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April 11, 2023

The Honorable Katherine M. Hiner
Acting Secretary to the Commission
U.S. International Trade Commission
500 E Street, S.W., Room 112
Washington, DC 20436

Re: ***In the Matter of Certain Lidar (Light Detection and Ranging) Systems And Components Thereof***

Dear Acting Secretary Hiner:

Enclosed for filing on behalf of Complainant Ouster Inc. ("Ouster" or "Complainant") are documents in support of Ouster's request that the Commission commence an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended. Pursuant to the Commission Rules of Practice and Procedure, a request for confidential treatment of Confidential Exhibits 1, 12-16, 18-22, 40-45, 47, 49-50 is being transmitted with this filing. In accordance with the Commission's notice titled, "Temporary Change to Filing Procedures," 85 Fed. Reg. 15798 (March 19, 2020), enclosed are the following:

1. an electronic copy of Ouster's verified complaint and Statement of Public Interest (Rules 210.8(a)(1)(i) and 210.8(b));

2. electronic copies of the accompanying non-confidential exhibits to the Complaint (Rules 210.4(f) and 210.8(a));

3. electronic copies of the accompanying confidential exhibits to the Complaint (Rules 201.6(c), 210.4(f) and 210.8(a));

4. electronic certified copies of U.S. Patent Nos. 11,175,405 (the "'405 patent") (Exhibit 2); 11,178,381(the "'381 patent") (Exhibit 3); 11,190,750 (the "'750 patent") (Exhibit 4); 11,287,515 (the "'515 patent") (Exhibit 5); and 11,422,236 (the "'236 patent") (Exhibit 6); (collectively the "Asserted Patents") (Rule 210.12(a)(9)(ii));

5. electronic certified copies of the assignments for the '405 patent (Exhibit 7); '381 patent (Exhibit 8); '750 patent (Exhibit 9); '515 patent (Exhibit 10); and '236 patent (Exhibit 11) (Rule 210.12(c)(1));

6. electronic certified copies of the prosecution histories of the '405 patent (Appendix A); '381 patent (Appendix C); '750 patent (Appendix E); '515 patent (Appendix G); and '236 patent (Appendix I) (Rule 210.12(c)(1));

7. electronic copies of the technical references cited in the prosecution histories of the '405 patent (Appendix B); '381 patent (Appendix D); '750 patent (Appendix F); '515 patent (Appendix H); and '236 patent (Appendix J) (Rule 210.12(c)(2)); and

8. a letter and certification pursuant to commission Rules 201.6(b) and 210.5(d) requesting confidential treatment of Confidential Exhibits 1, 12-16, 18-22, 40-45, 47, 49-50.

Thank you for your attention to this matter.

Respectfully submitted,

/s/ Stephen R. Smith

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Re: ***In the Matter of Certain Lidar (Light Detection and Ranging) Systems And Components Thereof***

Dear Acting Secretary Hiner:

I am counsel to Complainant Ouster Inc. ("Ouster" or "Complainant"). In accordance with Commission Rules 201.6 and 210.5, Ouster requests confidential treatment of business information contained in Confidential Exhibits 1, 12-16, 18-22, 40-45, 47, 49-50 to the Complaint.

The information for which confidential treatment is sought is proprietary commercial and financial information not otherwise publicly available. Specifically, Confidential exhibit 1 contains proprietary information regarding Complainant's domestic industry, including information relating to the financial performance and commercial operations of Complainant. Confidential exhibits 12-16 and 49-50 contain proprietary information provided to Complainant by a third party regarding Respondents' practice of the Asserted Patents. Confidential exhibits 18-22, 40-45, and 47 contain proprietary information about Complainant's products regarding Complainant's practice of the Asserted Patents, including internal proprietary information and proprietary information provided to Complainant by a third party.

The information described above qualifies as confidential business information pursuant to Rule 201.6(a) in that:

a) it is not available to the public;

b) unauthorized disclosure of such information could cause substantial harm; and

c) the disclosure of which could impair the Commission's ability to obtain information necessary to perform its statutory function.

Respectfully submitted,

/s/ Stephen R. Smith

Stephen R. Smith

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

In the Matter of **CERTAIN LIDAR (LIGHT DETECTION AND RANGING) SYSTEMS AND COMPONENTS THEREOF**	**Investigation No. 337-TA-____**

COMPLAINANT OUSTER INC.'S STATEMENT ON THE PUBLIC INTEREST

Pursuant to 19 C.F.C. § 210.8(b), Complainant Ouster Inc. ("Ouster" or "Complainant") respectfully submits this Statement on the Public Interest, filed concurrently with the Complaint. Issuance of the remedial orders that Ouster seeks against Proposed Respondents Hesai Group, Hesai Technology Co., Ltd., and Hesai Inc. ("Hesai" or "Proposed Respondents") will not have any adverse effect on public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, or United States consumers.

The public interest in protecting intellectual property rights is strong and favors recognition and enforcement of Ouster's presumptively valid Asserted Patents. *Certain Baseband Processor Chips and Chipsets, Transmitter and Receiver (Radio) Chips, Power Control Chips*, Inv. No. 337-TA-543, Comm'n Op. at 136-137 (June 19, 2007) ("*Certain Baseband Processor Chips*"). This is in line with the goal of incentivizing innovators like Ouster to lay open their technology to the public in exchange for the statutory right to exclude others, acknowledging that "[t]he importation of any infringing merchandise derogates from the statutory right, diminishes the value of the intellectual property, and thus indirectly harms the public interest." *Id.* at 65 (internal quotations omitted). As a result, the Commission only extremely rarely denies relief on public interest grounds. *Id.* at 137-138.

Further, the Commission should not direct the Administrative Law Judge ("ALJ") to take

HESAI EX1016, P.4

discovery into the public interest in this Investigation as there are no unique circumstances that adversely affect the health, safety, or welfare of the U.S. consumer. To the contrary, recognition and enforcement of Ouster's intellectual property rights with regard to Proposed Respondents' infringing products would actually promote the public interest for at least reasons discussed below.

I. Explanation of How the Accused Products Potentially Subject to the Requested Remedial Orders Are Used in the United States

The Accused Products in this matter are LiDAR (Light Detection and Ranging) systems and components thereof. These products are typically used in a wide variety of automotive, industrial, smart infrastructure, and robotics applications. The Accused Products include at least Hesai's AT, QT, and XT lines of sensors, as well as related accessories and other components. All of these products are imported into the United States by or for Hesai.

II. Identification of Any Public Health, Safety, or Welfare Concerns Relating to the Requested Remedial Orders

The issuance of an exclusion order and cease-and-desist order against the Proposed Respondents would have no adverse impact upon public health, safety, or welfare. The Accused Products are not of the types that the Commission has previously identified as implicating public health, safety, or welfare and warranting denial of relief – *e.g.*, they are not medical devices, pharmaceuticals, vaccines, or otherwise health related, and they do not implicate any national security interest. Further, Ouster only seeks a limited exclusion order covering the Accused Products using the technology protected by Ouster's U.S. Patent Nos. 11,175,405; 11,178,381; 11,190,750; 11,287,515; and 11,422,236 (collectively, "the Asserted Patents").

III. Identification of Like or Directly Competitive Products That Ouster and Third Parties Make That Could Replace the Accused Products If They Were to be Excluded

LiDAR is an emerging market, and there are competitors, including Ouster, that sell LiDAR systems and components thereof which are readily available and could replace the Accused

Products if they were to be excluded. Given its substantial market share, robust sales record, and ample production capabilities, Ouster is more than equipped to replace the Proposed Respondents as a supplier of the accused LiDAR products. Additionally, other companies such as Luminar produce LiDAR products and components thereof that are directly competitive with the Accused Products. Likewise, suppliers to the automotive industry, such as Valeo, also provide LiDAR products directly to OEMs that compete with the Proposed Respondents' Accused Products. Large companies like Bosch, Huawei, Mobileye, and Sony have also announced internally developed LiDAR systems. Finally, in addition to the Proposed Respondents, Ouster's competitors may include and are not limited to: AEye, Aeva Inc., Cepton Technologies, Innoviz Technologies, Leishen, Livox Technology Company, Luminar Technologies, Pepperl + Fuchs, RoboSense, SICK, and Valeo. Thus, given the availability of competing products and alternative suppliers available to consumers, the public's health and welfare would not be disserved by precluding the Accused Products from entry into the United States.

IV. Indication of Whether Ouster and Third Parties Have the Capacity to Replace the Volume of Products Subject to the Requested Remedial Orders in a Commercially Reasonable Time in the United States

As a leader in the industry, Ouster has the capacity to meet any increased demand for LiDAR products and components thereof. Ouster has the production pipeline available to supply additional products to U.S. consumers. Further, upon information and belief, third parties such as AEye, Aeva Inc., Cepton Technologies, Innoviz Technologies, Leishn, Livox Technology Company, Luminar Technologies, Pepperl + Fuchs, RoboSense, SICK, and Valeo, also offer competing products which may help meet any increased customer demand.

V. Statement of How the Requested Remedial Order Would Impact U.S. Consumers

Ouster and other third-party companies produce and sell LiDAR products and components

thereof which can replace the infringing products sold by the Proposed Respondents. Thus, it is unlikely that consumers would experience any impact from the requested remedial orders. The issuance of an exclusion order and a cease-and-desist order in this Investigation will not adversely impact consumers but will alternatively benefit the public welfare by protecting Ouster's intellectual property. The Commission has recognized a strong public interest in protecting intellectual property rights. *See, e.g., Certain Baseband Processor Chips* at 136-137.

VI. Conclusion

The Accused Products are not necessary to any public health, safety, or welfare need, and an adequate supply of like or directly competitive devices is available through both Ouster and third parties. As such, the strong public interest in protecting Ouster's intellectual property rights outweighs any potential adverse public interest effects from the requested remedial orders.

Dated: April 11, 2023

Respectfully submitted,

By: */s/ Stephen R. Smith*

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UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

In the Matter of **CERTAIN LIDAR (LIGHT DETECTION AND RANGING) SYSTEMS AND COMPONENTS THEREOF**	**Investigation No. 337-TA-____**

COMPLAINT UNDER SECTION 337 OF THE TARIFF ACT OF 1930, AS AMENDED

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3	Certified copy of U.S. Patent No. 11,178,381
4	Certified copy of U.S. Patent No. 11,190,750
5	Certified copy of U.S. Patent No. 11,287,515
6	Certified copy of U.S. Patent No. 11,422,236
7	Certified copy of recorded assignment for U.S. Patent No. 11,175,405
8	Certified copy of recorded assignment for U.S. Patent No. 11,178,381
9	Certified copy of recorded assignment for U.S. Patent No. 11,190,750
10	Certified copy of recorded assignment for U.S. Patent No. 11,287,515
11	Certified copy of recorded assignment for U.S. Patent No. 11,422,236
12	**CONFIDENTIAL** Infringement claim chart for US Patent No. 11,175,405
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21	**CONFIDENTIAL** Domestic Industry claim chart for U.S. Patent No. 11,287,515
22	**CONFIDENTIAL** Domestic Industry claim chart for U.S. Patent No. 11,422,236
23	Hesai Group Prospectus Filed pursuant to Rule 424(b)(4) dated February 8, 2023
24	"China displays land, sea, air combat robots at expo", https://www.globaltimes.cn/page/202107/1227901.shtml
25	"Contact Us", www.hesaitech.com/contact/
26	"Hesai Debuts Fully Solid-State Lidar FT120 at CES 2023," Hesai News Release dated January 9, 2023
27	"Kodial [sic] ROBOTICS and HESAI Technology Announce Partnership [sic] to Integrate HESAI Lidars onto Kodiak Trucks," Hesai Press Release dated March 25, 2021
28	"Announcing Our Partnership with Zoox," Hesai Press Release dated November 1, 2021
29	"Hesai's Partner Ecosystem" (https://www.hesaitech.com/ecosystem/)
30	"Hesai Technology Showcases New Automotive-Grade Hybrid Solid-State Lidar AT128 at CES 2022," Hesai News Release dated January 6, 2022

Exhibit	Description
31	"Hesai Unveils PandarXT, 32-Channel Mid-Range Lidar with Self-Developed, Proprietary Lidar ASICs," Hesai Press Release dated October 15, 2020
32	Hesai AT128E2X User Manual
33	Hesai QT64 User Manual
34	Hesai QT128C2X User Manual
35	Hesai XT16 User Manual
36	Hesai XT32 User Manual
37	Hesai XT32M2X User Manual
38	OS1 Hardware User Manual
39	OS1 Data Sheet
40	**CONFIDENTIAL** TechInsights Teardown
41	**CONFIDENTIAL** 840-104682-A-SensorAssemblyOS1_Ultra_WC
42	**CONFIDENTIAL** 840-103693-D-OS01_Turntable_Ultra
43	**CONFIDENTIAL** 840-103836-B-StatorElctroMechanicalAssembly_Ultra
44	**CONFIDENTIAL** 840-103845-B-MotorRotorAssembly_Ultra
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48	How Multi-Beam Flash Lidar Works. Our team has fielded a lot of questions… | by Angus Pacala | Ouster | Medium (at https://medium.com/ouster/how-multi-beam-flash-lidar-works-silicon-eats-industries-lidar-is-next-d0a385a90c08)
49	**CONFIDENTIAL** PandarQT Teardown
50	**CONFIDENTIAL** PandarXT Teardown
51	Hesai 2020 Prospectus
52	"Hesai and Lumentum Partner on Next-Generation LiDAR Solutions," Hesai Press Release dated January 5, 2022
53	Intellectual Property Security Agreement
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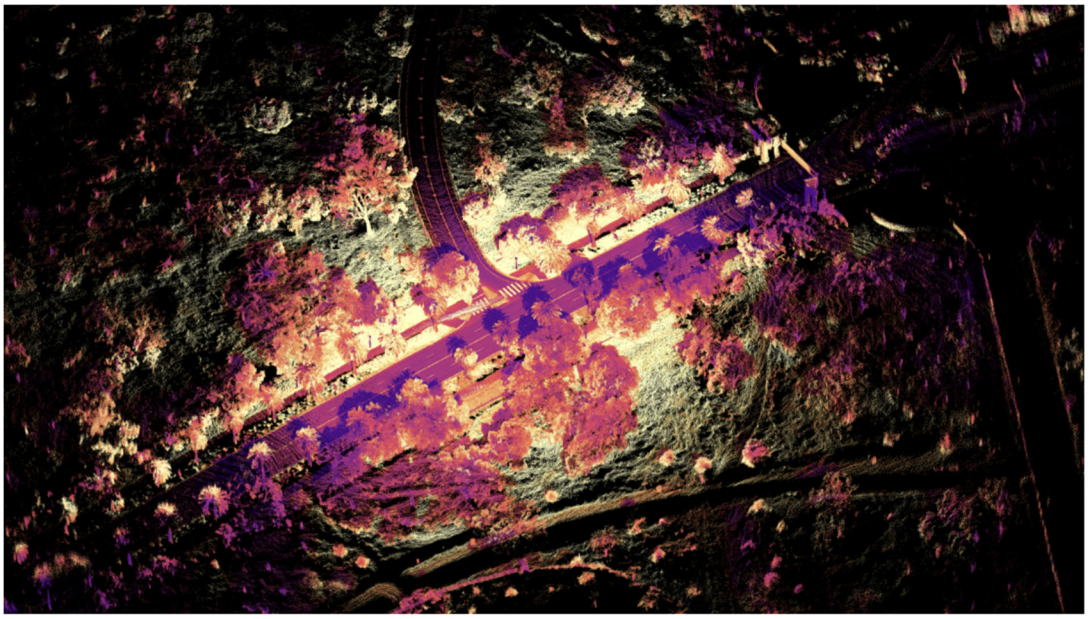
B	Cited References for US Patent No. 11,175,405
C	Certified File History for US Patent No. 11,178,381
D	Cited References for US Patent No. 11,178,381
E	Certified File History for US Patent No. 11,190,750
F	Cited References for US Patent No. 11,190,750
G	Certified File History for US Patent No. 11,287,515
H	Cited References for US Patent No. 11,287,515
I	Certified File History for US Patent No. 11,422,236
J	Cited References for US Patent No. 11,422,236

I. INTRODUCTION

1. Complainant Ouster, Inc. ("Ouster" or "Complainant") files this complaint pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 ("Section 337"). Ouster respectfully requests that the United States International Trade Commission (the "Commission") institute an investigation relating to the unlawful importation, sale for importation, and/or sale after importation into the United States of certain LiDAR (Light Detection and Ranging) systems and/or components thereof (collectively referred to as "the Accused Products") that infringe five valid and enforceable United States patents owned by Ouster, including one or more of the following claims of the Asserted Patents (independents in bold):

Asserted Patent	Claims Asserted Against Respondents
U.S. Patent No. 11,175,405	**PandarQT products**: **21**, 23-25, **26-**34
U.S. Patent No. 11,178,381	**PandarQT products**: **1**-3, 5-8, 10-13, **14**-17 **PandarXT products**: **1**-3, 5, 10-13, **14**-15 **AT128**: **1**-3, 10-13, **14**-15
U.S. Patent No. 11,190,750	**PandarQT products**: **44**-48, 50
U.S. Patent No. 11,287,515	**PandarQT products**: **1**-2, 4-6, 8, 9, 12-**14**, 17, 19-21, **22**-23, 25 **PandarXT products**: **1**-2, 4-6, 8, 9, 12-**14**, 17, 19-21, **22**-23, 25
U.S. Patent No. 11,422,236	**PandarQT products**: **1**, 2, 7-9, **10**-15, **16**-22, **23**-27

2. Ouster is a pioneer and market leader in the digital LiDAR industry providing powerful and cost-effective digital LiDAR remote sensing solutions. Ouster's LiDAR provides real time "camera like" mapping of the external environment flexible enough to serve a wide variety of automotive, industrial, smart infrastructure, and robotics applications. The aerial picture of a traffic intersection set forth below is an example of the types of images produced by Ouster's patented LiDAR sensors, which use a unique and patented combination of laser and receptor technology.



SLAM captured with REV7 OS2 - Palm Drive, Stanford University

3. Formed in San Francisco by two former Stanford engineering students, Ouster set out in an entirely different direction from the then fledgling LiDAR industry. At the time, the LiDAR industry relied on slow, analog sensors that were low resolution, costly, and difficult to manufacture. Ouster's goal was to produce a LiDAR system that would be cost effective, high resolution, and ubiquitous in the industry. After years of research at its San Francisco headquarters, Ouster created a revolutionary LiDAR system that transformed LiDAR from an analog device with thousands of components to an elegant digital device powered by one chip-scale laser array and one CMOS sensor. The result of this system is a full range of high-resolution LiDAR sensors that

create first-of-their-kind "camera like" images at a dramatically lower price and with a simplified manufacturing process.

4. Ouster was able to achieve this remarkable success by leveraging a unique laser-detector combination that the industry viewed as impossible: employing vertical cavity surface emitting lasers (VCSELs) for emitters and single photon avalanche diodes (SPADs) as receptors. After years of development, Ouster was able to solve the complex technical issues of using VCSELs and SPADs utilizing a simplified architecture based on two silicon chips allowing for more emitters and receptors in the product and resulting in a digital sensor with higher resolution. The digital architecture also greatly increased scalability, allowing Ouster to continually take advantage of ongoing advancements in semiconductor processing technology, often referred to as Moore's Law, to deliver cheaper and higher performing products. While analog LiDAR companies undertook engineering efforts to produce next generation products, Ouster's technology transformed the industry by allowing the integration of new chip sets to the same hardware platform resulting in both higher performance and lower costs. The industry has lauded Ouster's innovation with the Consumer Electronic Show recently honoring Ouster with its prestigious Innovation Award three separate years.

5. Ouster's revolutionary LiDAR enables highly precise 3D mapping, localization, navigation, and object detection within a given environment and is applied broadly across the automotive, industrial, robotics and smart infrastructure industries. LiDAR is now a key perception sensor, alongside cameras and radar, for automation and monitoring applications and is quickly replacing traditional cameras and radar in many industries. Not surprisingly, LiDAR in general and particularly Ouster's proprietary technology has become fundamental to many critical U.S. industries.

6. While the technology is rapidly proliferating – and delivering improved safety, productivity and efficiency across the global supply chain, transportation ecosystem and beyond – LiDAR is still an emerging technology in a highly competitive industry, both within the U.S. and abroad. This new industry now faces greatly increased security risks across the globe raising the importance of the enforcement and protection of intellectual property rights as companies such as Hesai seek to gain an unfair advantage by copying the advances of other companies like Ouster.

7. Ouster now employs nearly 200 people in the United States, and in the past two years alone, spent nearly $100 million in research and development. Ouster has also invested heavily in its patent portfolio since its inception to protect its industry leading technology. Ouster's technology is backed by a comprehensive suite of patent protection, which includes U.S. Patent No. 11,175,405, U.S. Patent No. 11,178,381, U.S. Patent No. 11,190,750, U.S. Patent No. 11,287,515, and U.S. Patent No. 11,422,236 (the "Asserted Patents"). As shown in the Declaration of Mark Frichtl, Chief Technology Officer at Ouster, an industry exists in the United States relating to articles protected by the Asserted Patents, as required by Section 337(a)(2) and defined by Section 337(a)(3). *See* Exhibit 1.

8. Now, Ouster and its customers are threatened because the proposed Respondents Hesai Group, Hesai Technology Co., Ltd ("Shanghai Hesai"), and Hesai Inc. (collectively "Hesai" or "Respondents") took Ouster's revolutionary patented technologies and incorporated them into Hesai's competing products. Unfortunately, Hesai has a history of taking American companies' technology, having been the subject of a recent ITC case brought by Velodyne Lidar in 2019 based on Hesai's copying of Velodyne's analog patented technology that resulted in a settlement for Velodyne. When the market then followed Ouster's lead toward digital LiDAR, Hesai has taken and continues to incorporate Ouster's technology into their products, barely skipping a beat. Hesai

now uses and highlights its unique use of VCSELs and SPADs ("SiPM, a receiver combining signals from multiple single photon avalanche diodes, or SPADs"), the very technology Ouster pioneered:

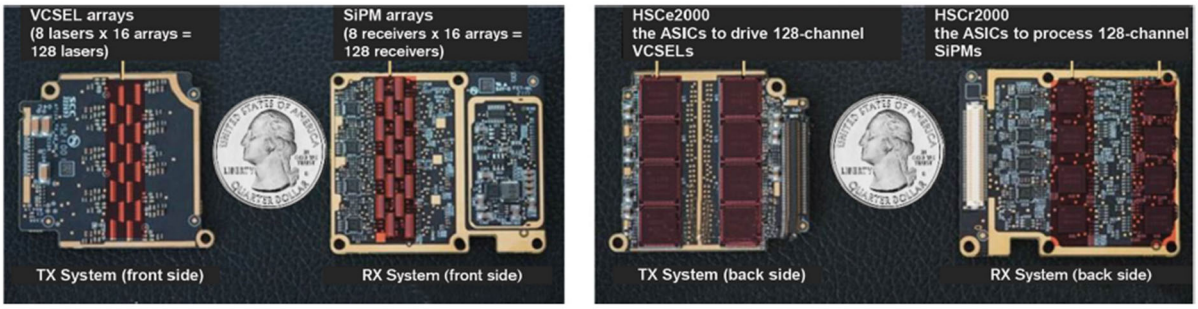
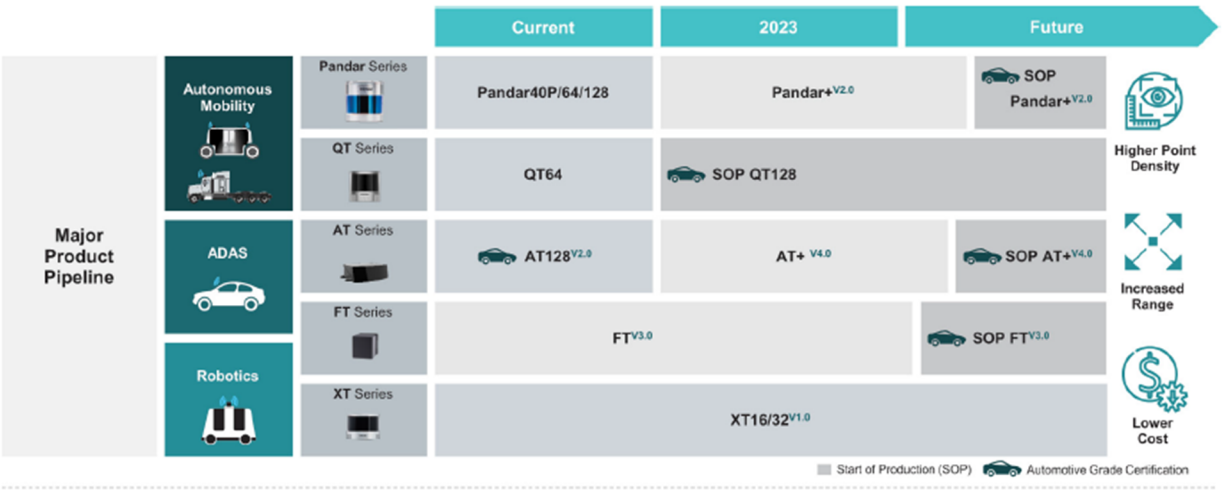
> Our current TX/RX system integrates laser emitters, receivers, and ASICs. The TX includes dense vertical cavity surface emitting lasers (VCSEL) arrays as emitters and ASICs that drive these laser emitters. The RX includes silicon photomultiplier (SiPM, a receiver combining signals from multiple single photon avalanche diodes, or SPADs) arrays and ASICs that perform as the switch and processor for all the laser receivers. The picture below shows our TX/RX system with laser emitters, receivers, and ASICs on our 128-channel LiDAR.
>
> Hesai's 128-channel TX/RX System
>
> 
>

Exhibit 23 at 124. Hesai states that this TX/RX system is the foundation for their LiDAR products. *Id.*

9. In recent filings with the SEC, Hesai noted that it was a Cayman Island company with most of its operations in China. Hesai not only provides its products to commercial customers but, on information and belief, also provides products to the Chinese military. *See* Ex. 24 (https://www.globaltimes.cn/page/202107/1227901.shtml). Hesai also seems to boast that it is judgment proof because "mainland China does not have treaties providing for the reciprocal recognition and enforcement of judgments of courts with the Cayman Islands and many other countries and regions" so that "mainland China laws may render you unable to enforce a judgment against our assets or the assets of our directors and officers." Exhibit 23 at 57.

10. Complainant brings this action to remedy Hesai's violations of Section 337 arising from the unlawful and unauthorized importation into the United States, the sale for importation,

and the sale within the United States after importation of LiDAR (Light Detection and Ranging) systems and/or components thereof, that infringe the Asserted Patents, by or for proposed Respondents Hesai Group, Hesai Technology Co., Ltd ("Shanghai Hesai"), and Hesai Inc. Respondents have engaged in unlawful activities in violation of Section 337(a)(1)(B)(i) through and in connection with the unfair importation into the United States, the sale for importation, and/or the sale within the United States after importation of LiDAR (Light Detection and Ranging) systems and/or components thereof, that infringe one or more of the claims of the Asserted Patents. The "Accused Products" include, but are not limited to: rotational products such as the Hesai PandarQT (including the various 64- and 128-channel models—collectively, the "PandarQT products") and PandarXT (including the various 16- and 32-channel models—collectively, the "PandarXT products"), as well as non-rotational (or "directional" LiDAR) products such as the AT128. Hesai describes its product pipeline as:



Hesai describes its "flagship" models as follows:

	Pandar128	QT128	XT32	AT128	FT120[1]
Application	Autonomous Mobility – long-range detection	Autonomous Mobility – blind-spot detection	Robotics	ADAS	ADAS – blind spot detection
Operating principle	Time of Flight (ToF)	ToF	ToF	ToF	ToF
Scanning method (vertical)	Electronic scanning	Electronic scanning	Electronic scanning	Electronic scanning	Electronic scanning
Scanning method (horizontal)	Mechanical rotation	Mechanical rotation	Mechanical rotation	Scanning mirror	Electronic scanning
Channel	128	128	32	128	120
Range	up to 200 m at 10% reflectivity[2]	up to 20 m at 10% reflectivity	up to 80 m at 10% reflectivity	up to 200 m at 10% reflectivity	up to 30 m at 10% reflectivity
Data points generated (single return)	3,456,000 points/second	864,000 points/second	640,000 points/second	1,536,000 points/second	192,000 points/second
FOV (vertical)	40°	105.2°	31°	25.4°	75°
FOV (horizontal)	360°	360°	360°	120°	100°
Resolution (vertical)	0.125° finest	0.4° finest	1°	0.2°	0.625°
Resolution (horizontal)	0.1° finest (10 Hz frame rate)	0.4° finest (10 Hz frame rate)	0.18° (10 Hz frame rate)	0.1° (10 Hz frame rate)	0.625°
Interference rejection	Yes	Yes	Yes	Yes	Yes
Power consumption	27 W	10 W	10 W	18 W	<12 W

Exhibit 23 at 116, 121, 126.

11. To remedy Respondents' continuing and unlawful violation of Section 337, Ouster seeks as permanent relief a limited exclusion order pursuant to Section 337(d) barring from entry into the United States Respondents' infringing LiDAR (Light Detection and Ranging) systems and/or components thereof, that are manufactured abroad, sold for importation, imported, and/or sold in the United States after importation by or on behalf of Respondents. Ouster also seeks a cease and desist order pursuant to Section 337(f) prohibiting Respondents, their subsidiaries, related companies and/or agents from selling for importation, importing, marketing or selling, advertising, offering for sale, offering sales or technical support related to, or using LiDAR (Light Detection and Ranging) systems and/or components thereof, that infringe or induce infringement of one or more claims of the Asserted Patents.

II. COMPLAINANT

12. Complainant Ouster, Inc. is a publicly-traded corporation[1] organized and existing

[1] In March 2021, Ouster completed a merger with Colonnade Acquisition (a SPAC, or special-purpose acquisition company) and became publicly traded on the New York Stock Exchange under

under the laws of Delaware with its principal place of business at 350 Treat Ave, San Francisco, California 94110. Ouster, Inc. is the owner of the Asserted Patents.

13. Ouster was founded in California in 2015 by Stanford University classmates Angus Pacala and Mark Frichtl. Since that time, Ouster has grown to over 200 employees in the United States. In November 2022, Ouster and Velodyne Lidar agreed to a merger of equals. The merger completed in February 2023, with the combined company retaining the Ouster name.[2]

14. Ouster is a leading provider of high-resolution digital LiDAR sensors and enabling software that gives robots, machinery, vehicles and fixed infrastructure advanced 3D vision allowing them to safely interact with the physical world. Ouster's LiDAR products are among the most capable and affordable sensors on the market. Ouster's LiDAR products have many uses including infrastructure monitoring, intelligent urban planning, and providing the detailed mapping needed for autonomous cars and machines.

III. PROPOSED RESPONDENTS

15. As further detailed below, Respondents design, develop, integrate, manufacture, have manufactured, import into the United States, sell for importation, and/or sell and distributes within the United States after importation LiDAR (Light Detection and Ranging) systems and/or components thereof that infringe, directly or indirectly, one or more claims of the Asserted Patents. In addition, Respondents use, and knowingly direct and/or induce others, and specifically intend for those others, to use the Accused Products in a manner that infringes the Asserted Patents. Respondents are not licensed to any Asserted Patent.

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ticker symbol OUST. In February 2023, Ouster completed a merger with Velodyne Lidar.

[2] Prior to the merger, Velodyne Lidar designed, manufactured and sold certain LiDAR products and had its own patent portfolio. One or more of the Respondents have a license to practice certain of those Velodyne patents. However, neither the Velodyne products (including investments in those products) nor the Velodyne Patents are, or will be, at issue in this investigation.

16. On information and belief, Proposed Respondent Hesai Group is a corporation organized and existing under the laws of the Cayman Islands. Hesai Group's registered office in the Cayman Islands is located at the offices of Maples Corporate Services Limited, PO Box 309, Ugland House, Grand Cayman, KY1-1104, Cayman Islands. Ex. 23 at 12. Hesai Group's agent for service of process in the United States is Cogency Global Inc., located at 122 East 42nd Street, 18th Floor, New York, NY 10168. *Id.* On information and belief, Hesai Group was formed to facilitate offshore financing and is the ultimate parent organization of the Respondents. *See,* Ex. 23 at 5-6.

17. On information and belief, Proposed Respondent Hesai Technology Co., Ltd. (aka "Shanghai Hesai") is a subsidiary of Proposed Respondent Hesai Group and is a corporation organized and existing under the laws of the People's Republic of China. Ex. 23 at 5-6. Shanghai Hesai has its principal place of business at 9th Floor, Building L2-B, 1588 Zhuguang Road, Qingpu District, Shanghai 201702, People's Republic of China. *Id.*

18. On information and belief, Proposed Respondent Hesai Inc. is a subsidiary of Proposed Respondent Shanghai Hesai and is a corporation organized and existing under the laws of California. Ex. 23 at 5-6. Hesai Inc. is located at 3500 W. Bayshore Rd., Palo Alto, CA 94303. Ex. 25. Hesai Inc. serves as the primary sales platform in the U.S. for the Hesai Group. Ex. 23 at 5.

IV. THE TECHNOLOGY AND PRODUCTS AT ISSUE

19. The technology at issue is digital LiDAR ("Light Detection and Ranging") devices, components thereof, and systems containing the same, which utilize LiDAR technology which remotely senses the external environment. Ouster's LiDAR provides real time "camera like" mapping of the external environment flexible enough to serve a wide variety of automotive, industrial, smart infrastructure, and robotics applications.

20. Section VII, *infra*, identifies specific exemplary instances of unlawful importation, sale for importation, and sale of the Accused Products. Additional infringing products subject to the relief requested may be discovered as part of this Investigation, if instituted.[3]

V. THE ASSERTED PATENTS AND NON-TECHNICAL DESCRIPTION OF THE INVENTIONS

21. Five patents are asserted in this Complaint, the '405 patent, '381 patent, '750 patent, '515 patent, and '236 patent. Certified copies of the '405 patent, '381 patent, '750 patent, '515 patent, and '236 patent are attached to this Complaint as Exhibits 2 through 6.

A. U.S. Patent Number 11,175,405

1. Identification and Ownership of the Asserted '405 Patent

22. The '405 patent, entitled "Spinning Lidar Unit with Micro-Optics Aligned Behind Stationary Window," was filed on May 14, 2018. The '405 patent issued on November 16, 2021, naming as inventors Angus Pacala, Mark Frichtl, and Marvin Shu. Before filing the application that led to the '405 patent, Ouster filed U.S. Provisional Patent Application No. 62/506,449 on May 15, 2017, U.S. Provisional Patent Application No. 62/506,437 on May 15, 2017, U.S. Provisional Patent Application No. 62/506,445 on May 15, 2017, and U.S. Provisional Patent Application No. 62/515,291 on June 5, 2017.

23. The '405 patent expires on January 16, 2040.

24. The '405 patent has five independent claims (claims 1, 8, 12, 21, 26) and twenty-nine dependent claims. Ouster asserts claims 21 and 26 and dependent claims 23-25 and 27-34 as to the PandarQT products in this Complaint.

25. Ouster owns by assignment the entire right, title, and interest in and to the '405

[3] For example, Hesai's FT-120 is imported into the United States. *See* Ex. 26. On information and belief, Ouster expects to demonstrate infringement of the '381 patent and other asserted patents by the FT-120 through discovery.

patent. *See* Ex. 7. U.S. Patent and Trademark Office certified copies of the recorded assignments for the ’405 patent are attached to this Complaint as Exhibit 7. Documentation concerning a recorded security interest is attached as Exhibits 53-54. The security interest does not impact Ouster’s rights to enforce the ‘405 patent.

26. Pursuant to Commission Rule 210.12, a certified copy and three additional copies of the prosecution history of the ‘405 Patent are submitted herewith as Appendix A. Four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history of the ‘405 Patent, are submitted herewith as Appendix B.

2. Non-Technical Description of the Asserted ‘405 Patent[4]

27. The ‘405 patent is generally directed to improvements in imagers for uses including LiDAR. It can be advantageous for such imagers to narrowly filter wavelength bands with a wide field-of-view—but these features can be mutually exclusive in imagers. For example, restricting the angle of light incident upon a photodetector can facilitate optical filtering—since filters are sensitive to the angle of incident light—but constricting the angle of incident light often involves a lens with a longer focal length, which leads to a smaller field of view.

28. The ’405 patent claims rotating light ranging systems containing a transmission module that includes a bulk imaging optic and a plurality of emitters that generate radiation pulses and a sensing module that includes a bulk receiver optic, an aperture layer, a plurality of single photon avalanche diodes (SPADs), and optical filtering architecture for blocking radiation outside of certain wavelengths. The claimed light ranging system designs facilitate 360-degree narrowband imaging advantageous for applications including LiDAR.

[4] The non-technical descriptions of the inventions claimed in the Asserted Patents set forth in this Complaint are not intended to construe either the specification or the claims.

B. U.S. Patent Number 11,178,381

1. Identification and Ownership of the Asserted '381 Patent

29. The '381 patent, entitled "Optical System for Collecting Distance Information Within a Field," was filed on May 18, 2021. The '381 patent issued on November 16, 2021, naming as inventors Angus Pacala and Mark Frichtl. Before filing the application that led to the '381 patent, Ouster filed U.S. Patent Application Ser. No. 15/880,491 on Jan. 25, 2018, which is a continuation of U.S. Patent Application Ser. No. 15/276,532, filed Sep. 26, 2016, now U.S. Pat. No. 9,992,477, issued Jun. 5, 2018; which claims the benefit of U.S. Provisional Patent Application No. 62/232,222 filed Sep. 24, 2015. The '381 patent is also related to U.S. Patent Application Ser. No. 17/317,809, filed on May 11, 2021; U.S. Patent Application Ser. No. 16/584,515 filed on Sep. 26, 2019; U.S. Patent Application Ser. No. 16/046,643, filed on Jul. 26, 2018; and U.S. Patent Application Ser. No. 15/861,330, filed on Jan. 3, 2018.

30. The '381 patent expires on September 26, 2036.

31. The '381 patent has three independent claims (claims 1, 14, 20) and twenty-two dependent claims. Ouster asserts claims 1 and 14 as to the PandarQT, PandarXT, and AT128 and dependent claims 2, 3, 5-8, 10-13, and 15-17 as to the PandarQT products; dependent claims 2, 3, 5, 10-13, and 15 as to the PandarXT products; and dependent claims 2, 3, 10-13, and 15 as to the AT128 in this Complaint.

32. Ouster owns by assignment the entire right, title, and interest in and to the '381 patent. See Ex. 8. U.S. Patent and Trademark Office certified copies of the recorded assignments for the '381 patent are attached to this Complaint as Exhibit 8. Documentation concerning a recorded security interest is attached as Exhibits 53-54. The security interest does not impact Ouster's rights to enforce the '381 patent.

33. Pursuant to Commission Rule 210.12, a certified copy and three additional copies of the prosecution history of the '381 Patent are submitted herewith as Appendix C. Four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history of the '381 Patent, are submitted herewith as Appendix D.

2. Non-Technical Description of the Asserted '381 Patent

34. The '381 patent is generally directed to the emitter and receiver architecture of imaging systems, which can be either rotating or solid state. The '381 claims imagers that include emitter architecture including a bulk transmitting optic and an array of emitters; receiver architecture including a bulk imaging optic and emitter-paired pixels comprised of a plurality of SPADs; and optical filter architecture for blocking all but certain wavelengths of light.

35. The systems claimed by the '381 patent represent improvements over prior imagers. For example, the claimed systems minimize wasted power output by ensuring that substantially all light emitted by a given emitter is sensed by a corresponding pixel. Further, the claimed systems minimize the signal-to-noise ratio for the receiving pixels, due to the bulk optics and optical filtering.

C. U.S. Patent Number 11,190,750

1. Identification and Ownership of the Asserted '750 Patent

36. The '750 patent, entitled "Optical Imaging System with a Plurality of Sense Channels," was filed on July 26, 2018. The '750 patent issued on November 30, 2021, naming as inventors Angus Pacala and Mark Frichtl. Before filing the application that led to the '750 patent, Ouster filed U.S. Patent Application Ser. No. 15/880,491 on Jan. 25, 2018, now U.S. Pat. No. 11,025,885, which is a continuation of U.S. Patent Application Ser. No. 15/276,532, filed Sep. 26, 2016, now U.S. Pat. No. 9,992,477, issued Jun. 5, 2018; which claims the benefit of U.S.

Provisional Patent Application No. 62/232,222 filed Sep. 24, 2015.

37. The ’750 patent expires on February 25, 2038.

38. The ’750 patent has six independent claims (claims 1, 13, 17, 27, 35, 44) and forty-four dependent claims. Ouster asserts claim 44 and dependent claims 45-48 and 50 as to the PandarQT in this Complaint.

39. Ouster owns by assignment the entire right, title, and interest in and to the ’750 patent. See Ex. 9. U.S. Patent and Trademark Office certified copies of the recorded assignments for the ’750 patent are attached to this Complaint as Exhibit 9. Documentation concerning a recorded security interest is attached as Exhibits 53-54. The security interest does not impact Ouster’s rights to enforce the ‘750 patent.

40. Pursuant to Commission Rule 210.12, a certified copy and three additional copies of the prosecution history of the ‘750 Patent are submitted herewith as Appendix E. Four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history of the ‘750 Patent, are submitted herewith as Appendix F.

2. Non-Technical Description of the Asserted ‘750 Patent

41. The ’750 patent is generally directed to imagers consisting of bulk optics, pixels comprised of single photon avalanche diodes (SPADs), apertures, and emitters paired with the pixels. The claimed systems facilitate improvements in signal-to-noise ratio, power efficiency, and cross talk between channels in imaging.

D. U.S. Patent Number 11,287,515

1. Identification and Ownership of the Asserted ‘515 Patent

42. The ’515 patent, entitled “Rotating Compact Light Ranging System Comprising a Stator Driver Circuit Imparting an Electromagnetic Force on a Rotor Assembly,” was filed on May

18, 2021. The ’515 patent issued on March 29, 2022, naming as inventors Angus Pacala, Mark Frichtl, Marvin Shu, and Eric Younge. Before filing the application that led to the ’515 patent, Ouster filed U.S. Patent Application No. 16/209,875 on December 4, 2018.

43. The ’515 patent expires on December 4, 2038.

44. The ’515 patent has five independent claims (claims 1, 14, and 22) and twenty-two dependent claims. Ouster asserts claims 1, 14, and 22 and dependent claims 2, 4-6, 8, 9, 12, 13, 17, 19-21, 23, and 25 as to the PandarQT and PandarXT products in this Complaint.

45. Ouster owns by assignment the entire right, title, and interest in and to the ’515 patent. See Ex. 10. U.S. Patent and Trademark Office certified copies of the recorded assignments for the ’515 patent are attached to this Complaint as Exhibit 10. Documentation concerning a recorded security interest is attached as Exhibits 53-54. The security interest does not impact Ouster’s rights to enforce the ‘515 patent.

46. Pursuant to Commission Rule 210.12, a certified copy and three additional copies of the prosecution history of the ‘515 Patent are submitted herewith as Appendix G. Four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history of the ‘515 Patent, are submitted herewith as Appendix H.

2. Non-Technical Description of the Asserted ‘515 Patent

47. The ’515 patent is generally directed to improved rotating imager systems for applications including LiDAR. Some rotating LiDAR systems have their emitter and detector architecture mounted to separate circuit boards, which can require precision alignment techniques during assembly to align each emitter board and each receiver board separately. Such systems have a low degree of system integration and reliability, and they require substantial upkeep costs and are difficult to scale for higher resolution.

48. The ’515 patent claims rotating imager systems in which the rotor and stator elements are integrated into the circuit boards themselves, leading to a lower cost and more reliable rotating imager that can be used for LiDAR applications.

E. U.S. Patent Number 11,422,236

1. Identification and Ownership of the Asserted ‘236 Patent

49. The ’236 patent, entitled “Optical System for Collecting Distance Information Within a Field,” was filed on December 15, 2021. The ’236 patent issued on August 23, 2022, naming as inventors Angus Pacala, Mark Frichtl, Marvin Shu, and Eric Younge. Before filing the application that led to the ’236 patent, Ouster filed U.S. Patent Application Ser. No. 17/194,068 filed, Mar. 5, 2021, which is a continuation of U.S. Patent Application Ser. No. 15/685,384, filed Aug. 24, 2017, now U.S. Pat. No. 10,948,572, which claims the benefit and priority to U.S. Provisional Application 62/379,130, filed on Aug. 24, 2016.

50. The ’236 patent expires on August 24, 2037.

51. The ’236 patent has four independent claims (claims 1, 10, 16, and 23) and twenty-three dependent claims. Ouster asserts claims 1, 10, 16, and 23 and dependent claims 2, 7-9, 11-15, 17-22, and 24-27 as to the PandarQT products in this Complaint.

52. Ouster owns by assignment the entire right, title, and interest in and to the ’236 patent. See Ex. 11. U.S. Patent and Trademark Office certified copies of the recorded assignments for the ’236 patent are attached to this Complaint as Exhibit 11.

53. Pursuant to Commission Rule 210.12, a certified copy and three additional copies of the prosecution history of the ‘236 Patent are submitted herewith as Appendix I. Four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history of the ‘236 Patent, are submitted herewith as Appendix J.

2. Non-Technical Description of the Asserted '236 Patent

54. The '236 patent is generally directed to rotating imagers for collecting distance information, which include a transmit module, a receive module made of pixels comprising single photon avalanche diodes (SPADs), and 360-degree actuator or rotator for scanning the environment. The '236 patent recites systems with multiple horizontally and vertically offset columns of pixels, which can have various advantages over imagers with a single column of pixels—including higher dynamic range, spatial selectivity, and resolution.

F. Foreign Counterparts to the Asserted Patents

55. Exhibit 17 lists each foreign patent and each pending foreign patent application (not already issued as a patent), and each foreign patent application that has been denied, abandoned or withdrawn, containing a disclosure corresponding to the Asserted Patents, with an indication of the prosecution status of each such patent application. No other foreign patents or patent applications corresponding to the Asserted Patents have been filed, abandoned, withdrawn, or rejected.

G. Licenses to the Asserted Patents

56. There are no third-party licensees to the Asserted Patents.

VI. RESPONDENTS' INFRINGEMENT OF THE ASSERTED PATENTS

57. On information and belief, Respondents import into the United States, sell for importation, or sell within the United States after importation LiDAR systems and components thereof, that infringe the Asserted Patents either literally or under the doctrine of equivalents.

58. In particular, the Accused Products include Hesai's PandarXT, Pandar QT, AT128, and other LiDAR systems.[5] On information and belief, the Accused Products are manufactured (in

[5] The Accused Products identified in this Complaint are merely illustrative of the infringing products that Respondents import into the United States, sell for importation into the United

whole or in substantial part) by Hesai in China. Ex. 23 at 3 ("Hesai Technology has strategically built its current manufacturing facility, which covers approximately 270,000 square feet and is certified under IATF 16949 and ISO 9001, in Jiading, Shanghai, the hub for automotive OEMs in China. This manufacturing facility, together with a transitional production line, supports an annual production capacity of 35,000 units for the non-AT series…"); 33 ("Although our existing manufacturing capacity is sufficient for our current and near-term demand, we plan to construct a new manufacturing facility in Jiading, Shanghai to prepare for further production rampup of our existing and future LiDAR products. The new facility is expected to commence manufacturing in 2023.")

59. Respondents' LiDAR systems and components thereof, including the Accused Products, are offered for sale and sold to other companies in the United States for use in products ranging from autonomous driving, logistics, robotics, and industrial applications. Respondents describe specific partnerships with U.S. companies including autonomous driving companies like Kodiak Robotics and Zoox, as well as a number of U.S. Distributors. *See* Exs. 27, 28, 29; *see infra*.

60. On information and belief, the Accused Products directly infringe, either literally or under the doctrine of equivalents, at least independent claim 21 and dependent claims 23-24 of the '405 patent.

61. A chart that applies independent claim 26 of the '405 patent to an exemplary Accused Product is attached to the Complaint as Confidential Exhibit 12.

62. On information and belief, the Accused Products directly infringe, either literally

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States and/or sell after importation into the United States in violation of Section 337. Discovery may reveal additional Accused Products. In addition, the product names "PandarXT" and "PandarQT" also refer to the newer marketing names of "XT" and "QT", respectively.

or under the doctrine of equivalents, at least independent claims 1 and 14 and dependent claims 2-3, 5-8, 10-13, 15-17 of the ’381 patent.

63. Charts that apply independent claim 14 of the ’381 patent to three exemplary Accused Products are attached to the Complaint as Confidential Exhibits 13a-13c.

64. On information and belief, the Accused Products directly infringe, either literally or under the doctrine of equivalents, at least independent claim 44 and dependent claims 45-48 and 50 of the ’750 patent.

65. A chart that applies independent claim 44 of the ’750 patent to an exemplary Accused Product is attached to the Complaint as Confidential Exhibit 14.

66. On information and belief, the Accused Products directly infringe, either literally or under the doctrine of equivalents, at least independent claims 1, 14, 22 and dependent claims 2, 4-6, 8, 9, 12-13, 17, 19-21, 23, 25 of the ’515 patent.

67. Charts that apply independent claim 14 of the ’515 patent to two exemplary Accused Products are attached to the Complaint as Confidential Exhibits 15a-15b.

68. On information and belief, the Accused Products directly infringe, either literally or under the doctrine of equivalents, at least independent claims 1, 10, 16, 23 and dependent claims 2, 7-9, 11-15, 17-22, 24-27 of the ’236 patent.

69. A chart that applies independent claim 1 of the ’236 patent to an exemplary Accused Product is attached to the Complaint as Confidential Exhibit 16.

70. Respondents infringe the Asserted Patents both directly, literally or under the doctrine of equivalents, and indirectly. Respondents directly infringe the Asserted Patents by making, using, offering to sell, or selling the Accused Products in the United States and by importing the Accused Products into the United States in violation of 35 U.S.C. § 271(a).

71. On information and belief, Respondents also actively, knowingly, and intentionally induce infringement of the Asserted Patents under 35 U.S.C. § 271(b) by actively encouraging others to make, use, offer to sell, sell, and/or import the Accused Products in the United States. On information and belief, Hesai had actual knowledge of the Asserted Patents long before the filing of this Complaint, and at least as early as Hesai's initial product release. For example, Ouster's patent U.S. Patent No. 10,222,475—which belongs to the same family as the '405 patent asserted in this Complaint—is cited on the face of U.S. Patent No. 11,346,952, which is a Hesai patent filed on February 28, 2020. Respondents also had actual knowledge of the Asserted Patents at least as of the date when Ouster filed a Complaint asserting the Asserted Patents against Hesai in the United States District Court for the District of Delaware and when Ouster filed and served the Complaint in this Investigation. And Respondents actively promote the sale, use, and importation of Hesai's infringing LiDAR devices in marketing materials, technical specifications, data sheets, web pages on their websites, press releases, and user manuals, as well as at trade shows and through their sales and distribution channels that encourage infringing sales, offers to sell, and importation of the Accused Products. *See, e.g.*, Exs. 26-37. By these actions, Respondents have had the specific intent to induce, or were willfully blind to inducing infringement of the Asserted Patents.

72. On information and belief, Respondents also contribute to infringement of the Asserted Patents by others, including purchasers who deploy the Accused Products with their products, by providing the Accused Products, which are specially made or adapted for use in an infringement of these claims and are not staple articles of commerce suitable for substantial noninfringing use. As discussed above, Respondents have had actual knowledge of the Asserted Patents.

VII. RESPONDENTS' SPECIFIC INSTANCES OF UNFAIR IMPORTATION AND SALE

73. The Accused Products are imported into the United States, sold for importation into the United States, and/or sold within the United States after importation by Respondents and/or through various other channels and distributors. The specific evidence set forth below is representative of Respondents' unlawful importation, sale for importation, and/or sales within the United States after importation of infringing products. This evidence is not intended to limit the scope of the investigation. Discovery will reveal additional specific instances of unfair importation and sale by Respondent.

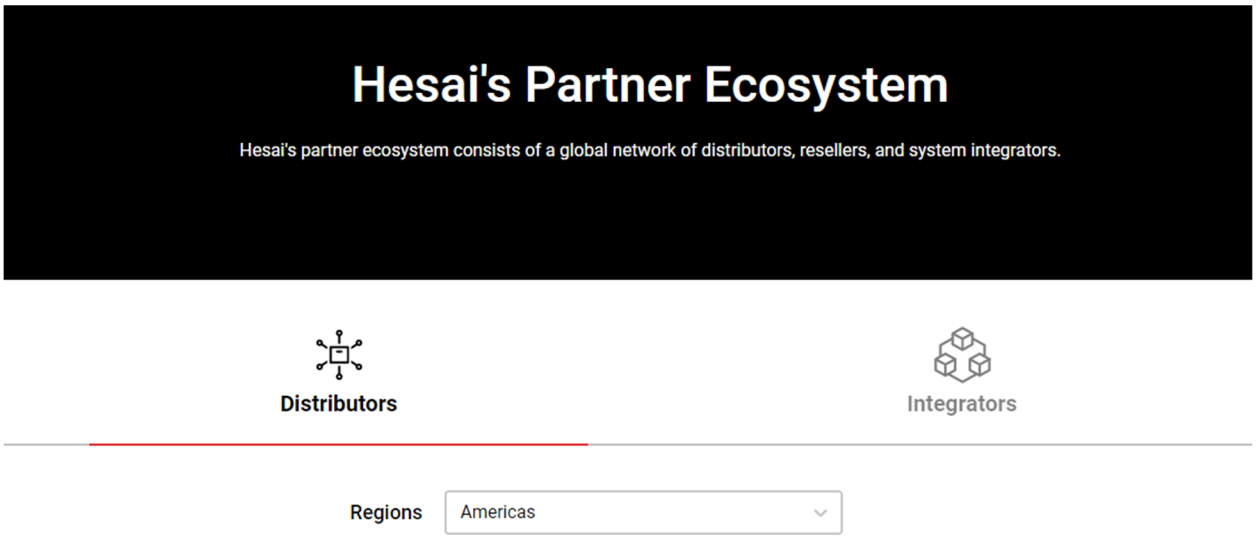
74. Hesai's LiDAR devices, including its Pandar XT, Pandar QT, and AT devices, are manufactured (in whole or in substantial part) at Hesai's facilities in China. Ex. 23 at 3 ("Hesai Technology has strategically built its current manufacturing facility, which covers approximately 270,000 square feet and is certified under IATF 16949 and ISO 9001, in Jiading, Shanghai, the hub for automotive OEMs in China. This manufacturing facility, together with a transitional production line, supports an annual production capacity of 35,000 units for the non-AT series…"); 33 ("Although our existing manufacturing capacity is sufficient for our current and near-term demand, we plan to construct a new manufacturing facility in Jiading, Shanghai to prepare for further production rampup of our existing and future LiDAR products. The new facility is expected to commence manufacturing in 2023.").

75. Hesai claims that its top five customers in terms of revenues in 2020 for LiDAR solutions in the Autonomous Mobility industry include, among others, a "leading global OEM headquartered in the United States … and a leading mobility service and technology company headquartered in the United States," that its top five customers in terms of revenues in 2021

included "a leading global OEM headquartered in the United States," and its top five customers in terms of revenues in the nine months ended September 30, 2022 included "a leading global OEM headquartered in the United States … and an autonomous vehicle company headquartered in the United States." Ex. 23 at 3. Hesai further claims:

- "In 2019, 2020, 2021 and the nine months ended September 30, 2021 and 2022, one customer, a leading global OEM headquartered in the United States, accounted for 23.6%, 10.4%, 17.5%, 10.7% and 10.1% of our revenue, respectively. We directly receive purchase orders from this customer. … In addition, a leading autonomous driving company with fleets and operations in both the United States and China accounted for 12.7% and 10.7% of our revenue in 2021 and the nine months ended September 30, 2022, respectively, … ." Ex. 23 at 39.

76. U.S. customers mentioned by Hesai include companies such as AutoX and TuSimple. Ex. 23 at 113. Hesai also lists several U.S. based distributors and integrators as part of its "partner ecosystem" at https://www.hesaitech.com/ecosystem/:



Ex. 29.

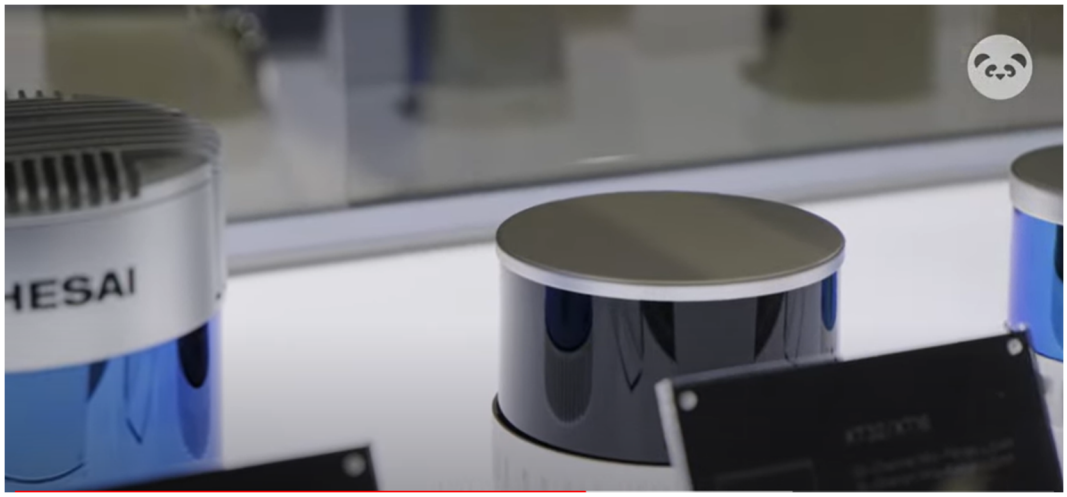
77. In view of Hesai's disclosure of its activities with U.S. customers, these

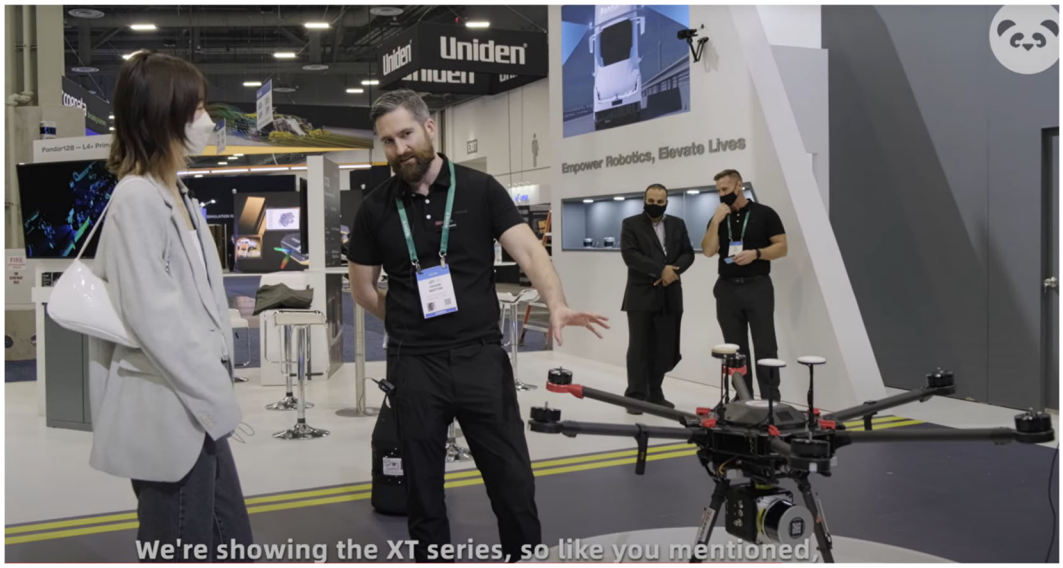
relationships must involve importation into the U.S. of the accused sensors from its purported manufacturing facility in China.

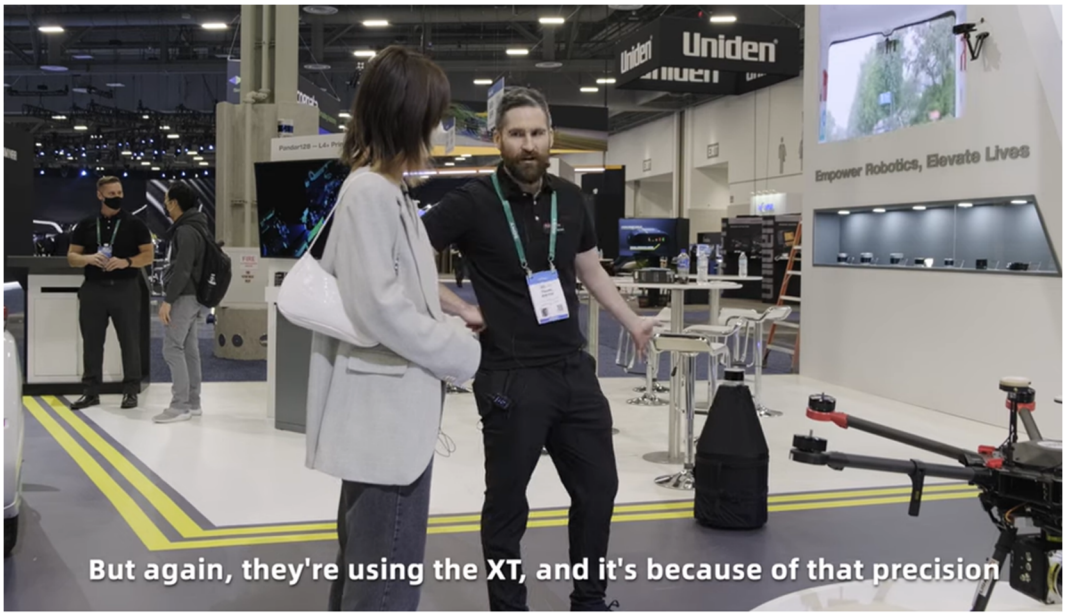
78. These reported activities therefore constitute acts of importation, sales (including sales for importation and/or sales after importation), and/or imminent acts of importation.

79. Hesai has also displayed its sensors at trade shows in the United States. *See* Exs. 26, 30. For example, at CES 2022 in Las Vegas in January 2022, Hesai displayed several of its products, including the QT64 and XT, as well as an operational robot with the XT:[6]

[6] https://www.youtube.com/watch?v=leUFmc_GxoQ at 5:15, 6:48 ("The Beginning of Mass-Producible LiDAR: An Interview with Hesai Technology CEO at CES 2022")


HESAI


Uniden
Empower Robotics, Elevate Lives
We're showing the XT series, so like you mentioned,


Uniden
Empower Robotics, Elevate Lives
But again, they're using the XT, and it's because of that precision

80. At CES 2023 in Las Vegas in January 2023, Hesai again displayed its products, including the AT128, along with a live demonstration, and QT128, as shown in these snapshots from a video published by Hesai from CES 2023.[7] On information and belief, and as shown in Exs. 12, 13a, 14, 15a, and 16, the QT128 and QT64 operate in the same manner for all relevant purposes:

[7] https://www.youtube.com/watch?v=zChsvjMIZTk ("Tour with Hesai to Explore CES 2023").

Here is a live demonstration of AT128, Hesai's latest long-range lidar sensor

HESAI
WeRide
and at the rear of this car is the QT128

81. Hesai also highlighted certain of its partners at CES in Las Vegas, including San Francisco-based ZOOX which Hesai describes as one of its leading autonomous vehicle companies. As shown in this screenshot from the video published by Hesai, ZOOX showcased Hesai's sensor suite at CES:[8]

[8] *See also* Ex. 28 (https://www.hesaitech.com/announcing-our-partnership-with-zoox/).

82. In view of the data concerning foreign manufacture, as well as Hesai's U.S. customer activities, for past and future delivery, above, it is highly likely that one or more of the sensors displayed at CES 2023 in Las Vegas was imported from Hesai's Chinese facility.

83. On information and belief, Respondents' sensor importations occur via air freight. As such, the customs and importation records are not publicly available. *Panjiva, Inc. v. U.S. Customs and Border Protection*, 975 F.3d 171, 182 (2d Cir. 2020).

VIII. CLASSIFICATION OF THE INFRINGING PRODUCTS UNDER THE HARMONIZED TARIFF SCHEDULE

84. Upon information and belief, the infringing Accused Products may be classified under at least the following heading and subheading of the Harmonized Tariff Schedule of the United States ("HTSUS"): 8526.10.00, 8526.91.00, 8529.90.13, 8529.90.16, 8529.90.19, 8529.90.21, 8534.00.00, 8541.49.95, 8543.90.88, 9002.19.00, 9002.20.80, 9013.10.30, 9013.80.91, 9013.90.70, 9013.90.80, 9014.10.10, 9014.10.90, 9014.20.20, 9014.20.40, 9014.20.60, 9014.20.80, 9014.80.10, 9014.80.40, 9014.90.60, 9015.10.40, 9015.10.80, 9015.40.40, 9015.40.80, 9015.80.20, 9015.80.80, 9015.90.01, 9031.49.90, 9031.90.91, 9033.00.90.

85. These classifications are exemplary in nature and are not intended to restrict the scope of any exclusion order or other remedy ordered by the Commission.

IX. RELATED LITIGATION

86. Concurrent with the filing of this Complaint, Ouster has filed suit against Respondents Hesai Group and Hesai Technology Co., Ltd. in U.S. District Court alleging infringement of the Asserted Patents. The district court suit is captioned: *Ouster, Inc. v. Hesai Group and Hesai Technology Co., Ltd.*

87. The unfair acts asserted here, or the subject matter thereof, have not been the subject of any other previous litigation in any domestic or foreign court or administrative agency.

88. In 2019-2020, Velodyne Lidar and one or more of the Respondents were involved in patent litigation against each other in the ITC (No. 337-TA-1173), as well as Germany and China, relating to rotating 3-D lidar devices. Those lawsuits were resolved in 2020. In November 2022, Ouster and Velodyne Lidar agreed to a merger of equals. The merger completed in February 2023, with the combined company retaining the Ouster name.[9]

X. THE DOMESTIC INDUSTRY RELATING TO THE ASSERTED PATENTS

89. Ouster produces three main categories of lidar sensors with varying sizes and

[9] Prior to the merger, Velodyne Lidar designed, manufactured and sold certain LiDAR products and had its own patent portfolio. One or more of the Respondents have a license to practice certain of those Velodyne patents. However, neither the Velodyne products (including investments in those products) nor the Velodyne Patents are, or will be, at issue in this investigation.

ranges - the OS0, OS1, and OS2 (the "DI Products"):

90. Ouster currently has three offices located in San Francisco, California, where it performs design, development, manufacture, assembly, programming, testing, training, packaging, distribution and other activities for the DI Products. One of Ouster's two primary research and development facilities is located in the United States at Ouster's San Francisco headquarters. Ouster's research and development team is responsible for the design, development, manufacturing and testing of Ouster's products. Ouster's research and development team also partners with its operations and supply chain teams to develop scalable and reliable manufacturing processes and aid in supply chain planning and diversification. Ouster's products are designed, developed, and tested, at least in part, and manufacturing of such products is also directed, at least in part, by employees located in San Francisco, California. Most of Ouster's DI Products are certified for Buy American and Buy America designation at least as of June 2021.

91. An industry as required by Section 337(a)(2) and defined by Section 337(a)(3) exists in the United States relating to Ouster's DI Products. The DI Products practice at least one claim of the Asserted Patents. A domestic industry under subparts (A), (B), and/or (C) of Section 337(a)(3) exists by virtue of Ouster's significant investments in plant and equipment, significant investments in the employment of labor and capital, and substantial investments in engineering,

research and development to develop and support the DI Products through design, development, manufacture, assembly, programming, testing, training, packaging, distribution and other activities in the United States relating to the DI Products and the exploitation of the Asserted Patents.

A. Technical Prong

92. Claim charts and explanatory information for exemplary products and processes that currently practice at least one exemplary claim of each Asserted Patent accompany this Complaint.

93. Ouster has developed and currently sells Ouster OS0 family of sensors, Ouster OS1 family of sensors, and Ouster OS2 family of sensor products. Each of the products within these product families (collectively, the Ouster "DI Products") practices at least one claim of the Asserted Patents.

94. Confidential Exhibit 18 is a claim chart showing how an exemplary product, Ouster's OS1, practices at least one claim of the '405 patent including claims 1-4, 6, 12-17.

95. Confidential Exhibit 19 is a claim chart showing how an exemplary product, Ouster's OS1, practices at least one claim of the '381 patent including claims 1-3, 5, 6, 10-17, 20, 21, 24, 25.

96. Confidential Exhibit 20 is a claim chart showing how an exemplary product, Ouster's OS1, practices at least one claim of the '750 patent including claims 1-8, 10, 11, 13-17, 27, 30-46, 48, 50.

97. Confidential Exhibit 21 is a claim chart showing how an exemplary product, Ouster's OS1, practices at least one claim of the '515 patent including claims 1-4, 7-10, 12-15, 17, 19, 20-25.

98. Confidential Exhibit 22 is a claim chart showing how an exemplary product,

Ouster's OS1, practices at least one claim of the '236 patent including claims 1, 2, 4, 5, 7, 9, 10-13, 16-18, 22, 23, 26, 27.

B. Economic Prong

99. Ouster has made and continues to make (a) significant investment in plant and equipment; (b) significant investment in labor or capital; and/or (c) substantial investment in engineering, research and development of articles protected by the Asserted Patents. *See, e.g.*, Confidential Ex. 1.

100. Discovery will show that the domestic industry requirements of subparagraphs 337(a)(3)(A), (B) and/or (C) are each independently satisfied by Ouster's domestic activities and investments

101. There is a domestic industry as defined under Subsection (A) at least because Ouster has made significant investments in plant and equipment in the United States with respect to the Ouster DI Products.

102. As explained above, Ouster is a Delaware corporation with its executive offices in San Francisco, California.

103. Ouster leases three domestic facilities in the United States, including its headquarters in San Francisco, California. *See, e.g.*, Confidential Ex. 1 at ¶¶ 3, 7. The vast majority of the Ouster facilities in the United States are used in connection with activities relating to engineering, testing, quality assurance, manufacturing, and developing the DI Products. *See, e.g.*, Confidential Ex. 1 at ¶¶5-9.

104. Ouster has been developing products in the United States since 2015. As of the end of 2022 Ouster had, and continues to have, nearly 200 employees in the United States, including 90 of these employees are involved in the design, development, manufacture, assembly,

programming, and testing of the DI Products. See, e.g., Confidential Ex. 1 at ¶ 12.

105. Ouster has invested several million dollars in building capital at the San Francisco facility. *See, e.g.*, Confidential Ex. 1 at ¶¶ 7-11. The San Francisco facilities include at least tens of thousands of square feet of manufacturing space, R&D space, and testing space, for manufacturing, developing, and improving the DI Products. *See, e.g.*, Confidential Ex. 1 at ¶ 8. In 2022 alone, Ouster's property, plant, and equipment expenditures in the U.S. was several million dollars. *See, e.g.*, Confidential Ex. 1 at ¶ 11. Ouster leases the San Francisco facilities, paying several million dollars in lease liabilities and related expenses in the United States. *See, e.g.*, Confidential Ex. 1 at ¶ 10.

106. The DI Products account for a significant amount of U.S. sales, and thus a significant amount of manufacturing, testing, and R&D related plant and equipment expenditures. *See, e.g.*, Confidential Ex. 1 at ¶ 5.

107. There is a domestic industry as defined under Subsection (B) at least because Ouster has made significant investments in the employment of labor and capital in the United States with respect to the DI Products. Ouster employs hundreds of employees in the United States, including employees who are involved in the design, development, manufacture, assembly, programming, and testing of the DI Products. *See, e.g.*, Confidential Ex. 1 at ¶¶ 12-14. Between 2020 and 2022, Ouster invested millions of dollars per year to compensate U.S. employees who are involved in manufacturing, engineering, and R&D of the DI Products. *See, e.g.*, Confidential Ex. 1 at ¶¶ 12-14.

108. The Ouster Domestic Industry Products account for a significant amount of U.S. sales, and thus a significant amount of manufacturing, testing, and R&D related labor and capital expenditures. *See, e.g.*, Confidential Ex. 1 at ¶ 5.

109. There is also a domestic industry as defined under Subsection (C) at least because Ouster has made substantial U.S. investments in the exploitation of the inventions of the Asserted Patents by way of steadily and substantially investing in engineering, research and development.

110. Such research and development activities are aimed at improving existing products, and developing and bringing new products to market that utilize the technology of the Asserted Patents. In recent years, Ouster has made substantial investments in its R&D to improve and develop products that utilize the technology of the Asserted Patents. *See, e.g.*, Confidential Ex. 1 at ¶¶ 15-17. Ouster's investments also include salary and other compensation and benefits of the R&D personnel, as well as their training, and facilities expenditures. *See, e.g.*, Confidential Ex. 1 at ¶¶ 12-14.

XI. RELIEF REQUESTED

111. Ouster respectfully requests that the Commission:

(a) Institute an immediate investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, with respect to Respondents' violations of that section arising from the importation into the United States, sale for importation, and/or the sale within the United States after importation of certain LiDAR systems and components thereof, that infringe one or more claims of United States Patent Nos. 11,175,405; 11,178,381; 11,190,750; 11,287,515; and 11,422,236;

(b) Schedule and conduct a hearing pursuant to Section 337(c) for the purposes of (i) receiving evidence and hearing argument concerning whether there has been a violation of Section 337, and (ii) following the hearing, determining that there has been a violation of Section 337;

(c) Issue a permanent exclusion order directed to products manufactured by Respondent, i5w subsidiaries, affiliates, related companies and agents pursuant to 19 U.S.C. § 1337(d) excluding entry into the United States of certain LiDAR systems and components thereof, that infringe one or more claims of United States Patent Nos. 11,175,405; 11,178,381; 11,190,750; 11,287,515; and 11,422,236;

(d) Issue a permanent cease and desist order pursuant to 19 U.S.C. § 1337(f) prohibiting Respondent, its subsidiaries, affiliates, related companies and agents from selling for importation, importing, marketing or selling, offering for sale, offering sales or technical support related to, or using, certain LiDAR systems and components thereof, that are covered by, or infringe or induce infringement of, one or more claims of United States Patent Nos. 11,175,405; 11,178,381; 11,190,750; 11,287,515; and 11,422,236;

(e) Impose a bond upon importation of LiDAR systems and components thereof, during the 60-day Presidential review period pursuant to 19 U.S.C. § 1337(j); and

(f) Issue such other and further relief as the Commission deems just and proper under the law, based on the facts determined by the Investigation and the authority of the Commission.

Dated: April 11, 2023

Respectfully submitted,

By: */s/ Stephen R. Smith*

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HESAI EX1016, P.46

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VERIFICATION OF COMPLAINT

I, Mark Frichtl, declare, in accordance with 19 C.F.R. § 210.12(a)(1), as follows:

1. I am Chief Technology Officer for Complainant Ouster, Inc. and am duly authorized to sign this Complaint.

2. I have read the Complaint and I am aware of its contents.

3. The Complaint is not being presented for any improper purpose, such as to harass or to cause unnecessary delay or needless increase in the cost of the investigation or a related proceeding.

4. To the best of my knowledge, information and belief founded upon reasonable inquiry, the claims and other legal contentions therein are warranted by existing law or by a nonfrivolous argument for the extension, modification, or reversal of existing law or the establishment of new law.

5. The allegations and other factual contentions have evidentiary support or, if specifically so identified, are likely to have evidentiary support after a reasonable opportunity for further investigation or discovery.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on April 10, 2023, in San Francisco, California.

Mark Frichtl

Mark Frichtl
Ouster Inc.