only patent still at issue. The ’184 patent is directed to a UAV with interlocking rotor and driveshaft assemblies for releasably attaching the rotors to the driveshafts. ’184 patent, Abstract. As shown in the figures below (color-coded by Autel), claim 1 requires: (a) a shaft lock portion **(15A)** with “notches” **(27)** on the driveshaft assembly, which engage with (b) corresponding “lugs” **(25)**, or protrusions, on a blade lock portion **(17A)** of a rotor blade **(9)**. *Id.* at 3:55-62, Figs. 4, 9.

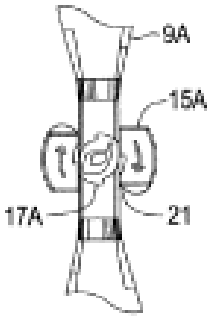


FIG. 9

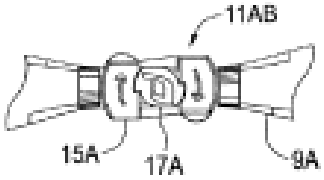


FIG. 10

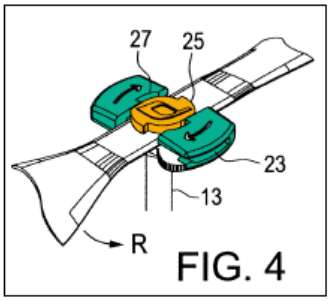


FIG. 4

Figure 2. ’184 Patent, Fig. 4 (Highlighted)

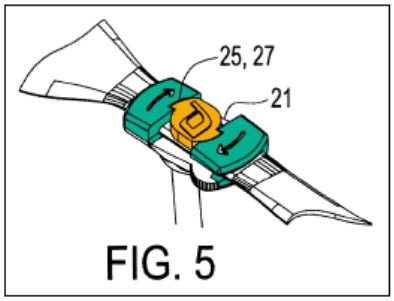


FIG. 5

Figure 3. ’184 Patent, Fig. 5 (Highlighted)

In this example, a counterclockwise-rotating rotor **(9)** is secured by pressing the blade lock portion **(17A)** into the shaft lock portion (**15A**), and then turning the rotor clockwise so that the lugs **(25)** engage the corresponding the notches **(27)**. *Id.* at 4:1-16, 27-30, Figs. 5, 10. The ’184 patent discloses a mirror image of this locking mechanism for securing clockwise-rotating rotor blades. *Id.* at 4:16-35, Figs. 6, 8. The ’184 patent teaches that the locking mechanisms are

designed to ensure that rotors are attached only to driveshafts that rotate in the same direction, *e.g.*, clockwise rotors are attached to clockwise-rotating driveshafts and not counterclockwise-rotating driveshafts, and vice versa. *See id.* at Abstract, 1:20-31, 1:55-2:7, 2:16-18, 3:14-18.

Claims 1 and 2, the only claims still at issue,[7] are recited below, with bracketed letters added as in the ID, and the claim terms of interest set forth in underlined italics:

1. [1a] A rotary wing aircraft apparatus comprising:

   [1b] a body;

   [1c] a plurality of arms extending laterally from the body, and [1d] *a rotor assembly attached to an outside end of each arm*;

   [1e] each rotor assembly comprising a rotor blade releasably attached to a driveshaft by a lock mechanism, and a drive rotating the driveshaft;

   [1f] wherein a first driveshaft rotates in a clockwise direction and a second driveshaft rotates in a counterclockwise direction;

   [1g] wherein a clockwise rotor blade is releasably attached to the first driveshaft by engagement in a clockwise lock mechanism and generates a vertical lift force when rotated in the clockwise direction, and a counterclockwise rotor blade is releasably attached to the second driveshaft by engagement in a counterclockwise lock mechanism and generates a vertical lift force when rotated in the counterclockwise direction;

   [1h] wherein the clockwise rotor blade is engageable only with the clockwise lock mechanism and cannot be engaged in the counterclockwise lock mechanism, and the counterclockwise rotor blade is engageable only with the counterclockwise lock mechanism and cannot be engaged in the clockwise lock mechanism; and

   [1i] wherein the clockwise lock mechanism comprises a shaft lock portion attached to the first driveshaft and a blade lock portion attached to the clockwise rotor blade, *the shaft lock portion defining notches configured to engage corresponding lugs on the blade lock portion*.

2. The apparatus of claim 1 wherein [2a] the counterclockwise lock mechanism comprises a shaft lock portion attached to the second driveshaft and a blade lock portion attached to the counterclockwise rotor blade,

[7] The Commission determined not to review the ID's finding that DJI does not infringe claim 5 of the '184 patent. Comm'n Review Notice at 1-3.

> [2b] *the blade lock portion comprising lugs with a configuration that is different than a configuration of the lugs on the blade lock portion of the clockwise lock mechanism*.

'184 patent at 5:35-6:18 (emphasis added).

C. The Accused Products

The accused DJI products are unmanned aerial vehicles, or drones, and components thereof. 83 Fed. Reg. at 49575 (notice of institution). The accused products are referred to by their product lines – Mavic Air, Mavic Pro, Spark, Inspire, and Phantom 4 Pro – although there are multiple product versions or generations within each product line. ID at 3-4.

D. The Domestic Industry Products

The domestic industry product is the Autel EVO. ID at 4.

III. STANDARD ON REVIEW

With respect to the issues under review, "the Commission may affirm, reverse, modify, set aside or remand for further proceedings, in whole or in part, the initial determination of the administrative law judge." 19 C.F.R. § 210.45(c). The Commission also "may take no position on specific issues or portions of the initial determination," and "may make any finding or conclusions that in its judgment are proper based on the record in the proceeding." *Id.*

IV. ANALYSIS

The Commission determines to make the findings, conclusions, and supporting analyses set forth below. The Commission also affirms and adopts herein any findings, conclusions, and supporting analyses in the ID regarding issues under review that are not inconsistent with the Commission's own findings, conclusions, and supporting analyses discussed herein.

A. Infringement of the '184 Patent

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 complainant 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).

The parties did not petition for review of the ID's findings that DJI's Mavic Pro, Mavic Air, and Spark infringe claim 1 of the '184 patent and that none of the accused UAVs infringe claim 5. DJI's Pet. at 1, 21; Autel's Pet. at 2; *see* ID at 67-73 (Mavic Pro), 76-81 (Spark, Mavic Air), 149 (findings). The scope of the Commission's review of the '184 patent is thus limited to whether DJI's Phantom 4 Pro or Inspire infringe claim 1, and whether any of the accused UAVs infringe claim 2. Comm'n Review Notice at 2-3; *see* ID at 73-76 (Mavic Pro), 81-82 (Spark, Inspire), 83-92 (Phantom 4 Pro), 92-98 (Inspire), 149. For the following reasons, the Commission finds that DJI's Phantom 4 Pro, Mavic Pro, Mavic Air, and Spark infringe both claims 1 and 2, but affirms the ID's finding that the Inspire does not infringe either claim.

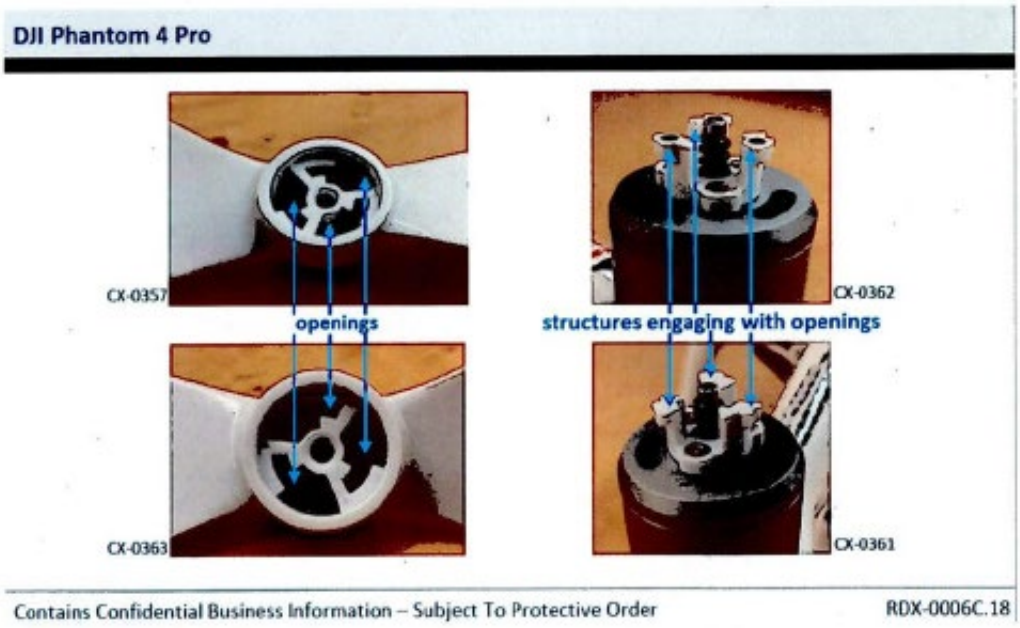
1. Infringement of Claim 1: Phantom 4 Pro

DJI did not contest that the Phantom 4 Pro satisfies claim limitations 1[a]-1[h]. *See* ID at 84-87. The only issue in dispute is whether the Phantom 4 Pro practices limitation 1[i], which states that the rotor locking mechanism includes a "blade lock portion" on the rotor blade and a "shaft lock portion" on the driveshaft, wherein "the shaft lock portion [has] notches configured to engage corresponding lugs on the blade lock portion." *See* '184 patent at 6:5-9.

The parties agree, and ALJ so finds, that this claim element and its individual terms "lug," "notch," and "engage" have their plain and ordinary meaning. Order No. 15 (*Markman* Order) at 21-23 (June 21, 2019) (quoted in ID at 65). The ID and the parties describe a "lug" as a protrusion and a "notch" as a slot, opening, or indentation of some kind. ID at 88; Autel's Review Resp. at 23; DJI's Review Br. at 21-22; Autel's Pet. at 33-34, 37; DJI's Pet. Resp. at 20, 23. The ALJ, however, rejected DJI's argument that the "notches" must match the shape of the "lugs," as depicted in the patent. Order No. 15 at 21-22 ("While Figures 4, 5, 6, 9, and 10 [of the '184 patent] depict notches that match the shape of the lugs, there is nothing else in the specification that indicates that the patentee intended to limit the claim to this embodiment").

The ID finds that the plain meaning of limitation 1[i] is that the "lugs" must be on the "blade lock portion" of the rotor and the "notches" on the "shaft lock portion" of the driveshaft. ID at 87-89. The ID finds that the Phantom 4 Pro does not infringe claim 1 for the singular reason that it "takes the opposite approach, with the notches on the blade and the lugs on the shaft lock portion."[8] *Id.* at 65, 88. The ID includes the following photographs, annotated by DJI, that show the alleged "lugs" on the Phantom 4 Pro's driveshaft and "notches" on the rotor.

[8] The ID also finds the Phantom 4 Pro does not infringe claim 1 under the doctrine of equivalents (ID at 87-92), but Autel did not petition for review of that finding and thus waived that issue.



ID at 88.

Autel petitioned for review of the ID's finding of non-infringement. Autel's Pet. at 27-40. In its petition for review, Autel argues that the Phantom 4 Pro's rotor includes an inner set of "lugs" comprising three "'^'-shaped" (or wedge-shaped) protrusions that resemble the "lugs" in the rotor locking mechanism **(17C)** in Figure 6 of the '184 patent.[9] Autel's Review Br. at 24. Autel's annotated photographs and figures identifying these "lugs" are reproduced below.

[9] Autel also argues that the Phantom 4 Pro has a second, outer set of "lugs" projecting from the inner surface of the rotor hub that engages a corresponding set of "notches" on the driveshaft. Autel's Review Br. at 26-28. DJI argues that Autel is raising new arguments and evidence (including annotated photographs) regarding this outer set of "lugs" and "notches" that Autel did not previously include in its post-hearing brief or petition for review. The Commission finds that even though Autel identified this alleged outer set of "lugs" and "notches" earlier, its present argument includes new material that is untimely and waived under 19 C.F.R. § 210.43(b)(2). *See also* Commission's Review Notice at 4 (directing the parties to brief the review questions "with reference to the applicable law and evidentiary record"). The Commission takes no position on whether Autel's argument, as previously presented, establishes that this alleged outer set of "lugs" and "notches" is sufficient to satisfy claim 1, as the Commission finds that the inner set, discussed above, is infringing.

Figure 7. CDX.0001C.72 (CX-0366)

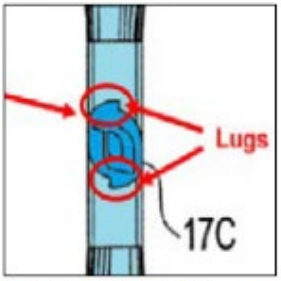


Figure 8. RDX-0001C.5 (JX-0002 at Fig. 6)

Autel Review Br. at 24.

Autel argues that these "lugs" engage a corresponding set of "'v'-shaped cutouts," or "notches," on the driveshaft, as shown below at left. *Id.* at 25. Autel contends these "notches" are similar to those "notches" **(15C)** depicted on the shaft lock portion of Figure 6, below. *Id.*

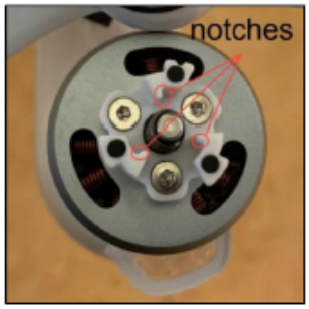


Figure 9. CDX.0001C.72 (CX-0362)

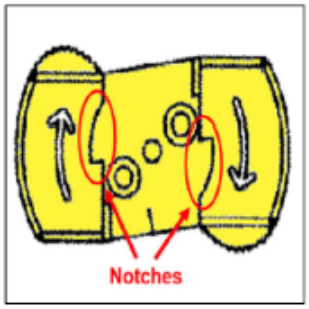


Figure 10. RDX-0001C.4 (JX-0002 at Fig. 6)

Autel Review Br. at 25.

Autel asserts that, when the Phantom 4 Pro's rotor are secured to the driveshaft, the three lugs fit into the three notches, "with both sides of the angular structures coming into contact with both sides of the cutouts." *Id.* at 25. Autel argues that this engagement of lugs and notches is very similar to that depicted in Figures 9 and 10 of the '184 patent, as shown below. *Id.* at 26.

Figure 11. Lugs and Notches on the Phantom 4 (before engagement) (CPX-0021)

Figure 12. Lugs and Notches on the Phantom 4 (after engagement) (CPX-0021)

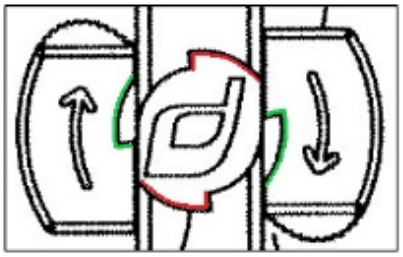


Figure 13. '184 Patent, Figure 9 (before engagement)

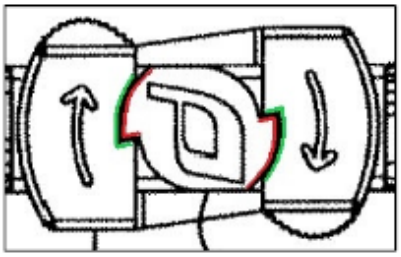


Figure 14. '184 Patent, Figure 10 (after engagement)

Autel's Review Br. at 25-26.

DJI agrees with the ID that the Phantom 4 Pro does not infringe because its configuration of "lugs" and "notches" is the opposite of what is required by limitation 1[i]. DJI's Review Br. at 21, 29 (citing ID at 21, 29). DJI argues that what Autel identified as inner and outer "lugs" on the inside of the Phantom 4 Pro's rotor hubs are not "lugs" at all, but define the walls of a slot, or "notch." *Id.* at 22, 25-26. DJI contends that this "notch" engages the corresponding "lugs" on the Phantom 4 Pro's driveshaft. *Id.* Likewise, DJI argues that what Autel identifies as a "notch" on the Phantom 4 Pro's driveshaft is simply part of that protrusion, or "lug." *Id.* at 23-24. DJI agrees with the ID that Autel's application of "lug" and "notch" is so broad that almost anything could be a lug, and almost anything can be a notch." *Id.* at 21-22 (quoting ID at 87).

Having reviewed the ID, the parties' submissions, and the record, the Commission has determined to reverse the ID and finds instead that DJI's Phantom 4 Pro practices limitation 1[i] and thus infringes claim 1 of the '184 patent, the only disputed limitation of this claim.

Limitation 1[i], as stated earlier, requires that the UAV include a "shaft lock portion [on the driveshaft] defining notches configured to engage corresponding lugs on the blade lock portion." '184 patent at 6:7-9. The addition of other elements not recited in the claim, however, does not defeat infringement, provided the recited limitations are satisfied. *See Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1372 (Fed. Cir. 2005). The Commission thus finds that claim 1 reads on a "shaft lock portion" that has *both* a "lug" *and* a "notch," which engage *both* a corresponding "notch" *and* a "lug," respectively, on the "blade lock portion," and therefore the recited limitations of claim 1 are met. The addition of other elements not recited in the claim (*e.g.*, "notches" on the blade lock portion) cannot defeat infringement, as long as the recited limitations (*e.g.*, "lugs" on the blade lock portion) are satisfied. *Id.* Thus, the ID's finding that "[t]he notches must be on the shaft lock portion and the lugs must be on the blade lock portion" (ID at 88) does not mean that "notches" cannot also be on the rotor *and* driveshaft, or "lugs" on the driveshaft *and* rotor, as long as the requirements of limitation 1[i] are met.

The Commission also notes that the *Markman* order in this case does not limit the "lugs" or "notches" to the preferred embodiment or to any other particular shapes, nor does it exclude any particular shapes. *See* Order No. 15 at 22. The Commission also finds that nothing in the '184 patent limits a "lug" to an extended, pillar-like structure, such as the protruding structures DJI identified as "lugs" on the driveshaft assembly in the Phantom 4 Pro. *See* DJI's Review Br. at 24; DJI's Review Reply at 18. Both DJI and Autel, in fact, recognize that the '184 patent uses "lug" broadly to include the flat, triangular-shaped extensions **(25)** depicted in Figure 6, above, as well as in Figures 4 and 5, below. The Commission notes that that these "lugs" **(25)** lie in the plane of the "blade lock portion," rather than extending pillar-like from its surface.

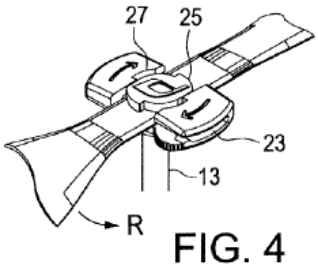


FIG. 4

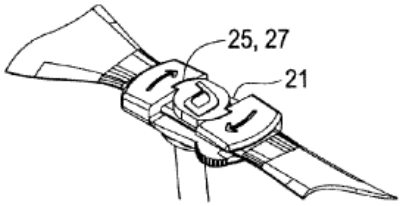


FIG. 5

The Commission finds that the inner set of "lugs" in the Phantom 4 Pro's rotor resemble the small, wedge-shaped "lugs" depicted in the '184 patent, as shown in the top row of figures below. The Commission also finds that these inner "lugs" are formed to engage a corresponding set of "notches" in the Phantom 4 Pro's driveshaft assembly, which resemble the "notches" **(27)** depicted in the '184 patent, as shown in the second set of figures below.

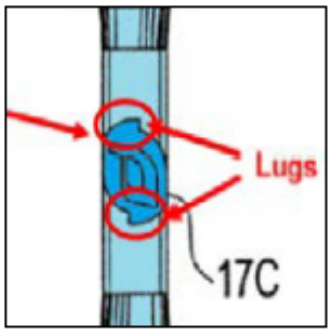


Figure 6. RDX-0001C.5
(JX-0002 at Fig. 6)

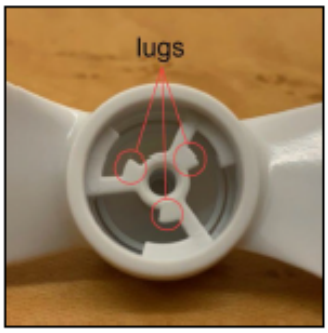


Figure 7. CDX.0001C.72
(CX-0366)

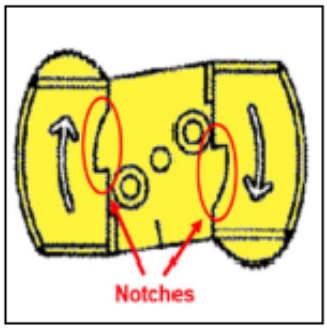


Figure 8. RDX-0001C.4
(JX-0002 at Fig. 6)

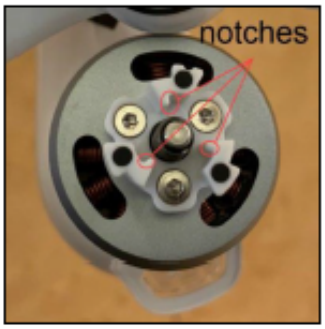


Figure 9. CDX.0001C.72
(CX-0362)

Autel's Pet. for Review at 33.

In light of these close similarities between the Phantom 4 Pro and the ’184 patent, the Commission finds it is immaterial that these inner “lugs” may also serve as part of the structure that encloses a slot, or notch, as DJI argues. The inner “lug” does not have some random or unrelated pattern that serves no purpose other than to define such an indentation or slot. Rather, that “lug” is formed to have a particular wedge-like shape so that it can fit into, or “engage,” a corresponding “slot” on the driveshaft assembly, just as depicted in the ’184 patent. The close similarities between the preferred embodiment in the ’184 patent and the Phantom 4 Pro also mean that Autel is not applying the terms “lug” or “notch” so broadly as to turn lugs into notches or notches into lugs, as the ID finds. Rather, Autel’s position represents a proper application of the plain and ordinary meaning of “lug” and “notch,” as interpreted and applied within the context of the ’184 patent specification. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005), *cert. denied*, 546 U.S. 1170 (2006) (“The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.”).

Accordingly, the Commission finds the inner set of “lugs” and corresponding “notches” in the Phantom 4 Pro satisfy limitation 1[i]. Given that this is the only limitation in dispute, the Commission reverses the ID and finds the Phantom 4 Pro infringes claim 1 of the ’184 patent.

2. Infringement of Claim 1: Inspire

The Commission has determined to affirm the ID’s finding that DJI’s Inspire UAVs do not infringe the ’184 patent because they do not practice either limitation 1[d] or 1[i]. *See* ID at 92-98. Limitations 1[c], [d] require that the claimed UAV include:

> [1c] a plurality of arms extending laterally from the body, and
>
> [1d] <u>*a rotor assembly attached to an outside end of each arm*</u>;

’184 patent at 5:37-38.

The parties did not ask for a construction of these terms, so they should be construed and applied according to their plain and ordinary meaning in the context of the ’184 patent, as in the ID. *See* ID at 93-95; *see also Phillips,* 415 F.3d at 1312-13 The Commission agrees with the ID that the plain and ordinary meaning of limitation 1[d] means that one end of each “arm” **(5)** must be connected to the body **(3)** of the UAV, while “an outside end of each arm” must be connected to a “rotor assembly” **(7)**, as shown in Figure 2 of the ’184 patent, below. *See also* ID at 94-95 (discussing ’184 patent at 5:37-38). The Commission further agrees with the ID that claim 1 requires “arms,” not “arm assemblies,” and that nothing in the specification supports Autel’s “arm assembly” argument. *See id.*; ’184 patent at 3:14-37, 5:37-38, Figs. 1-3, 11-14 (disclosing “arms,” not arm assemblies).

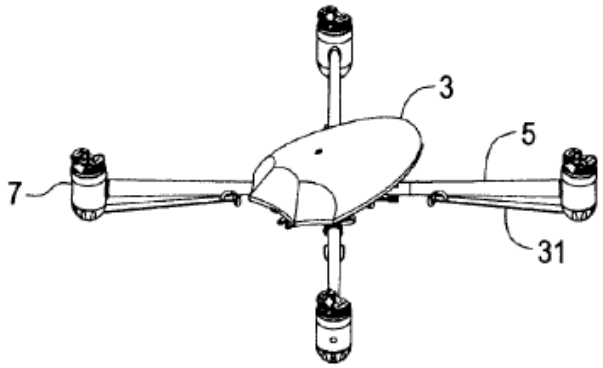
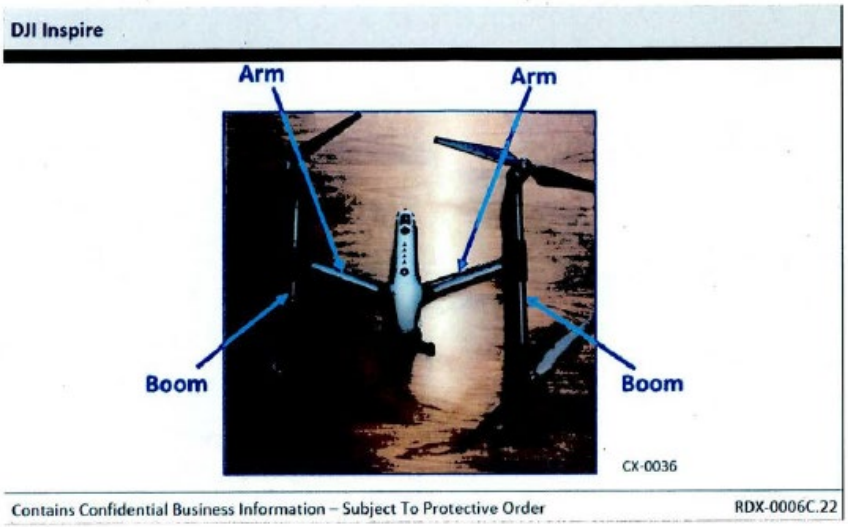


FIG. 2

The Commission agrees with the ID that the rotor assemblies on the Inspire do not practice limitation 1[d] because they are not attached to the “outside end” of an “arm” that extends laterally from the body. *See* ID at 93-95. Instead, the “outside end of each arm” is attached to a boom, in the ID’s terms, which extend perpendicularly from each arm to form a “T-shaped assembly,” as explained in the ID. *Id.* at 94-95. The “rotor assemblies” are attached to

the ends of the booms, as shown below, and not to the "outside end of each arm," as required by limitation 1[d]. *Id.* at 94.



For these and other reasons given in the ID, the Commission affirms that DJI's Inspire UAVs do not practice limitation 1[d], and thus do not infringe claim 1 or, by consequence, dependent claim 2 of the '184 patent.[10]

3. Infringement of Claim 2

The Commission has determined to reverse the ID and find that the Mavic Pro, Mavic Air, Spark, and Phantom 4 Pro infringe claim 2 of the '184 patent. *Cf.* ID at 73-76 (Mavic Pro), 81-82 (Mavic Air, Spark), 92 (Phantom 4 Pro), 149 (findings). The Commission, as noted above, affirms the ID's finding that the Inspire does not infringe claim 1, and thus does not infringe dependent claim 2. *See* ID at 97-98, 149.

Claim 2, which depends on claim 1, requires that the "blade lock portion" on the counterclockwise-rotating rotors include "lugs with a configuration that is different than the

[10] Having found that the Inspire does not practice limitation 1[d] or infringe claim 1, the Commission takes no position on whether it has "lugs" and "notches" as in limitation 1[i].

configuration of the lugs on the blade lock portion of the clockwise lock portion." '184 patent at 6:10-27 (claim 2). The parties did not ask for a construction of those terms, nor did the ALJ provide such a construction, thus the Commission affords them their plain and ordinary meaning. *See Phillips*, 415 F.3d at 1312-13.

DJI concedes that, if the Phantom 4 Pro UAVs are found to infringe claim 1, then they also infringe claim 2, because the "lugs" on the clockwise "blade lock portion" are mirror images of, and thus "different" from, the "lugs" on the counterclockwise "blade lock portion." *See* DJI's Review Br. at 29; Autel's Review Br. at 31-32. For the reasons given above, the Commission finds that the Phantom 4 Pro infringes claim 1 and, therefore, claim 2 of the '184 patent.

As for the Mavic Air, Mavic Pro, and Spark UAVs, the ID finds they do not infringe claim 2 because the "lugs" on their clockwise and counterclockwise blade lock portions are not "different" in any material respect. ID at 74-76, 82. In so holding, the ID rejects Autel's argument that the "lugs" on their counterclockwise rotors are "different" from the "lugs" on their clockwise rotors because only one set, but not the other, has "bumps" at the base of the "lugs," where they are affixed to the rotors. *See id.* at 74-76, 82. The ID finds, "Autel is not arguing that the 'bumps' themselves are the claimed lugs . . . It is therefore the *bumps*, not the lugs, that are configured differently." *Id.* at 74 (emphasis in original). The ID further finds:

> If, as Autel claims, the 'bumps' on the counterclockwise lock mechanism are integral with the lugs and thus a part of the lugs, then they too must engage with the corresponding notches. However, the evidence shows that they do not engage with the notches nor are they designed to.

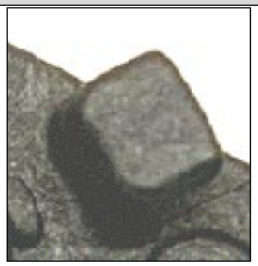
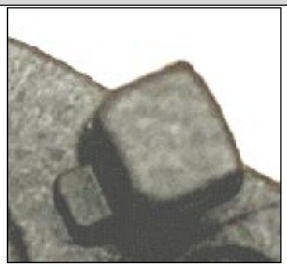
Id. at 75.

The Commission disagrees. The ID overlooks claim limitation 1[i], discussed earlier, which states that the "notches" on the shaft lock portion "engage corresponding lugs <u>*on the blade lock portion*</u>." '184 patent at 6:8-9 (emphasis added). Pursuant to its plain and ordinary

meaning, then, the term "lug" covers not only the portion of an L-shaped "lug" that engages the corresponding "notches" on the driveshaft but also the portion where that L-shaped "lug" attaches to the rotor blade. *See id*. The ID errs in finding that the portion of the "lug" that is configured differently than another lug must be the same portion of the "lug" that engages a corresponding "notch." *Cf.* ID at 75.

The Commission finds no dispute that the Mavic Pro, Mavic Air, and Spark UAVs have a bump in the base of one set of "lugs" (*e.g.*, on the counterclockwise rotor) that is not present in the other set of "lugs" (*e.g.*, on the clockwise rotor, or vice versa), as shown in the photographs below. *See* ID at 74-75, 82; Autel's Pet. at 40-42; DJI's Pet. Resp. at 34-38. The Commission further finds that each bump is part of the "lug" because claim 1, upon which claim 2 depends, it is integral to the portion of the "lug" that is attached to, or "*on* the blade lock portion." *See* '184 patent at 6:7-9 (emphasis added).

Mavic Air	
Clockwise	**Counterclockwise**
Figure 22. Mavic Air CW (RX-0274)	Figure 23. Mavic Air CCW (RX-0274)

Mavic Pro	
Clockwise	**Counterclockwise**
 Figure 18. Mavic Pro CW (CX-0228)	 Figure 19. Mavic Pro CCW (CX-0229)

Spark	
Clockwise	Counterclockwise
Figure 20. Spark CW (CX-328)	Figure 21. Spark CCW (CX-0329)

Based on the foregoing, the Commission finds that the presence of these bumps on one set of lugs and the absence from the other set of lugs are sufficient to satisfy claim 2. The Commission also finds it immaterial as to whether the purpose of the bumps is to avoid mounting the wrong rotors onto the wrong driveshaft assembly or to prevent their misalignment, as DJI argued, as neither claim 1 nor dependent claim 2 impose such a limitation on the "different" configurations of lugs on the clockwise versus counterclockwise lock mechanisms.

The Commission concludes that the accused UAVs, with the exception of Inspire, infringe both claims 1 and 2 of the '184 patent. Given that the Commission has previously determined to adopt the ID's finding that the claims are not invalid and Autel has satisfied the domestic industry requirement as the '184 patent, the Commission affirms the ID's finding that DJI has violated Section 337 with respect to claims 1 and 2 of the '184 patent. ID at 149.

B. The ID Correctly Determined that DJI's "New Designs" Were Not Sufficiently Fixed to Warrant Adjudication At This Time

The Commission affirms the ALJ's decision to decline to adjudicate DJI's new rotor locking designs. *See* Hr'g Tr. at 60:4-11, 383:2-8, 476:10-477:8 (Oct. 21-23, 2019). As explained below, the Commission finds that DJI's new rotor locking designs were not sufficiently fixed in design with use on UAVs to warrant adjudication of infringement based on

the information disclosed during discovery.[11] The Commission also affirms the ALJ's decision to exclude any evidence of the new designs that DJI produced after the close of fact discovery, as well as any expert opinions that relied on such evidence. *See* Order No. 21.

The Commission applies a four-factor test to determine whether a respondent has met its burden to adjudicate a redesigned or alternative product: (1) whether the product is within the scope of the investigation; (2) whether it has been imported; (3) whether it is sufficiently fixed in design; and (4) whether it has been sufficiently disclosed by respondent during discovery. *Certain Human Milk Oligosaccharides and Methods of Producing the Same*, Inv. No. 337-TA-1120, Comm'n Op. at 18-19, 2020 WL 3073788 at *11 (June 8, 2020). The Commission generally favors adjudicating redesigns, if warranted after consideration of the above factors, to prevent subsequent and potentially burdensome proceedings that could have been resolved in the earlier investigation. *Id.* Nonetheless, redesigned products may be covered by the remedial orders even if they were not adjudicated for infringement in the original investigation. *Id.*

DJI seeks to adjudicate what it identified as its Model C and Model F rotor locking designs.[12] DJI's Review Br. at 10. DJI asserts that the Model C does not infringe because it uses color coding in the form of a white painted ring, and not any physical structures, to distinguish

[11] DJI also sought to adjudicate certain new battery locking mechanisms that it claimed were not covered by the '013 patent. The Commission finds that issue to be moot, given that it affirmed the ID's finding that there is no violation with respect to the '013 patent. ID at 150, *unreviewed in pertinent part*; Comm'n Review Notice at 1, 3.

[12] DJI originally petitioned for review of five rotor locking designs (Models A, B, C, F, and G) and did not limit its request to Models C and F until it responded to the Commission's questions on review. The Commission notes Autel's concern that DJI's delay in expressing its intention to pursue only two models, and not all five, smacked of "gamesmanship," as it forced Autel to expend time and space briefing three models that DJI is no longer pursuing. Autel's Review Reply at 6. Nevertheless, the Commission finds this issue moot in light of its determination to affirm the ALJ's finding that all of the designs were insufficiently fixed for adjudication.

the clockwise and counterclockwise-rotating rotors. *Id.* at 11-12, 19-20. DJI asserts that its Model F does not infringe because it uses screws, rather than lugs and notches, to attach the rotors to the driveshaft assemblies. *Id.* at 12, 20-21.

In terms of whether the designs are ripe for adjudication, DJI contends that, before fact discovery closed on May 31, 2019, it produced photographs, animations, and exploded views of its Model C and (to a lesser extent) Model F rotor locking designs, as well as several sample Model C designs (including clockwise and counterclockwise rotors and motors), a sample Model F design (one counterclockwise rotor and motor), and updated interrogatory responses and non-infringement contentions covering those new rotor designs. DJI's Review Br. at 13-16; Autel's Review Br. at 18-21. DJI argues that its Model C and F designs fall within the scope of the investigation because the notice of investigation includes not only complete "drones" but also "rotors, rotor assemblies," and other components "used therein or therewith." DJI's Review Reply at 9-10 (citing 83 Fed. Reg. at 49576 (notice of investigation)).

The Commission finds that DJI's argument overlooks the fact that the "rotors" or "rotor assemblies" it seeks to adjudicate must be used with a UAV, *i.e.*, this investigation is directed to "unmanned aerial vehicles [or drones] and *components thereof*" that infringe one or more of the asserted claims of the '184 patent or other patents no longer at issue. 83 Fed. Reg. at 49575-76 (emphasis added). Thus, even though this investigation may include "rotor assemblies," as DJI argues, they must be "components thereof" that are constituent parts for a complete *UAV, including the accused UAVs*, and not just any components without a clear connection to a complete or accused UAV product. *See id.*

Even assuming DJI disclosed its Model C and Model F rotor locking designs before the close of fact discovery on May 31, 2019, the Commission finds that DJI produced little

information during discovery about whether the designs would be used on any UAVs, or whether any such UAVs were going to be imported and sold in the United States. With respect to the Model C, for example, DJI's designated corporate witness, Mr. Jiang, testified on May 23, 2019, that he did not know the status of development of the Model C ([[

]]), how many Model C prototypes had been made, whether it had been installed in any complete UAVs, or if DJI had any plans to implement the Model C in a commercial UAV. Jiang Dep. Tr. at 87:3-89:1 (May 23, 2019) (attached as Exhibit C to Autel's motion to strike DJI's new designs). He was certain, however, that DJI had not sold any UAVs incorporating the Model C design at that time. *Id.* at 157:1-6. Although the Commission does not require that a redesign involve a commercial product in order to be adjudicated, Mr. Jiang's testimony a few days before the close of fact discovery that he did not know the status of the development of the Model C is indicative that the design was not fixed at that time.

It was not until July 10, 2019 – over a month after the close of fact discovery and shortly before the deadline for serving rebuttal expert reports – that DJI produced a UAV (in that case, a reengineered Mavic 2 Pro) that incorporated a Model C rotor locking design. *See* DJI's Review Br. at 16-17. Regardless of the fact that Autel's counsel inspected that UAV, the timing of the production deprived Autel of the opportunity to develop infringement contentions, to obtain expert opinions, and to prepare for trial on that product, particularly when Mr. Jiang had provided no prior notice or information regarding any such product. DJI also does not deny that this reengineered Mavic 2 Pro was a "one-off engineering experiment," and not a "a fixed and

final product design" that DJI intended to make, import, or sell in the United States. *See* Autel's Review Resp. at 18-19.[13]

Similarly, the information disclosed by DJI before the close of discovery shows that the Model F rotor locking design was not sufficiently fixed in design with use on any UAV. Although Mr. Jiang testified that DJI was going to incorporate the Model F into what it was then calling its "WM160" UAV, he did not know when DJI was going to start manufacturing either the Model F or WM160, or when they might be imported or offered for sale in the United States (although he believed it would be by November 2019), or whether DJI was going to incorporate the Model F into any of its current UAVs. Jiang Dep. Tr. at 107:7-109:9, 111:7-13, 112:20-113:15, 115:4-11. Mr. Jiang also testified that DJI had not sold any UAVs using that design.[14] *Id.* at 157:1-6. Further, DJI did not import any UAVs incorporating its Model F design before the close of discovery. *See* DJI's Review Resp. at 16-17.

In short, the Commission finds that the information produced during discovery shows that the Model C and Model F rotor locking assemblies were not sufficiently fixed in design with use on any UAV. Because of this, the Commission finds that Autel did not have sufficient information to allow it to decide during the discovery period whether the new design in a DJI UAV infringes. For these reasons, the Commission affirms the ALJ's decision not to adjudicate DJI's Model C and Model F rotor locking designs in this investigation. This finding is without

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[13] Although the Commission has held that importation is not mandatory for a redesign to be adjudicated, it may be relevant to this inquiry. *Human Milk Oligosaccharides*, Comm'n Op. at 18 n.21, 2020 WL 3073788 at *11 n.21. In this case, the importation of a single modified Mavic Pro 2 after the close of fact discovery supports the ALJ's finding that DJI did not have a UAV with a Model C design that was sufficiently fixed to be adjudicated in this investigation.

[14] Mr. Jiang testified that [[

]]. Jiang Dep. Tr. at 111:18-112:19, 113:16-114:14.

prejudice as to DJI's ability to present evidence in a future modification or advisory opinion proceeding to adjudicate a fixed UAV with a redesigned rotor locking assembly, provided it is consistent with Commission rules, procedures, and any applicable court decisions.

For the reasons given above, the Commission determines that DJI has violated Section 337 by importing, selling for importation, or selling into the United States after importation UAVs (with the exception of Inspire) that infringe claims 1 and 2 of the '184 patent.

C. Remedy, Bonding, The Public Interest, and Suspension

The Commission makes the following determinations regarding remedy, bonding, the public interest, and suspension of the remedial orders.

1. Remedy

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

a. Limited Exclusion Order

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

The Commission has determined to issue a limited exclusion order ("LEO") to preclude the importation of DJI UAVs that infringe claims 1 or 2 of the '184 patent, pursuant to Section 337(d)(1). The Commission, consistent with its standard practice, does not limit the LEO to UAVs that were actually adjudicated to infringe the '184 patent. *See Certain Graphics Systems, Components Thereof, and Consumer Products Containing Same*, Inv. No. 337-TA-1044,

Comm'n Op. at 66 (Sept. 18, 2018) (extending LEO to cover other products that infringe the patent at issue and not limiting that order to any particular model(s)); *Certain Hardware Logic Emulation Systems and Components Thereof* ("*Hardware Logic Emulation Sys.*"), Inv. No. 337-TA-383, Comm'n Op., 1998 WL 307240 at *9 (Mar. 9, 1998) (Commission typically issues broad remedial orders extending to "all products covered by the patent claims as to which a violation is found, rather than limiting its orders to only those specific models selected for the infringement analysis"). The purpose of issuing remedial orders in this manner is to ensure that the complainant receives "complete relief" because an "exclusion order covering only specific models of an accused device could be easily circumvented." *Hardware Logic Emulation Sys.*, Comm'n Op., 1998 WL 307240 at *9; *see also Human Milk Oligosaccharides*, Comm'n Op. at 19-20, 2020 WL 3073788 at *11 (redesigned products may still fall within the scope of the remedial orders even if they were not adjudicated for infringement in the original investigation).

The Commission's limited exclusion order includes a provision authorizing U.S. Customs and Border Protection ("Customs"), at its discretion, to establish a certification procedure to permit DJI to import UAVs (*e.g.*, the Inspire) that DJI certifies, to the best of its knowledge and belief, are non-infringing and thus "are not excluded from entry under paragraph 1 of this Order." Limited Exclusion Order, ¶ 3. The Commission, however, declines DJI's request to exempt spare parts used to service or repair UAVs it has already imported or sold in the United States because DJI did not produce any evidence to support its request or even identify which spare parts are of particular importance or should be permitted entry. *See Certain Non-Volatile Memory Devices and Products Containing Same*, Inv. No. 337-TA-1046, Comm'n Op. at 50, 2018 WL 6012622 at *31 (Oct. 26, 2018) (finding exemption for service or repair was not

warranted when the respondent did not identify any specific replacement parts or explain what repairs were needed).

b. Cease and Desist Order

Section 337(f)(1) provides that in addition to, or in lieu of, the issuance of an exclusion order, the Commission may issue a cease and desist order ("CDO") as a remedy for violation of Section 337. *See* 19 U.S.C. § 1337(f)(1). CDOs are generally issued when, with respect to the imported infringing products, respondents maintain "commercially significant" inventories in the United States or have significant domestic operations that could undercut the remedy provided by an exclusion order.[15] *See, e.g.*, *Certain Table Saws Incorporating Active Injury Mitigation Technology & Components Thereof* ("*Table Saws*"), Inv. No. 337-TA-965, Comm'n Op. at 4-6 (Feb. 1, 2017); *Certain Protective Cases & Components Thereof*, Inv. No. 337-TA-780, USITC Pub. No. 4405, Comm'n Op. at 28 (Nov. 19, 2012). Complainants bear the burden on this issue. "A complainant seeking a cease and desist order must demonstrate, based on the record, that this remedy is necessary to address the violation found in the investigation so as to not undercut the relief provided by the exclusion order." *Table Saws*, Comm'n Op. at 5 (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)).

[15] 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 respondent's inventory or domestic operations needs to be "commercially significant" before a CDO can be issued under Section 337(f)(1). *See, e.g.*, *Certain Magnetic Tape Cartridges and Components Thereof*, Inv. No. 337-TA-1058, Comm'n Op. at 65 n.24 (Mar. 25, 2019); *Table Saws*, Comm'n Op. at 6-7 n.2 (Feb. 1, 2017). In Commissioner Schmidtlein's view, the presence of an 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 against respondents iFlight Technology Co., Ltd. ("iFlight") and DJI Service LLC ("DJI Service"), pursuant to Section 337(f)(1). The RD recommended issuing CDOs against "those Respondents found to infringe by the Commission" (RD at 153). However, the only DJI entities that Autel requested CDOs against are iFlight and DJI Service, which Autel identifies as "the two named DJI entities known to hold inventory of infringing products in the United States." Autel's Review Br. at 33. As to whether DJI maintains commercially significant inventories or domestic operations in the United States, the Commission finds that DJI collectively maintained "commercially significant' inventories of [[ ]] accused UAVs between September 2017 and April 2019, valued at [[ ]]. RD at 153. The Commission also finds that a "snapshot" taken on April 8, 2019, shows that DJI's collective inventory included [[ ]], valued at [[ ]]. *Id.* Although DJI challenges Autel's use of "absolute" numbers, DJI does not dispute the accuracy of the data or calculations cited by Autel or the RD, nor does it challenge Autel's identification of iFlight or DJI Service as respondents maintaining such inventories. *See id.* Therefore, the Commission has determined to issue CDOs directed to iFlight and DJI Service with respect to infringing UAVs.

2. 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).

Under appropriate facts and circumstances, the Commission may determine that no remedy should issue because of the adverse impacts on the public interest. *See, e.g.*, *Certain Fluidized Supporting Apparatus & Components Thereof*, Inv. Nos. 337-TA-182/188, USITC Pub. 1667, Comm'n Op. at 1–2, 23–25 (Oct. 1984) (finding that the public interest warranted denying complainant's requested relief). Moreover, when the circumstances of a particular investigation require, the Commission has tailored its relief in light of the statutory public interest factors. For example, the Commission has allowed continued importation for ongoing medical research, exempted service parts, grandfathered certain infringing products, and delayed the imposition of remedies to allow affected third-party consumers to transition to non-infringing products. *E.g.*, *Certain Microfluidic Devices*, Inv. No. 337-TA-1068, Comm'n Op. at 1, 22–48, 53–54 (analyzing the public interest, discussing applicable precedent, and ultimately issuing a tailored LEO and CDO); *Certain Road Milling Machines & Components Thereof*, Inv. No. 337-TA-1067, Comm'n Op. at 32–33 (July 18, 2019) (exempting service parts); *Certain Baseband Processor Chips & Chipsets, Transmitter, & Receiver (Radio) Chips, Power Control Chips, & Prods. Containing Same, Including Cellular Tel. Handsets*, Inv. No. 337-TA-543, USITC Pub. No. 4258, Comm'n Op. at 150–51 (Oct. 2011) (grandfathering certain products); *Certain Personal Data & Mobile Comm'n Devices & Related Software*, Inv. No. 337-TA-710, USITC Pub. No. 4331, Comm'n Op., at 72–73, 80–81 (June 2012) (delaying imposition of remedy).

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. 19 U.S.C. § 1337(d)(l), (f)(l). The Commission did not ask the ALJ to make findings regarding the public interest when it instituted this investigation (83 Fed. Reg. at 49575-76), so the RD does not address that issue. The Commission received no response to its request for comments on the public interest from any interested third parties. *See* 85 Fed. Reg. at 30735.

The Commission finds that consideration of the public interest factors set forth in Sections 337(d)(1) or (f)(1) do not preclude issuance of an LEO or CDOs in this investigation.

First, the Commission finds that an exclusion order will not adversely impact public health or welfare. *See* 19 U.S.C. § 1337(d)(1), (f)(1). DJI argues that an exclusion order would impact public safety, health, and welfare because its UAVs account for over 75 percent of UAVs in the United States that weigh less than 75 pounds, due to their higher quality and safety features not found in its competitors' products. DJI's Review Br. at 33-35. DJI argues that its UAVs are used by federal, state, and local public safety agencies for critical and life-saving tasks, including search-and-rescue, accident reconstruction, and the public health response to COVID-19 by checking temperatures and enforcing social distancing. *Id.* at 24, 36. DJI argues that an exclusion order would hamper the efforts of U.S. public safety agencies, while forcing U.S. consumers to purchase lower quality, less safe alternatives. *Id.* In the alternative, DJI argues that the Commission should permit the continued importation of spare parts to enable service and repair of UAVs that have already been imported. *Id.* at 37.

Although DJI contends that its UAVs are used by certain public agencies, the Commission finds that DJI's argument is unsubstantiated. The record does not reflect that alternative suppliers offering competing UAVs would not suffice to meet the needs of these agencies. Even if DJI's representations are taken at face value, DJI does not deny that UAVs may be available from other sources (even if at a higher price or somewhat lower capabilities), or

that its competitors may be encouraged to enter or expand their presence in the UAV market if DJI's covered products are excluded. DJI also does not address whether some of these needs might be filled by its own non-infringing UAVs, such as Inspire, or by new, allegedly non-infringing UAV models, such as those using its allegedly non-infringing Model C (Mavic Air 2) or Model F (Mavic Mini) rotor locking assemblies (*e.g.*, upon adjudication of the redesign in a Commission modification or advisory proceeding or through certification of the non-infringing Inspire UAV before Customs). The record contains no expert testimony or declarations from customers in any public safety agency regarding any potential impact of an exclusion order or cease and desist order on the agency, nor did any such agency respond to the Commission's request for comments on the public interest or communicate any concerns on the record of this investigation. Moreover, the LEO does not apply to UAVs imported by or for the use of the United States government under Section 337(l). *See* 19 U.S.C. § 1337(l).

Second, the Commission finds that issuing an exclusion order will not adversely impact competitive conditions in the U.S. economy. *See* 19 U.S.C. § 1337(d)(1), (f)(1). To the contrary, an exclusion order may encourage other parties, such as Autel or other competitors like Yuneec or Parrot S.A., to enter or expand their presence in the U.S. UAV market, as noted above. *See* Autel's Review Br. at 35-36. DJI even acknowledges that Autel's EVO may be "comparable" to some of the accused UAVs and may even sell for a lower price. DJI's Review Resp. at 33. DJI may also be able to design around the '184 patent and import non-infringing UAVs, such as the Inspire, whether through adjudication, certification, or other proceedings finding those new designs are not covered by the exclusion order.

Third, the Commission finds that an exclusion order will not adversely impact the production of like or directly competitive articles in the United States. *See* 19 U.S.C.

§ 1337(d)(1), (f)(1). The Commission finds that an exclusion order would not harm production of competitive articles by Autel or another U.S. producer, but may even encourage their domestic production or expansion.

Finally, the Commission finds that an exclusion order will not adversely impact U.S. consumers. *See* 19 U.S.C. § 1337(d)(1), (f)(1). As noted above, there are other non-infringing UAVs in the U.S. market, and an exclusion order may spur additional entrants. The Commission finds that the public and U.S. competitive interests generally benefit from enforcement of intellectual property rights. *Certain Two-Handle Centerset Faucets & Escutcheons & Components Thereof*, Inv. No. 337-TA-422, Comm'n Op. at 9 (July 21, 2000)).

For all these reasons, the Commission finds that the public interest would not be adversely impacted to the extent that the remedial orders should not be issued.

3. 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, the Commission has often set the bond in an amount that would eliminate the price differential between the domestic product and the imported, infringing product. *See Certain Microsphere Adhesives, Processes for Making Same, & Prods. Containing Same, Including Self-stick Repositionable Notes*, Inv. No. 337-TA-366, USITC Pub. No. 2949, Comm'n Op. at 24 (Jan. 16, 1996). The Commission has also used a reasonable royalty rate to set the bond amount when 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 evidence of record shows that the calculation of a price differential is impractical or is insufficient to determine a reasonable royalty, the Commission generally imposes a 100 percent bond. *See, e.g., Certain Liquid Crystal Display Modules, Prods. Containing Same, & Methods Using the Same*, Inv. No. 337-TA-634, Comm'n Op. at 6-7 (Nov. 24, 2009). The complainant bears the burden of establishing the need for a bond. *Certain Rubber Antidegradants, Components Thereof & Prods. Containing Same*, Inv. No. 337-TA-533, USITC Pub. No. 3975, Comm'n Op. at 40 (July 21, 2006).

The Commission has determined to impose a bond equal to 11.5 percent of the entered value of DJI UAVs imported during the 60-day period of Presidential review, based on an analysis of the difference in prices between UAVs sold by Autel and DJI. Although the RD recommends a rate of 9.9 percent of entered value, Autel argues that a higher rate of 11.5 percent is warranted when it excludes the non-infringing Inspire from its "weighted average" of DJI's products. Autel's Review Br. at 37-38. DJI argues that a bond is not necessary because Autel's EVO UAV is cheaper than many of DJI's comparable UAVs (*e.g.*, Mavic Pro, Phantom 4 Pro), while DJI's lower-priced products (*e.g.*, Mavic Air, Spark) have fewer capabilities than Autel's EVO. DJI's Resp. at 32-33. DJI, however, cites no expert testimony, calculations, or other evidence to support its allegations or evidence to show that Autel's "weighted average" was inappropriate. *See id.* The Commission thus finds that the record supports the imposition of a bond in the amount of 11.5 percent of the entered value of infringing DJI products. The Commission, however, has determined to suspend the bond provision and other aspects of the remedial orders, as explained in the following section.

4. Suspension of Remedial Orders

The Commission has found a violation and determined that issuance of an LEO and CDOs is warranted. However, the Commission has determined to suspend enforcement of those remedial orders pending resolution of the PTAB's Final Written Decision finding the asserted claims of the '184 patent – the only patent claims still at issue – to be unpatentable. *See Viscofan*, 787 F.2d at 548 (finding that the Commission has "broad discretion in selecting the form, scope, and extent of the remedy.").

The Commission may issue an exclusion order in a patent-based investigation only if it finds that the accused articles "infringe a *valid* and enforceable United States patent." 19 U.S.C. § 1337(a)(1)(B)(i), (d)(1) (emphasis added). Both parties acknowledge that the Commission has previously suspended enforcement of its remedial orders, at least in part, when the PTAB issued a final written decision finding one or more of the asserted claims unpatentable before the Commission made its determination on violation. *See, e.g., Certain Magnetic Tape Cartridges and Tape Components Thereof* ("*Magnetic Tape Cartridges*"), Inv. No. 337-TA-1058, Comm'n Op. at 62-63, 2019 WL 2635509 at *38 (Apr. 9, 2019); *Certain Three-Dimensional Cinema Systems and Components Thereof* ("*Three-Dimensional Cinema Systems*"), Inv. No. 337-TA-939, Comm'n Op. at 60, 2016 WL 7635412 at *37 (July 21, 2016). Neither party has identified an instance in which the Commission determined *not* to suspend remedial orders due to a PTAB final written decision that issued prior to the Commission's determination. This circumstance also differs significantly from other investigations in which the Commission issued its remedial orders *before* the PTAB issued its final written decision of unpatentability. *See, e.g., Certain Network Devices, Related Software and Components Thereof (II)* ("*Network Devices*"), Inv. No. 337-TA-945, Comm'n Op., 2017 WL 10954555 at *6, *8 (Aug. 16, 2017) (denying motion to

rescind or modify remedial orders, *inter alia*, on the grounds that the remedial orders had been issued before the PTAB issued its final written decision on unpatentability).

Suspension of the remedial orders pending resolution of the PTAB's Final Written Decision is consistent with the Commission's past practice on this issue.[16] The Commission determined to partially suspend its remedial orders in *Three-Dimensional Cinema Systems* due to its "broad discretion in selecting the form, scope and extent of the remedy," the fact that the PTAB had already issued a final written decision finding certain claims unpatentable, "the advanced posture of the PTAB's proceeding," and the "potential cancellation of those claims"

[16] The Commission also distinguishes the facts here – where the Commission has completed the investigation but is suspending enforcement of the remedial orders – from an earlier case, in which the ALJ, in an interim order, denied a motion to stay an ongoing investigation where the PTAB had issued a final written decision finding the claims of one of the asserted patents invalid and was engaged in *inter partes* reviews against the other two asserted patents. *See Certain Memory Modules and Components Thereof* ("*Memory Modules*"), Inv. No. 337-TA-1089, Order No. 49 at 1-4 (April 11, 2019). The ALJ found there was little to be gained by staying the investigation because it had already reached an advanced stage, discovery had been completed, and the evidentiary hearing would commence by the time the PTAB issued its other two final decisions. *Id.* at 2. Even so, the ALJ held that the PTAB's unpatentability decision weighed "heavily in favor of a stay" because it could "simplify the issues and hearing of the case." *Id.* at 2-3. The ALJ also found that "the Commission has signaled a willingness to suspend the enforcement of any remedial orders pending final resolution of those written decisions." *Id.* at 3 (citing *Magnetic Tape Cartridges, supra,* and *Three-Dimensional Cinema Systems, supra*). The investigation proceeded to its conclusion, the final ID issued, and the Commission issued a final determination of no violation. No party petitioned for review of Order No. 49 or the denial of the stay motion after the final ID issued.

after appeal. Comm'n Op. at 60, 2016 WL 7635412 at *37.[17] Those same considerations support suspension here as well.

Further, suspension of remedial orders in the current context recognizes the PTO's role as the lead agency in assessing the patentability, or validity, of proposed or issued claims. *See, e.g., Fresenius USA, Inc. v. Baxter Int'l, Inc.*, 721 F.3d 1330, 1339, 1344 (Fed. Cir. 2013) ("Congress has expressly delegated reexamination authority to the PTO under a statute requiring the PTO to cancel rejected claims"). Even though the PTAB has no statutory authority to formally cancel a patent claim until its unpatentability decision has been finally resolved (including any appeal), *see* 35 U.S.C. § 318(b), the Commission recognized the PTAB's leading role when it suspended enforcement of the remedial orders as to the claims found unpatentable by the PTAB in *Magnetic Tape Cartridges* and *Three-Dimensional Cinema Systems*. The Commission's invalidity determinations in patent cases, in contrast, are for purposes of adjudicating whether or not a Section 337 violation has occurred, and are not binding on the PTO, federal courts, or other tribunals, even if affirmed by the Federal Circuit. *See Hyosung TNS Inc. v. Int'l Trade Comm'n*, 926 F.3d 1353, 1358 (Fed. Cir. 2019). Moreover, suspension of the remedial orders comports with the statutory directive that the Commission complete its investigations "at the earliest

[17] The Commission's determination is consistent with its previous decisions to rescind or modify remedial orders, pending appeal, after a district court enters a judgment that the asserted claims are invalid. *See, e.g., Certain Composite Wear Components and Products Containing Same*, Inv. No. 337-TA-644, Comm'n Op. at 1, 9, 12 (Feb. 10, 2011) (determining "to temporarily rescind" its remedial orders in their entirety, pending appeal, after a district court declared "the sole patent covered by the Commission's remedial orders" to be invalid); *see also SSIH Equip. S.A. v. Int'l Trade Comm'n*, 718 F.2d 365, 370-71 (Fed. Cir. 1983) (finding "the Commission acted properly" in modifying its remedial orders to exclude two of the three patents at issue after they had been found invalid by a district court). Temporary suspension based on a PTAB final written decision and temporary rescission based on a district court invalidity decision both have the effect of temporarily placing the Commission's remedial orders on hold until an appeal of the district court's (or PTAB's) decision has been resolved or exhausted.

practicable time" (19 U.S.C. § 1337(b)(1)), while at the same time deferring to the PTAB's Final Written Decision by holding its remedial orders in abeyance pending appeal of that decision.

In addition, the Commission's decision to suspend enforcement is guided by the goal of the *inter partes* review ("IPR") procedure under the America Invents Act ("AIA") to provide "a quick, inexpensive, and reliable alternative to district court litigation to resolve questions of patent validity." S. REP. NO. 110-259, at 20 (2008); *see Three-Dimensional Cinema Sys.*, 2016 WL 7635412 at *32 (citing H.R. REP. NO. 112-98, at 48 (2011)). The IPR "procedure allows private parties to challenge previously issued patent claims in an adversarial process before the Patent Office that mimics civil litigation." *SAS Institute, Inc. v. Iancu,* 138 S.Ct. 1348, 1352 (2018). Several aspects of the statutory framework reflect Congress's goal that IPR proceedings be a substitute for district court litigation on patent validity issues. For example, the AIA accounts for litigation timing; provides for an adversarial proceeding with discovery, an oral hearing, and adjudication by a panel of three administrative patent judges; and estops IPR petitioners from asserting invalidity grounds at the Commission and in district court that were raised or reasonably could have been raised in the IPR proceeding. *See* 35 U.S.C. §§ 315(a), 315(b), 315(e), 316(a)(5), 316(a)(10). Suspending enforcement of the remedial orders when the PTAB's Final Written Decision on unpatentability issues before the Commission's determination gives effect to the Congressional goal.

For the foregoing reasons, the Commission has determined that it is appropriate under the facts in this investigation to suspend enforcement of the LEO and CDOs, including the bond provision, pending final resolution of the PTAB's Final Written Decision finding the challenged claims of the '184 patent unpatentable.

V. CONCLUSION

For the reasons stated above, the Commission determines that DJI has violated Section 337 in the importation, sale for importation into the United States, and sale after importation of certain unmanned aerial vehicles and components thereof that infringe claims 1 and 2 of the ’184 patent. Accordingly, the investigation is terminated with a finding of a violation of Section 337.

The Commission further determines that the appropriate remedy is the issuance of an LEO against the DJI respondents and CDOs against respondents iFlight and DJI Service, and imposition of a bond in the amount of 11.5 percent of the entered value of DJI’s covered products during the period of Presidential review. The Commission finds that the public interest does not preclude issuance of the LEO or CDOs. The Commission, however, has determined to suspend enforcement of its remedial orders, including the bond provision, pending appeal of the PTAB’s Final Written Decision holding asserted claims 1 and 2 of the ’184 patent, among others, unpatentable as anticipated or obvious.

By order of the Commission.

Lisa R. Barton
Secretary to the Commission

Issued: September 8, 2020

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **OPINION** has been served upon the following parties as indicated, on 9/8/2020.

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