PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT8174883

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
LUMINAR, LLC	07/25/2023

RECEIVING PARTY DATA

Name:	LUMINAR TECHNOLOGIES, INC.
Street Address:	2603 DISCOVERY DRIVE
Internal Address:	SUITE 100
City:	ORLANDO
State/Country:	FLORIDA
Postal Code:	32826

PROPERTY NUMBERS Total: 21

Property Type	Number
Application Number:	17988252
Application Number:	17475956
Application Number:	18087011
Application Number:	16794500
Application Number:	18095457
Application Number:	17385312
Application Number:	17336585
Application Number:	17870132
Application Number:	17403030
Application Number:	17121723
Application Number:	17881850
Application Number:	18070177
Application Number:	17900303
Application Number:	17736887
Application Number:	17374017
Application Number:	17183719
Application Number:	17183522
Application Number:	17318594
Application Number:	17689207

Property Type	Number
Application Number:	17871230
Application Number:	18079385

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 4079005259
Email: graci.santilli@luminartech.com
Correspondent Name: LUMINAR TECHNOLOGIES, INC.
Address Line 1: 2603 DISCOVERY DRIVE
Address Line 2: SUITE 100
Address Line 4: ORLANDO, FLORIDA 32826

ATTORNEY DOCKET NUMBER:	LLC TO LTI
NAME OF SUBMITTER:	GRACI SANTILLI
SIGNATURE:	/Graci Santilli/
DATE SIGNED:	09/19/2023

Total Attachments: 19

source=Assignment from LLC to LTI - Final#page1.tif
source=Assignment from LLC to LTI - Final#page2.tif
source=Assignment from LLC to LTI - Final#page3.tif
source=Assignment from LLC to LTI - Final#page4.tif
source=Assignment from LLC to LTI - Final#page5.tif
source=Assignment from LLC to LTI - Final#page6.tif
source=Assignment from LLC to LTI - Final#page7.tif
source=Assignment from LLC to LTI - Final#page8.tif
source=Assignment from LLC to LTI - Final#page9.tif
source=Assignment from LLC to LTI - Final#page10.tif
source=Assignment from LLC to LTI - Final#page11.tif
source=Assignment from LLC to LTI - Final#page12.tif
source=Assignment from LLC to LTI - Final#page13.tif
source=Assignment from LLC to LTI - Final#page14.tif
source=Assignment from LLC to LTI - Final#page15.tif
source=Assignment from LLC to LTI - Final#page16.tif
source=Assignment from LLC to LTI - Final#page17.tif
source=Assignment from LLC to LTI - Final#page18.tif
source=Assignment from LLC to LTI - Final#page19.tif

Patent Assignment AGREEMENT

This PATENT ASSIGNMENT AGREEMENT (the "**Patent Assignment**"), dated as of June 17, 2023 (the "**Effective Date**"), is made by Luminar, LLC, a limited liability company, having a place of business at 2603 Discovery Drive, Suite 100, Orlando, FL (the "**Assignor**"), in favor of Luminar Technologies, Inc., a corporation of Delaware, having a place of business at 2603 Discovery Drive, Suite 100, Orlando, FL (the "**Assignee**").

Assignment. Assignor hereby irrevocably conveys, transfers, and assigns to Assignee, and Assignee hereby accepts, all of Assignee's right, title, and interest in and to the following (the "**Assigned Patents**"): (a) the patents and patent applications set forth in Schedule A hereto and all issuances, divisions, continuations, continuations-in-part, reissues, extensions, reexaminations, and renewals thereof (the "**Patents**"); (b) all rights of any kind whatsoever of Seller accruing under any of the foregoing provided by applicable law of any jurisdiction, by international treaties and conventions, and otherwise throughout the world; (c) any and all royalties, fees, income, payments, and other proceeds now or hereafter due or payable with respect to any and all of the foregoing; and (d) any and all claims and causes of action with respect to any of the foregoing, whether accruing before, on, or after the date hereof, including all rights to and claims for damages, restitution, and injunctive and other legal and equitable relief for past, present, and future infringement, misappropriation, violation, misuse, breach, or default, with the right but no obligation to sue for such legal and equitable relief and to collect, or otherwise recover, any such damages.

Recordation and Further Actions. Assignor hereby authorizes the Commissioner for Patents in the United States Patent and Trademark Office and the officials of corresponding entities or agencies in any applicable jurisdictions to record and register this Patent Assignment upon request by Assignee. Following the Effective Date, upon Assignee's reasonable request, Assignor shall take such steps and actions, and provide such cooperation and assistance to Assignee and its successors, assigns, and legal representatives, including the execution and delivery of any affidavits, declarations, oaths, exhibits, assignments, powers of attorney, or other documents, as may be reasonably necessary to effect, evidence, or perfect the assignment of the Assigned Patents to Assignee, or any assignee or successor thereto.

Successors and Assigns. This Patent Assignment shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and assigns.

AGREED TO AND ACCEPTED:

Assignor: Luminar, LLC

Date: 7/10/2023

DocuSigned by:
Alan Prescott
A883137F45AA470...

Alan Prescott,
Title: Chief Legal Officer

Assignee: Luminar Technologies, Inc.

Date: 7/10/2023

DocuSigned by:
Alan Prescott
A883137F45AA470...

Alan Prescott,
Title: Chief Legal Officer

Schedule A

Country	IP Right: IP Right ID	Patent Number	Title	Filing Date	Earliest Priority Date
CN	P-0006-CN-A1	110622029	SCAN PATTERNS FOR LIDAR SYSTEMS	3/22/2018	3/22/2017
	P-0171-CN-UTIL-A1	2022219442371	Lidar Transceiver with Coaxial Transmit and Receive Path	7/26/2022	7/26/2021
	P-0325-CN-UTIL-A1	202222622060	LiDAR Sensor with Redundant Beam Scan	9/30/2022	9/30/2021
	P-0175-CN-A1	ZL2020800060754	Lidar System with Semiconductor Optical Amplifier	2/7/2020	2/8/2019
	P-0249-CN-UTIL-A6CIP	ZL2022220752044	LIDAR SYSTEM WITH INPUT OPTICAL ELEMENT	8/8/2022	8/16/2021
	P-0014-CN-A1	ZL201880031320X	TIME VARYING GAIN IN AN OPTICAL DETECTOR OPERATING IN A LIDAR SYSTEM	3/27/2018	3/28/2017
JP	P-0004-JP-A1	685025	Lidar System with Distributed Laser and Multiple Sensor Heads and Pulsed Laser for Lidar System	11/29/2016	11/30/2015
	P-0130-JP-A1	7108789	ADJUSTABLE PULSE CHARACTERISTICS FOR GROUND DETECTION IN LIDAR SYSTEMS	7/19/2019	7/19/2018
	P-0067-JP-A1	7200378	LIDAR RECEIVER WITH MULTIPLE DETECTORS FOR RANGE-AMBIGUITY MITIGATION	12/4/2019	12/5/2018
US	P-0058-US-A5	10345437	DETECTING DISTORTION USING OTHER SENSORS	11/20/2018	8/6/2018
	P-0058-US-A4	10677900	DETECTING DISTORTION USING KNOWN SHAPES	11/20/2018	8/6/2018
	P-0005-US-A4	10418776	Solid-State Laser for Lidar System	2/21/2018	3/16/2017
	P-0190-US-A1	11428794	Lidar System with Humidity Compensation	3/21/2019	3/21/2019
	P-0051-US-A4C1	11567200	LIDAR SYSTEM WITH POLYGON MIRROR	5/20/2020	11/22/2017
	P-0007-US-A1	10732281	LIDAR DETECTOR SYSTEM HAVING RANGE WALK COMPENSATION	10/6/2017	3/28/2017
	P-0066-US-A1	11367990	LIDAR SYSTEM OPERATING AT 1200-1400 NM	8/29/2019	8/29/2018
	P-0055-US-A6	10754037	PROCESSING POINT CLOUDS OF VEHICLE SENSORS HAVING VARIABLE SCAN LINE DISTRIBUTIONS USING VOXEL GRIDS	10/31/2018	12/13/2017
	P-0055-US-A8	10473788	ADJUSTING AREA OF FOCUS OF VEHICLE SENSORS BY CONTROLLING SPATIAL DISTRIBUTIONS OF SCAN LINES	10/31/2018	12/13/2017

P-0055-US-A9	10338223	PROCESSING POINT CLOUDS OF VEHICLE SENSORS HAVING VARIABLE SCAN LINE DISTRIBUTIONS USING TWO-DIMENSIONAL INTERPOLATION AND DISTANCE THRESHOLDING	10/31/2018	12/13/2017
P-0008-US-A1	11119198	INCREASING OPERATIONAL SAFETY OF A LIDAR SYSTEM	3/28/2018	3/28/2017
P-0249-US-A1	11467265	COHERENT PULSED LIDAR SYSTEM	2/19/2020	8/20/2019
P-0004-US-A3C5	10012732	LIDAR SYSTEM	12/29/2017	11/30/2015
P-0014-US-A1	10139478	TIME VARYING GAIN IN AN OPTICAL DETECTOR OPERATING IN A LIDAR SYSTEM	1/3/2018	3/28/2017
P-0019-US-A1	10545240	LIDAR TRANSMITTER AND DETECTOR SYSTEM USING PULSE ENCODING TO REDUCE RANGE AMBIGUITY	3/10/2018	3/28/2017
P-0039-US-A1	10295668	REDUCING THE NUMBER OF FALSE DETECTIONS IN A LIDAR SYSTEM	12/15/2017	3/30/2017
P-0051-US-A5	10502831	SCAN SENSORS ON THE EXTERIOR SURFACES OF A VEHICLE	7/26/2018	11/22/2017
P-0026-US-A1	10969488	DYNAMICALLY SCANNING A FIELD OF REGARD USING A LIMITED NUMBER OF OUTPUT BEAMS	3/29/2018	3/29/2017
P-0002-US-A1	10557939	LIDAR SYSTEM WITH IMPROVED SIGNAL-TO-NOISE RATIO IN THE PRESENCE OF SOLAR BACKGROUND NOISE	10/18/2016	10/19/2015
P-0175-US-A1	10845480	Lidar System with Semiconductor Optical Amplifier	2/7/2020	2/8/2019
P-0130-US-A1	10627516	ADJUSTABLE PULSE CHARACTERISTICS FOR GROUND DETECTION IN LIDAR SYSTEMS	7/19/2018	7/19/2018
P-0035-US-A1	10191155	OPTICAL RESOLUTION IN FRONT OF A VEHICLE	11/27/2017	3/29/2017
P-0032-US-A1C1	10663564	CROSS-TALK MITIGATION USING WAVELENGTH SWITCHING	5/18/2018	3/30/2017
P-0036-US-A1	10401481	NON-UNIFORM BEAM POWER DISTRIBUTION FOR A LASER OPERATING IN A VEHICLE	3/30/2018	3/30/2017
P-0024-US-A1	10976417	USING DETECTORS WITH DIFFERENT GAINS IN A LIDAR SYSTEM	3/29/2018	3/29/2017
P-0051-US-A1	10571567	LOW PROFILE LIDAR SCANNER WITH POLYGON MIRROR	4/27/2018	11/22/2017
P-0042-US-A1C1	11204413	COMBINING LIDAR AND CAMERA DATA	6/5/2020	4/14/2017
P-0208-US-A1	10812745	BIT DEPTH REDUCTION OF IMAGE PIXELS	3/14/2019	3/14/2019

P-0054-US-A1	10169680	OBJECT IDENTIFICATION AND LABELING TOOL FOR TRAINING AUTONOMOUS VEHICLE CONTROLLERS	2/27/2018	12/21/2017
P-0022-US-A1	10088559	CONTROLLING PULSE TIMING TO COMPENSATE FOR MOTOR DYNAMICS	1/22/2018	3/29/2017
P-0016-US-A1	10121813	OPTICAL DETECTOR HAVING A BANDPASS FILTER IN A LIDAR SYSTEM	3/1/2018	3/28/2017
P-0046-US-A1	10003168	FIBER LASER WITH FREE-SPACE COMPONENTS	11/30/2017	10/18/2017
P-0018-US-A1	10114111	METHOD FOR DYNAMICALLY CONTROLLING LASER POWER	11/28/2017	3/28/2017
P-0012-US-A1	10254388	DYNAMICALLY VARYING LASER OUTPUT IN A VEHICLE IN VIEW OF WEATHER CONDITIONS	3/1/2018	3/28/2017
P-0029-US-A1	10663595	SYNCHRONIZED MULTIPLE SENSOR HEAD SYSTEM FOR A VEHICLE	11/27/2017	3/29/2017
P-0038-US-A1	10241198	LIDAR RECEIVER CALIBRATION	11/30/2017	3/30/2017
P-0045-US-A1	10503172	CONTROLLING AN AUTONOMOUS VEHICLE BASED ON INDEPENDENT DRIVING DECISIONS	10/2/2018	10/18/2017
P-0009-US-A1C1	10267918	LIDAR DETECTOR HAVING A PLURALITY OF TIME TO DIGITAL CONVERTERS INTEGRATED ONTO A DETECTOR CHIP	6/25/2018	3/28/2017
P-0055-US-A5	10768304	PROCESSING POINT CLOUDS OF VEHICLE SENSORS HAVING VARIABLE SCAN LINE DISTRIBUTIONS USING INTERPOLATION FUNCTIONS	10/31/2018	12/13/2017
P-0055-US-A4	10984257	TRAINING MULTIPLE NEURAL NETWORKS OF A VEHICLE PERCEPTION COMPONENT BASED ON SENSOR SETTINGS	10/31/2018	12/13/2017
P-0030-US-A1	11002853	ULTRASONIC VIBRATIONS ON A WINDOW IN A LIDAR SYSTEM	9/26/2017	3/29/2017
P-0044-US-A1	11353559	ADJUSTABLE SCAN PATTERNS FOR LIDAR SYSTEM	10/9/2018	10/9/2017
P-0094-US-A1	10445599	SENSOR SYSTEM AUGMENTED WITH THERMAL SENSOR OBJECT CONFIRMATION	6/13/2018	6/13/2018
P-0067-US-A1	10401480	LIDAR RECEIVER WITH MULTIPLE DETECTORS FOR RANGE-AMBIGUITY MITIGATION	12/5/2018	12/5/2018
P-0249-US-A2	10802120	COHERENT PULSED LIDAR SYSTEM	2/19/2020	8/20/2019
P-0222-US-A1	11543652	IMAGING SYSTEM HAVING COIL ON MIRROR ACTUATOR	4/20/2020	4/20/2020

P-0057-US-A1	10481605	AUTONOMOUS VEHICLE TECHNOLOGY FOR FACILITATING SAFE STOPPING ACCORDING TO SEPARATE PATHS	9/21/2018	9/21/2018
P-0058-US-A1	11435479	DETERMINING RELATIVE VELOCITY BASED ON AN EXPECTED CONFIGURATION	11/20/2018	8/6/2018
P-0023-US-A1	10983213	NONUNIFORM SEPARATION OF DETECTOR ARRAY ELEMENTS IN A LIDAR SYSTEM	3/29/2018	3/29/2017
P-0037-US-A1	10684360	PROTECTING DETECTOR IN A LIDAR SYSTEM USING OFF-AXIS ILLUMINATION	9/22/2017	3/30/2017
P-0006-US-A1C1	10267898	Scan Patterns for Lidar Systems	1/15/2018	3/22/2017
P-0058-US-A2	10539665	DETERMINING DISTORTION BY TRACKING OBJECTS ACROSS SUCCESSIVE FRAMES	11/20/2018	8/6/2018
P-0010-US-A1C1	11415677	PULSE TIMING BASED ON ANGLE OF VIEW	4/19/2019	3/28/2017
P-0056-US-A1	11521009	AUTOMATICALLY GENERATING TRAINING DATA FOR A LIDAR USING SIMULATED VEHICLES IN VIRTUAL SPACE	9/4/2019	9/4/2018
P-0057-US-A3	10394243	AUTONOMOUS VEHICLE TECHNOLOGY FOR FACILITATING OPERATION ACCORDING TO MOTION PRIMITIVES	9/21/2018	9/21/2018
P-0126-US-A1C1	11609329	CAMERA-GATED LIDAR SYSTEM	3/13/2020	7/10/2018
P-0100-US-A1	10345447	DYNAMIC VISION SENSOR TO DIRECT LIDAR SCANNING	6/27/2018	6/27/2018
P-0092-US-A1	10491885	POST-PROCESSING BY LIDAR SYSTEM GUIDED BY CAMERA INFORMATION	6/13/2018	6/13/2018
P-0011-US-A1	10209359	ADAPTIVE PULSE RATE IN A LIDAR SYSTEM	12/18/2017	3/28/2017
P-0054-US-A5	10169678	OBJECT IDENTIFICATION AND LABELING TOOL FOR TRAINING AUTONOMOUS VEHICLE CONTROLLERS	2/27/2018	12/21/2017
P-0243-US-A1	11360197	CALIBRATION OF SENSOR SYSTEMS	5/7/2020	1/7/2020
P-0028-US-A1	11181622	METHOD FOR CONTROLLING PEAK AND AVERAGE POWER THROUGH LASER RECEIVER	3/29/2018	3/29/2017
P-0283-US-A1	11194048	Lidar System with High-Resolution Scan Pattern	5/12/2021	5/13/2020
P-0048-US-A1	10211593	Optical Amplifier with Multi-Wavelength Pumping	11/30/2017	10/18/2017

P-0060-US-A1	10324170	MULTI-BEAM LIDAR SYSTEM WITH POLYGON MIRROR	5/8/2018	4/5/2018
P-0061-US-A1	11029406	Lidar System with AlInAsSb Avalanche Photodiode	4/6/2018	4/6/2018
P-0242-US-A1	11391842	Adaptive Scan Pattern with Virtual Horizon Estimation	2/12/2020	1/6/2020
P-0004-US-A2C2	11022689	Pulsed Laser for Lidar System	11/6/2017	11/30/2015
P-0021-US-A1	10641874	SIZING THE FIELD OF VIEW OF A DETECTOR TO IMPROVE OPERATION OF A LIDAR SYSTEM	9/20/2017	3/29/2017
P-0058-US-A6	10551485	FITTING POINTS TO A SURFACE	11/20/2018	8/6/2018
P-0055-US-A3	10514462	TRAINING A MACHINE LEARNING BASED MODEL OF A VEHICLE PERCEPTION COMPONENT BASED ON SENSOR SETTINGS	10/31/2018	12/13/2017
P-0055-US-A7	10509127	CONTROLLING VEHICLE SENSORS BASED ON ROAD CONFIGURATION	10/31/2018	12/13/2017
P-0187-US-A2	10571570	Lidar System with Range-Ambiguity Mitigation	6/28/2019	3/7/2019
P-0200-US-A1	10627512	EARLY FUSION OF LIDAR RETURN DATA WITH CAMERA INFORMATION	11/29/2018	11/29/2018
P-0032-US-A1	9989629	CROSS-TALK MITIGATION USING WAVELENGTH SWITCHING	10/6/2017	3/30/2017
P-0046-US-A1C1	10211592	FIBER LASER WITH FREE-SPACE COMPONENTS	5/21/2018	10/18/2017
P-0009-US-A1	10007001	ACTIVE SHORT-WAVE INFRARED FOUR-DIMENSIONAL CAMERA	10/6/2017	3/28/2017
P-0045-US-A3	10606270	CONTROLLING AN AUTONOMOUS VEHICLE USING COST MAPS	10/2/2018	10/18/2017
P-0051-US-A4	10663585	MANUFACTURING A BALANCED POLYGON MIRROR	4/27/2018	11/22/2017
P-0060-US-DE1	924296	ENCLOSURE FOR AN OPTICAL SYSTEM	3/1/2018	3/1/2018
P-0144-US-A1	10348051	Fiber-Optic Amplifier	5/18/2018	5/18/2018
P-0060-US-A2	10578720	LIDAR SYSTEM WITH A POLYGON MIRROR AND A NOISE-REDUCING FEATURE	5/8/2018	4/5/2018
P-0050-US-A1	11467256	DETECTION OF CROSSTALK AND JAMMING PULSES WITH LIDAR SYSTEM	11/1/2018	11/1/2017
P-0051-US-A2	10310058	CONCURRENT SCAN OF MULTIPLE PIXELS IN A LIDAR SYSTEM EQUIPPED WITH A POLYGON MIRROR	4/27/2018	11/22/2017
P-0046-US-A1C2	10720748	AMPLIFIER ASSEMBLY WITH SEMICONDUCTOR OPTICAL AMPLIFIER	2/12/2019	10/18/2017

P-0058-US-A3	10809364	DETERMINING RELATIVE VELOCITY USING CO-LOCATED PIXELS	11/20/2018	8/6/2018
P-0231-US-A1	11442150	Lidar System with Spatial Light Modulator	2/12/2020	2/13/2019
P-0126-US-A1	10591601	CAMERA-GATED LIDAR SYSTEM	7/10/2018	7/10/2018
P-0050-US-A2	11353555	DETECTOR QUENCH CIRCUIT FOR LIDAR SYSTEM	11/1/2018	11/1/2017
P-0025-US-A1	10254762	COMPENSATING FOR THE VIBRATION OF THE VEHICLE	3/8/2018	3/29/2017
P-0010-US-A1	10267899	PULSE TIMING BASED ON ANGLE OF VIEW	1/22/2018	3/28/2017
P-0055-US-A1	10627521	CONTROLLING VEHICLE SENSORS BASED ON DYNAMIC OBJECTS	10/31/2018	12/13/2017
P-0054-US-A3	10535191	OBJECT IDENTIFICATION AND LABELING TOOL FOR TRAINING AUTONOMOUS VEHICLE CONTROLLERS	2/27/2018	12/21/2017
P-0065-US-A1	10340651	LIDAR SYSTEM WITH OPTICAL TRIGGER	8/21/2018	8/21/2018
P-0043-US-A1	11415675	LIDAR SYSTEM WITH ADJUSTABLE PULSE PERIOD	10/9/2018	10/9/2017
P-0004-US-A3C4-CON	9958545	LIDAR SYSTEM	11/20/2017	11/30/2015
P-0179-US-A2	11551547	LANE DETECTION AND TRACKING TECHNIQUES FOR IMAGING SYSTEMS	7/9/2020	1/6/2020
P-0067-US-A1C1	11536803	LIDAR RECEIVER WITH MULTIPLE DETECTORS FOR RANGE-AMBIGUITY MITIGATION	8/29/2019	12/5/2018
P-0041-US-A2	10094925	MULTISPECTRAL LIDAR SYSTEM	4/2/2018	3/31/2017
P-0040-US-A1	11022688	MULTI-EYE LIDAR SYSTEM	4/2/2018	3/31/2017
P-0054-US-A2	10275689	OBJECT IDENTIFICATION AND LABELING TOOL FOR TRAINING AUTONOMOUS VEHICLE CONTROLLERS	2/27/2018	12/21/2017
P-0052-US-A1	10451716	MONITORING ROTATION OF A MIRROR IN A LIDAR SYSTEM	4/20/2018	11/22/2017
P-0017-US-A1	10061019	DIFFRACTIVE OPTICAL ELEMENT IN A LIDAR SYSTEM TO CORRECT FOR BACKSCAN	10/10/2017	3/28/2017
P-0249-US-A6	11119219	LIDAR SYSTEM WITH INPUT OPTICAL ELEMENT	2/24/2021	8/10/2020
P-0274-US-A1	11361449	Neural Network for Object Detection and Tracking	9/4/2020	5/6/2020
P-0003-US-A1	9841495	LIDAR SYSTEM WITH IMPROVED SCANNING SPEED FOR HIGH-RESOLUTION DEPTH MAPPING	11/3/2016	11/5/2015

P-0003-US-A1C1	9897687	LIDAR SYSTEM WITH IMPROVED SCANNING SPEED FOR HIGH-RESOLUTION DEPTH MAPPING	4/4/2017	11/5/2015
P-0003-US-A2	10488496	LIDAR SYSTEM WITH IMPROVED SCANNING SPEED FOR HIGH-RESOLUTION DEPTH MAPPING	11/3/2016	11/5/2015
P-0004-US-A3C1	9857468	Lidar System	3/27/2017	11/30/2015
P-0004-US-A3C2	9874635	Lidar System	3/27/2017	11/30/2015
P-0004-US-A3C3	9823353	Lidar System	3/27/2017	11/30/2015
P-0005-US-A1	9810775	Q-Switched Laser for Lidar System	3/16/2017	3/16/2017
P-0005-US-A2	9810786	Optical Parametric Oscillator for Lidar System	3/16/2017	3/16/2017
P-0005-US-A3	9905992	Self-Raman Laser for Lidar System	3/16/2017	3/16/2017
P-0006-US-A1	9869754	Scan Patterns for Lidar Systems	3/22/2017	3/22/2017
P-0004-US-A1	10591600	Lidar System with Distributed Laser and Multiple Sensor Heads	11/29/2016	11/30/2015
P-0004-US-A1C1	9804264	Lidar System with Distributed Laser and Multiple Sensor Heads	3/27/2017	11/30/2015
P-0004-US-A2	10520602	Pulsed Laser for Lidar System	11/29/2016	11/30/2015
P-0004-US-A2C1	9812838	Pulsed Laser for Lidar System	3/27/2017	11/30/2015
P-0004-US-A3	10557940	Lidar System	11/29/2016	11/30/2015
P-0054-US-A4	10175697	OBJECT IDENTIFICATION AND LABELING TOOL FOR TRAINING AUTONOMOUS VEHICLE CONTROLLERS	2/27/2018	12/21/2017
P-0014-US-A1C1	10627495	TIME VARYING GAIN IN AN OPTICAL DETECTOR OPERATING IN A LIDAR SYSTEM	11/9/2018	3/28/2017
P-0044-US-A2	11415676	INTERLACED SCAN PATTERNS FOR LIDAR SYSTEM	10/9/2018	10/9/2017
P-0021-US-A1C1	11378666	SIZING THE FIELD OF VIEW OF A DETECTOR TO IMPROVE OPERATION OF A LIDAR SYSTEM	4/29/2020	3/29/2017
P-0131-US-A1	10551501	Dual-Mode Lidar System	8/9/2018	8/9/2018
P-0187-US-A1	11428812	Lidar System with Range-Ambiguity Mitigation	6/28/2019	3/7/2019
P-0249-US-A2C1	11467266	COHERENT PULSED LIDAR SYSTEM WITH SPECTRAL SIGNATURES	6/26/2020	8/20/2019
P-0042-US-A1	10677897	COMBINING LIDAR AND CAMERA DATA	4/16/2018	4/14/2017

	P-0063-US-A1	10338199	TRANSCEIVER APPARATUS, METHOD AND APPLICATIONS	7/5/2018	7/5/2018
	P-0051-US-A3	10324185	REDUCING AUDIO NOISE IN A LIDAR SCANNER WITH A POLYGON MIRROR	4/27/2018	11/22/2017
	P-0141-US-A1	11656620	GENERATING ENVIRONMENTAL PARAMETERS BASED ON SENSOR DATA USING MACHINE LEARNING	3/6/2019	12/31/2018
	P-0018-US-A1C1	11346925	METHOD FOR DYNAMICALLY CONTROLLING LASER POWER	10/25/2018	3/28/2017
	SEA-0004-US-A2	11460545	SOLID STATE LIDAR SILICON PHOTONICS	12/19/2019	5/24/2019
	SEA-0008-US-A1	11573299	LIDAR SCAN PROFILE PARAMETERIZATION	6/3/2020	6/3/2020
	SEA-0002-US-A1	11391822	ROTATING PYRAMIDAL MIRROR	11/30/2018	11/30/2018
	SEA-0003-US-A1	11422237	PYRAMIDAL MIRROR LASER SCANNING FOR LIDAR	1/15/2019	1/15/2019
	SEA-0014-US-A1	11635553	CUTOFF MODES FOR METASURFACE TUNING	7/30/2020	12/14/2019
	P-0179-US-A1	11688155	LANE DETECTION AND TRACKING TECHNIQUES FOR IMAGING SYSTEMS	7/8/2020	1/6/2020
	P-0006-US-A1C2	11686821	Scan Patterns for Lidar Systems	4/22/2019	3/22/2017

Country	IP Right: IP Right ID	Application Number	Title	Filing Date	Earliest Priority Date
AU	P-0179-AU-A1	2021246857	LANE DETECTION AND TRACKING TECHNIQUES FOR IMAGING SYSTEMS	1/6/2021	1/6/2020
	P-0249-AU-A1	2020334988	COHERENT PULSED LIDAR SYSTEM	8/18/2020	8/20/2019
	P-0242-AU-A1	2021205841	Adaptive Scan Pattern with Virtual Horizon Estimation	1/6/2021	1/6/2020
	P-0243-AU-A1	2021206645	CALIBRATION OF SENSOR SYSTEMS	1/6/2021	1/7/2020
CN	P-0018-CN-A1	201880031339.4	METHOD FOR DYNAMICALLY CONTROLLING LASER POWER	3/28/2018	3/28/2017
	P-0019-CN-A1	201880031402.4	LIDAR TRANSMITTER AND DETECTOR SYSTEM USING PULSE ENCODING TO REDUCE RANGE AMBIGUITY	3/28/2018	3/28/2017
	P-0130-CN-A1	201980057112.1	ADJUSTABLE PULSE CHARACTERISTICS FOR GROUND DETECTION IN LIDAR SYSTEMS	7/19/2019	7/19/2018

	P-0009-CN-A1	201880031317.8	ACTIVE SHORT-WAVE INFRARED FOUR-DIMENSIONAL CAMERA	3/28/2018	3/28/2017
	P-0004-CN-A1	201680079956.2	Lidar System with Distributed Laser and Multiple Sensor Heads and Pulsed Laser for Lidar System	11/29/2016	11/30/2015
	P-0175-CN-A1DIV	202211106891X	Lidar System with Semiconductor Optical Amplifier	2/7/2020	2/8/2019
	P-0003-CN-A1	201680071399	LIDAR SYSTEM WITH IMPROVED SCANNING SPEED FOR HIGH-RESOLUTION DEPTH MAPPING	11/3/2016	11/5/2015
	P-0179-CN-A1	2021800168566	LANE DETECTION AND TRACKING TECHNIQUES FOR IMAGING SYSTEMS	1/6/2021	1/6/2020
	P-0243-CN-A1	2021800181908	CALIBRATION OF SENSOR SYSTEMS	1/6/2021	1/7/2020
	P-0242-CN-A1	2021800083642	Adaptive Scan Pattern with Virtual Horizon Estimation	1/6/2021	1/6/2020
	P-0296-CN-UTIL-A1	2021900008492	Elevation Motor Design and Mirror Placement	5/26/2021	10/7/2020
	P-0274-CN-A1	2021800330442	GRAPH NEURAL NETWORK FOR MULTI-OBJECT DETECTION AND TRACKING	5/4/2021	5/6/2020
	P-0304-CN-UTIL-A1	2022232527954	Lidar Sensor with Dynamic Scan Speed	12/5/2022	12/3/2021
	P-0171-CN-A1	2022108841495	Lidar Transceiver with Coaxial Transmit and Receive Path	7/26/2022	7/26/2021
	P-0283-CN-A1	202180048735X	Lidar System with High-Resolution Scan Patterns	5/12/2021	5/13/2020
	SEA-0002-CN-A1	201911044004.9	ROTATING PYRAMIDAL MIRROR	10/30/2019	11/30/2018
	SEA-0003-CN-A1	201911043999.7	PYRAMIDAL MIRROR LASER SCANNING FOR LIDAR	10/30/2019	1/15/2019
	P-0249-CN-A6	2021800690310	LIDAR SYSTEM WITH INPUT OPTICAL ELEMENT	7/15/2021	8/10/2020
	P-0249-CN-A8	2021800690397	LIDAR SYSTEM WITH PULSED AND FREQUENCY-MODULATED LIGHT	7/13/2021	8/10/2020
	P-0249-CN-A1	2020800727077	COHERENT PULSED LIDAR SYSTEM	8/18/2020	8/20/2019
	P-0067-CN-A1	201980089089.4	LIDAR RECEIVER WITH MULTIPLE DETECTORS FOR RANGE-AMBIGUITY MITIGATION	12/4/2019	12/5/2018
	P-0280-CN-A1	TBD	Generating Scan Patterns Using Cognitive Lidar	12/2/2021	12/14/2020
	P-0273-CN-A1	TBD	Velocity Determination with a Scanned Lidar System	9/30/2021	10/7/2020
	P-0300-CN-A1	TBD	Lidar System with Low-Noise Avalanche Photodiode	9/15/2021	9/28/2020
EP	P-0006-EP-A1	18771263.3	SCAN PATTERNS FOR LIDAR SYSTEMS	3/22/2018	3/22/2017

	P-0130-EP-A1	19837403.5	ADJUSTABLE PULSE CHARACTERISTICS FOR GROUND DETECTION IN LIDAR SYSTEMS	7/19/2019	7/19/2018
	P-0009-EP-A1	18776991.4	ACTIVE SHORT-WAVE INFRARED FOUR-DIMENSIONAL CAMERA	3/28/2018	3/28/2017
	P-0179-EP-A1	21778828.0	LANE DETECTION AND TRACKING TECHNIQUES FOR IMAGING SYSTEMS	1/6/2021	1/6/2020
	P-0242-EP-A1	21738292.8	Adaptive Scan Pattern with Virtual Horizon Estimation	1/6/2021	1/6/2020
	P-0243-EP-A1	21738670.5	CALIBRATION OF SENSOR SYSTEMS	1/6/2021	1/7/2020
	P-0280-EP-A1	21835501.4	Generating Scan Patterns Using Cognitive Lidar	12/2/2021	12/14/2020
	P-0274-EP-A1	21727719.3	GRAPH NEURAL NETWORK FOR MULTI-OBJECT DETECTION AND TRACKING	5/4/2021	5/6/2020
	P-0283-EP-A1	21730712.3	Lidar System with High-Resolution Scan Patterns	5/12/2021	5/13/2020
	SEA-0016-EP-A1	22189806.7	TUNABLE DIELECTRIC METASURFACE FOR BEAM STEERING	8/10/2022	9/15/2021
	SEA-0017-EP-A1	22189807.5	AVALANCHE PHOTODIODE GAIN COMPENSATION FOR WIDE DYNAMIC RANGE	8/10/2022	8/31/2021
	P-0249-EP-A6	21751720.0	LIDAR SYSTEM WITH INPUT OPTICAL ELEMENT	7/15/2021	8/10/2020
	P-0249-EP-A8	21751705.1	LIDAR SYSTEM WITH PULSED AND FREQUENCY-MODULATED LIGHT	7/13/2021	8/10/2020
	P-0249-EP-A1	20854175.5	COHERENT PULSED LIDAR SYSTEM	8/18/2020	8/20/2019
	P-0175-EP-A1	20753230	Lidar System with Semiconductor Optical Amplifier	2/7/2020	2/8/2019
	P-0067-EP-A1	19894209.6	LIDAR RECEIVER WITH MULTIPLE DETECTORS FOR RANGE-AMBIGUITY MITIGATION	12/4/2019	12/5/2018
JP	P-0179-JP-A1	2022-541686	LANE DETECTION AND TRACKING TECHNIQUES FOR IMAGING SYSTEMS	1/6/2021	1/6/2020
	P-0243-JP-A1	2022-542041	CALIBRATION OF SENSOR SYSTEMS	1/6/2021	1/7/2020
	P-0242-JP-A1	2022-541687	Adaptive Scan Pattern with Virtual Horizon Estimation	1/6/2021	1/6/2020
KR	P-0242-KR-A1	10-2022-7026314	Adaptive Scan Pattern with Virtual Horizon Estimation	1/6/2021	1/6/2020
	P-0243-KR-A1	10-2022-7026321	CALIBRATION OF SENSOR SYSTEMS	1/6/2021	1/7/2020
	P-0179-KR-A1	10-2022-7026499	LANE DETECTION AND TRACKING TECHNIQUES FOR IMAGING SYSTEMS	1/6/2021	1/6/2020

US	P-0187-US-A1C1	17/896603	Lidar System with Range-Ambiguity Mitigation	8/26/2022	3/7/2019
	P-0044-US-A2C1	17/886671	INTERLACED SCAN PATTERNS FOR LIDAR SYSTEM	8/12/2022	10/9/2017
	P-0043-US-A1C1	17/883722	LIDAR SYSTEM WITH ADJUSTABLE PULSE PERIOD	8/9/2022	10/9/2017
	P-0012-US-A1C1	16/378315	ADJUSTING RECEIVER CHARACTERISTICS IN VIEW OF WEATHER CONDITIONS	4/8/2019	3/28/2017
	P-0175-US-A1C1	17/101146	Lidar System with Semiconductor Optical Amplifier	11/23/2020	2/8/2019
	P-0211-US-A1	16/271119	Amplifier Input Protection Circuits	2/8/2019	2/8/2019
	P-0019-US-A1C1	16/773409	LIDAR SYSTEM WITH MULTIPLE COMPARATORS AND TIME-TO-DIGITAL CONVERTERS	1/27/2020	3/28/2017
	P-0273-US-A1	17/065011	Velocity Determination with a Scanned Lidar System	10/7/2020	10/7/2020
	P-0051-US-A4C2	18/101824	LIDAR SYSTEM WITH POLYGON MIRROR	1/26/2023	11/22/2017
	P-0294-US-A2	17/741582	Geometric Calibration for Lidar Systems	5/11/2022	5/11/2021
	P-0294-US-A1	17/741576	Range Calibration for Lidar Systems	5/11/2022	5/11/2021
	P-0141-US-A1C1	18/133990	GENERATING ENVIRONMENTAL PARAMETERS BASED ON SENSOR DATA USING MACHINE LEARNING	4/12/2023	12/31/2018
	P-0363-US-A1	17/993372	REFLECTIVE MATERIAL AND MARKERS FOR LIGHT SOURCE CALIBRATION	11/23/2022	
	P-0318-US-A1	17/318779	CIRCUIT FOR MEASURING PULSE ENERGY IN A LIDAR SYSTEM	5/12/2021	5/12/2021
	P-0341-US-A1	17/590459	Lidar Window Blockage Detection	2/1/2022	2/1/2022
	P-0274-US-A1C1	17/839448	NEURAL NETWORK FOR OBJECT DETECTION AND TRACKING	6/13/2022	5/6/2020
	P-0227-US-A1CIP	17/529786	PROTECTIVE MASK FOR AN OPTICAL RECEIVER	11/18/2021	6/2/2021
	P-0030-US-A1C1	17/314539	ULTRASONIC VIBRATIONS ON A WINDOW IN A LIDAR SYSTEM	5/7/2021	3/29/2017
	P-0310-US-A2	17/689223	Hybrid Pulsed/Coherent Lidar System with Spectral Signatures	3/8/2022	3/10/2021
	P-0398-US-PROV	63/443650	Dual Angle Polygon Edge for Optimized NVH Performance	2/6/2023	2/6/2023
	P-0303-US-A1	17/709991	RECONSTRUCTION OF PULSED SIGNALS	3/31/2022	4/2/2021
	P-0328-US-A1	17/987402	Lidar System with Scene Dependent Focus Intensity	11/15/2022	11/16/2021
	P-0331-US-A1	17/988,252	Lidar System with Gyroscope-Aided Focus Steering	11/16/2022	11/17/2021
	P-0300-US-A1	17/475956	LIDAR SYSTEM WITH LOW-NOISE AVALANCHE PHOTODIODE	9/15/2021	9/28/2020

P-0222-US-A1C1	18/087011	IMAGING SYSTEM HAVING COIL ON MIRROR ACTUATOR	12/22/2022	4/20/2020
P-0249-US-A3	16/794500	COHERENT PULSED LIDAR SYSTEM	2/19/2020	8/20/2019
P-0366-US-A1	18/095457	Lidar Ground Plane Detection Using Projected and Filtered Data	1/10/2023	1/10/2023
P-0171-US-A1	17/385312	Lidar Transceiver with Coaxial Transmit and Receive Path	7/26/2021	7/26/2021
P-0227-US-A1	17/336585	PROTECTIVE MASK FOR AN OPTICAL RECEIVER	6/2/2021	6/2/2021
P-0323-US-A1	17/870,132	LIDAR SYSTEM WITH PULSE-ENERGY MEASUREMENT	7/21/2022	7/23/2021
P-0249-US-A6CIP	17/403030	LIDAR SYSTEM WITH INPUT OPTICAL ELEMENT	8/16/2021	2/24/2021
P-0280-US-A1	17/121723	Generating Scan Patterns Using Cognitive Lidar	12/14/2020	12/14/2020
P-0339-US-A1	17/881850	Lidar System with Semiconductor Window	8/5/2022	8/5/2021
P-0330-US-A1	18/070177	PULSE DETECTION BASED ON CORRELATION OF DERIVATIVE DATA	11/28/2022	11/28/2022
P-0357-US-A1	17/900303	PULSE METRIC MEASUREMENT BASED ON SIGNAL DECAY	8/31/2022	8/31/2022
P-0342-US-A1	17/736887	Dual-Wavelength Lidar System with Coincidence Detection and Pulse Encoding	5/4/2022	5/4/2022
P-0018-US-A1C2	17/825302	METHOD FOR DYNAMICALLY CONTROLLING LASER POWER	5/26/2022	3/28/2017
P-0249-US-A8	17/374017	LIDAR SYSTEM WITH PULSED AND FREQUENCY-MODULATED LIGHT	7/13/2021	8/10/2020
P-0249-US-A5	17/183719	SEMICONDUCTOR OPTICAL AMPLIFIER WITH BRAGG GRATING	2/24/2021	8/10/2020
P-0249-US-A4	17/183522	MASTER-OSCILLATOR POWER-AMPLIFIER (MOPA) LIGHT SOURCE WITH OPTICAL ISOLATOR	2/24/2021	8/10/2020
P-0283-US-A2	17/318594	LIDAR SYSTEM WITH LOCALLY RETRACED SCAN LINES	5/12/2021	5/13/2020
P-0349-US-A1	18/093041	LIDAR SYSTEM WITH DETECTOR ARRAY	1/4/2023	1/5/2022
P-0349-US-A2	18/093,055	LIDAR SYSTEM WITH WAVELENGTH-TUNABLE LIGHT SOURCE	1/4/2023	1/5/2022
P-0310-US-A1	17/689207	Hybrid Pulsed/Coherent Lidar System	3/8/2022	3/10/2021
P-0360-US-A1	17/871230	Nanosecond Pulsed Wavelength Agile Laser	7/22/2022	7/22/2022
P-0332-US-A1	18/079385	SYSTEM AND METHOD FOR VALIDATION OF LIDAR-GENERATED HORIZON ESTIMATION	12/12/2022	2/1/2022
P-0311-US-A1	17/584860	Lidar System with Multi-Junction Light Source	1/26/2022	1/27/2021
P-0397-US-PROV	63/427474	COHERENT PULSED LIDAR SYSTEM	11/23/2022	11/23/2022

P-0304-US-A1	18/073714	LIDAR SYSTEM WITH DYNAMIC SCAN SPEED	12/2/2022	12/3/2021
P-0313-US-A1	17/723996	COHERENT PULSED LIDAR SYSTEM WITH TWO-SIDED DETECTOR	4/19/2022	4/20/2021
P-0325-US-A1	17/954914	LiDAR Sensor with Redundant Beam Scan	9/28/2022	9/30/2021
SEA-0044-US-A1	17/854351	LIDAR WITH SEGMENTED PHOTODIODE	6/30/2022	6/30/2021
SEA-0043-US-A1	17/853637	LIDAR WITH PHOTONIC INTEGRATED CIRCUIT	6/29/2022	6/30/2021
SEA-0046-US-A1	17/854447	MULTI-SENSOR LIDAR	6/30/2022	6/30/2021
P-0384-US-A1	18/198729	Channel Fusion Using Multiple Measurements	5/17/2023	5/17/2023
P-0044-US-A1C1	17/752954	ADJUSTABLE SCAN PATTERNS FOR LIDAR SYSTEM	5/25/2022	10/9/2017
P-0341-US-A1CIP	18/097002	Lidar Window Blockage Detection	1/13/2023	2/1/2022
SEA-0038-US-A1	17/862949	INCREASED LIDAR APERTURE WITH REFRACTIVE OPTICAL ELEMENT	7/12/2022	7/12/2021
SEA-0042-US-A1	17/853372	LIDAR WITH SUB-PIXEL RESOLUTION	6/29/2022	6/30/2021
SEA-0045-US-A1	17/862024	DYNAMIC GAIN ADJUSTMENT BASED ON DISTANCE TO TARGET IN AN ACTIVE LIGHT DETECTION SYSTEM	7/11/2022	7/12/2021
P-0296-US-A1	17/330706	Elevation Motor Design and Mirror Placement	5/26/2021	10/7/2020
SEA-0035-US-A1	17/863026	LIDAR WITH A BALANCED DETECTOR	7/12/2022	7/12/2021
SEA-0037-US-A1	17/868906	MULTIPLEXED COHERENT OPTICAL PHASED ARRAY IN A LIGHT DETECTION AND RANGING (LiDAR) SYSTEM	7/20/2022	7/20/2021
SEA-0036-US-A1	17/852578	LIDAR WITH A BALANCED DETECTOR	6/29/2022	6/30/2021
SEA-0041-US-A1	17/899126	ANALOG DEMODULATION OF PHASE MODULATED CONTINUOUS WAVE (PMCW) LiDAR	8/30/2022	9/3/2021
SEA-0040-US-A1	17/853475	LIDAR WITH PIXEL-BASED PHASE MODULATED CONTINUOUS WAV	6/29/2022	6/30/2021
SEA-0050-US-A1	17/898071	OPTO-MECHANICAL PHASE SHIFTERS IN AN ACTIVE LIGHT DETECTION SYSTEM	8/29/2022	9/8/2021
SEA-0047-US-A1	17/854560	MULTI-SPECTRAL LIDAR	6/30/2022	6/30/2021
SEA-0048-US-A1	17/816512	CRITERIA BASED FALSE POSITIVE DETERMINATION IN AN ACTIVE LIGHT DETECTION SYSTEM	8/1/2022	7/30/2021
SEA-0049-US-A1	17/850523	LIDAR WITH METASURFACE BEAM STEERING	6/27/2022	6/28/2021
SEA-0051-US-A1	17/677790	Unidirectional, Asymmetric, E-Skid, Waveguide Grating Antenna	2/22/2022	2/22/2022

SEA-0062-US-PROV	63/477769	SELF-ALIGNED TRANSCEIVER CHIP FOR COHERENT MECHANICAL LIDAR	12/29/2022	12/29/2022
SEA-0060-US-PROV	63/425747	LASER ACTIVE OPTICAL DEVICE HAVING CHANGEABLE WAVELENGTH	11/16/2022	11/16/2022
SEA-0053-US-PROV	63/374280	GRAPHENE PHOTODETECTOR FOR LIDAR	9/1/2022	9/1/2022
SEA-0054-US-PROV	63/432241	AVALANCHE PHOTODIODE BIAS CALIBRATION WITH DARK CURRENT SENSE FOR LIDAR SENSORS	12/13/2022	12/13/2022
SEA-0069-US-PROV	63/373689	LIDAR APERTURE DESIGN FOR PREVENTING INTERNAL LIGHT REFLECTION	8/26/2022	8/26/2022
SEA-0064-US-PROV	63/385936	LIDAR SYSTEM WITH MULTIPLE CHANNEL COUNT	12/2/2022	12/2/2022
SEA-0059-US-PROV	63/436968	ITERATIVE LEARNING CONTROL IN LIDAR SYSTEMS	1/4/2023	1/4/2023
SEA-0061-US-PROV	63/435426	CALIBRATION DATA FOR OPTICAL PHASED ARRAY	12/27/2022	12/27/2022
SEA-0056-US-PROV	63/403574	LIDAR WITH INTERLEAVED ROW SCANNING	9/2/2022	9/2/2022
SEA-0070-US-PROV	63/381101	SOLID STATE LIDAR ARCHITECTURE FOR LOW-COST ALIGNMENT	10/26/2022	10/26/2022
SEA-0068-US-PROV	63/373678	SMALL APERTURE OPTICAL PERISCOPE FOR LIDAR	8/26/2022	8/26/2022
SEA-0071-US-PROV	63/375347	TIME-BASED PULSES TO REDUCE SPECKLE EFFECT IN COHERENT LIDAR	9/12/2022	9/12/2022
SEA-0058-US-PROV	63/435389	FIELD OF VIEW CALIBRATION FOR A LIDAR SYSTEM USING A FIELD OF VIEW CALIBRATION FIXTURE	12/27/2022	12/27/2022
SEA-0063-US-PROV	63/477118	LIDAR SYSTEM WITH MULTIPLE DETECTOR CHANNELS	12/23/2022	12/23/2022
SEA-0066-US-PROV	63/384210	LIDAR ROTATIONAL SCANNER-INDUCED OFFSET COMPENSATION	11/17/2022	11/17/2022
SEA-0065-US-PROV	63/377681	LIDAR SYSTEM WITH OPTOMECHANICAL SCANNER AND PHOTO DIODE ARRAY DETECTOR	9/29/2022	9/29/2022
SEA-0055-US-PROV	63/434770	LIDAR DETECTION AMPLITUDE REPORTING	12/22/2022	12/22/2022
SEA-0057-US-PROV	63/437234	CLOSE RANGE INTERFERENCE REDUCTION	1/5/2023	1/5/2023
SEA-0067-US-PROV	63/479348	ANALOG TO DIGITAL CONVERSION MANAGEMENT FOR MULTIPLE RECEIVER CHANNELS IN COHERENT MECHANICAL LIDAR	1/10/2023	1/10/2023
P-0346-US-A1	18/095,762	LIDAR SYSTEM WITH ANGLE OF INCIDENCE DETERMINATION	1/11/2023	1/12/2022
P-0365-US-PROV	63/428321	SEMICONDUCTOR OPTICAL AMPLIFIER LASER DIODE SYSTEM	11/28/2022	11/28/2022
SEA-0039-US-A1	17/897403	FAST Q SWITCHED LASER WITH ADAPTIVE BRAGG GRATING STRUCTURE	8/29/2022	9/3/2021

P-0397-US-PROV2	63/450513	COHERENT PULSED LIDAR SYSTEM	3/7/2023	3/7/2023
P-0271-US-A1	17/961650	LIDAR SYSTEM WITH SPECTRALLY ENCODED LIGHT PULSES	10/7/2022	10/8/2021
P-0283-US-A1C1	17/535174	LIDAR SYSTEM WITH HIGH-RESOLUTION SCAN PATTERN	11/24/2021	5/13/2020
SEA-0011-US-A1	16/916630	LIDAR SYSTEMS AND METHODS	6/30/2020	6/30/2020
SEA-0003-US-A1C1	17/747,723	PYRAMIDAL MIRROR LASER SCANNING FOR LIDAR	5/18/2022	1/15/2019
SEA-0004-US-A1	16/654817	SOLID STATE LIDAR WITH SILICON PHOTONICS AND METASURFACE	10/16/2019	5/24/2019
SEA-0010-US-A1	16/921151	VARIABLE RESOLUTION AND AUTOMATIC WINDOWING FOR LIDAR	7/6/2020	7/6/2020
SEA-0009-US-A1	17/067358	DUAL APD REFLECTION CANCELLATION	10/9/2020	10/9/2020
SEA-0007-US-A1	16/943927	PLASMA DISPERSION EFFECT FOR METASURFACE TUNING	7/30/2020	12/14/2019
SEA-0002-US-A1C1	17/747832	ROTATING PYRAMIDAL MIRROR	5/18/2022	11/30/2018
SEA-0005-US-A1	17/017503	COMPACT GALVANOMETER MIRROR DESIGN	9/10/2020	9/10/2019
SEA-0012-U-A1	16/917502	MECHANICALLY SCANNING LIDAR	6/30/2022	6/30/2020
SEA-0006-US-A1	16/810736	FREQUENCY CHIRP FOR LIDAR FOR HIGH-VELOCITY TARGETS	3/5/2020	12/31/2019
SEA-0024-US-A1	17/851900	LIDAR WITH OPTICAL ELEMENT	6/28/2022	6/30/2021
SEA-0019-US-A1	17/850071	LIDAR WITH THERMAL PHASE SHIFTER	6/27/2022	6/28/2021
SEA-0014-US-A2	16/944005	Thermal Undercut Structure for Metasurface Tuning	7/30/2020	12/14/2019
SEA-0025-US-A1	17/833066	RANGE INFORMATION DETECTION USING COHERENT PULSE SETS WITH SELECTED WAVEFORM CHARACTERISTICS	6/6/2022	6/29/2021
SEA-0017-US-A1	17/462170	AVALANCHE PHOTODIODE GAIN COMPENSATION FOR WIDE DYNAMIC RANGE	8/31/2021	8/31/2021
SEA-0016-US-A1	17/876656	TUNABLE DIELECTRIC METASURFACE FOR BEAM STEERING	7/29/2022	9/15/2021
SEA-0020-US-A1	17/850127	LIDAR PHOTONIC ISOLATOR	6/27/2022	6/28/2021
SEA-0021-US-A1	17/850226	LIDAR WITH FREE SPACE COUPLED DETECTORS	6/27/2022	6/28/2021
SEA-0013-US-A1	17/494151	ADAPTIVE AVALANCHE PHOTODIODE BIAS SET POINT CALIBRATION SYSTEM AND METHOD	10/5/2021	10/20/2020
SEA-0015-US-A1	17/823490	LIDAR INTERFERENCE MITIGATION VIA MODULATED SPATIO-TEMPORAL SCANNING	8/30/2022	8/30/2021
SEA-0018-US-A1	17/849967	LIDAR WITH PLASMONIC ON-CHIP LIGHT GENERATION	6/27/2022	6/28/2021

	SEA-0026-US-A1	17/844227	FREQUENCY ENCODING OF MULTIPLE IN-FLIGHT COHERENT PULSES	6/20/2022	6/29/2021
	SEA-0022-US-A1	17/850350	LIDAR WITH SEGMENTED MODULATOR	6/27/2022	6/28/2021
	SEA-0023-US-A1	17/851781	LIDAR WITH POLARIZED WAVEGUIDE	6/28/2022	6/28/2021
	P-0377-US-A1	18/107663	LIDAR LOCALIZATION	2/9/2023	2/9/2023
	SEA-0029-US-A1	17/852890	FIELD OF VIEW LASER POWER REBALANCING	6/29/2022	7/2/2021
	SEA-0027-US-A1	17/869891	FINGERTIP LIDAR SYSTEM FOR VISUAL ASSISTANCE	7/21/2022	7/21/2021
	SEA-0028-US-A1	17/841854	BLOOM COMPENSATION IN A LIGHT DETECTION AND RANGING (LiDAR) SYSTEM	6/16/2022	6/30/2021
	SEA-0030-US-A1	17/852890	LIDAR WITH INTELLIGENT ORIENTATION	6/29/2022	6/30/2021
	SEA-0031-US-A1	17/851382	LIDAR WITH OBSTRUCTION DETECTION	6/28/2022	6/28/2021
	SEA-0034-US-A1	17/852091	LIDAR WITH SUN-INDUCED NOISE REDUCTION	6/28/2022	6/30/2021
	SEA-0032-US-A1	17/865726	RAPID SERVO PROFILE RECONFIGURATION IN A LiDAR SYSTEM	7/15/2022	7/2/2021
	SEA-0033-US-A1	17/844402	MULTI-AXIAL COLLIMATION OPTICS FOR LIGHT DETECTION AND RANGING	6/20/2022	7/2/2021
	P-0179-US-A1C1	18/340573	LANE DETECTION AND TRACKING TECHNIQUES FOR IMAGING SYSTEMS	6/23/2023	16/6/2020
	P-0390-US-PROV	63/522341	EFFICIENT GENERATION OF OPTIMIZED PULSES FOR DIRECT-DETECT LIDAR	6/21/2023	6/21/2023
	P-0415-US-PROV	63/522970	PROCESSING REFLECTED LIGHT SIGNALS FROM INTERNAL REFERENCE TARGET	6/23/2023	6/23/2023
WO	P-0227-WO-A1	PCT/US2022/031980	PROTECTIVE MASK FOR AN OPTICAL RECEIVER	6/2/2022	6/2/2021
	P-0323-WO-A1	PCT/US2022/037802	LIDAR SYSTEM WITH PULSE-ENERGY MEASUREMENT	7/21/2022	7/23/2021
	P-0339-WO-A1	PCT/US2022/074586	Lidar System with Semiconductor Window	8/5/2022	8/5/2021
	P-0271-WO-A1	PCT/US2022/045984	LIDAR SYSTEM WITH SPECTRALLY ENCODED LIGHT PULSES	10/7/2022	10/8/2021
	P-0331-WO-A1	PCT/US2022/050071	Lidar System with Gyroscope-Aided Focus Steering	11/16/2022	11/17/2021

P-0328-WO-A1	PCT/US2022/049937	Lidar System with Scene Dependent Focus Intensity	11/15/2022	11/16/2021
P-0341-WO-A1	PCT/US2023/011958	Lidar Window Blockage Detection	1/31/2023	2/1/2022
P-0318-WO-A1	PCT/US2022/027799	CIRCUIT FOR MEASURING TIME OF FLIGHT AND DETECTED LIGHT PULSE ENERGY IN A LIDAR SYSTEM	5/5/2022	5/12/2021
P-0349-WO-A1	PCT/US2023/010008	LIDAR SYSTEM WITH DETECTOR ARRAY	1/4/2023	1/5/2022
P-0346-WO-A1	PCT/US2023/010583	LIDAR SYSTEM WITH ANGLE OF INCIDENCE DETERMINATION	1/11/2023	1/12/2022
P-0303-WO-A1	PCT/US2022/022739	RECONSTRUCTION OF PULSED SIGNALS	3/31/2022	4/2/2021
P-0311-WO-A1	PCT/US2022/013825	Lidar System with Multi-Junction Light Source	1/26/2022	1/27/2021
P-0273-WO-A1	PCT/US2021/052883	Velocity Determination with a Scanned Lidar System	9/30/2021	10/7/2020
P-0294-WO-A1	PCT/US2022/028745	RANGE CALIBRATION AND GEOMETRIC CALIBRATION FOR LIDAR SYSTEMS	5/11/2022	5/11/2021
P-0310-WO-A1	PCT/US2022/019268	Hybrid Pulsed/Coherent Lidar System	3/8/2022	3/10/2021
P-0313-WO-A1	PCT/US2022/025328	Coherent Pulsed Lidar System with Two-Sided Detector	4/19/2022	4/20/2021