IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

ID IMAGE SENSING LLC, Plaintiff, v. OMNIVISION TECHNOLOGIES, INC., Defendant.	C.A. No. 20-cv-136-RGA JURY TRIAL DEMANDED

PLAINTIFF'S FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff ID IMAGE SENSING LLC files this First Amended Complaint against Defendant OMNIVISION TECHNOLOGIES, INC. alleging as follows:

I. THE PARTIES

1. ID IMAGE SENSING LLC ("Plaintiff" or "IIS) is a California limited liability company, with a principal place of business at 4 Park Plaza, Suite 550, Irvine, CA 92614.

2. Defendant OMNIVISION TECHNOLOGIES, INC ("Defendant" or "Omnivision") is a corporation organized and existing under the laws of the State of Delaware, with a principal place of business at 4275 Burton Drive, Santa Clara, CA 95054. Defendant may be served with process by serving its Registered Agent, The Corporation Trust Company, at 1209 Orange Street, Wilmington, Delaware 19801.

III. JURISDICTION AND VENUE

3. This is an action for infringement of a United States patent. Federal question

jurisdiction is conferred to this Court over such action under 28 U.S.C. §§ 1331 and 1338(a).

4. Defendant resides in this District and has had minimum contacts with the District of Delaware, such that this venue is fair and reasonable. Defendant has committed such purposeful acts and/or transactions in this District that it reasonably should know and expect that they could be hailed into this Court as a consequence of such activities.

5. Defendant has transacted and, at the time of the filing of the Original Complaint and this Amended Complaint, continues to transact business within the District of Delaware. Further, Defendant makes or sells products that are and have been used, offered for sale, sold, and/or purchased in the District of Delaware. Defendant directly and/or through its distribution network, places infringing products or systems within the stream of commerce, which stream is directed at this District, with the knowledge and/or understanding that those products will be sold and/or used in the District of Delaware.

6. Plaintiff filed its Original Complaint against Defendant on January 29, 2020. Defendant filed its Motion to Dismiss on March 30, 2020. In that Motion, Defendant argued that the Original Complaint should be dismissed because: 1) claim 1 of the '145 Patent fails to claim patent-eligible subject matter pursuant to 35 U.S.C. 101 ("Section 101"); and 2) the Complaint failed to state claims for direct and indirect patent infringement. On November 24, 2020, following briefing by the parties, United Magistrate Judge Christopher Burke issued a Report and Recommendation granting-in-part and denying-in-part Defendant's Motion to Dismiss. More specifically, Magistrate Judge Burke recommended that Defendant's Motion based on the Section 101 challenge be denied, and that Plaintiff be allowed 14 days to file an Amended Complaint addressing its claims for direct and indirect infringement. The Report and Recommendation confirmed the fact that claim 1 of the '145 patent is not drawn to the abstract idea put forward by

Defendant. On February 16, 2021, Judge Andrews issued an Order adopting the Magistrate Judge's Report and Recommendation.

7. For the reasons set forth above, personal jurisdiction exists and venue is proper in this Court under 28 U.S.C. §§ 1391(b) and (c) and 28 U.S.C. § 1400(b).

III. PATENT INFRINGEMENT

8. On February 19, 2008, United States Patent No. 7,333,145 ("the '145 patent") was duly and legally issued for a "Camera Module". A true and correct copy of the '145 patent is attached hereto as Exhibit "A" and made a part hereof.

9. The '145 patent is referred to as the "Patent-in-Suit." Generally speaking, the '145 patent relates to circuitry for camera modules used in a variety of digital cameras, including those incorporated into mobile phones, tablets and laptop computers. Embodiments of the image sensor described and claimed in the '145 patent include an image array sensor array, a gain amplifier, and storage location to store an exposure time and gain associated with a particular type of flash device used in a digital camera. The image sensor array is configured to capture an image using the exposure time, and the gain amplifier is configured to perform processing on the image using the gain. Figure 1 of the '145 patent shows a block diagram of an exemplary embodiment of the invention:

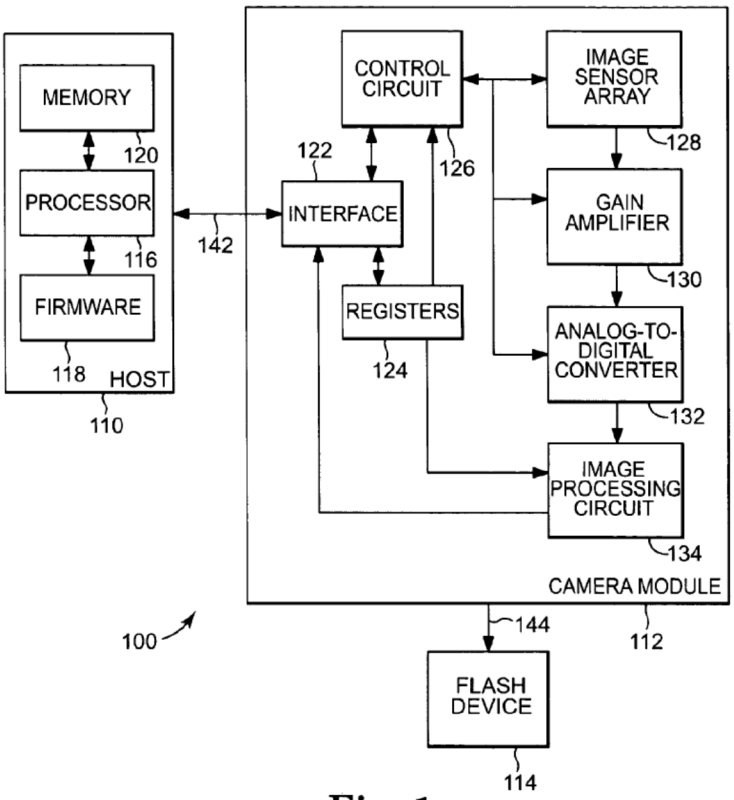


Fig. 1

10. The '145 patent also discloses alternative embodiments of the system of Figure 1. For example, Figure 12 teaches a camera module 1202 that includes a processor 1204 operating firmware 1206. It also includes an image sensor array 128, a gain amplifier 130, and registers 124. As described in the specification, processor 1204 and firmware 1206 generate parameters used in the viewfinder and snapshot modes of operation of camera module 1202. By way of example, these parameters include exposure time, gain, and white balance coefficients.

11. Claim 1 of the '145 patent reads as follows:

1. A camera module comprising:

an image sensor array;

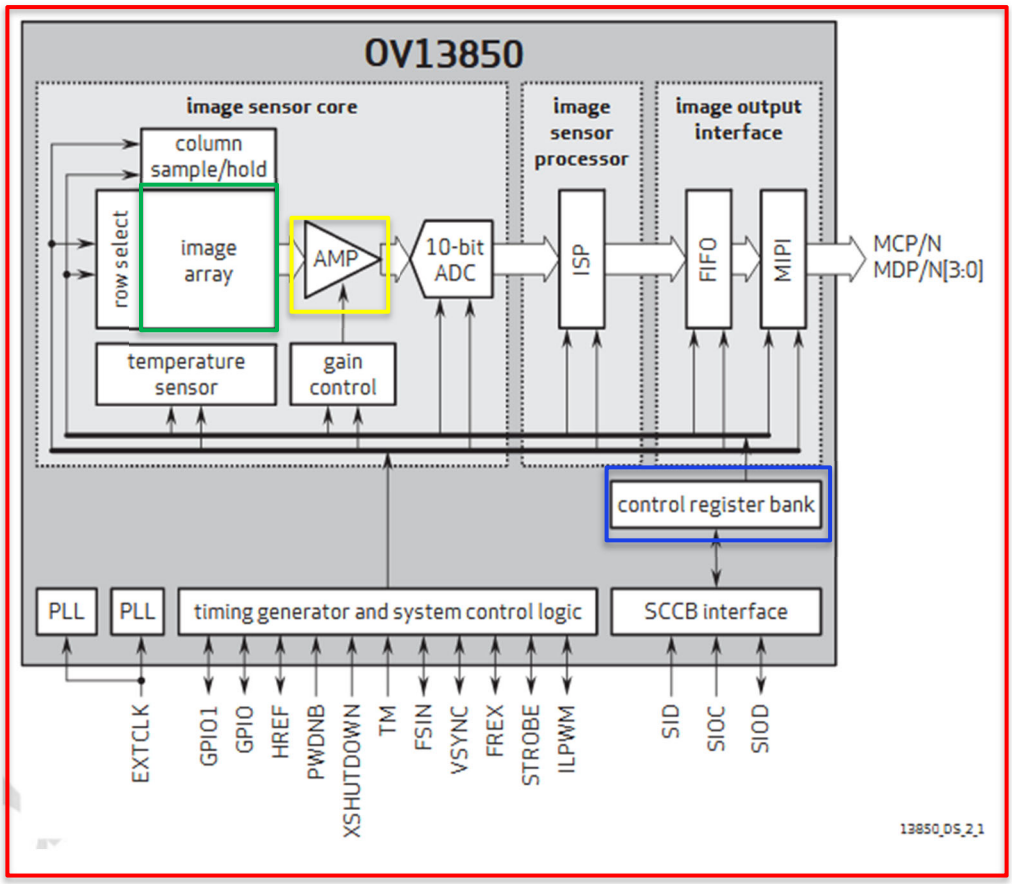
a gain amplifier;

an indicator set to indicate whether a first flash device or a second flash device is present; and

a plurality of storage locations;

wherein the plurality of storage locations is configured to store an exposure time and a gain, wherein the exposure time and the gain are associated with the first flash device in response to the indicator indicating the presence of the first flash device, wherein the exposure time and the gain are associated with the second flash device in response to the indicator indicating the presence of the second flash device, wherein the image sensor array is configured to capture an image using the exposure time, and wherein the gain amplifier is configured to perform processing on the image using the gain.

12. The Accused Products include Omnivision's OV13850, OV2655, OV3640, OV4689, OV5640, OV5642, OV5648, OV5693, OV8858, and OV8865 models of image sensors and any other image sensors with similar components and functionality ("Accused Products"). The Accused Products infringe because they meet each and every limitation of claim 1. The Accused Products' image sensor depicted below is the camera module described and claimed in the '145 patent, specifically claim 1. By way of example, Omnivision's literature describes the OV13850 as a 1/3.06" color CMOS 13.2 megapixel (4224 x 3136) image sensor with Omnivision's OmniBSI-3 technology. The figure below from Omnivision's documentation shows a block diagram of the components of the OV13850 image sensor.



See the OV13850 datasheet and preliminary specification, publicly available at: *http://download.t-firefly.com/product/RK3288/Docs/Peripherals/OV13850%20datasheet/Sensor_OV13850-G04A_OmniVision_SpecificationV1.pdf* , Section 2.2, Figure 2-1. *See also* Exh. B hereto.

13. As shown above, the OV13850 image sensor chip (camera module) is outlined in red and includes all of the components and meets all the limitations of claim 1. The image sensor is an image array which is outlined in green to capture an image. The OV13850 image sensor also includes a gain amplifier shown in yellow to process the captured images. The "STROBE" flash control signal is described as an indicator that supports both LED and Xenon flash modes (the first and second flash devices in claim 1). In other words, this signal is set to indicate which of two flash devices is connected to the camera module. Exemplary embodiments in the '145 Patent describe the use of registers configured to store flash type indicators which indicate whether or not a flash device is present (including LED and Xenon flash devices) as well as parameter values for

exposure times and gains. *See, e.g.*, '145 Patent at 3:2-16. Defendant's publicly available literature describes the strobe flash control signal as a programmable strobe signal supporting both LED and Xenon flash devices:

4.7 strobe flash and frame exposure

4.7.1 strobe flash control

The strobe signal is programmable. It supports both LED and Xenon modes. The polarity of the pulse can be changed. The strobe signal is enabled (turned high/low depending on the pulse's polarity) by requesting the signal via the SCCB interface. Flash modules are triggered by the rising edge by default or by the falling edge if the signal polarity is changed. The OV13850 supports the following flashlight modes (see table 4-6).

14. The strobe flash control signal shown in the diagram above is depicted as being connected to the "timing generator and system control logic" block, and Defendant's datasheet describes the strobe signal as indicating values stored in memory corresponding with the type of flash device that is present:

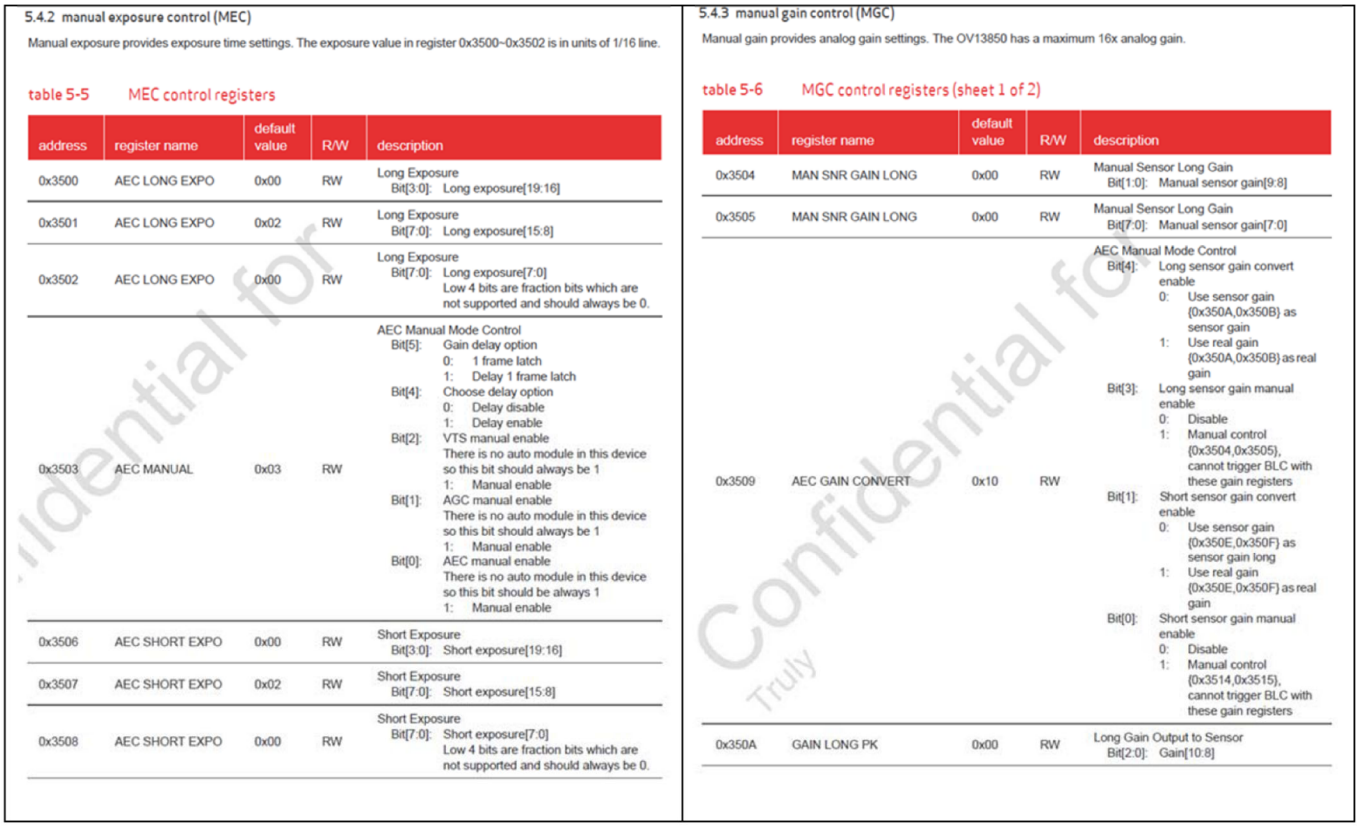
The sensor will trigger STROBE to indicate the start of exposure time. Exposure time is calculated from STROBE rising edge to when the mechanical shutter closes. The host can control the sensor to start sending image data after a certain delay (registers 0x37D0, 0x37D1) after FREX goes low. The host can re-open the shutter after receiving the entire image data or the next VSYNC signal.

table 4-7 LED strobe control registers

address	register name	default value	R/W	description
0x3B00	STROBE CTRL00	0x00	RW	Bit[7]: Strobe request ON/OFF Bit[6]: Strobe polarity 0: Active high 1: Active low Bit[5:4]: Pulse width in xenon mode Bit[2:0]: Strobe mode select 000: Xenon 001: LED1 010: LED2 011: LED3 100: LED4

15. In the Accused Products, the exposure time and gain for the particular type of flash device are stored in the control register bank, which includes multiple storage locations, outlined

in blue in the diagram above. Defendant's datasheet further confirms that the Accused Products store exposure times and gains (as recited in claim 1) in the control register bank. By way of example, the below pages[1] describe control registers for storing values associated with different exposures and gains:



5.4.2 manual exposure control (MEC)

Manual exposure provides exposure time settings. The exposure value in register 0x3500~0x3502 is in units of 1/16 line.

table 5-5 MEC control registers

address	register name	default value	R/W	description
0x3500	AEC LONG EXPO	0x00	RW	Long Exposure Bit[3:0]: Long exposure[19:16]
0x3501	AEC LONG EXPO	0x02	RW	Long Exposure Bit[7:0]: Long exposure[15:8]
0x3502	AEC LONG EXPO	0x00	RW	Long Exposure Bit[7:0]: Long exposure[7:0] Low 4 bits are fraction bits which are not supported and should always be 0.
0x3503	AEC MANUAL	0x03	RW	AEC Manual Mode Control Bit[5]: Gain delay option 0: 1 frame latch 1: Delay 1 frame latch Bit[4]: Choose delay option 0: Delay disable 1: Delay enable Bit[2]: VTS manual enable There is no auto module in this device so this bit should always be 1 1: Manual enable Bit[1]: AGC manual enable There is no auto module in this device so this bit should always be 1 1: Manual enable Bit[0]: AEC manual enable There is no auto module in this device so this bit should be always 1 1: Manual enable
0x3506	AEC SHORT EXPO	0x00	RW	Short Exposure Bit[3:0]: Short exposure[19:16]
0x3507	AEC SHORT EXPO	0x02	RW	Short Exposure Bit[7:0]: Short exposure[15:8]
0x3508	AEC SHORT EXPO	0x00	RW	Short Exposure Bit[7:0]: Short exposure[7:0] Low 4 bits are fraction bits which are not supported and should always be 0.

5.4.3 manual gain control (MGC)

Manual gain provides analog gain settings. The OV13850 has a maximum 16x analog gain.

table 5-6 MGC control registers (sheet 1 of 2)

address	register name	default value	R/W	description
0x3504	MAN SNR GAIN LONG	0x00	RW	Manual Sensor Long Gain Bit[1:0]: Manual sensor gain[9:8]
0x3505	MAN SNR GAIN LONG	0x00	RW	Manual Sensor Long Gain Bit[7:0]: Manual sensor gain[7:0]
0x3509	AEC GAIN CONVERT	0x10	RW	AEC Manual Mode Control Bit[4]: Long sensor gain convert enable 0: Use sensor gain {0x350A,0x350B} as sensor gain 1: Use real gain {0x350A,0x350B} as real gain Bit[3]: Long sensor gain manual enable 0: Disable 1: Manual control {0x3504,0x3505}, cannot trigger BLC with these gain registers Bit[1]: Short sensor gain convert enable 0: Use sensor gain {0x350E,0x350F} as sensor gain long 1: Use real gain {0x350E,0x350F} as real gain Bit[0]: Short sensor gain manual enable 0: Disable 1: Manual control {0x3514,0x3515}, cannot trigger BLC with these gain registers
0x350A	GAIN LONG PK	0x00	RW	Long Gain Output to Sensor Bit[2:0]: Gain[10:8]

16. The exposure time and gain are associated with the appropriate flash device and are stored in response to the strobe flash control signal, as recited in claim 1. The datasheet confirms there is a programmable signal that specifies which flash device is present, and the camera module software makes the determination of what particular data to store in the memory registers for exposure time and gain based on that signal. The exposure time and gain for the associated flash device are utilized when the camera module captures and processes an image. The above

[1] *See* section 5.4.2, table 5-5 and section 5.4.3, table 5-6.

allegations are based upon Defendant's publicly available documentation. Further discovery, including targeted discovery of the source code of the Accused Products, will confirm that the Accused Products include all claimed limitations.

17. The above features, or their functional equivalent, are present in each of the Accused Products. These features, based on publicly available information found in the product datasheets, confirm that all claim limitations of claim 1 are found within the Accused Products.

18. The Accused Products include all future generations of the accused infringing design, as well as any successor products or later-released products that utilize a similar and/or identical infringing design.

19. By way of assignment, Plaintiff is the owner of all right, title and interest in and to the '145 patent, with all rights to enforce it against infringers and to collect damages for all relevant times, including the right to prosecute this action.

20. Plaintiff and all predecessors-in-interest to the '145 patent have complied with the requirements of 35 U.S.C. § 287.

21. Defendant has infringed directly and continues to infringe directly, either literally or under the doctrine of equivalents, at least claim 1 of the '145 patent by its manufacture, sale, offer for sale, and use of any one or more of the Accused Products. Defendant is therefore liable for infringement of the '145 patent pursuant to 35 U.S.C. § 271.

22. As of the time Defendant first had notice of Plaintiff's allegations of infringement of one or more claims of the '145 patent by Defendant, which is no later than the filing date of the Original Complaint on January 29, 2020, Defendant indirectly infringed and continues to indirectly infringe at least claim 1 of the '145 patent by active inducement under 35 U.S.C. § 271(b). Defendant has induced, caused, urged, encouraged, aided and abetted its direct and indirect

customers to make, use, sell, offer for sale and/or import one or more of the Accused Products, and thus indirectly infringes at least claim 1 of the '145 patent. Defendant has done so by acts including but not limited to (1) selling such products including features that—when used or resold—infringe, either literally or under the doctrine of equivalents, the '145 patent; (2) marketing the infringing capabilities of such products; and (3) providing instructions, technical support, and other support and encouragement for the use of such products, including at least the documents referenced above (which as of the date of the filing of the Original Complaint, may be found publicly at: http://download.t-firefly.com/product/RK3288/Docs/Peripherals/OV13850%20datasheet/Sensor_OV13850-G04A_OmniVision_SpecificationV1.pdf). Portions of Defendant's publicly available website also include similar instructions and technical support encouraging the use of the Accused Products (see, for example: https://www.ovt.com/image-sensors/2-5-megapixels). Such conduct by Defendant was intended to and actually did result in direct infringement by Defendant's direct and indirect customers, including the making, using, selling, offering for sale and/or importation of the Accused Products in the United States.

23. Defendant's infringement of the '145 patent has damaged Plaintiff, and Defendant is liable to Plaintiff in an amount to be determined at trial that compensates Plaintiff for the infringement, which by law can be no less than a reasonable royalty.

24. As of the time Defendant first had notice of the '145 patent, at least as early as the filing of the Original Complaint on January 29, 2020, Defendant has continued with its infringement despite the objectively high likelihood that its actions constitute infringement and Defendant's subjective knowledge of this obvious risk. As Defendant has no good faith belief that it does not infringe the '145 patent, at least Defendant's continued infringement of the '145 patent

is willful and deliberate, entitling Plaintiff to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

DEMAND FOR JURY TRIAL

25. Plaintiff IIS demands a trial by jury on all issues so triable, pursuant to Rule 38 of the Federal Rules of Civil Procedure.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff IIS prays for the following relief:

A. A judgment in favor of IIS that Defendant has, either literally or under the doctrine of equivalents, directly infringed and is directly infringing one or more of the claims of the '145 patent, and/or judgment in favor of IIS that one or more of the claims of the '145 patent have been directly infringed by others and indirectly infringed by Defendant, to the extent Defendant induced such direct infringement by others;

B. An order permanently enjoining Defendant, its respective officers, agents, employees, and those acting in privity with it, from further direct and/or indirect infringement of one or more claims of the '145 patent, or, alternatively, an award of an ongoing royalty Defendant's post-judgment infringement of the asserted claims of the '145 patent in an amount to be determined at trial;

C. An award of damages to IIS arising out of Defendant's infringement of one or more claims of the '145 patent, including enhanced damages pursuant to 35 U.S.C. § 284, together with prejudgment and post-judgment interest, in an amount to be determined at trial;

D. A judgment declaring this case exceptional under 35 U.S.C. § 285 and awarding IIS its attorneys' fees;

E. An award of prejudgment and post-judgment interest to the full extent permitted by controlling law; and,

F. An award of costs and any further relief as the Court may deem just and proper to IIS.

Dated: March 2, 2021

Respectfully submitted,

FARNAN LLP

/s/ Brian E. Farnan

Brian E. Farnan (Bar No. 4089)
Michael J. Farnan (Bar No. 5165)
919 North Market Street, 12th Floor
Wilmington, DE 19801
302-777-0300 Telephone
302-777-0301 Facsimile
bfarnan@farnanlaw.com
mfarnan@farnanlaw.com

Jonathan T. Suder (admitted *pro hac vice*)
Corby R. Vowell (admitted *pro hac vice*)
Dave R. Gunter (admitted *pro hac vice*)
FRIEDMAN, SUDER & COOKE
604 East 4th Street, Suite 200
Fort Worth, TX 76102
817-334-0400
Fax: 817-334-0401
jts@fsclaw.com
vowell@fsclaw.com
gunter@fsclaw.com

Attorneys For Plaintiff