

## TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

ETAS ID: TM552913

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT		
<b>NATURE OF CONVEYANCE:</b>	Amended and Restated U.S. Patent and Trademark Security Agreement		
<b>CONVEYING PARTY DATA</b>			
<b>Name</b>	<b>Formerly</b>	<b>Execution Date</b>	<b>Entity Type</b>
Space Systems/Loral, LLC		12/11/2019	Limited Liability Company: DELAWARE
<b>RECEIVING PARTY DATA</b>			
<b>Name:</b>	Royal Bank of Canada, as Collateral Agent		
<b>Street Address:</b>	20 King Street West, 4th Floor		
<b>City:</b>	Toronto, Ontario		
<b>State/Country:</b>	CANADA		
<b>Postal Code:</b>	M5H 1C4		
<b>Entity Type:</b>	Chartered Bank: CANADA		
<b>PROPERTY NUMBERS Total: 3</b>			
<b>Property Type</b>	<b>Number</b>	<b>Word Mark</b>	
<b>Registration Number:</b>	4973452	SSL	
<b>Registration Number:</b>	5027390	SSL	
<b>Registration Number:</b>	4973453	SSL	
<b>CORRESPONDENCE DATA</b>			
<b>Fax Number:</b>	2138918763		
<i>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.</i>			
<b>Email:</b>	rhonda.deleon@lw.com		
<b>Correspondent Name:</b>	Latham & Watkins LLP		
<b>Address Line 1:</b>	355 South Grand Avenue		
<b>Address Line 4:</b>	Los Angeles, CALIFORNIA 90071-1560		
<b>ATTORNEY DOCKET NUMBER:</b>	061398-0031		
<b>NAME OF SUBMITTER:</b>	Rhonda DeLeon		
<b>SIGNATURE:</b>	/Rhonda DeLeon/		
<b>DATE SIGNED:</b>	12/11/2019		
<b>Total Attachments: 42</b>			
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**AMENDED AND RESTATED U.S. PATENT  
AND TRADEMARK SECURITY AGREEMENT**

This AMENDED AND RESTATED U.S. PATENT AND TRADEMARK SECURITY AGREEMENT, dated as of December 11, 2019 (as amended, amended and restated, supplemented or otherwise modified from time to time, this **Agreement**), is made by each of the undersigned entities, each an MDA Obligor (each such entity, a **Grantor**, and collectively, the **Grantors**), in favor of ROYAL BANK OF CANADA, in its capacity as collateral agent (in such capacity, the **Collateral Agent**), for the benefit of the Secured Parties, in accordance with the Restated Credit Agreement dated as of October 5, 2017 among Maxar Technologies Inc. (the **US Borrower**), MDA Systems Holdings Ltd. (the **Cdn. Borrower** and, together with the US Borrower, the **Borrowers**), Royal Bank of Canada, as administrative agent and Collateral Agent, and the lenders from time to time party thereto (the **Lenders**), as amended by each of that certain First Amending Agreement, dated as of December 21, 2018, that certain Second Amending Agreement, dated as of December 21, 2018 (as amended by that certain Amending Agreement in respect of such Second Amending Agreement, dated as of January 15, 2019), that certain Third Amending Agreement dated as of November 4, 2019, and that certain Fourth Amending Agreement to be dated as of the date hereof (to become effective upon the satisfaction of the conditions precedent set out therein), and as supplemented by that certain Assumption and Novation Agreement dated as of January 1, 2019 (as so amended and supplemented, and as may be further amended, restated or amended and restated, the **Credit Agreement**).

**WITNESSETH:**

**WHEREAS**, as required by the Credit Agreement, pursuant to an Amended and Restated Security Agreement and an amended and Restated Pledge and Security Agreement, each dated as of the date hereof between, inter alios, the Grantors party thereto and the Collateral Agent (the **GSAs**), each Grantor has granted to the Collateral Agent a security interest in substantially all of such Grantor's property, including, without limitation, the Collateral (as defined below) referred to in Section 1 below;

**WHEREAS**, in connection with the Credit Agreement, certain Grantors (the **Existing IP Grantors**) party hereto have previously agreed to secure such Grantor's obligations under the Credit Agreement and the MDA Obligor Guarantee in accordance with the terms of each of the existing U.S. Patent and Trademark Security Agreements listed in Schedule C attached hereto (collectively, the **Existing IP Security Agreements**) to which it is a party;

**WHEREAS**, each Existing IP Grantor party hereto and the Collateral Agent desires to amend and restate each of the Existing IP Security Agreements to which it is a party in the manner set forth herein; and

**WHEREAS**, pursuant to the Credit Agreement, each Grantor has agreed to execute this Agreement in respect of its Collateral for recording with the United States Patent and Trademark Office and any other office in which a security interest in the Collateral may be recorded under the laws of any other applicable jurisdiction.

**NOW, THEREFORE**, in consideration of the premises and the mutual covenants and agreements hereinafter set forth, each Grantor and the Collateral Agent agree as follows:

**1 Grant of Security**

Each Grantor hereby grants to the Collateral Agent for the benefit of the Secured Parties, a security interest in and to all of such Grantor's right, title and interest in and to its Patents and Trademarks (each as defined below), whether or not such interest is joint or in common with one or more third parties or another Grantor, including the following (the **Collateral**):

- (a) all present and future United States of America and foreign patents, design patents and certificates of invention that may be developed or acquired by or on behalf of such Grantor, or similar industrial property rights, and applications for any of the foregoing, including, but not limited to, the patents set forth in Schedule A hereto opposite the name of such Grantor, as Schedule A may be supplemented from time to time by supplements to the Security and this Agreement which shall be executed and delivered by such Grantor to the Collateral Agent from time to time, and all reissues, divisions, continuations, continuations-in-part, renewals, extensions and re-examinations thereof and amendments thereto (the **Patents**);
- (b) all present and future United States of America and foreign trademarks, trade names, corporate names, company names, business names, fictitious business names, internet domain names, service marks, certification marks, collective marks, logos, other source or business identifiers, designs and general intangibles of a like nature, all registrations and applications for any of the foregoing including, but not limited to, the trademark and service mark registrations, applications, and licenses set forth in Schedule B hereto opposite the name of such Grantor, as Schedule B may be supplemented from time to time by supplements to the Security and this Agreement which shall be executed and delivered by such Grantor to the Collateral Agent from time to time, together with the goodwill connected with the use thereof and symbolized thereby and all extensions and renewals thereof (the **Trademarks**);
- (c) all rights of any kind whatsoever of such Grantor accruing under any of the foregoing provided by applicable law of any jurisdiction, by international treaties and conventions and otherwise throughout the world;
- (d) 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
- (e) any and all claims and causes of action with respect to any of the foregoing, whether occurring 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, dilution, 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.

## 2 Security for Obligations

This Agreement secures, and the Collateral is collateral security for, with respect to each Grantor, the prompt and complete payment and performance in full when due, whether at stated maturity, by required prepayment, declaration, acceleration, demand or otherwise of the Secured Obligations (as such term is defined in the GSAs, as applicable).

## 3 Scope of Security Interest

To the extent that the creation of the security interest would result in the termination of any agreement, license or permit of the Grantors or to the extent any such Patent or Trademark would otherwise constitute Excluded Collateral (each, a **Restricted Asset**), the security interest will not attach to the Restricted Asset for so long as it remains a Restricted Asset. Notwithstanding anything in this Section 3 to the contrary, each Grantor shall grant to the Collateral Agent a security interest in any Collateral that ceases to be a Restricted Asset as a result of obtaining the consent of the other party or otherwise.

Notwithstanding Section 1, no security interest is or will be granted pursuant hereto in any right, title or interest of any Grantor in, to or under any Excluded Collateral.

In addition to the preceding paragraph, the guarantee, security and perfection requirements under this Agreement shall be subject to the Agreed Security Principles.

**4 Recordation**

Each Grantor authorizes and agrees that it will, at its own expense, cause this Agreement, and any supplements or amendments thereto, to be recorded at the United States Trademark and Patent Office (and any successor office and any similar office in any United States state). Each Grantor authorizes the United States Commissioner for Patents, the United States Commissioner for Trademarks and any other government officials to record and register this Agreement.

**5 Supplemental Security**

This Agreement is in addition to and without prejudice to all other security now held or which may hereafter be held by the Collateral Agent.

**6 Execution in Counterparts**

This Agreement may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original and all of which taken together shall constitute one and the same agreement.

**7 Grants, Rights and Remedies**

This Agreement has been entered into in conjunction with the provisions of the Credit Agreement. Each Grantor does hereby acknowledge and confirm that the grant of the security interest hereunder to, and the rights and remedies of, the Collateral Agent with respect to the Collateral are more fully set forth in the Credit Agreement, the terms and provisions of which are incorporated herein by reference as if fully set forth herein.

**8 Governing Law**

This Agreement shall be governed by, and construed in accordance with, the laws of the State of New York, without regard to conflict of laws principles.

**9 US Secured Obligations**

Notwithstanding any other provision of this Agreement, the Obligations of each Grantor, to the extent that it is a Tax Excluded Subsidiary, shall not include the US Secured Obligations; provided that the US Borrower may, by notice to the Administrative Agent, provide that the Obligations of any such Grantor include all US Secured Obligations.

**10 Amendment and Restatement**

This Agreement amends, restates and replaces each Existing IP Security Agreement in its entirety, but does not extinguish the obligations outstanding thereunder or otherwise discharge or release the Existing IP Grantors from their respective obligations arising thereunder, the Liens created thereby or the priority of any pledge, security agreement or any other security therefor. Nothing herein contained shall be construed as a substitution or novation of the obligations outstanding under the Existing IP Security Agreements, which shall remain in full force and effect, except as expressly amended and restated hereby.

## 11 Intercreditor Agreement

Notwithstanding anything herein, the Liens and Security Interest granted to the Collateral Agent pursuant to this Agreement and the exercise of any right or remedy by the Collateral Agent hereunder are subject to the terms of the First Lien Intercreditor Agreement, dated as of December 11, 2019 (as amended, restated, amended and restated or otherwise modified from time to time, the **First Lien Intercreditor Agreement**), among Royal Bank of Canada, as Administrative Agent, the Collateral Agent, and the Wilmington Trust, N.A, in its capacity as collateral agent pursuant to the Indenture, dated as of December 2, 2019 (the **Base Indenture**), by and among SSL Robotics LLC, a Delaware limited liability company and a wholly-owned subsidiary of the US Borrower (the **Escrow Issuer**), Wilmington Trust, National Association, as trustee (in such capacity, the **Trustee**) and Wilmington Trust, National Association, as collateral agent, and (y) that certain Supplemental Indenture, dated as of December 11, 2019 (the **Supplemental Indenture** and together with the Base Indenture, the **Indenture**), by and among the US Borrower, the other Grantors party thereto, as subsidiary guarantors, and the Trustee. In the event of any conflict between the terms of the First Lien Intercreditor Agreement and this Agreement, the terms of the First Lien Intercreditor Agreement shall govern and control.

## 12 Conflict of Terms

In the event of any conflict between the provisions of this Agreement and the provisions of the Credit Agreement which cannot be resolved by both provisions being complied with, the provisions contained in the Credit Agreement will prevail to the extent of such conflict.

## 13 Defined Terms

Capitalized terms used and not otherwise defined in this Agreement have the meanings given to them in the Credit Agreement.

## 14 Successors, etc.

In this Agreement:

- (a) reference to any body corporate or partnership shall include successors thereto, whether by way of amalgamation or otherwise;
- (b) references to any statute, enactment or legislation or to any section or provision thereof include a reference to any order, ordinance, regulation, rule or by-law or proclamation made under or pursuant to that statute, enactment or legislation and all amendments, modifications, consolidations, re-enactments or replacements thereof or substitutions therefor from time to time; and
- (c) reference to any agreement (including without limitation any definitions in or portions of an agreement incorporated herein by reference), instrument, Permit or other document shall include reference to such agreement, instrument, Permit or other document as the same may from time to time be amended, supplemented, replaced or restated.

[Signatures follow]

IN WITNESS WHEREOF the parties hereto have executed this by their respective officers thereunto duly authorized, as of the date first above written.

MAXAR TECHNOLOGIES ULC, as a Grantor

DIGITALGLOBE, INC., as a Grantor

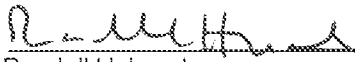
SPACE SYSTEMS/LORAL, LLC, as a Grantor

MACDONALD, DETTWILER AND ASSOCIATES  
INC., as a Grantor

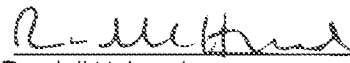
MACDONALD, DETTWILER AND ASSOCIATES  
CORPORATION, as a Grantor

MDA GEOSPATIAL SERVICES INC., as a Grantor

NEPTEC DESIGN GROUP LTD., as a Grantor

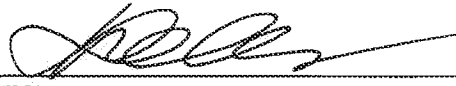
By:   
Name: Randall H. Lynch  
Title: President and Treasurer

RADIANT GEOSPATIAL SOLUTIONS LLC, as a  
Grantor

By:   
Name: Randall H. Lynch  
Title: Vice President and Treasurer

ROYAL BANK OF CANADA, as Collateral Agent

By:



Name: Helena Sudowski  
Title: Manager, Agency

[Signature Page to US Patent and Trademark Security Agreement (MDA Obligors)]



**SCHEDULE A**

**PATENT REGISTRATIONS AND PATENT APPLICATIONS**

	<b>Assignee</b>	<b>Patent Title</b>	<b>Serial No.</b>	<b>Filing Date</b>	<b>Patent No.</b>	<b>Issue Date</b>
1.	DigitalGlobe, Inc.	Apparatuses and methods for mapping image coordinates to ground coordinates	0984662 1	05/01/200 1	6735348	05/11/200 4
2.	DigitalGlobe, Inc.	Method for using remotely sensed data to provide agricultural information	1004742 3	01/15/200 2	7068816	06/27/200 6
3.	DigitalGlobe, Inc.	Tonal balancing of multiple images	1042372 0	04/25/200 3	7236646	06/26/200 7
4.	DigitalGlobe, Inc.	Image warp	1068429 5	10/10/200 3	7269299	09/11/200 7
5.	DigitalGlobe, Inc.	Estimation of coefficients for a rational polynomial camera model	1084927 6	05/18/200 4	7421151	09/02/200 8
6.	DigitalGlobe, Inc.	Method and apparatus for determination of water pervious surfaces	1090869 5	05/23/200 5	7660430	02/09/201 0
7.	DigitalGlobe, Inc.	Tonal balancing of multiple images	1175327 2	05/24/200 7	7317844	01/08/200 8
8.	DigitalGlobe, Inc.	Semi-automatic extraction of linear features from image data	1176476 5	06/18/200 7	7653218	01/26/201 0
9.	DigitalGlobe, Inc.	Image warp	1183516 9	08/07/200 7	7613362	11/03/200 9
10.	DigitalGlobe, Inc.	Method and apparatus for enhancing a digital image	1246379 7	05/11/200 9	7715651	05/11/201 0
11.	DigitalGlobe, Inc.	Semi-automatic extraction of linear features from image data	1260691 8	10/27/200 9	8155391	04/10/201 2
12.	DigitalGlobe, Inc.	Advanced cloud cover assessment	1311258 3	05/20/201 1	8594375	11/26/201 3
13.	DigitalGlobe, Inc.	Semi-automatic extraction of linear features from image data	1341756 8	03/12/201 2	8488845	07/16/201 3

14.	DigitalGlobe, Inc.	Pan sharpening digital imagery	1345274 1	04/20/201 2	8761506	06/24/201 4
15.	DigitalGlobe, Inc.	Hyperspherical pan sharpening	1345276 8	04/20/201 2	8737733	05/27/201 4
16.	DigitalGlobe, Inc.	Automated metric information network	1376235 5	02/07/201 3	9251419	02/02/201 6
17.	DigitalGlobe, Inc.	Using parallax in remote sensing to determine cloud feature height	1383580 4	03/15/201 3	9001311	04/07/201 5
18.	DigitalGlobe, Inc.	Automated geospatial image mosaic generation	1383847 5	03/15/201 3	9042674	05/26/201 5
19.	DigitalGlobe, Inc.	System and method for geolocation of social media posts	1384017 3	03/15/201 3	9032000	05/12/201 5
20.	DigitalGlobe, Inc.	Atmospheric compensation in satellite imagery	1384074 3	03/15/201 3	9396528	07/19/201 6
21.	DigitalGlobe, Inc.	Automated geospatial image mosaic generation with automatic source selection	1395244 2	07/26/201 3	9202259	12/01/201 5
22.	DigitalGlobe, Inc.	Automated geospatial image mosaic generation with automatic cutline generation	1395246 4	07/26/201 3	9135505	09/15/201 5
23.	DigitalGlobe, Inc.	Automatic generation of built-up layers from high resolution satellite image data	1395526 8	07/31/201 3	9230168	01/05/201 6
24.	DigitalGlobe, Inc.	Advanced cloud cover assessment for panchromatic images	1395542 9	07/31/201 3	8913826	12/16/201 4
25.	DigitalGlobe, Inc.	Crowdsourced search and locate platform	1401045 0	08/26/201 3	9122708	09/01/201 5
26.	DigitalGlobe, Inc.	Automatic extraction of built-up footprints from high resolution overhead imagery through manipulation of alpha-tree data structures	1401390 4	08/29/201 3	9031325	05/12/201 5

27.	DigitalGlobe, Inc.	Automated and scalable object and feature extraction from imagery	1402439 9	09/11/201 3	9141872	09/22/201 5
28.	DigitalGlobe, Inc.	Classification of land based on analysis of remotely-sensed earth images	1402441 8	09/11/201 3	9147132	09/29/201 5
29.	DigitalGlobe, Inc.	Crowdsourced image analysis platform	1404918 9	10/08/201 3	9560092	01/31/201 7
30.	DigitalGlobe, Inc.	Crowdsourced search and locate platform	1404919 9	10/08/201 3	9128959	09/08/201 5
31.	DigitalGlobe, Inc.	Techniques for identifying parking lots in remotely-sensed images by identifying parking rows	1405333 2	10/14/201 3	9275297	03/01/201 6
32.	DigitalGlobe, Inc.	Generation of high resolution population density data sets through exploitation of high resolution overhead imagery data and low resolution population density data sets	1406330 9	10/25/201 3	9230169	01/05/201 6
33.	DigitalGlobe, Inc.	Automatic extraction of built-up footprints from high resolution overhead imagery through manipulation of alpha-tree data structures	1408940 5	11/25/201 3	8682079	03/25/201 4
34.	DigitalGlobe, Inc.	System and method for multi resolution and multi temporal image search	1409141 2	11/27/201 3	9529824	12/27/201 6
35.	DigitalGlobe, Inc.	Oil tank farm storage monitoring	1409560 8	12/03/201 3	9195876	11/24/201 5
36.	DigitalGlobe, Inc.	Automated remote car counting	1409563 7	12/03/201 3	9122930	09/01/201 5
37.	DigitalGlobe, Inc.	Automated compound structure characterization in overhead imagery	1416300 8	01/24/201 4	9639755	05/02/201 7
38.	DigitalGlobe, Inc.	Automated sliver removal in orthomosaic generation	1421988 4	03/19/201 4	9367895	06/14/201 6

39.	DigitalGlobe, Inc.	Automated geospatial image mosaic generation with multiple zoom level support	1430730 7	06/17/201 4	9396391	07/19/201 6
40.	DigitalGlobe, Inc.	Bathymetric techniques using satellite imagery	1434038 9	07/24/201 4	9336441	05/10/201 6
41.	DigitalGlobe, Inc.	Multi-spectral image labeling with radiometric attribute vectors of image space representation components	1449944 0	09/29/201 4	9619711	04/11/201 7
42.	DigitalGlobe, Inc.	Crowdsourced feature identification and orthorectification	1468049 5	04/07/201 5	10078645	09/18/201 8
43.	DigitalGlobe, Inc.	System and method for large scale crowdsourcing of map data cleanup and correction	1468066 5	04/07/201 5	10083186	09/25/201 8
44.	DigitalGlobe, Inc.	Advanced semi-automated vector editing in two and three dimensions	1468104 3	04/07/201 5	10133928	11/20/201 8
45.	DigitalGlobe, Inc.	Automated tonal balancing	1470812 9	05/08/201 5	9589334	03/07/201 7
46.	DigitalGlobe, Inc.	Some automated and semi-automated tools for linear feature extraction in two and three dimensions	1473017 6	06/03/201 5	9727784	08/08/201 7
47.	DigitalGlobe, Inc.	System and methods for semi-automated editing of ortho-mosaics built from remotely-sensed imagery	1473022 7	06/03/201 5	9600740	03/21/201 7
48.	DigitalGlobe, Inc.	Spectral data analytic cube classifier (SPADACC) for continuous wide area geospatial modeling using normalized and highly dimensional multispectral raster data	1478865 1	06/30/201 5	10121106	11/06/201 8
49.	DigitalGlobe, Inc.	Automated seamline construction for high-	1478987 7	07/01/201 5	9858645	01/02/201 8

		quality high-resolution orthomosaics				
50.	DigitalGlobe, Inc.	Automated conversion of two-dimensional hydrology vector models into valid three-dimensional hydrology vector models	1478989 3	07/01/201 5	9626565	04/18/201 7
51.	DigitalGlobe, Inc.	Integrated architecture for near-real-time satellite imaging applications	1480064 4	07/15/201 5	10014928	07/03/201 8
52.	DigitalGlobe, Inc.	System and method for combining geographical and eco-nomic data extracted from satellite imagery for use in predictive modeling	1480174 0	07/16/201 5		
53.	DigitalGlobe, Inc.	Global-scale object detection using satellite imagery	1481038 2	07/27/201 5	9922265	03/20/201 8
54.	DigitalGlobe, Inc.	Object detection with textural to spectral domain adaptation	1481983 9	08/06/201 5	9495618	11/15/201 6
55.	DigitalGlobe, Inc.	Automated and scalable object and feature extraction from imagery	1482674 0	08/14/201 5	9569690	02/14/201 7
56.	DigitalGlobe, Inc.	Broad area geospatial object detection using autogenerated deep learning models	1483573 6	08/26/201 5	9589210	03/07/201 7
57.	DigitalGlobe, Inc.	Classification of land based on analysis of remotely-sensed earth images	1483762 8	08/27/201 5	9619734	04/11/201 7
58.	DigitalGlobe, Inc.	Global-scale damage detection using satellite imagery	1494150 4	11/13/201 5	9858479	01/02/201 8
59.	DigitalGlobe, Inc.	Generation of high resolution population density data sets through exploitation of high resolution overhead imagery data and low	1497640 0	12/21/201 5	9672424	06/06/201 7

		resolution population density data sets				
60.	DigitalGlobe, Inc.	Automated metric information network	14984613	12/30/2015	9875404	01/23/2018
61.	DigitalGlobe, Inc.	Automated Registration Of Three-Dimensional Vectors To Three-Dimensional Linear Features In Remotely-Sensed Data	14993074	01/11/2016	10223828	03/05/2019
62.	DigitalGlobe, Inc.	Automated sliver removal in orthomosaic generation	15040780	02/10/2016	9916640	03/13/2018
63.	DigitalGlobe, Inc.	Automated remote car counting	15064609	03/09/2016	9619710	04/11/2017
64.	DigitalGlobe, Inc.	Enhanced crowdsourced search and locate platform	15077886	03/22/2016	10176194	01/08/2019
65.	DigitalGlobe, Inc.	Bathymetric techniques using satellite imagery	15093040	04/07/2016	9767361	09/19/2017
66.	DigitalGlobe, Inc.	Atmospheric compensation in satellite imagery	15186171	06/17/2016	9990705	06/05/2018
67.	DigitalGlobe, Inc.	Synthesizing training data for broad area geospatial object detection	15194541	06/27/2016	9767565	09/19/2017
68.	DigitalGlobe, Inc.	Automated geospatial image mosaic generation with multiple zoom level support	15204307	07/07/2016	9940514	04/10/2018
69.	DigitalGlobe, Inc.	Choreographing automated and manual processes in support of mosaic generation	15228954	08/04/2016	10120884	11/06/2018
70.	DigitalGlobe, Inc.	Analyzing and viewing social interactions based on personal electronic devices	15239729	08/17/2016		
71.	DigitalGlobe, Inc.	Movement intelligence using satellite imagery	15241034	08/18/2016	10089528	10/02/2018
72.	DigitalGlobe, Inc.	System and method for large scale crowdsourcing of map	15262118	09/12/2016	10346495	07/09/2019

		data cleanup and correction				
73.	DigitalGlobe, Inc.	Advanced cloud detection using machine learning and optimization techniques	15362254	11/28/2016	10083354	09/25/2018
74.	DigitalGlobe, Inc.	System and method for multi resolution and multi temporal image search	15391786	12/27/2016	10482122	11/19/2019
75.	DigitalGlobe, Inc.	Automated tonal balancing	15445949	02/28/2017	10311557	06/04/2019
76.	DigitalGlobe, Inc.	Broad area geospatial object detection using autogenerated deep learning models	15452076	03/07/2017	10013774	07/03/2018
77.	DigitalGlobe, Inc.	System and methods for semi-automated editing of ortho-mosaics built from remotely-sensed imagery	15465581	03/21/2017	10121074	11/06/2018
78.	DigitalGlobe, Inc.	Automated conversion of two-dimensional hydrology vector models into valid three-dimensional hydrology vector models	15490866	04/18/2017	9922252	03/20/2018
79.	DigitalGlobe, Inc.	System for simplified generation of systems for broad area geospatial object detection	15608894	05/30/2017	9904849	02/27/2018
80.	DigitalGlobe, Inc.	Some automated and semi-automated tools for linear feature extraction in two and three dimensions	15672267	08/08/2017	10318808	06/11/2019
81.	DigitalGlobe, Inc.	Muddy water detection using normalized semantic layers	15694353	09/01/2017		
82.	DigitalGlobe, Inc.	Synthesizing training data for broad area geospatial object detection	15709252	09/19/2017	10157479	12/18/2018
83.	DigitalGlobe, Inc.	Techniques for image co-registration	15716425	09/26/2017		

84.	DigitalGlobe, Inc.	Shape-based segmentation using hierarchical image representations for automatic training data generation and search space specification for machine learning algorithms	1580231 3	11/02/201 7	10372984	08/06/201 9
85.	DigitalGlobe, Inc.	Anomaly detection using non-target clustering	1580274 3	11/03/201 7		
86.	DigitalGlobe, Inc.	Unsupervised land use and land cover detection	1581212 4	11/14/201 7		
87.	DigitalGlobe, Inc.	Sensor shift for remote sensing	1582547 8	11/29/201 7		
88.	DigitalGlobe, Inc.	Automated seamline construction for high-quality high-resolution orthomosaics	1586028 1	01/02/201 8	10346952	07/09/201 9
89.	DigitalGlobe, Inc.	System for simplified generation of systems for broad area geospatial object detection	1590634 8	02/27/201 8	10372985	08/06/201 9
90.	DigitalGlobe, Inc.	Atmospheric compensation in satellite imagery	1600084 4	06/05/201 8		
91.	DigitalGlobe, Inc.	Broad area geospatial object detection using autogenerated deep learning models	1602723 5	07/03/201 8	10395388	08/27/201 9
92.	DigitalGlobe, Inc.	Advanced cloud detection using machine learning and optimization techniques	1614005 2	09/24/201 8		
93.	DigitalGlobe, Inc.	Movement intelligence using satellite imagery	1615017 7	10/02/201 8		
94.	DigitalGlobe, Inc.	System and methods for semi-automated editing of ortho-mosaics built from remotely-sensed imagery	1618236 7	11/06/201 8		
95.	DigitalGlobe, Inc.	Advanced semi-automated vector editing	1619697 9	11/20/201 8		



		in two and three dimensions				
96.	DigitalGlobe, Inc.	Synthesizing training data for broad area geospatial object detection	1622440 0	12/18/201 8		
97.	DigitalGlobe, Inc.	Automated registration of three-dimensional vectors to three-dimensional linear features in remotely-sensed data	1629340 9	03/05/201 9		
98.	Radiant Geospatial Solutions LLC	Reference-based autofocusing method for ifsar and other applications	0951056 1	02/22/200 0	6181270	01/30/200 1
99.	Radiant Geospatial Solutions LLC	System and method for coherent array aberration sensing	0991642 2	07/27/200 1	6597304	07/22/200 3
100.	Radiant Geospatial Solutions LLC	Self-calibrating interferometric synthetic aperture radar altimeter	1043783 6	05/14/200 3	7218268	05/15/200 7
101.	Radiant Geospatial Solutions LLC	Method and system for providing along-track alignment and formatting of synthetic aperture radar (SAR) data, and SAR image formation algorithms using such method and system	1061568 7	07/09/200 3	6873285	03/29/200 5
102.	Radiant Geospatial Solutions LLC	Measurement-diverse imaging and wavefront sensing with amplitude and phase estimation	1144610 9	06/05/200 6	7531774	05/12/200 9
103.	Radiant Geospatial Solutions LLC	Methods for two-dimensional autofocus in high resolution radar systems	1188963 7	08/15/200 7	7663529	02/16/201 0
104.	Radiant Geospatial Solutions LLC	Methods for two-dimensional autofocus in high resolution radar systems	1265668 9	02/12/201 0	7843377	11/30/201 0
105.	Radiant Geospatial Solutions LLC	Methods for two-dimensional autofocus in high resolution radar systems	1292660 2	11/29/201 0	8009079	08/30/201 1

106.	Radiant Geospatial Solutions LLC	Correlated Land Change System and Method	1309617 4	04/28/201 1	8548248	10/01/201 3
107.	Radiant Geospatial Solutions LLC	Method for aligning a plurality of sub-apertures of a multiple-aperture imaging system	1322512 7	09/02/201 1	8559017	10/15/201 3
108.	Radiant Geospatial Solutions LLC	System and method for aggregating multi-source data and identifying geographic areas for data acquisition	1534133 8	11/02/201 6	10346446	07/09/201 9
109.	Radiant Geospatial Solutions LLC	Method and apparatus for imaging the silhouette of an object occluding a light source using a synthetic aperture	1548891 8	04/17/201 7	10152802	12/11/201 8
110.	Space Systems/Loral, LLC	Microwave multiplexer with manifold spacing adjustment	0947788 1	01/05/200 0	6472951	10/29/200 2
111.	Space Systems/Loral, LLC	Onboard attitude control using reaction wheels	0947878 7	01/06/200 0	6285928	09/04/200 1
112.	Space Systems/Loral, LLC	System and method for limiting the effects of actuator saturation to certain body axes of a spacecraft	0949359 6	01/31/200 0	6456907	09/24/200 2
113.	Space Systems/Loral, LLC	High efficiency dual polarized horn antenna	0949703 6	02/02/200 0	6211838	04/03/200 1
114.	Space Systems/Loral, LLC	Gregorian reflector antenna system having a subreflector optimized for an elliptical antenna aperture	0949905 2	02/04/200 0	6243048	06/05/200 1
115.	Space Systems/Loral, LLC	Method of end bonding tubular sections and bonding a flange on the end of tubular sections	0950337 4	02/14/200 0	6398902	06/04/200 2
116.	Space Systems/Loral, LLC	Magnetic torquer control with thruster augmentation	0951268 8	02/24/200 0	6292722	09/18/200 1
117.	Space Systems/Loral, LLC	Planar magnetic assembly	0951672 7	03/01/200 0	6380834	04/30/200 2

118.	Space Systems/Loral, LLC	Method and apparatus for generating orbital data	0951692 7	03/01/200 0	6253125	06/26/200 1
119.	Space Systems/Loral, LLC	Controller and control method for satellite orbit-keeping maneuvers	0951703 2	03/02/200 0	6445981	09/03/200 2
120.	Space Systems/Loral, LLC	Automated orbit compensation system and method	0952847 4	03/17/200 0	6314344	11/06/200 1
121.	Space Systems/Loral, LLC	Satellite commanding using remotely controlled modulation of satellite on-board telemetry parameters	0953889 1	03/30/200 0	6735501	05/11/200 4
122.	Space Systems/Loral, LLC	Spacecraft having a dual reflector holddown for deploying multiple reflectors in a single release event	0955844 4	04/25/200 0	6308919	10/30/200 1
123.	Space Systems/Loral, LLC	Closed-loop spacecraft orbit control	0956583 6	05/05/200 0	6439507	08/27/200 2
124.	Space Systems/Loral, LLC	Method for using satellite state vector prediction to provide satellite sensor automatic scan inhibit and/or sensor switching	0957899 2	05/25/200 0	6317660	11/13/200 1
125.	Space Systems/Loral, LLC	Argument of perigee correction with longitude control for inclined, eccentric, geosynchronous satellites	0958885 8	06/06/200 0	6317661	11/13/200 1
126.	Space Systems/Loral, LLC	Spacecraft radiator system using a heat pump	0962415 1	07/24/200 0	6883588	04/26/200 5
127.	Space Systems/Loral, LLC	Methods for using satellite state vector prediction to provide three-axis satellite attitude control	0962748 2	07/28/200 0	6237876	05/29/200 1
128.	Space Systems/Loral, LLC	Array fed multiple beam array reflector antenna systems and method	0964093 6	08/17/200 0	6392611	05/21/200 2
129.	Space Systems/Loral, LLC	Shaped reflector antenna system configuration for	0964326 9	08/22/200 0	6411262	06/25/200 2

		use on a communication satellite				
130.	Space Systems/Loral, LLC	Method and apparatus for rate integration supplement for attitude referencing with quaternion differencing	0967090 4	09/28/200 0	6454217	09/24/200 2
131.	Space Systems/Loral, LLC	Stepped waveguide slot array with phase control and satellite communication system employing same	0968429 9	10/06/200 0	6304228	10/16/200 1
132.	Space Systems/Loral, LLC	Bent-pipe satellite system which couples a lan to a gateway and uses a dynamic assignment/multiple access protocol	0970824 9	11/07/200 0	6400696	06/04/200 2
133.	Space Systems/Loral, LLC	Broadband communication systems and methods using low and high bandwidth request and broadcast links	0971312 1	11/15/200 0	6879808	04/12/200 5
134.	Space Systems/Loral, LLC	Spacecraft multi-directional loop heat pipe thermal systems	0971758 5	11/21/200 0	6591899	07/15/200 3
135.	Space Systems/Loral, LLC	Spacecraft multiple loop heat pipe thermal system for internal equipment panel applications	0971818 1	11/21/200 0	6478258	11/12/200 2
136.	Space Systems/Loral, LLC	Variable beamwidth and zoom contour beam antenna systems	0975314 8	01/02/200 1	6414646	07/02/200 2
137.	Space Systems/Loral, LLC	Triple reflector antenna deployment and storage systems	0981229 8	03/20/200 1	6448940	09/10/200 2
138.	Space Systems/Loral, LLC	Flexible waveguide with rounded corrugations	0981848 9	03/27/200 1	6559742	05/06/200 3
139.	Space Systems/Loral, LLC	Heat transfer of a remote heat source using a loop heat pipe	0982207 3	03/30/200 1	7363960	04/29/200 8

140.	Space Systems/Loral, LLC	Dynamic resource allocation architecture for differentiated services over broadband communication networks	0982269 1	03/30/200 1	7219132	05/15/200 7
141.	Space Systems/Loral, LLC	Waveguide slot array capable of radiating shaped beams	0983579 5	04/16/200 1	6476772	11/05/200 2
142.	Space Systems/Loral, LLC	Spacecraft radiator system and method using cross-coupled deployable thermal radiators	0984137 3	04/24/200 1	6854510	02/15/200 5
143.	Space Systems/Loral, LLC	Thermal harness using encased carbon-based fiber and end attachment brackets	0984389 8	04/27/200 1	6367509	04/09/200 2
144.	Space Systems/Loral, LLC	Multiple passband filter	0985069 5	05/08/200 1	6583692	06/24/200 3
145.	Space Systems/Loral, LLC	Satellite communication system with gateway switch networks	0987107 5	05/31/200 1	6898428	05/24/200 5
146.	Space Systems/Loral, LLC	Voltage tunable patch filter element with dielectrically loaded slot	0988038 1	06/13/200 1	6563404	05/13/200 3
147.	Space Systems/Loral, LLC	Method and system for synchronized forward and Aft thrust vector control	0988362 2	06/19/200 1	6695251	02/24/200 4
148.	Space Systems/Loral, LLC	Method and apparatus for soft switched AC power distribution	0988473 4	06/19/200 1	6583994	06/24/200 3
149.	Space Systems/Loral, LLC	Methods for testing multibeam satellite systems using input power telemetry and output noise power	0991216 7	07/23/200 1	8160575	04/17/201 2
150.	Space Systems/Loral, LLC	Dual function subreflector for communication satellite antenna	0992859 7	08/13/200 1	6441794	08/27/200 2
151.	Space Systems/Loral, LLC	Spacecraft constellation formation keeping using inter-spacecraft distance measurement	0993120 5	08/16/200 1	6553286	04/22/200 3

152.	Space Systems/Loral, LLC	Electric orbit raising with variable thrust	0994718 6	09/04/200 1	6543723	04/08/200 3
153.	Space Systems/Loral, LLC	Dielectric resonator equalizer	0995773 4	09/21/200 1	6476686	11/05/200 2
154.	Space Systems/Loral, LLC	Energy managed electric propulsion methods and systems for stationkeeping satellites	0997783 4	10/15/200 1	6581880	06/24/200 3
155.	Space Systems/Loral, LLC	Spacecraft having a momentum wheel configuration that prevents zero wheel speeds	0999501 7	11/27/200 1	6691955	02/17/200 4
156.	Space Systems/Loral, LLC	Multi-band corrugated antenna feed horn with a hexagonal aperture and antenna array using same	1000280 8	11/15/200 1	6501434	12/31/200 2
157.	Space Systems/Loral, LLC	Two-sided deployable thermal radiator system and method	1000725 6	11/11/200 1	7028953	04/18/200 6
158.	Space Systems/Loral, LLC	Passive intermodulation free multilayer thermal blanket	1002070 4	10/29/200 1	6623826	09/23/200 3
159.	Space Systems/Loral, LLC	Hybrid horn for dual Ka-band communications	1003634 7	10/19/200 1	6522306	02/18/200 3
160.	Space Systems/Loral, LLC	Satellite harmonic torque estimator	1008727 9	03/01/200 2	6672544	01/06/200 4
161.	Space Systems/Loral, LLC	CDMA code address data routing system and method	1009489 8	03/11/200 2	6725277	04/20/200 4
162.	Space Systems/Loral, LLC	Single-receiver multiple-antenna RF autotrack control	1009767 8	03/13/200 2	6570535	05/27/200 3
163.	Space Systems/Loral, LLC	Antenna distortion estimation and compensation	1024494 4	09/17/200 2	6720918	04/13/200 4
164.	Space Systems/Loral, LLC	Ground-based beamforming for satellite communications systems	1146749 0	08/25/200 6	7787819	08/31/201 0

165.	Space Systems/Loral, LLC	Spacecraft three-axis attitude acquisition from sun direction measurement	1170961 4	02/22/200 7	7874519	01/25/201 1
166.	Space Systems/Loral, LLC	Multi-beam satellite network to maximize bandwidth utilization	1189108 6	08/08/200 7	7792070	09/07/201 0
167.	Space Systems/Loral, LLC	Radial release device	1208281 8	04/14/200 8	8568053	10/29/201 3
168.	Space Systems/Loral, LLC	Redundant radial release apparatus	1221504 1	06/23/200 8	8021069	09/20/201 1
169.	Space Systems/Loral, LLC	Satellite system with enhanced payload capacity	1234406 4	12/24/200 8	8135338	03/13/201 2
170.	Space Systems/Loral, LLC	Spacecraft payload orientation steering	1262970 7	12/02/200 9	9045239	06/02/201 5
171.	Space Systems/Loral, LLC	Antenna tracking profile estimation	1277987 2	05/13/201 0	8179313	05/15/201 2
172.	Space Systems/Loral, LLC	Image navigation method using parametric systematic error correction	1280045 0	05/14/201 0	8301377	10/30/201 2
173.	Space Systems/Loral, LLC	Ground-based beamforming for satellite communications systems	1285646 8	08/13/201 0	8270899	09/18/201 2
174.	Space Systems/Loral, LLC	Satellite orbit raising using electric propulsion	1292538 6	10/20/201 0	9108748	08/18/201 5
175.	Space Systems/Loral, LLC	Electrically large stepped-wall and smooth-wall horns for spot beam applications	1292813 5	12/03/201 0	9136606	09/15/201 5
176.	Space Systems/Loral, LLC	Satellite Having Multiple Aspect Ratios	1302617 5	02/11/201 1	8448902	05/28/201 3
177.	Space Systems/Loral, LLC	Spacecraft payload positioning with respect to a virtual pivot point	1304427 8	03/09/201 1	8800935	08/12/201 4
178.	Space Systems/Loral, LLC	Source driver current fold-back protection	1305308 4	03/21/201 1	8482894	07/09/201 3
179.	Space Systems/Loral, LLC	Redundant fuse wire release device	1306865 5	05/17/201 1	9085377	07/21/201 5

180.	Space Systems/Loral, LLC	Broadband Satellite with Dual Frequency Conversion and Bandwidth Aggregation	1309366 9	04/25/201 1	8660482	02/25/201 4
181.	Space Systems/Loral, LLC	High capacity broadband satellite	1310194 4	05/05/201 1	8789796	07/29/201 4
182.	Space Systems/Loral, LLC	Spacecraft momentum management using solar array	1311537 0	05/25/201 1	8868263	10/21/201 4
183.	Space Systems/Loral, LLC	Band clamp with redundant load path	1316441 4	06/20/201 1	8732916	05/27/201 4
184.	Space Systems/Loral, LLC	RF feed element design optimization using secondary pattern	1317081 3	06/28/201 1	8914258	12/16/201 4
185.	Space Systems/Loral, LLC	Current collector bar and grid pattern for a photovoltaic solar cell	1318935 4	07/22/201 1	9000288	04/07/201 5
186.	Space Systems/Loral, LLC	Preload releasing fastener and release system using same	1321522 9	08/23/201 1	9180982	11/10/201 5
187.	Space Systems/Loral, LLC	Extendable antenna reflector deployment techniques	1321592 9	08/23/201 1	9004409	04/14/201 5
188.	Space Systems/Loral, LLC	Reflector deployment techniques for satellites	1321593 2	08/23/201 1	9248922	02/02/201 6
189.	Space Systems/Loral, LLC	Unified chemical electric propulsion system	1322304 1	08/31/201 1	9145216	09/29/201 5
190.	Space Systems/Loral, LLC	Hold-down mechanism for a spacecraft appendage	1323776 1	09/20/201 1	8915473	12/23/201 4
191.	Space Systems/Loral, LLC	Antenna system with multiple independently steerable shaped beams	1324007 9	09/22/201 1	9774095	09/26/201 7
192.	Space Systems/Loral, LLC	Dual mode dielectric resonator operating in a HE mode with a Q factor no less than 5000	1324724 3	09/28/201 1	8952769	02/10/201 5
193.	Space Systems/Loral, LLC	Spacecraft momentum management	1332665 4	12/15/201 1	9108749	08/18/201 5



194.	Space Systems/Loral, LLC	Microstrip manifold coupled multiplexer	1334009 5	12/29/201 1	9030271	05/12/201 5
195.	Space Systems/Loral, LLC	Methods for testing multibeam satellite systems using input power telemetry and output noise power	1338561 9	02/27/201 2	8447296	05/21/201 3
196.	Space Systems/Loral, LLC	Electrostatic discharge control for a multi-cavity microwave filter	1344225 2	04/09/201 2	8907742	12/09/201 4
197.	Space Systems/Loral, LLC	Wide beam antenna	1347408 4	05/17/201 2	8872714	10/28/201 4
198.	Space Systems/Loral, LLC	Solar panel sequencing mechanism	1362441 0	09/21/201 2	8915474	12/23/201 4
199.	Space Systems/Loral, LLC	Frequency and Bandwidth Tunable Microwave Filter	1364463 2	10/04/201 2	9019039	04/28/201 5
200.	Space Systems/Loral, LLC	Spacecraft Transfer Orbit Techniques	1364720 7	10/08/201 2	8763957	07/01/201 4
201.	Space Systems/Loral, LLC	Roll-up contamination cover	1366571 7	10/31/201 2	8973641	03/10/201 5
202.	Space Systems/Loral, LLC	Shape memory alloy pre-loaded deployment hinge	1366572 2	10/31/201 2	8876062	11/04/201 4
203.	Space Systems/Loral, LLC	Spacecraft momentum unload and station-keeping techniques	1368388 7	11/21/201 2	8998146	04/07/201 5
204.	Space Systems/Loral, LLC	Waveguide T-switch	1372874 5	12/27/201 2	9368851	06/14/201 6
205.	Space Systems/Loral, LLC	Flexible array support structure	1372984 8	12/28/201 2	8894017	11/25/201 4
206.	Space Systems/Loral, LLC	Satellite system resource allocation optimization	1379392 2	03/11/201 3	8996051	03/31/201 5
207.	Space Systems/Loral, LLC	Mode filter	1380036 5	03/13/201 3	9531048	12/27/201 6
208.	Space Systems/Loral, LLC	Compact microstrip hybrid coupled input multiplexer	1387076 1	04/25/201 3	8761026	06/24/201 4

209.	Space Systems/Loral, LLC	Antenna Array with Reduced Mutual Coupling Between Array Elements	1389618 1	05/16/201 3	9537209	01/03/201 7
210.	Space Systems/Loral, LLC	Radial release device	1401291 5	08/28/201 3	9708082	07/18/201 7
211.	Space Systems/Loral, LLC	Caging mechanism for a single- or multi-axis positioning mechanism	1408906 7	11/25/201 3	9677602	06/13/201 7
212.	Space Systems/Loral, LLC	Integral corner bypass diode interconnecting configuration for multiple solar cells	1409277 5	11/27/201 3	9627565	04/18/201 7
213.	Space Systems/Loral, LLC	Axially grooved crossing heat pipes	1409702 0	12/04/201 3	9352856	05/31/201 6
214.	Space Systems/Loral, LLC	Side-by-side multiple launch configuration	1410821 3	12/16/201 3	9242743	01/26/201 6
215.	Space Systems/Loral, LLC	Reflective and permeable metalized laminate	1416134 3	01/22/201 4	9685710	06/20/201 7
216.	Space Systems/Loral, LLC	Heat pipe and radiator system with thermoelectric cooler	1418326 3	02/18/201 4	9714777	07/25/201 7
217.	Space Systems/Loral, LLC	Depressurization test method using pressure vessel	1422213 6	03/21/201 4	9606044	03/28/201 7
218.	Space Systems/Loral, LLC	Highly inclined elliptical orbit launch and orbit acquisition techniques	1430002 7	06/09/201 4	9365299	06/14/201 6
219.	Space Systems/Loral, LLC	Highly inclined elliptical orbit de-orbit techniques	1430003 2	06/09/201 4	9550585	01/24/201 7
220.	Space Systems/Loral, LLC	Nondestructive proof loading of honeycomb panels	1444874 4	07/31/201 4	9523633	12/20/201 6
221.	Space Systems/Loral, LLC	Thruster support mechanism for satellite propulsion	1458006 3	12/22/201 4	9663251	05/30/201 7
222.	Space Systems/Loral, LLC	Hinge with spring pre-load transfer mechanism	1459609 6	01/13/201 5	9546510	01/17/201 7
223.	Space Systems/Loral, LLC	Incremental deployment device	1459610 1	01/13/201 5	10337594	07/02/201 9

224.	Space Systems/Loral, LLC	Spacecraft with aerodynamic control	1462793 6	02/20/201 5	9889950	02/13/201 8
225.	Space Systems/Loral, LLC	Dynamic link adaption and/or dynamic allocation of communication resources of a communication system based on external interference information received from external interference information sources	1463248 2	02/26/201 5	9628168	04/18/201 7
226.	Space Systems/Loral, LLC	Navigational route selection to mitigate probability mobile terminal loses communication capability	1463249 2	02/26/201 5	9476715	10/25/201 6
227.	Space Systems/Loral, LLC	On-orbit assembly of communication satellites	1464248 6	03/09/201 5	9878806	01/30/201 8
228.	Space Systems/Loral, LLC	Communication system with multi band gateway	1465922 2	03/16/201 5	9967792	05/08/201 8
229.	Space Systems/Loral, LLC	Redundant telemetry transmission path	1467014 1	03/26/201 5	10236970	03/19/201 9
230.	Space Systems/Loral, LLC	Dielectric resonator filter and multiplexer having a common wall with a centrally located coupling iris and a larger peripheral aperture adjustable by a tuning screw	1468192 0	04/08/201 5	9705171	07/11/201 7
231.	Space Systems/Loral, LLC	Broadband satellite payload architecture	1468530 2	04/13/201 5	10270524	04/23/201 9
232.	Space Systems/Loral, LLC	Solid state traveling wave amplifier for space applications	1472988 3	06/03/201 5	9641144	05/02/201 7
233.	Space Systems/Loral, LLC	All front contact solar cell	1473499 6	06/09/201 5	10096726	10/09/201 8
234.	Space Systems/Loral, LLC	Reverse wireless broadband system	1482040 8	08/06/201 5	9979466	05/22/201 8
235.	Space Systems/Loral, LLC	High-frequency cavity resonator filter with	1486466 9	09/24/201 5	10056668	08/21/201 8

		diametrically-opposed heat transfer legs				
236.	Space Systems/Loral, LLC	Brazing of High Temperature Wire to Electrical Contact	1486807 6	09/28/201 5		
237.	Space Systems/Loral, LLC	Satellite with transition beam size	1487549 1	10/05/201 5	9705586	07/11/201 7
238.	Space Systems/Loral, LLC	Self-Balancing Solar Array	1491833 7	10/20/201 5		
239.	Space Systems/Loral, LLC	Flexible propulsion system	1493720 8	11/10/201 5	10336475	07/02/201 9
240.	Space Systems/Loral, LLC	Channelizer supplemented spacecraft telemetry and command functionality	1493943 3	11/12/201 5	9621255	04/11/201 7
241.	Space Systems/Loral, LLC	High capacity spacecraft	1493944 5	11/12/201 5	10183764	01/22/201 9
242.	Space Systems/Loral, LLC	Flexible radiation shield	1495458 3	11/30/201 5	9640288	05/02/201 7
243.	Space Systems/Loral, LLC	Spacecraft with rigid antenna reflector deployed via linear extension boom	1496294 1	12/08/201 5	10259599	04/16/201 9
244.	Space Systems/Loral, LLC	Digital payload with variable high power amplifiers	1496562 0	12/10/201 5	10312995	06/04/201 9
245.	Space Systems/Loral, LLC	Dual-polarized, dual-band, compact beam forming network	1496872 5	12/14/201 5	10033099	07/24/201 8
246.	Space Systems/Loral, LLC	Ribbon Cable with Integrated Diode	1496983 9	12/15/201 5		
247.	Space Systems/Loral, LLC	Pre and Post Orbit Maneuver Pulses to Reduce Flexural Oscillations	1497273 6	12/17/201 5		
248.	Space Systems/Loral, LLC	Battery charge management for geosynchronous spacecraft	1497318 6	12/17/201 5	10239477	03/26/201 9

249.	Space Systems/Loral, LLC	Non-blockings switch matrix	1498961 2	01/06/201 6	10109441	10/23/201 8
250.	Space Systems/Loral, LLC	Waveguide hinge	1499507 0	01/13/201 6	10103417	10/16/201 8
251.	Space Systems/Loral, LLC	Truss structure optimization techniques	1505399 3	02/25/201 6	10112731	10/30/201 8
252.	Space Systems/Loral, LLC	Truss structure	1505399 8	02/25/201 6	10227145	03/12/201 9
253.	Space Systems/Loral, LLC	Satellite transmit antenna ground-based pointing	1509241 3	04/06/201 6	9608716	03/28/201 7
254.	Space Systems/Loral, LLC	Flexible Bandwidth Assignment To Spot Beams	1514448 7	05/02/201 6	10136438	11/20/201 8
255.	Space Systems/Loral, LLC	Stowage, deployment and positioning of rigid antenna reflectors on a spacecraft	1516025 8	05/20/201 6	10053240	08/21/201 8
256.	Space Systems/Loral, LLC	Protected Overlay Of Assigned Frequency Channels	1516346 5	05/24/201 6	10305646	05/28/201 9
257.	Space Systems/Loral, LLC	Highly inclined elliptical orbit launch and orbit acquisition techniques	1516603 3	05/26/201 6	9533774	01/03/201 7
258.	Space Systems/Loral, LLC	Satellite system using time domain beam hopping	1517282 5	06/03/201 6	10111109	10/23/201 8
259.	Space Systems/Loral, LLC	Synchronization for satellite system	1517285 9	06/03/201 6	10411362	09/10/201 9
260.	Space Systems/Loral, LLC	Satellite system with different frequency plan at the equator	1517288 2	06/03/201 6	10128577	11/13/201 8
261.	Space Systems/Loral, LLC	Satellite systems with single polarization path	1517296 5	06/03/201 6		
262.	Space Systems/Loral, LLC	Satellite system with steerable gateway beams	1517297 8	06/03/201 6	10418724	09/17/201 9
263.	Space Systems/Loral, LLC	Satellite system having terminals in hopping beams communicating with more than one gateway	1517303 8	06/03/201 6	10347987	07/09/201 9

264.	Space Systems/Loral, LLC	Satellite system with beam hopping plan that takes into account the needs of gateways and subscriber terminals	1517305 4	06/03/201 6	10135154	11/20/201 8
265.	Space Systems/Loral, LLC	Satellite system beam to beam handover	1517308 3	06/03/201 6	10128578	11/13/201 8
266.	Space Systems/Loral, LLC	Satellite system with handover for multiple gateways	1517309 7	06/03/201 6	10381748	08/13/201 9
267.	Space Systems/Loral, LLC	Orthomode transducer	1518044 4	06/13/201 6	9947978	04/17/201 8
268.	Space Systems/Loral, LLC	Waveguide to microstrip line N-port power splitter/combiner	1520120 8	07/01/201 6	10177726	01/08/201 9
269.	Space Systems/Loral, LLC	Satellite system with rolling wave handovers	1521800 9	07/23/201 6	10225002	03/05/201 9
270.	Space Systems/Loral, LLC	Satellite diversity	1522127 3	07/27/201 6	10397920	08/27/201 9
271.	Space Systems/Loral, LLC	Digital beamforming architecture	1522552 5	08/01/201 6	9917623	03/13/201 8
272.	Space Systems/Loral, LLC	Multi-channel satellite calibration	1522558 8	08/01/201 6	9642107	05/02/201 7
273.	Space Systems/Loral, LLC	Cloud mask data acquisition and distribution using geosynchronous communications or broadcast satellites	1524705 2	08/25/201 6	10230454	03/12/201 9
274.	Space Systems/Loral, LLC	Highly inclined elliptical orbit de-orbit techniques	1526169 6	09/09/201 6	10202207	02/12/201 9
275.	Space Systems/Loral, LLC	Articulation techniques for a spacecraft solar array	1526320 9	09/12/201 6	10435182	10/08/201 9
276.	Space Systems/Loral, LLC	Access switch network with redundancy	1526782 8	09/16/201 6	10284283	05/07/201 9
277.	Space Systems/Loral, LLC	Low cost launch vehicle fairing	1527750 5	09/27/201 6	10214303	02/26/201 9
278.	Space Systems/Loral, LLC	Spacecraft exoskeleton truss structure	1533654 1	10/27/201 6	10407189	09/10/201 9

279.	Space Systems/Loral, LLC	Smallsat Payload Configuration	1535123 3	11/14/201 6		
280.	Space Systems/Loral, LLC	Efficient stationkeeping strategy for the three apogee (TAP) orbit	1535247 1	11/15/201 6	10364051	07/30/201 9
281.	Space Systems/Loral, LLC	Multiport amplifiers (MPAs) using output filtering to improve performance over life	1536411 5	11/29/201 6	10320064	06/11/201 9
282.	Space Systems/Loral, LLC	Flexible Radio Frequency Converters for Digital Payloads	1537227 6	12/07/201 6		
283.	Space Systems/Loral, LLC	Enhanced Radiator	1537452 8	12/09/201 6		
284.	Space Systems/Loral, LLC	Satellite constellation switching	1538826 9	12/22/201 6	9882632	01/30/201 8
285.	Space Systems/Loral, LLC	High throughput satellite system with optical feeder uplink beams and RF service downlink beams	1539451 2	12/29/201 6	10075242	09/11/201 8
286.	Space Systems/Loral, LLC	High throughput satellite system with RF service uplink beams and optical feeder downlink beams	1539460 2	12/29/201 6	9917646	03/13/201 8
287.	Space Systems/Loral, LLC	Imaging array fed reflector	1543862 0	02/21/201 7	10305195	05/28/201 9
288.	Space Systems/Loral, LLC	Inclined geosynchronous orbit spacecraft constellations	1544103 2	02/23/201 7		
289.	Space Systems/Loral, LLC	Stationkeeping techniques for spacecraft in inclined geosynchronous orbit	1544103 7	02/23/201 7		
290.	Space Systems/Loral, LLC	Efficient orbital storage and deployment for spacecraft in inclined geosynchronous orbit	1544104 0	02/23/201 7	10329034	06/25/201 9
291.	Space Systems/Loral, LLC	Channelizer supplemented spacecraft telemetry and command functionality	1544579 7	02/28/201 7	10033455	07/24/201 8

292.	Space Systems/Loral, LLC	Satellite System That Produces Optical Inter-Satellite Link (ISL) Beam Based On Optical Feeder Uplink Beam	15461369	03/16/2017	9979465	05/22/2018
293.	Space Systems/Loral, LLC	Satellite System That Produces Optical Inter-Satellite Link (ISL) Beam Based On Optical ISL Received From Another Satellite	15461372	03/16/2017	10050699	08/14/2018
294.	Space Systems/Loral, LLC	Satellite System That Produces Optical Inter-Satellite Link (ISL) Beam Based On RF Feeder Uplink Beam	15461377	03/16/2017	9923625	03/20/2018
295.	Space Systems/Loral, LLC	Ground Based Subsystems, For Inclusion In Optical Gateway, And That Interface With Optical Networks External To Optical Gateway	15461381	03/16/2017	10122456	11/06/2018
296.	Space Systems/Loral, LLC	Spacecraft Design with Multiple Thermal Zones	15466610	03/21/2017		
297.	Space Systems/Loral, LLC	Asymmetric thruster gimbal configuration	15467612	03/23/2017	10464694	11/05/2019
298.	Space Systems/Loral, LLC	Electric Thruster Waste Heat Recovery During Satellite Orbit Transfer	15470592	03/27/2017		
299.	Space Systems/Loral, LLC	Multi-channel satellite antenna calibration	15470600	03/27/2017	10044436	08/07/2018
300.	Space Systems/Loral, LLC	Exoskeletal Launch Support Structure	15480276	04/05/2017		
301.	Space Systems/Loral, LLC	Rotatable Stacked Spacecraft	15488166	04/14/2017	10479534	11/19/2019
302.	Space Systems/Loral, LLC	Deployable propulsion module for spacecraft	15488179	04/14/2017	10435183	10/08/2019
303.	Space Systems/Loral, LLC	Articulating Sunshield	15586076	05/03/2017		



304.	Space Systems/Loral, LLC	Satellite system using optical gateways and onboard processing	1559985 2	05/19/201 7	10069565	09/04/201 8
305.	Space Systems/Loral, LLC	Ecliptic Sun Acquisition Control Mode For Satellites	1560328 8	05/23/201 7		
306.	Space Systems/Loral, LLC	Communication platform with flexible photonics payload	1560416 5	05/24/201 7	10219051	02/26/201 9
307.	Space Systems/Loral, LLC	Cross-Feeding Propellant Between Stacked Spacecraft	1561680 3	06/07/201 7		
308.	Space Systems/Loral, LLC	Satellite network switching	1561889 7	06/09/201 7	10200922	02/05/201 9
309.	Space Systems/Loral, LLC	Lattice structure design and manufacturing techniques	1562288 8	06/14/201 7	10326209	06/18/201 9
310.	Space Systems/Loral, LLC	Flexible high throughput satellite system using optical gateways	1563300 7	06/26/201 7	10320481	06/11/201 9
311.	Space Systems/Loral, LLC	Spacecraft Radiator System and Method	1563746 6	06/29/201 7		
312.	Space Systems/Loral, LLC	Space Based Robotic Assembly of a Modulator Reflector	1565459 3	07/19/201 7		
313.	Space Systems/Loral, LLC	Multi-Reflector Hold-Down	1566947 0	08/04/201 7		
314.	Space Systems/Loral, LLC	Satellite system using optical gateways and ground based beamforming	1568278 5	08/22/201 7	10142021	11/27/201 8
315.	Space Systems/Loral, LLC	Self-assmebling persistent space platform	1568999 3	08/29/201 7		
316.	Space Systems/Loral, LLC	Amplifier integrated feed array with modularized feed ele-ments and amplifiers	1569990 9	09/08/201 7		
317.	Space Systems/Loral, LLC	High pointing accuracy spacecraft	1570934 1	09/19/201 7	10367575	07/30/201 9

318.	Space Systems/Loral, LLC	Adaptive communication system	15710740	09/20/2017		
319.	Space Systems/Loral, LLC	Adaptive Satellite Channelizer	15725194	10/04/2017	10341012	07/02/2019
320.	Space Systems/Loral, LLC	Satellite with Regenerative Processor	15799258	10/31/2017		
321.	Space Systems/Loral, LLC	Additive manufactured RF module	15818542	11/20/2017		
322.	Space Systems/Loral, LLC	Pointing system improvement with imaging array feeds	15831257	12/04/2017	10461409	10/29/2019
323.	Space Systems/Loral, LLC	Modularized feed array arrangement	15831258	12/04/2017	10263325	04/16/2019
324.	Space Systems/Loral, LLC	Calibration of satellite beamforming channels	15833351	12/06/2017	10361762	07/23/2019
325.	Space Systems/Loral, LLC	On-orbit assembly of communication satellites	15847780	12/19/2017		
326.	Space Systems/Loral, LLC	Spacecraft with aerodynamic control	15849289	12/20/2017		
327.	Space Systems/Loral, LLC	High capacity communication satellite	15887721	02/02/2018		
328.	Space Systems/Loral, LLC	Low earth orbiting spacecraft with a dual-use directional antenna	15900653	02/20/2018		
329.	Space Systems/Loral, LLC	Flexible signal distribution assisted by tunable optical carrier modulating a desired signal	15904063	02/23/2018	10250330	04/02/2019
330.	Space Systems/Loral, LLC	Multipoint amplifier input network with compensation for output network gain and phase frequency response imbalance	15926186	03/20/2018	10320349	06/11/2019
331.	Space Systems/Loral, LLC	Satellite system calibration in active operational channels	15926628	03/20/2018	10284308	05/07/2019
332.	Space Systems/Loral, LLC	Satellite system using an RF GBBF feeder uplink beam from a gateway to a satellite, and using an	16111008	08/23/2018	10432308	10/01/2019

		optical ISL from the satellite to another satellite				
333.	Space Systems/Loral, LLC	Flexible bandwidth assignment to spot beams	16163105	10/17/2018		
334.	Space Systems/Loral, LLC	Ground based subsystems, for inclusion in optical gateway, and that interface with optical networks external to optical gateway	16168658	10/23/2018	10476595	11/12/2019
335.	Space Systems/Loral, LLC	Multipoint amplifier input network with compensation for output network gain and phase frequency response imbalance	16405162	05/07/2019		
336.	Space Systems/Loral, LLC	Satellite Diversity	16505937	07/09/2019		
337.	MacDonald, Dettwiler and Associates	Adaptive Satellite Channelizer	US15725194A	2017/10/04		
338.	MacDonald, Dettwiler and Corporation	High performance multimode horn	US2001833713A	2001/04/13	US6396453B2	2002/05/28
339.	MacDonald, Dettwiler and Corporation	Steerable antenna system with fixed feed source	US2001967949A	2001/10/02	US6492955B1	2002/12/10
340.	MacDonald, Dettwiler and Corporation	Steerable offset antenna with fixed feed source	US2002265600A	2002/10/08	US6747604B2	2004/06/08
341.	MacDonald, Dettwiler and Corporation	Method for improving isolation of an antenna mounted on a structure	US2003747278A	2003/12/30	US7138959B2	2006/11/21
342.	MacDonald, Dettwiler and Corporation	Helical antenna	US2004868210A	2004/06/16	US7038636B2	2006/05/02
343.	MacDonald, Dettwiler and Corporation	Aperture illumination control membrane	US200548824A	2005/02/03	US7183990B2	2007/02/27

344.	MacDonald, and Corporation	Dettwiler Associates	Electromagnetic bandgap device for antenna structures	US20052 40497A	2005/10/0 3	US723614 2B2	2007/06/2 6
345.	MacDonald, and Corporation	Dettwiler Associates	Parasitic element for helical antenna	US20078 19337A	2007/06/2 7	US747427 2B2	2009/01/0 6
346.	MacDonald, and Corporation	Dettwiler Associates	Orthomode junction assembly with associated filters for use in an antenna feed system	US13974 640A	2013/08/2 3	US905968 2B2	2015/06/1 6
347.	MacDonald, and Corporation	Dettwiler Associates	Wide scan steerable antenna with no key/hole	US13652 680A	2012/10/1 6	US909374 2B2	2015/07/2 8
348.	MacDonald, and Corporation	Dettwiler Associates	Antenna pointing system	US13723 844A	2012/12/2 1	US917212 8B2	2015/10/2 7
349.	MacDonald, and Corporation	Dettwiler Associates	Wide scan steerable antenna	US14849 919A	2015/09/1 0	US964733 4B2	2017/05/0 9
350.	MacDonald, and Corporation	Dettwiler Associates	Compact and lightweight TEM/line network for RF components of antenna systems	US15418 154A	2017/01/2 7	US100691 84B2	2018/09/0 4
351.	MacDonald, and Corporation	Dettwiler Associates	Architecture and method for optimal tracking of multiple broadband satellite terminals	US15442 653A	2017/02/2 5		
352.	MacDonald, and Corporation	Dettwiler Associates	Three axis reflector deployment and pointing mechanism	US15480 941A	2017/04/0 6		
353.	MacDonald, and Corporation	Dettwiler Associates	Antenna reflector interchange mechanism	US15623 764A	2017/06/1 5		
354.	MacDonald, and Corporation	Dettwiler Associates	Strut and joint for spaceframe structure assemblies	US15838 585A	2017/12/1 2		
355.	MacDonald, and Corporation	Dettwiler Associates	Calibration system and method for optimizing leakage performance of a multi/port amplifier	US15853 588A	2017/12/2 2		

356.	MacDonald, Dettwiler and Associates Corporation	RF rotary joint using a matched horn coupler assembly	US16116554A	2018/08/29		
357.	MacDonald, Dettwiler and Associates Corporation	Modular Channelizer	US15729257A	2017/10/10		
358.	MacDonald, Dettwiler and Associates Corporation	Lightweight Deployable Aperture Reflectarray Antenna Reflector	16/406,349	2019/05/08		
359.	MacDonald, Dettwiler and Associates Inc.	Gearbox	US2002153600A	2002/05/24	US6749533B2	2004/06/15
360.	MacDonald, Dettwiler and Associates Inc.	Surgical robot and robotic controller	US11603352A	2006/11/20	US7996110B2	2011/08/09
361.	MacDonald, Dettwiler and Associates Inc.	Surgical robot and robotic controller	US13205524A	2011/08/08	US8515576B2	2013/08/20
362.	MacDonald, Dettwiler and Associates Inc.	Spacecraft docking mechanism	US2004890513A	2004/07/14	US6969030B1	2005/11/29
363.	MacDonald, Dettwiler and Associates Inc.	3D imaging system	US2006352399A	2006/02/13	US7860301B2	2010/12/28
364.	MacDonald, Dettwiler and Associates Inc.	Method and apparatus for producing 3D model of an underground environment	US2009654451A	2009/12/18	US8031909B2	2011/10/04
365.	MacDonald, Dettwiler and Associates Inc.	Method and apparatus for producing an enhanced 3D model of an environment or an object	US2009654452A	2009/12/18	US8031933B2	2011/10/04
366.	MacDonald, Dettwiler and Associates Inc.	Method and apparatus for producing 3D model of an environment	US13210275A	2011/08/15	US8532368B2	2013/09/10
367.	MacDonald, Dettwiler and Associates Inc.	Traffic management system for a passageway environment	US2006493027A	2006/07/26	US7756615B2	2010/07/13
368.	MacDonald, Dettwiler and Associates Inc.	Guidance, navigation, and control system for a vehicle	US2007922706A	2008/03/19	US8090491B2	2012/01/03
369.	MacDonald, Dettwiler and Associates Inc.	Guidance, navigation, and control system for a vehicle	US13209247A	2011/08/12	US8260483B2	2012/09/04
370.	MacDonald, Dettwiler and Associates Inc.	Surgical manipulator	US2007812094A	2007/06/14	US8491603B2	2013/07/23

371.	MacDonald, Dettwiler and Associates Inc.	Surgical manipulator	US2008318151A	2008/12/22	US8444631B2	2013/05/21
372.	MacDonald, Dettwiler and Associates Inc.	Surgical manipulator	US13899300A	2013/05/21	US9333041B2	2016/05/10
373.	MacDonald, Dettwiler and Associates Inc.	Satellite refuelling system and method	US200873795A	2008/03/10	US8074935B2	2011/12/13
374.	MacDonald, Dettwiler and Associates Inc.	Satellite refuelling system and method	US13196750A	2011/08/02	US8181911B1	2012/05/22
375.	MacDonald, Dettwiler and Associates Inc.	Robotic satellite refueling tool	US13323472A	2011/12/12	US8196870B2	2012/06/12
376.	MacDonald, Dettwiler and Associates Inc.	Robotic satellite refuelling tool	US13470661A	2012/05/14	US8448904B2	2013/05/28
377.	MacDonald, Dettwiler and Associates Inc.	Scalable common interface plate system (SCIPS)	US13028051A	2011/02/15	US8702341B2	2014/04/22
378.	MacDonald, Dettwiler and Associates Inc.	Scalable common interface plate system (SCIPS)	US14221946A	2014/03/21	US9339935B2	2016/05/17
379.	MacDonald, Dettwiler and Associates Inc.	Dual reflector system for linear lamp illuminators	US2010907685A	2010/10/19	US9115867B2	2015/08/25
380.	MacDonald, Dettwiler and Associates Inc.	Robotic servicing multifunctional tool	US13652339A	2012/10/15	US9676096B2	2017/06/13
381.	MacDonald, Dettwiler and Associates Inc.	Robotic servicing multifunctional tool	US15620300A	2017/06/12	US10005180B2	2018/06/26
382.	MacDonald, Dettwiler and Associates Inc.	Robotic servicing multifunctional tool	US15621362A	2017/06/13	US9950424B2	2018/04/24
383.	MacDonald, Dettwiler and Associates Inc.	Propellant transfer system and method for resupply of propellant to on/orbit spacecraft	US13678281A	2012/11/15	US8899527B2	2014/12/02
384.	MacDonald, Dettwiler and Associates Inc.	Propellant transfer system and method for resupply of propellant to on/orbit spacecraft	US14554695A	2014/11/26	US9260206B2	2016/02/16
385.	MacDonald, Dettwiler and Associates Inc.	Method of real/time tracking of moving/flexible surfaces	US13678162A	2012/11/15	US8693730B2	2014/04/08

386.	MacDonald, Dettwiler and Associates Inc.	Method of real/time tracking of moving/flexible surfaces	US14221 085A	2014/03/20	US910126 7B2	2015/08/11
387.	MacDonald, Dettwiler and Associates Inc.	Tool for accessing satellite fill/drain valves during propellant resupply	US13706 126A	2012/12/05	US910874 7B2	2015/08/18
388.	MacDonald, Dettwiler and Associates Inc.	System and tool for accessing satellite fill/drain valves during propellant resupply	US14826 429A	2015/08/14	US956711 1B2	2017/02/14
389.	MacDonald, Dettwiler and Associates Inc.	System and tool for accessing satellite fill/drain valves during propellant resupply	US14826 444A	2015/08/14	US968842 2B2	2017/06/27
390.	MacDonald, Dettwiler and Associates Inc.	Spacecraft capture mechanism	US13839 529A	2013/03/15	US939929 5B2	2016/07/26
391.	MacDonald, Dettwiler and Associates Inc.	Spacecraft capture mechanism	US15219 017A	2016/07/25	US976447 8B2	2017/09/19
392.	MacDonald, Dettwiler and Associates Inc.	Wearable object locator and imaging system	US13589 957A	2012/08/20	US928548 1B2	2016/03/15
393.	MacDonald, Dettwiler and Associates Inc.	Spacecraft capture mechanism	US14703 709A	2015/05/04	US966995 0B2	2017/06/06
394.	MacDonald, Dettwiler and Associates Inc.	Payload ejection system	US14716 795A	2015/05/19		
395.	MacDonald, Dettwiler and Associates Inc.	System and method for automated artificial vision guided dispensing viscous fluids for caulking and sealing operations	US15645 929A	2017/07/10		
396.	MacDonald, Dettwiler and Associates Inc.	Actuated resettable shockless hold down and release mechanism (ARES HDRM)	US15849 225A	2017/12/20		
397.	MacDonald, Dettwiler and Associates Inc.	Unobtrusive driving assistance method and system for a vehicle to avoid hazards	US15849 427A	2017/12/20		
398.	MacDonald, Dettwiler and Associates Inc.	Low/Profile Manipulator Interface System (MIPS)	15/829,619	2017/12/01		

399.	MacDonald, Dettwiler and Associates Inc.	Refueling Tool and System Incorporating The Refueling Tool	62/782,007	2018/12/19		
400.	MacDonald, Dettwiler and Associates Inc.	Radial Latch Manipulator Interface System	62/869,943	2019/07/02		
401.	MacDonald, Dettwiler and Associates Ltd. <sup>1</sup>	Satellite communications system for providing global, high quality movement of very large data files	US2003530018A	2005/04/01	US7783734B2	2010/08/24
402.	MacDonald, Dettwiler and Associates Ltd.	Satellite communications system for providing global, high quality movement of very large data files	US2010850426A	2010/08/04	US8412851B2	2013/04/02
403.	MacDonald, Dettwiler and Associates Ltd.	Satellite communications system for providing global, high quality movement of very large data files	US13853027A	2013/03/28	US9369883B2	2016/06/14
404.	MacDonald, Dettwiler and Associates Ltd.	Lightweight space/fed active phased array antenna system	US2007912585A	2008/05/07	US7889129B2	2011/02/15
405.	MacDonald, Dettwiler Space and Advanced Robotics Ltd. <sup>2</sup>	Hinged scoop end-effector	US1999325640A	1999/06/04	US6341933B1	2002/01/29
406.	Neptec	Data collection unit	US29204181	2004/04/26	USD508565S1	2005/08/16
407.	Neptec Design Group Ltd.	Wide angle bistatic scanning optical ranging sensor	US13880938	2013/11/26	US9255790B2	2016/02/09
408.	Neptec Design Group Ltd.	Return pulse shape analysis for falling edge object discrimination of aerosol LIDAR	US13127945	2011/08/16	US8781790B2	2014/07/15
409.	Neptec Design Group Ltd.	High speed 360 degree scanning LIDAR head	US14397155	2015/03/16	US9791555B2	2017/10/17


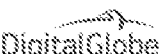
<sup>1</sup> MacDonald, Dettwiler and Associates Ltd. changed its name to "Maxar Technologies Ltd." on October 5, 2017 and amalgamated with another company on January 1, 2019, and the name of such amalgamated company is "Maxar Technologies ULC".



<sup>2</sup> MacDonald, Dettwiler Space and Advanced Robotics Ltd. changed its name to "MacDonald, Dettwiler and Associates Inc." on April 25, 2005.




**SCHEDULE B**

**TRADEMARK REGISTRATIONS AND TRADEMARK APPLICATIONS**

	Owner	Trademark	Serial No.	Filing Date	Reg. No.	Reg. Date
1.	DigitalGlobe, Inc.	DIGITALGLOBE	7502577 2	11/30/199 5	2136168	02/10/199 8
2.	DigitalGlobe, Inc.	DIGITALGLOBE	7531955 7	07/03/199 7	2264047	07/27/199 9
3.	DigitalGlobe, Inc.	DIGITALGLOBE	7592364 5	02/22/200 0	2484701	09/04/200 1
4.	DigitalGlobe, Inc.	DIGITALGLOBE & Design 	7626596 9	05/31/200 1	2653714	11/26/200 2
5.	DigitalGlobe, Inc.	DIGITALGLOBE & Design 	8588037 6	03/19/201 3	4653570	12/09/201 4
6.	DigitalGlobe, Inc.	DIGITALGLOBE.CO M	7592367 0	02/22/200 0	2487069	09/11/200 1
7.	DigitalGlobe, Inc.	FIRSTLOOK	8530197 3	04/22/201 1	4180489	07/24/201 2
8.	DigitalGlobe, Inc.	GEOHIVE	8681770 0	11/12/201 5	5341290	11/21/201 7
9.	DigitalGlobe, Inc.	IMAGECONNECT	7741250 8	03/04/200 8	3614695	05/05/200 9
10.	DigitalGlobe, Inc.	ORBIMAGE	7465717 1	03/17/199 5	2039409	02/18/199 7
11.	DigitalGlobe, Inc.	ORBVIEW	7515041 8	08/14/199 6	2091116	08/26/199 7
12.	DigitalGlobe, Inc.	PHOTOMAPPER	7623567 5	03/30/200 1	2593257	07/09/200 2
13.	DigitalGlobe, Inc.	RoadTracker	7844173 2	06/25/200 4	3482049	08/05/200 8
14.	DigitalGlobe, Inc.	SECONDS ON ORBIT	7579894 3	09/13/199 9	2470721	07/17/200 1

	Owner	Trademark	Serial No.	Filing Date	Reg. No.	Reg. Date
15.	DigitalGlobe, Inc.	SECUREWATCH	87181557	09/23/2016	5465351	05/08/2018
16.	DigitalGlobe, Inc.	SEE A BETTER WORLD	87075825	06/17/2016	5192964	04/25/2017
17.	DigitalGlobe, Inc.	SEEING A BETTER WORLD	85880340	03/19/2013	4653569	12/09/2014
18.	DigitalGlobe, Inc.	SOO	75845602	11/10/1999	2385734	09/12/2000
19.	DigitalGlobe, Inc.	SPACENET	87232837	11/10/2016	5586842	10/16/2018
20.	DigitalGlobe, Inc.	WORLDVIEW	86440216	10/30/2014	4816466	09/22/2015
21.	DigitalGlobe, Inc.	WORLDVIEW	86440266	10/30/2014	4816469	09/22/2015
22.	DigitalGlobe, Inc.	WORLDVIEW	86440302	10/30/2014	4816472	09/22/2015
23.	DigitalGlobe, Inc.	WORLDVIEW GLOBAL ALLIANCE	85982241	04/01/2010	4585810	08/12/2014
24.	Radiant Geospatial Solutions LLC	CROPCAST	85429345	09/22/2011	4146215	05/22/2012
25.	Radiant Geospatial Solutions LLC	EARTHSAT	78066878	06/01/2001	2615486	09/03/2002
26.	Radiant Geospatial Solutions LLC	NATURALVUE	86821336	11/16/2015	5006792	07/26/2016
27.	Radiant Geospatial Solutions LLC	OPTIVISTA	86976237	03/11/2014	4766062	06/30/2015
28.	Radiant Geospatial Solutions LLC	PCM	86485256	12/18/2014	4917047	03/15/2016
29.	Space Systems/Loral, LLC	SSL & Design 	85846452	02/11/2013	4973452	06/07/2016
30.	Space Systems/Loral, LLC	SSL & Design 	85846458	02/11/2013	5027390	08/23/2016

	Owner	Trademark	Serial No.	Filing Date	Reg. No.	Reg. Date
31.	Space Systems/Loral, LLC	SSL & Design 	8584647 0	02/11/2013	4973453	06/07/2016
32.	MDA Geospatial Services Inc.	EARTHVIEW	75/012,7 91	10/31/1995	2177128	7/28/1998
33.	Neptec Design Group Limited	TRIDAR	87/863,4 99	4/4/2018		

**SCHEDULE C**

**EXISTING IP SECURITY AGREEMENTS**

1. U.S. Patent and Trademark Security Agreement dated as of October 5, 2017 among DigitalGlobe Inc., Maxar Technologies ULC (by its predecessor, MacDonald, Dettwiler and Associates Ltd.), MacDonald Dettwiler and Associates Corporation, MacDonald Dettwiler and Associates Inc., MDA Geospatial Services Inc., Space Systems/Loral, LLC and Radiant Geospatial Solutions LLC, as grantors in favor of Royal Bank of Canada, as Collateral Agent.
2. U.S. Patent and Trademark Security Agreement dated as of October 18, 2019 between Neptec Design Group Ltd., as grantor in favor of Royal Bank of Canada, as Collateral Agent.