PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT6425986

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	RELEASE OF SECURITY INTEREST RECORDED AT REEL/FRAME 053512/0267

CONVEYING PARTY DATA

Name	Execution Date
SILICON VALLEY BANK	12/01/2020

RECEIVING PARTY DATA

Name:	ANALYTICAL GRAPHICS, INC.
Street Address:	220 VALLEY CREEK BOULEVARD
City:	EXTON
State/Country:	PENNSYLVANIA
Postal Code:	19341

PROPERTY NUMBERS Total: 30

Property Type	Number
Patent Number:	5864489
Patent Number:	6021268
Patent Number:	6144334
Patent Number:	6102334
Patent Number:	6160509
Patent Number:	6011913
Patent Number:	6195553
Patent Number:	6850875
Patent Number:	6937968
Patent Number:	6859769
Patent Number:	6473597
Patent Number:	6708116
Patent Number:	7050002
Patent Number:	7383153
Patent Number:	7224311
Patent Number:	7423583
Patent Number:	7609907
Patent Number:	7928980
Patent Number:	8221122
Patent Number:	8041509

Property Type	Number
Patent Number:	8433544
Patent Number:	8494688
Patent Number:	8275498
Patent Number:	8718920
Patent Number:	9540122
Patent Number:	10293959
Patent Number:	10540189
Patent Number:	10558320
Patent Number:	10551994
Application Number:	62197796

CORRESPONDENCE DATA

Fax Number: (650)739-3900

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: 6507393939
Email: DebbieWu@JonesDay.com
Correspondent Name: JONES DAY
Address Line 1:   250 VESEY STREET
Address Line 4:   NEW YORK, NEW YORK 10281-1047

ATTORNEY DOCKET NUMBER:	406672-615008
NAME OF SUBMITTER:	DEBBIE WU
SIGNATURE:	/Debbie Wu/
DATE SIGNED:	12/01/2020

Total Attachments: 20
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Termination and Release of Intellectual Property Security Interest

This **Termination and Release of Intellectual Property Security Interest** (the "IP Release"), dated as of December 1, 2020 (the "Effective Date"), is made by and between **ANALYTICAL GRAPHICS, INC.**, a Pennsylvania corporation (the "Grantor") and **SILICON VALLEY BANK**, a California corporation (the "Grantee"). Grantor and Grantee are sometimes referred herein as each a "Party" and, collectively, the "Parties."

WHEREAS, pursuant to the terms of (i) that certain Loan and Security Agreement between Grantor and Grantee, dated as of May 19, 2011 (as amended, modified and/or supplemented from time to time, the "Loan Agreement"), (ii) that certain Intellectual Property Security Agreement between Grantor and Grantee, dated as of May 19, 2011 (the "IP Security Agreement"), (iii) that certain Addendum to Intellectual Property Security Agreement between Grantor and Grantee, dated as of August 19, 2011 (the "IP Addendum"), (iv) that certain Supplement to Intellectual Property Security Agreement between Grantor and Grantee, dated as of June 16, 2017 (the "IP Supplement,") and (v) that certain Amended and Restated Intellectual Property Security Agreement between Grantor and Grantee, dated as of August 14, 2020 (as amended, modified and/or supplemented from time to time, the "Amended IP Security Agreement," and collectively with the Loan Agreement, IP Addendum, IP Security Agreement, and IP Supplement, the "Loan Documents"), the Grantor has granted to Grantee a security interest in all of Grantor's right, title and interest, whether presently existing or thereafter acquired, in, to and under all of the Collateral (as defined in the Loan Documents).

WHEREAS, the IP Security Agreement was recorded with the United States Patent and Trademark Office on June 22, 2011 at patent assignment Reel 026477, Frame 0843, on June 22, 2011 at trademark assignment Reel 4567, Frame 0537, and on June 24, 2011 at US Copyright Office Document No. V3604D940.

WHEREAS, the IP Addendum was recorded with the United States Patent and Trademark Office on August 24, 2011 at trademark assignment Reel 4610, Frame 0889.

WHEREAS, the IP Supplement was recorded with the United States Patent and Trademark Office on June 19, 2017 at patent assignment Reel 042886, Frame 0263 and on June 19, 2017 at trademark assignment Reel 6086, Frame 0486.

WHEREAS, the Amended IP Security Agreement was recorded with the United States Patent and Trademark Office on August 17, 2020 at patent assignment Reel 053512, Frame 0267 and on August 17, 2020 at trademark assignment Reel 7024, Frame 0637.

WHEREAS, effective as of the Effective Date, Grantee wishes to fully terminate and release its lien and security interest in the Collateral.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, Grantee hereby represents, warrants, covenants and agrees, for the benefit of Grantor, as follows:

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1. <u>Defined Terms</u>. Unless otherwise defined herein, capitalized terms defined in the Loan Documents and used herein have the meaning given to them in the applicable Loan Document.

2. <u>Release of Security Interest</u>. The Grantee hereby fully terminates, releases, and discharges its lien and security interest in all of the Grantor's right, title and interest in, to and under its Intellectual Property Collateral (as defined in the Loan Documents), including without limitation, the following:

a) Any and all copyright rights, copyright applications, copyright registrations and the like protections in each work or authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret, now or hereafter existing, created, acquired or held, including without limitation those set forth on <u>Exhibit A</u>, attached hereto (collectively, the "<u>Copyrights</u>");

b) Any and all trade secrets, and any and all intellectual property rights in computer software and computer software products now or hereafter existing, created, acquired or held;

c) Any and all design rights that may be available to Grantor now or hereafter existing, created, acquired or held;

d) All patents, patent applications and like protections including, without limitation, improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same, including without limitation the patents and patent applications set forth on <u>Exhibit B</u>, attached hereto (collectively, the "<u>Patents</u>");

e) Any trademark and service mark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Grantor connected with and symbolized by such trademarks, including without limitation those set forth on <u>Exhibit C</u>, attached hereto (collectively, the "<u>Trademarks</u>");

f) All mask works or similar rights available for the protection of semiconductor chips, now owned or hereafter acquired, including, without limitation those set forth on <u>Exhibit D</u>, attached hereto (collectively, the "<u>Mask Works</u>");

g) Any and all claims for damages by way of past, present and future infringements of any of the rights included above, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the intellectual property rights identified above;

h) All licenses or other rights to use any of the Copyrights, Patents, Trademarks or Mask Works and all license fees and royalties arising from such use to the extent permitted by such license or rights;

i) All amendments, extensions, renewals and extensions of any of the Copyrights, Trademarks, Patents or Mask Works; and

j) All proceeds and products of the foregoing, including without limitation all payments under insurance or any indemnity or warranty payable in respect of any of the foregoing.

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k) All of the foregoing is collectively referred to herein as the "Released Collateral."

3. <u>Further Assurances</u>. Grantee hereby authorizes Grantor to (i) record this IP Release with the USPTO, (ii) file UCC financing statement amendments with the applicable filing office in order to memorialize the release of the security interest of the Grantee in the Released Collateral and/or (iii) otherwise record or file this IP Release in any applicable foreign or domestic governmental office or agency. Grantee hereby further agrees to duly execute, acknowledge, procure and deliver any further documents and to do such other acts, in each case at Grantor's expense, as may be reasonably necessary to effect the release of the security interest in the Released Collateral contemplated hereby.

4. <u>Counterparts</u>. This IP Release may be executed in any number of counterparts and by the different Parties hereto in separate 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. Delivery of an executed counterpart of a signature page to this IP Release electronically or by telecopy shall be as effective as delivery of a manually executed counterpart of this IP Release.

5. <u>Successors and Assigns</u>. This IP Release will be binding on and shall inure to the benefit of the Parties hereto and their respective permitted successors and assigns.

6. <u>Severability</u>. Each provision of this IP Release will be interpreted in such a manner as to be effective and valid under applicable law, but if any term or other provision of this IP Release is held to be invalid, illegal or unenforceable under applicable law, all other provisions of this IP Release shall remain in full force and effect.

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IN WITNESS WHEREOF, the Parties have caused this IP Release to be duly executed by their authorized representatives as of the Effective Date.

GRANTOR:

ANALYTICAL GRAPHICS, INC.

By: _Rick Spinogatti_

Name: Rick Spinogatti

Title: Vice President – Finance and Administration

GRANTEE:

SILICON VALLEY BANK

By: _Mark Shimrock_

Name: Mark Shimrock

Title: Vice President

[Signature Page to Termination and Release of IP Security Interest]

**PATENT
REEL: 054558 FRAME: 0792**

EXHIBIT A

U.S. Copyrights

Description	Registration/ Application No.	Registration/ Application Date
Satellite tool kit STK version 8.1.3.	TX0006976744	3/6/08
Satellite tool kit STK version 7.1.1.	TX0006963311	7/3/06
Satellite tool kit user's manual: version 2.1 for engineering workstations &41 other titles.	V3521D002	2/16/05
Satellite tool kit user's manual: version 2.1 for engineering workstations & 5 other titles.	V3519D132	1/24/05
Orbit determination tool kit: version 3.01.	TX0006063007	10/5/04
Satellite tool kit version 6.0.	TX0006026732	6/4/04
Navigation tool kit: version 1.0.	TX0006061747	8/30/04
STK/OD: version 2.0.	TX0006103065	5/18/04
Satellite toolkit: version 4.4.	TX0006033536	6/15/03
Satellite toll kit: version 5.0.	TX0006093989	5/9/03
STK/OD: a technical summary.	TX0001035371	2002
Radar user's manual: version 1.0 for Windows 95/NT 4.0: module that allows the user to analyze and visualize radar system performance for mission planning and system design analysis / author, Ralph C. Patrick.	TX0004845797	4/24/98
STK installation instructions: for Windows & engineering workstations.	TX0004845775	4/24/98
Radar user's manual: version 1.0 for engineering workstations / author, Ralph C. Patrick.	TX0004845783	4/24/98
Satellite tool kit version 4.0.3.	TX0004819011	2/17/98
STK/VO user's manual: version 3.0 for Windows 95/NT.	TX0004845765	2/17/98
Satellite Tool Kit user's manual & 5 other titles.	V3418D775	7/16/1998
Chain user's manual: version 2.0 for PCs.	TX0004845770	2/17/98
Chains user's manual: version 2.0 for engineering workstations.	TX0004845771	2/17/98
STK/VO user's manual: version 3.0 for engineering workstations.	TX0004845764	2/17/98

Description	Registration/ Application No.	Registration/ Application Date
STK/PL applications interface: version 4.0 for Windows 95/NT 4.0 & engineering workstations: a complete set of STK class, extension and user interface functions to enhance STK functionality of integrate into custom applications / authors, Ralph C. Patrick.	TX0004846313	12/15/97
Comm user's manual: version 1.1 for engineering workstations: module that allows the user to analyze and visualize communications links among spacecraft, and between spacecraft and earth stations/ /authors, Sheila R. Marshall, Ralph C. Patrick.	TX0004845798	7/15/97
STK/PL astrodynamics & utilities: version 4.0 for Windows 95/NT 4.0 & engineering workstations: a complete set of astrodynamics, utility, database and graphics functions for extension and development of space-related applications / authors, Ralph C. Patrick.	TX0004846312	12/15/97
STK/GIS: user's manual: provides data exchange between GIS industry software and STK, allowing you to design, analyze, and create STK and GIS objects quickly and easily: version 1.0 for Windows 95/NT.	TX0004258554	12/15/97
Coverage user's manual: version 1.0 for Windows 95/NT/ authors, Sheila R. Marshall, Ralph C. Patrick.	TX0004845777	7/15/97
PODS user's manual & tutorial: version 2.1 for engineering workstations.	TX0004845766	12/15/97
Comm user's manual; version 1.1 for Windows 95/NT/ authors, Sheila R. Marshall, Ralph C. Patrick.	TX0004845768	7/15/97
UNIX user's manual: STK.	TX0004845774	7/15/97
STK/GIS user's manual: version 1.0 for engineering workstations.	TX0004845780	12/15/97
UNIX tutorial: STK.	TX0004845782	7/15/97
PODS user's manual & tutorial: version 2.1 for PCs/ author, Sheila R. Marshall.	TX0004845767	12/15/97
MFT user's manual & tutorial: MFT.	TX0004845772	12/15/97

Description	Registration/ Application No.	Registration/ Application Date
Windows 95/NT user's manual: STK.	TX0004845773	7/15/97
Coverage user's manual: version 1.0 for engineering workstations/authors, Sheila R. Marshall, Ralph C. Patrick.	TX0004845776	7/15/97
Satellite tool kit version 4.0.1.	TX0004819009	8/19/97
Satellite tool kit version 4.0	TX0004819010	7/15/97
STK/DIS user's manual: version 1.0 for engineering workstations.	TX0004845778	12/15/97

Full Title	Copyright Reg. No.	Publication Date
STK/DIS user's manual: version 1.0 for PCs.	TX0004845779	12/15/97
Windows 95/NT tutorial: STK.	TX0004845781	7/15/97
Satellite tool kit: version 4.0.2.	TX0004851553	12/15/97
MFT user's manual & tutorial: version 2.0 for engineering workstations.	TX0004845769	12/15/97
[Satellite Tool Kit: programmer's library (STK/PL): version 2.1]	TX0004139753	4/20/95
Satellite Tool Kit/Programmer's Library (STK/PL): programmer's reference.	TX0004141385	9/18/95
Satellite tool kit (STK) tutorial: version 2.1.	TX0004140227	4/20/95
[Satellite Tool Kit: version 2.1]	TX0004139752	4/20/95
Satellite Tool Kit user's manual: version 2.1 for engineering workstations.	TX0004122250	4/20/95
Satellite tool kit/programmer's library (STK/PL) programmer's guide: version 2.1.	TX0004139732	4/20/95

Title of Computer Program	Year Programs was Completed	Date program "published" or offered to the public	Application ID and Date Filed	Copyright Registration No and Date
STK				
[Satellite Tool Kit: version 2.1]	1995	April 20, 1995		TX0004139752 Aug. 30, 1995
Satellite Tool Kit user's manual: version 2.1 for engineering workstations.	1995	April 20, 1995		TX0004122250 Aug. 30, 1995

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Title of Computer Program	Year Programs was Completed	Date program "published" or offered to the public	Application ID and Date Filed	Copyright Registration No and Date
Satellite tool kit (STK) tutorial: version 2.1.	1995	April 20, 1995		TX0004140227 Sept. 18, 1995
Coverage user's manual: version 1.0 for engineering workstations / authors, Sheila R. Marshall, Ralph C. Patrick.	1997	July 15, 1997		TX0004845776 Aug. 11, 1998
Coverage user's manual: version 1.0 for Windows 95/NT/authors, Sheila R. Marshall, Ralph C. Patrick.	1997	July 15, 1997		TX0004845777 Aug. 28, 1998
Satellite tool kit version 4.0	1997	July 15, 1997		TX0004819010 Sept. 9, 1998
UNIX user's manual: STK.	1997	July 15, 1997		TX0004845774 Aug. 13, 1998
UNIX tutorial: STK.	1997	July 15, 1997		TX0004845782 Aug. 11, 1998
Windows 95/NT user's manual: STK.	1997	July 15, 1997		TX0004845773 Aug. 13, 1998
Windows 95/NT tutorial: STK.	1997	July 15, 1997		TX0004845781 Aug. 13, 1998
Satellite tool kit version 4.0.1.	1997	August 19, 1997		TX0004819009 Sept. 9, 1998
Satellite tool kit version 4.0.2.	1997	December 15, 1997		TX0004851553 Aug. 13, 1998
STK/GIS user's manual: version 1.0 for engineering workstations.	1997	December 15, 1997		TX0004845780 Sept. 9, 1998
STK/GIS user's manual: provides data exchange between GIS industry software and STK, allowing you to design, analyze, and create STK and GIS objects quickly and easily: version 1.0 for Windows 95/NT.	1997	December 15, 1997		TX0004258554 Sept. 14, 1998
Satellite tool kit version 4.0.3.	1998	February 17, 1998		TX0004819011 Aug. 13, 1998
STK installation instructions: for Windows & engineering workstations.	1998	April 24, 1998		TX0004845775 Aug. 13, 1998
Satellite toolkit: version 4.4.	2003	June 15, 2003		TX0006033536 Jul 8, 2004
Satellite tool kit: version 5.0.	2003	May 9, 2003		TX0006093989 Jul 8, 2004
Satellite tool kit: version 6.0.	2004	June 4, 2004		TX0006026732 Jul 8, 2004
Satellite tool kit STK version 7.1.1.	2006	July 3, 2006		TX0006963311 Apr 22, 2009
Satellite tool kit STK version 8.1.3.	2008	March 6, 2008		TX0006976744 May 20, 2009
Satellite tool kit STK version 9.0	2009	May 5, 2009	1-6521285362 04/24/2018	TX 8-560-063 Apr. 24, 2018
Satellite tool kit STK version 9.1	2009	November 20, 2009	1-6521329596 04/24/2018	TX 8-560-066 Apr. 24, 2018
Satellite tool kit STK version 9.2	2010	May 13, 2010	1-6521390199 04/24/2018	TX 8-560-068 Apr. 24, 2018
Satellite tool kit STK version 10.0	2012	November 15, 2012	1-6521416442 04/24/2018	TX 8-560-070 Apr. 24, 2018
Satellite tool kit STK version 10.1	2014	February 19, 2014	1-6522382962 04/25/2018	TX 8-560-085 Apr. 25, 2018
Satellite Tool Kit STK version 11.0	2015	December 1, 2015	1-6522383116 04/25/2018	TX 8-560-094 Apr. 25, 2018
Satellite Tool Kit STK version 11.1	2016	June 30, 2016	1-6524661262 04/25/2018	TX 8-560-100 Apr. 25, 2018
Satellite Tool Kit STK version 11.2	2017	April 19, 2017	1-6524661846 04/25 2018	TX 8-560-104 Apr. 25, 2018

Title of Computer Program	Year Programs was Completed	Date program "published" or offered to the public	Application ID and Date Filed	Copyright Registration No and Date
Satellite Tool Kit STK version 11.3	2017	November 10, 2017	1-6524661969 04/25/2018	TX 8-560-107 Apr. 25, 2018
Satellite Tool Kit STK version 11.4	2018	April 23, 2018	1-6477754987 04/02/2019	TX 8-727-917 April 2, 2019
Satellite Tool Kit STK version 11.5	2018	November 6, 2018	1-7564953817 04/02/2019	TX 8-727-453 April 2, 2019
Satellite Tool Kit STK version 11.6	2019	March 29, 2019	1-8936180772 06/16/2020	TX 8-833-677 June 16, 2020
Satellite Tool Kit STK version 11.7	2019	Sept 16, 2019	1-8936180960 June 16, 2020	
Satellite Tool Kit STK version 12.0	2020	April 26, 2020	1-8936181167 June 16, 2020	
STK/DIS				
STK/DIS user's manual: version 1.0 for engineering workstations.	1997	December 15, 1997		TX0004845778 Aug. 11, 1998
STK/DIS user's manual: version 1.0 for PCs.	1997	December 15, 1997		TX0004845779 Aug. 28, 1998
STK/OD				
STK/OD: a technical summary.	2002	No Data Recorded		TX0001035371 May 22, 2002
STK/OD: version 2.0	2004	May 18, 2004		TX0006103065 Aug 17, 2004
STK/PL				
Satellite tool kit/programmer's library [STK/PL] programmer's guide: version 2.1.	1995	April 20, 1995		TX0004139732 Aug. 30, 1995
[Satellite Tool Kit: programmer's library (STK/PL): version 2.1]	1995	April 20, 1995		TX0004139753 Aug. 30, 1995
Satellite Tool Kit/Programmer's Library [STK/PL]: programmer's reference.	1995	September 18, 1995		TX0004141385 Sept 18, 1995
STK/PL application interface: version 4.0 for Windows 95/NT 4.0 & engineering workstations: a complete set of STK class, extension and user interface functions to enhance STK functionality of integrate into custom applications / authors, Ralph C. Patrick.	1997	December 15, 1997		TX0004846313 Aug 13, 1998
STK/PL astrodynamics & utilities: version 4.0 for Windows 95/NT 4.0 & engineering workstations: a complete set of astrodynamics, utility, database and graphics functions for extension and development of space-related applications / authors, Ralph C. Patrick.	1997	December 15, 1997		TX0004846312 Aug. 13, 1998
STK Parallel Computing Server				
STK Parallel Computing Server v2.0.0	2020	April 28, 2020	1-8924296192 June 12, 2020	TX 8-883-725 June 12, 2020
STK/VO				
STK/VO user's manual: version 3.0 for Windows 95/NT	1998	February 17, 1998		TX0004845765 Aug. 17, 1998
STK/VO user's manual: version 3.0 for engineering workstations.	1998	February 17, 1998		TX0004845764 Aug. 21, 1998

Title of Computer Program	Year Programs was Completed	Date program "published" or offered to the public	Application ID and Date Filed	Copyright Registration No and Date
Orbit Determination Tool Kit (ODTK)				
Orbit determination tool kit: version 3.01	2004	October 5, 2004		TX0006063007 Oct. 26, 2004
Orbit Determination Tool Kit version 4	2005	June 13, 2005	1-6502930005 04/18/2018	TX 8-560-024 Apr. 18, 2018
Orbit Determination Tool Kit version 4.1.0	2005	December 1, 2005	1-6503007339 04/18/2018	TX 8-560-032 Apr. 18, 2018
Orbit Determination Tool Kit version 5.0.0	2007	February 5, 2007	1-6503007482 04/18/2018	TX 8-560-036 Apr. 18, 2018
Orbit Determination Tool Kit version 5.1.0	2007	November 21, 2007	1-6506338432 04/19/2018	TX 8-560-041 Apr. 18, 2018
Orbit Determination Tool Kit version 6.0.0	2009	May 4, 2009	1-6506338536 04/19/2018	TX 8-560-045 Apr. 19, 2018
Orbit Determination Tool Kit version 6.1.0	2011	April 12, 2011	1-6506338669 04/19/2018	TX 8-560-061 Apr. 19, 2018
Orbit Determination Tool Kit version 6.2.0	2013	May 2, 2013	1-6506338742 04/19/2018	TX 8-560-065 Apr. 19, 2018
Orbit Determination Tool Kit version 6.3.0	2013	November 13, 2013	1-6506338915 04/19/2018	TX 8-560-066 Apr. 19, 2018
Orbit Determination Tool Kit version 6.4.0	2015	February 3, 2015	1-6518142532 04/23/2018	TX 8-560-067 Apr. 23, 2018
Orbit Determination Tool Kit version 6.5.0	2017	May 24, 2017	1-6518142726 04/23/2018	TX 8-566-502 Apr. 23, 2018
Orbit Determination Tool Kit version 6.5.1	2017	September 20, 2017	1-6518142869 04/23/2018	TX 8-560-060 Apr. 23, 2018
Orbit Determination Tool Kit version 6.5.2	**2018**	**April 21, 2018**	1-7564953881 04/02/2019	TX 8-727-463 Apr. 2, 2019
Orbit Determination Tool Kit version 6.5.3	**2018**	**June 14, 2018**	1-7565732402 04/03/2019	TX 8-727-798 Apr. 3, 2019
Orbit Determination Tool Kit version 6.6.0	**2018**	**November 8, 2018**	1-7567920093 04/03/2019	TX 8-727-799 Apr. 3, 2019
Orbit Determination Tool Kit version 6.6.1	**2019**	**March 27, 2019**	1-8327972940 12/06/2019	TX 8-844-731 Dec. 6, 2019
Orbit Determination Tool Kit version 7.0.0	**2019**	**Nov. 22, 2019**	1-8327973127 12/06/2019	TX 8-844-742 Dec. 6, 2019
Orbit Determination Tool Kit 7.1.0	**2020**	**May 27, 2020**	1-8914313690 June 9, 2020	TX 8-879-327 June 9, 2020
STK Components				
AGI Components 2008 r1	2008	March 31, 2008	1-6481757542 04/11/2018	TX 8-559-887 Apr. 11, 2018
AGI Components 2009 r1	2009	March 12, 2009	1-6481257686 04/11/2018	TX 8-559-890 Apr. 11, 2018
AGI Components 2009 r3	2009	June 12, 2009	1-6431257889 04/11/2018	TX 8-559-893 Apr. 11, 2018
AGI Components 2010 r1	2010	February 24, 2010	1-6481258042 04/11/2018	TX 8-559-899 Apr. 11, 2018
AGI Components 2011 r6	2011	July 18, 2011	1-6484645252 04/12/2018	TX 8-559-910 Apr. 12, 2018
STK Components 2012 r5	2012	May 17, 2012	1-6484645416 04/12/2018	TX 8-559-914 Apr. 12, 2018
STK Components 2013 r4	2013	July 2, 2013	1-6487612895 04/13/2018	TX 8-559-942 Apr. 13, 2018

Title of Computer Program	Year Programs was Completed	Date program "published" or offered to the public	Application ID and Date Filed	Copyright Registration No and Date
STK Components 2014 r2	2014	May 9, 2014	1-6487612896 04/13/2018	TX 8-559-945 Apr. 13, 2018
STK Components 2014 r5	2014	September 20, 2014	1-6467611009 04/13/2018	TX 8-559-982 Apr. 13, 2018
STK Components 2015 r3	2015	November 2, 2015	1-6487685412 04/13/2018	TX 8-559-999 Apr. 13, 2018
STK Components 2016 r2	2016	May 23, 2016	1-6487811306 04/13/2018	TX 8-560-004 Apr. 13, 2018
STK Components 2016 r3	2016	September 2, 2016	1-6487811459 04/13/2018	TX 8-560-008 Apr. 13, 2018
STK Components 2017 r3	2017	September 11, 2017	1-6487811573 04/13/2018	TX 8-560-014 Apr. 13, 2018
STK Components 2018 r3	2018	August 14, 2018	1-7567944748 04/13/2018	TX 8-727-986 Apr. 3, 2019
STK Components 2019 r1	2019	Feb. 1, 2019	1-8328065124 12/06/2019	TX 8-823-197 Dec. 6, 2019
STK Components 2019 r2	2019	May 2, 2019	1-8328137347 12/06/2019	TX 8-823-202 Dec. 6, 2019
STK Components 2019 r3	2019	July 31, 2019	1-8328137700 12/06/2019	TX 8-844-712 Dec. 6, 2019
STK Components 2019 r5	2019	Oct. 31, 2019	1-8328137857 12/06/2019	TX 8-841-605 Dec. 6, 2019
STK Components 2020 r1	2020	Jan. 24, 2020	1-8585249683 02/26/2020	TX 8-866527 Feb 26, 2020
	2020	April 27, 2020	1-8914267282 June 9, 2020	TX 8-884-203 June 9, 2020
STK Terrain Server				
STK Terrain Server 1.0.0	2014	September 29, 2014	1-6459401916 04/04/2018	TX 8-556-197 Apr. 4, 2018
STK Terrain Server 1.1.0	2014	Nov. 18, 2014	1-6474801917 04/09/2018	TX 8-559-456 Apr. 9, 2018
STK Terrain Server 1.2.0	2015	March 12, 2015	1-6474845476 4/9/2018	TX 8-559-460 Apr. 9, 2018
STK Terrain Server 1.3.0	2016	April 15, 2016	1-6474845879 4/9/2018	TX 8-559-465 Apr. 9, 2018
STK Terrain Server 1.4.0	2017	December 8, 2017	1-6477759857 04/10/2018	TX 8-559-468 Apr. 10, 2018
Geospatial Content Server				
Geospatial Content Server 2.0.0	2018	December 11, 2018	1-7567945132 04/03/2019	TX 8-727-809 Apr. 3, 2019
Geospatial Content Server 2.2.0	2019	August 17, 2019	1-8584889692 02/26/2020	TX 8-866-544 Feb. 26, 2020
Geospatial Content Server 2.3.0	2020	January 15, 2020	1-8584889960 02/26/2020	TX 8-863-231 Feb. 26, 2020
Geospatial Content Server 2.4.0	2020	July 24, 2020	**: 1-00067085152 July 27, 2020**	
STK T&E Tool Kit				
STK T&E Tool Kit Version 1.0	2017	May 26, 2017	1-6546304352 05/02/2018	TX 8-571-756 May 2, 2018
STK T&E Tool Kit Version 1.1.0	2017	July 11, 2017	1-6546304466 05/02/2018	TX 8-570-051 May 2, 2018

Title of Computer Program	Year Programs was Completed	Date program "published" or offered to the public	Application ID and Date Filed	Copyright Registration No and Date
STK T&E Tool Kit Version 1.2.0	2017	December 13, 2017	1-6549818932 05/03/2018	TX 8-570-406 May 3, 2018
STK T&E Tool Kit Version 1.3.0	**2018**	**April 17, 2018**	1-7567979026 04/03/2019	TX 8-727 968 Apr. 3, 2019
STK T&E Tool Kit Version 1.4.0	**2018**	**August 15, 2018**	1-7568024666 04/03/2019	TX 8-727-808 Apr. 3, 2019
STK T&E Tool Kit Version 1.5	**2019**	**May 15, 2019**	1-8328064644 12/06/2019	TX 8-823-191 Dec. 6, 2019
STK T&E Tool Kit Version 1.6	**2019**	**Nov 15, 2019**	1-8328064877 12/06/2019	TX 8-844-726 Dec 6, 2019
STK T&E Tool Kit Version 1.7	**2020**	**Feb. 18, 2020**	1-8585250277 02/26/2020	TX 8-858-787 Feb. 26, 2020
Scalability Extension				
STK Server 1.0.0	2012	November 21, 2012	1-6477851332 04/10/2018	TX 8-559-842 Apr. 10, 2018
STK Server 1.0.2	2013	October 22, 2013	1-6477851235 04/10/2018	TX 8-559-844 Apr. 10, 2018
Scalability Extension 1.1.0	2015	December 1, 2015	1-6477941448 04/10/2018	TX 8-559-846 Apr. 10, 2018
Scalability Extension 1.2.0	2017	April 12, 2017	1-6477941551 04/10/2018	TX 8-559-848 Apr. 10, 2018
Scalability Extension 1.3.0	2017	December 7, 2017	1-6478042562 04/10/2018	TX 8-560-209 Apr. 10, 2018
Scalability Extension 1.4.0	**2018**	**May 7, 2018**	1-7568024910 04/03/2019	TX 8-727-805 Apr. 3, 2019
Scalability Extension 1.5.0	**2018**	**November 9, 2018**	1-7568025174 April 3, 2019	TX 8-727-807 Apr. 3, 2019
STK Data Federate				
STK Data Federate 2.0.0	2017	July 21, 2017	1-6502929822 04/18/2018	TX 8-560-020 Apr. 18, 2018
STK Data Federate 2.1.0	**2018**	**May 29, 2018**	1-8127972722 12/06/2019	TX 8-843-442 Dec. 6, 2019
STK Data Federate 3.1.0	**2019**	**May 30, 2019**	1-8585249930 02/26/2020	TX 8-858-731 Feb. 26, 2020
SSA Software Suite (SSS)				
SSS 1.0.0	2013	June 24, 2013	1-6459402190 04/04/2018	TX 8-559-542 Apr. 4, 2018
SSS 1.3.0	2014	April 10, 2014	1-6460256842 04/05/2018	TX 8-559-564 Apr. 5, 2018
SSS 2.0.1	2015	May 12, 2015	1-6460257051 04/05/2018	TX 8-559-548 Apr. 5, 2018
SSS 2.7.0	2016	July 29, 2016	1-6460257154 04/05/2018	TX 8-559-554 Apr. 5, 2018
SSS 2.11.0	2017	July 7, 2017	1-6474512412 04/09/2018	TX 8-559-559 Apr. 9, 2018
SSS 2.13.0	2018	January 22, 2018	1-6474512726 04/09/2018	TX 8-559-497 Apr. 9, 2018
SSS 2.14.0	**2018**	**April 25, 2018**	1-7568068658 04/03/2019	TX 8-727-796 Apr. 3, 2019
SSS 2.15.0	**2018**	**October 12, 2018**	1-7568087332 04/03/2019	TX 8-727-916 Apr. 3, 2019
SSS 2.16.0	**2019**	**June 24, 2019**	1-8358528242 12/16/2019	TX 8-843-909 Dec. 16, 2019
SEG				

Title of Computer Program	Year Programs was Completed	Date program "published" or offered to the public	Application ID and Date Filed	Copyright Registration No and Date
Space Event Generator SEG 2.15.0	2018	October 12, 2018	1-7586425997 04/09/2019	TX 8-730-621 April 9, 2019
Space Event Generator SEG 2.16.0	2019	June 24, 2019	1-8359067490 12/16/2019	TX 8-826-846 Dec. 16, 2019
Space Event Generator SEG 2.17.0	2019	Nov 27, 2019	1-8359067917 12/16/2019	TX 8-826-852 Dec. 16, 2019
Space Event Generator (SEG) 3.0	2020	July 2, 2020	1-9067116530 July 27, 2020	
MPT				
Maneuver Processing Tool MPT 2.15.0	2018	October 12, 2018	1-7586426201 04/09/2019	TX 8-730-645 April 9, 2019
Maneuver Processing Tool MPT 2.16.0	2019	June 24, 2019	1-8359115340 12/16/2019	TX 8-843-904 Dec. 16, 2019
SOTA				
Space Object Threat Assessment (SOTA) 1.0.0	2018	October 15, 2018	1-7585425542 04/09/2019	TX 8-730-653 April 9, 2019
GLADS				
GLADS 1.0.0	2016	November 15, 2016	1-6458190951 04/05/2018	TX 8-556-298 Apr. 4, 2018
GLADS 1.7.0	2017	December 18, 2017	1-6459347951 04/04/2018	TX 8-556-324 Apr. 4, 2018
GLADS 1.9.0	2018	April 6, 2018	1-7571220002 04/04/2019	TX 8-762-043 Apr. 4, 2019
GLADS 1.11.0	2018	September 5, 2018	1-7571220363 04/04/2019	TX 8-728-045 Apr. 4, 2019
GLADS 1.11.0	2018	December 27, 2018	1-7571220457 04/04/2019	TX 8-728-047 Apr. 4, 2019
Enterprise Platform				
Enterprise Platform 1.6.0	2018	October 27, 2018	1-7571432552 04/04/2019	TX 8-740-398
MFT				
MFT user's manual & tutorial: MFT	1997	December 15, 1997		TX0004845772 Aug. 11, 1998
MFT user's manual & tutorial: version 2.0 for engineering workstations.	1997	December 15, 1997		TX0004845769 Aug. 11, 1998
Navigation Tool Kit				
Navigation tool kit: version 1.0	2004	August 30, 2004		TX0006061747 Oct 20, 2004
PODS				
PODS user's manual & tutorial: version 2.1 for PCs/author, Sheila R. Marshall	1997	December 15, 1997		TX0004845767 Aug. 17, 1998
PODS user's manual & tutorial: version 2.1 for engineering workstations.	1997	December 15, 1997		TX0004845766 Aug. 17, 1998
Security Agreements				
Satellite Tool Kit user's manual & 5 other titles.	1998	May 1, 1998		V34180775 Jul. 6, 1998
Satellite tool kit user's manual: version 2.1 for engineering workstations & 5 other titles.	2005	January 19, 2005		V35190132 Jan. 24, 2005

Title of Computer Program	Year Programs was Completed	Date program "published" or offered to the public	Application ID and Date Filed	Copyright Registration No and Date
Satellite tool kit user's manual: version 2.1 for engineering workstations & 41 other titles.	2005	January 21, 2005		V35210002 Feb. 16, 2005
Satellite tool kit STK version 8.1.3 & 46 other titles.	2011	May 19, 2011		V36040940 Jan 24, 2011
Other User Manuals				
Comm user's manual: version 1.1 for engineering workstations: module that allows the user to analyze and visualize communications links among spacecraft, and between spacecraft and earth stations / authors, Sheila R. Marshall, Ralph C. Patrick	1997	July 15, 1997		TX0004845798 Aug. 28, 1998
Comm user's manual: version 1.1 for Windows 95/NT/authors, Sheila, R. Marshall, Ralph C. Patrick.	1997	July 15, 1997		TX0004845768 Aug. 13, 1998
Chains user's manual: version 2.0 for engineering workstations.	1998	February 17, 1998		TX0004845771 Aug. 11, 1998
Chains user's manual: version 2.0 for PCs	1998	February 17, 1998		TX0004845770 Aug. 28, 1998
Radar user's manual: version 1.0 for Windows 95/NT 4.0: module that allows the user to analysis and visualize radar system performance for mission planning and system design analysis / author, Ralph C. Patrick.	1998	April 24, 1998		TX0004845797 Aug. 13, 1998
Radar user's manual: version 1.0 for engineering workstations / author, Ralph C. Patrick.	1998	April 24, 1998		TX0004845783 Aug. 11, 1998

PATENT
REEL: 054558 FRAME: 0802

EXHIBIT B

U.S. Patents

	Subject	U.S. Patent
1.	Method and apparatus for determining exposure of spacecraft-mounted solar panels to sun and determination of spacecraft drag	US Patent: 5,864,489 Issued: 01-26-1999
2.	Method and apparatus for determination of spacecraft drag	US Patent: 6,011,913 Issued: 01-04-2000
3.	Method and apparatus for modeling receiver bandwidth for telecommunications analysis	US Patent: 6,021,268 Issued: 02-01-2000
4.	Method and apparatus for determining close approaches for earth-fixed launch trajectories	US Patent: 6,102,334 Issued: 08-15-2000
5.	Method and apparatus for calculating access between satellite constellations and ground targets	US Patent: 6,144,334 Issued: 11-07-2000
6.	Method and apparatus for alerting a user regarding the position of a satellite	US Patent: 6,160,509 Issued: 12-12-2000
7.	Method and apparatus for determining optimal paths among objects of a communications network	US Patent: 6,195,553 Issued: 02-27-2001
8.	Method and apparatus for modeling transmitter bandwidth for telecommunications analysis	US Patent: 6,473,597 Issued: 10-29-2002
9.	Method and apparatus for orbit determination	US Patent: 6,708,116 Issued: 03-16-2004
10.	Method and apparatus for determining obscuration of sensors that are mounted on a spacecraft	US Patent 6,850,875 Issued 02-01-2005
11.	Method and apparatus for creating elements and systems for description of position and motion of bodies in three-dimensional space to support orbital maneuver analysis	US Patent: 6,859,769 Issued: 02-22-2005
12.	Method and apparatus for sequentially profiling and solving problems in space mission analysis	US Patent: 6,937,968 Issued: 08-30-2005
13.	GPS carrier phase measurement representation and method of use	US Patent: 7,050,002 Issued: 05-23-2006
14.	System and method for visualization of attitude and attitude/position dependent data	US Patent: 7,224,311 Issued: 05-29-2007

	Subject	U.S. Patent
15.	Method for determining maximum conjunction probability of rectangular-shaped objects	US Patent: 7,383,153 Issued: 06-03-2008
16.	Method for refining state estimates of a global positioning system (GPS) receiver based upon sequential GPS carrier phase measurements	US Patent: 7,423,583 Issued: 09-09-2008
17.	Visualization of field of view constraints	US Patent: 7,609,907 Issued: 10-27-2009
18.	Method for visualizing data clouds using color and opacity blending	US Patent: 7,928,980 Issued: 04-19-2011
19.	System and method of addressing nonlinear relative motion for collision probability using parallelepipeds	US Patent: 8,041,509 Issued: 10-18-2011
20.	System and method for aircraft mission modeling	US Patent: 8,221,122 Issued: 07-17-2012
21.	System and method for assessing the risk of conjunction of a rocket body with orbiting and non-orbiting platforms	US Patent: 8,275,498 Issued: 09-25-2012
22.	Nonlinear variable lag smoother	US Patent: 8,433,544 Issued: 04-30-2013
23.	System and method for detection of anti-satellite vulnerability of an orbiting platform	US Patent: 8,494,688 Issued: 07-23-2013
24.	System and method for determining earth-fixed trajectory launching from within a specified area	US Patent: 8,718,920 Issued: 05-06-2014
25.	Probability and frequency of orbital encounters	US Patent No.: 10,293,959 Issue Date: 05-21-2019
26.	Formalized execution of model integrated descriptive architecture languages	US Patent No.: 10,540,189 Issued: 01-21-2020

	Subject	U.S. Patent
27.	Probability of collision bounding surfaces	US Patent No.: 10,551,994 Issued: 02-04-2020
28.	Probability of collision topology	US Patent No.: 10,558,320 Issued: 02-11-2020
29.	Maneuver Processing	US Patent No.: 9,540,122 Issued: 01-10-2017
30.	System & method for data rendering and transformation in 2- and 3-Dimensional images	US Patent No.: 9,153,063 Issued: 10-06-2015
31.	Visualization of field of view obstruction by an Ellipsoid	US Patent No.: 9,449,424 Issued: 09-20-2016
32.	Volumetric assessment of encounter probability	US Application No.: 62/197,796 Filed: 07-28-2015
33.	Recording and visualizing images using augmented image data	US Application No.: 14/136,357 Filed: 12-20-2013

PATENT
REEL: 054558 FRAME: 0805

EXHIBIT C

Registered U.S. Trademarks

Mark	U.S. Registration Number	Registration Date
3D TILES	4985630	2016-06-21
4D ANALYST	3413624	2008-04-15
	5914324	2019-11-19
CAT	2190735	1998-09-22
CLOSE APPROACH TOOL	2183150	1998-08-18
INSIGHT3D	3736744	2010-01-12
ODTK	4738986	2015-05-19
	4739127	2015-05-19
SATELLITE AR	4144445	2012-05-15
SATELLITE TOOL KIT	2244063	1999-05-04
STK	2323113	2000-02-29
STK/ASTROGATOR	2470247	2001-07-17
STK SATELITE TOOL KIT	1738121	1992-12-08
STK SYSTEMS TOOL KIT	4270839	2013-01-08
SYSTEMS TOOL KIT	4228072	2012-10-16
ANALTYICAL GRAPHICS & Design	1753678	1993-02-23
NAVTK	3215805	2007-03-06
SATELLITE TOOL KIT	3685833	2009-09-22
CESIUM	4261392	2012-12-18
CESIUM PRO & Design	4873583	2015-12-22
CESIUM PRO	4873584	2015-12-22
CESIUM 3D TILES	5020566	2016-08-16
CESIUM 3D TILES & Design	5020567	2016-08-16
COMSPOC	4867186	2015-12-08
COMSPOC COMERCIAL OPERATIONS SPACE CENTER & Design	4644676	2014-11-25
COMSPOC COMERCIAL OPERATIONS SPACE CENTER & Design	4867209	2015-12-08
HIDEPH	4718303	2015-04-07
ODTK	4738986	2015-05-19
ODTK & Design	4739127	2015-09-19
SKYVUE	87/128379	n/a
SPACEBOOK	4644533	2014-11-25
SSA & Design	4898079	2016-02-09
SSA SOFTWARE SUITE	4898078	2016-02-09
Triangle logo	4800837	2015-08-25
STK SYSTEMS TOOL KIT	4270839	2013-01-08
SYSTEMS TOOL KIT	4228072	2012-10-16

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Japanese Trademarks

Mark	Japan Registration Number	Registration Date
ANALYTICAL GRAPHICS	5270579	2009-10-02

International (Madrid Protocol) Trademarks

Mark	Int'l Registration Number	Registration Date	Designated Countries
SPACEBOOK	1241525	2014-11-03	Australia, France, Germany, Italy, Japan, Spain, United Kingdom
COMSPOC COMERCIAL OPERATIONS SPACE CENTER & Design	1241112	2014-11-03	Australia, France, Germany, Italy, Japan, Spain, United Kingdom

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**PATENT
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EXHIBIT D

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