

FORM PTO-1619A
Expires 06/30/99
OMB 0651-0027

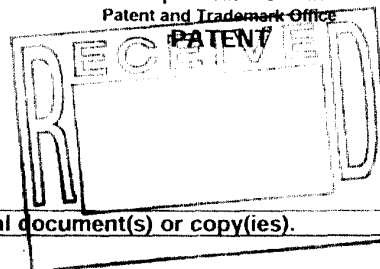
07-10-1998

U.S. Department of Commerce
Patent and Trademark Office



100760964

RECORDATION FORM COVER SHEET
PATENTS ONLY



7-2-98

TO: The Commissioner of Patents and Trademarks: Please record the attached original document(s) or copy(ies).

Submission Type

☒ New

☐ Resubmission (Non-Recordation)

Document ID#

☐ Correction of PTO Error

Reel #

Frame #

☐ Corrective Document

Reel #

Frame #

Conveyance Type

☐ Assignment

☐ Security Agreement

☐ License

☐ Change of Name

☐ Merger

☒ Other Lien and Security Interest

U.S. Government

(For Use ONLY by U.S. Government Agencies)

☐ Departmental File

☐ Secret File

Conveying Party(ies)

☐ Mark if additional names of conveying parties attached

Name (line 1) Analytical Graphics, Inc.

Execution Date
Month Day Year

05011998

Name (line 2)

Second Party

Name (line 1)

Execution Date
Month Day Year

Name (line 2)

Receiving Party

☐ Mark if additional names of receiving parties attached

Name (line 1) PNC Bank, N.A.

Name (line 2)

Address (line 1) One PNC Plaza, 4th Floor Annex

Address (line 2)

Address (line 3) Pittsburgh

City

PA

State/Country

15265

Zip Code

☐ If document to be recorded is an assignment and the receiving party is not domiciled in the United States, an appointment of a domestic representative is attached. (Designation must be a separate document from Assignment.)

Domestic Representative Name and Address

Enter for the first Receiving Party only.

Name

Address (line 1)

Address (line 2)

Address (line 3)

Address (line 4)

07/09/1998 DNGUYEN 00000217 08877751

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Mail documents to be recorded with required cover sheet(s) information to:
Commissioner of Patents and Trademarks, Box Assignments, Washington, D.C. 20231

REEL: 9288 FRAME: 0317

Correspondent Name and Address

Area Code and Telephone Number (412)355-6271

Name Mark R. Leslie

Address (line 1) Kirkpatrick & Lockhart LLP

Address (line 2) 1500 Oliver Building

Address (line 3) Pittsburgh PA 15222

Address (line 4)

Pages

Enter the total number of pages of the attached conveyance document including any attachments.

9

Application Number(s) or Patent Number(s)

☐ Mark if additional numbers attached

Enter either the Patent Application Number or the Patent Number (DO NOT ENTER BOTH numbers for the same property).

Patent Application Number(s)

08877751

08915971

08030977

09031800

Patent Number(s)

If this document is being filed together with a new Patent Application, enter the date the patent application was signed by the first named executing inventor.

Month Day Year

Patent Cooperation Treaty (PCT)

Enter PCT application number
only if a U.S. Application Number
has not been assigned.

PCT

PCT

PCT

PCT

PCT

PCT

Number of Properties

Enter the total number of properties involved.

1

Fee Amount

Fee Amount for Properties Listed (37 CFR 3.41): \$ 160.00

Method of Payment:

Enclosed ☒

Deposit Account ☒

Deposit Account

(Enter for payment by deposit account or if additional fees can be charged to the account.)

Deposit Account Number:

11-1110

Authorization to charge additional fees:

Yes

☒

No

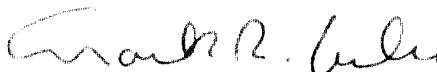
☐

Statement and Signature

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document. Charges to deposit account are authorized, as indicated herein.

Mark R. Leslie

Name of Person Signing



Signature

June 23, 1998

Date

PATENT

REEL: 9288 FRAME: 0318

**RIDER TO SECURITY AGREEMENT -
PATENTS**

THIS RIDER TO SECURITY AGREEMENT ("Rider") is executed as of May 1, 1998, by and between **ANALYTICAL GRAPHICS, INC.**, a Pennsylvania corporation (the "**Grantor**"), with an address at 325 Technology Drive, Pennsylvania, 19355, and **PNC BANK, NATIONAL ASSOCIATION**, as agent for the Banks identified on Annex I hereto (the "**Agent**"). This Rider is incorporated into and made part of that certain Security Agreement ("**Security Agreement**") between the Grantor and the Agent dated May 1, 1998, and also into certain other financing documents and security agreements executed by and between the Grantor and the Agent or by and between the Borrower (as defined in the Security Agreement) and the Agent (all such documents including this Rider being collectively referred to as "**Loan Documents**"). All capitalized terms not otherwise defined in this Rider shall have the same meanings ascribed to such terms in the other Loan Documents.

As collateral security for the Obligations (as defined in the Security Agreement) under the Loan Documents, the Grantor has agreed to grant a security interest in and to assign to the Agent the Patent Collateral (as hereinafter defined). The Agent desires to have its lien and security interest in such Patent Collateral confirmed by a document identifying such security interest and in such form as may be recorded in the United States Patent and Trademark Office.

NOW, THEREFORE, with the foregoing background deemed incorporated by reference and made part hereof, the parties hereto, intending to be legally bound hereby, covenant and agree as follows:

1. Grant of Security Interest. In consideration of and pursuant to the terms of the Security Agreement and for other good, valuable and sufficient consideration, the receipt of which is hereby acknowledged, and to secure the Obligations, the Grantor does hereby assign and grant to the Agent a lien and security interest in (a) all of the Grantor's right, title and interest in and to (i) the United States Letters Patent and the inventions described and claimed therein set forth on Schedule A hereto and any future patents (hereinafter referred to collectively as the "**Patents**"); (ii) the applications for Letters Patent and the inventions described and claimed therein set forth on Schedule A hereto and any United States Letters Patent which may be issued upon any of said applications and any future patent applications (hereinafter referred to collectively as the "**Applications**"); (iii) any reissue, extension, division or continuation of the Patents or the Applications (such reissues, extensions, divisions and continuations being herein referred to collectively as the "**Reissued Patents**"); (iv) all future royalties or other fees paid or payment or payments made or to be made to the Grantor in respect of the Patents; and (v) proceeds of any and all of the foregoing (the Patents, Applications, Reissued Patents and Royalties and proceeds being herein referred to collectively as the "**Patent Rights**"); and (b) all rights, interest, claims and demands that the Grantor has or may have in existing and future profits and damages for past and future infringements of the Patent Rights (such rights, interests, claims

and demands being herein called the "Claims") (the Patent Rights and Claims collectively referred to as the "Patent Collateral").

2. **Representations and Warranties.** The Grantor warrants and represents to the Agent that: (a) the Grantor is the true and lawful exclusive owner of the Patent Rights set forth on Schedule A, including all rights and interest herein granted; (b) to the Borrower's knowledge, the Patent Collateral is valid and enforceable; (c) the Grantor has full power and authority to execute and deliver this Rider; (d) the Grantor has no notice of any suits or actions commenced or threatened against it, or notice of claims asserted or threatened against it, with reference to the Patent Rights and the interests granted herein; and (e) except as otherwise provided in the Loan Documents, the Patent Rights and all interests granted herein are so granted free from all liens, charges, claims, options, licenses, pledges and encumbrances of every kind and character.

3. **Covenants.** The Grantor further covenants that: (a) Until all of the Obligations have been satisfied in full, the Grantor will not enter into any agreement, including without limitation, license agreements, which are inconsistent with the Grantor's obligations under this Rider or which restrict or impair the Agent's rights hereunder; and (b) If the Grantor acquires rights to any new Patent Collateral, the provisions of this Rider shall automatically apply thereto and the Grantor shall give the Agent prompt written notice thereof along with an amended Schedule A; provided, however, that notwithstanding anything to the contrary contained in this Agreement, the Grantor shall have the right to enter into agreements in the ordinary course of business with respect to the Patent Collateral.

4. **Maintenance of Patent Collateral.** The Grantor further covenants that: until all of the Obligations have been satisfied in full, it will maintain the Patent Collateral in full force and effect.

5. **Negative Pledge.** The Grantor agrees not to sell, assign or further encumber its rights and interest in the Patent Collateral without prior written consent of the Agent.

6. **Remedies Upon Default.** (a) Anything herein contained to the contrary notwithstanding, if and while the Grantor shall be in default hereunder or an Event of Default exists under the Loan Documents, the Grantor hereby covenants and agrees that the Agent, as the holder of a security interest under the Uniform Commercial Code, as now or hereafter in effect in Pennsylvania, may take such action permitted under the Loan Documents or permitted by law, in its exclusive discretion, to foreclose upon the Patent Collateral covered hereby

(b) For such purposes, and in the event of an Event of Default under the Loan Documents and while such Event of Default exists, the Grantor hereby authorizes and empowers the Agent to make, constitute and appoint any officer or agent of the Agent as the Agent may select, in its exclusive discretion, as the Grantor's true and lawful attorney-in-fact, with the power to endorse the Grantor's name on all applications, documents, papers and instruments necessary for the Agent to use the Patent Collateral or to grant or issue any exclusive or non-exclusive

license under the Patent Collateral to anyone else, or necessary for the Agent to assign, pledge, convey or otherwise transfer title in or dispose of the Patent Collateral to anyone else. The Grantor hereby ratifies all that such attorney shall lawfully do or cause to be done by virtue hereof, except for the gross negligence or willful misconduct of such attorney. This power of attorney shall be irrevocable for the life of this Rider and the Loan Documents, and until all the Obligations are satisfied in full.

(c) The Grantor expressly acknowledges that this Rider shall be recorded with the Patent and Trademark Office in Washington, D.C. Contemporaneously herewith, the Grantor shall also execute and deliver to the Agent such documents as the Agent shall reasonably request to permanently assign all rights in the Patent Collateral to the Agent, which documents shall be held by the Agent, in escrow in accordance with the terms of that certain Escrow Agreement, of even date herewith, between the Grantor and the Agent, until the occurrence of an Event of Default hereunder or under the Loan Documents. After such occurrence, the Agent may, at its sole option, record such escrowed documents with the Patent and Trademark Office.

7. Prosecution of Patent Applications. (a) The Grantor shall, at its own expense, diligently file and prosecute all patent applications relating to the inventions described and claimed in the Patent Collateral in the United States Patent and Trademark Office, and shall pay or cause to be paid in their customary fashion all fees and disbursements in connection therewith, and shall not abandon any such application prior to the exhaustion of all administrative and judicial remedies or disclaim or dedicate any Patent without the prior written consent of the Agent. The Grantor shall not abandon any Patent Collateral without the prior written consent of the Agent.

(b) Any and all fees, costs and expenses, including reasonable attorneys' fees and expenses incurred by the Agent in connection with the preparation, modification, enforcement or termination of this Rider and all other documents relating hereto and the consummation of this transaction, the filing and recording of any documents (including all taxes in connection therewith) in public offices, the payment or discharge of any taxes, counsel fees, maintenance fees, encumbrances or costs otherwise incurred in defending or prosecuting any actions or proceedings arising out of or related to the Patent Collateral shall be paid by the Grantor on demand by the Agent.

(c) The Grantor shall have the right to bring suit in the name of the Grantor to enforce the Patent Collateral, in which case the Agent may, at the Agent's option, be joined as a nominal party to such suit if the Agent shall be satisfied that such joinder is necessary and that the Agent is not thereby incurring any risk of liability by such joinder. The Grantor shall promptly, upon demand, reimburse and indemnify, defend and hold harmless the Agent for all damages, costs and expenses, including reasonable attorneys' fees, incurred by the Agent pursuant to this paragraph and all other actions and conduct of the Grantor with respect to the Patent Rights during the term of this Rider.

8. **Subject to Security Agreement.** This Rider shall be subject to the terms, provisions, and conditions set forth in the Security Agreement and may not be modified without the written consent of the party against whom enforcement is being sought.

9. **Inconsistent with Security Agreement.** All rights and remedies herein granted to the Agent shall be in addition to any rights and remedies granted to the Agent under the Loan Documents. In the event of an inconsistency between this Rider and the Security Agreement, the language of the Security Agreement shall control. The terms and conditions of the Security Agreement are hereby incorporated herein by reference

10. **Termination of Agreement.** Upon payment and performance of all Obligations under the Loan Documents, the Agent shall immediately execute and deliver to the Grantor all documents, and take any and all actions, necessary to terminate the Agent's security interest in the Patent Collateral.

11. **Additional Remedies.** Upon the occurrence of an Event of Default under the Loan Documents, the Agent may, without any obligation to do so, complete any obligation of the Grantor hereunder, in the Grantor's name or in the Agent's name, but at the Grantor's expense, and the Grantor hereby agrees to reimburse the Agent in full for all reasonable expenses, including reasonable attorney's fees, incurred by the Agent in protecting, defending and maintaining the Patent Collateral.

12. **Governing Law.** THIS RIDER WILL BE INTERPRETED AND THE RIGHTS AND LIABILITIES OF THE PARTIES HERETO DETERMINED IN ACCORDANCE WITH THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA, EXCLUDING ITS CONFLICT OF LAW RULES, EXCEPT THAT THE FEDERAL LAWS OF THE UNITED STATES OF AMERICA SHALL GOVERN TO THE EXTENT APPLICABLE.

13. **Counterparts.** This Rider may be signed in any number of counterpart copies and by the parties hereto on separate counterparts, but all such copies shall constitute one and the same instrument.

Annex I

BANKS

PNC Bank, National Association
1000 Westlakes Drive, Suite 200
Berwyn, PA 19312
Attention: Gregory M. Cote
Telephone (610) 725-5775
Telecopy: (610) 725-5799

Transamerica Business Credit Corporation
15260 Ventura Boulevard, Suite 1240
Sherman Oaks, CA 91403
Attention: Ian Schnider
Telephone (818) 995-3225
Telecopy: (818) 995-3214

Schedule A - Patents

<u>Patent File No.</u>	<u>Patent Filing</u>
08/877,751 Filing date: 6/17/97	Determining Exposure of Spacecraft Mounted Solar Panels to Sun and Determination of Spacecraft Drag
08/915,971 Filing date: 8/21/97	Modeling Receiver Bandwidth for Telecommunications Analysis
08/030,977 Filing date: 2/26/98	Calculating access between satellite constellations and ground targets
09/031,800 Filing date: 2/27/98	Determining close approaches for earth-fixed launch trajectories

WITNESS the due execution hereof as a document under seal, as of the date first written above, with the intent to be legally bound hereby.

ANALYTICAL GRAPHICS, INC.

By: Will J. Braderich (SEAL)

Print Name: William J. Braderich

Title: CFO

**PNC BANK NATIONAL
ASSOCIATION**

By: Gregory K. Cate (SEAL)

Print Name: Gregory Cate

Title: VP

COMMONWEALTH OF PENNSYLVANIA

)

)

ss:

)

COUNTY OF CHESTER

The foregoing instrument was acknowledged before me in the City of

Malvern, this 1st day of May, 1998, by William J. Broderick, Chief
Financial Officer of Analytical Graphics, Inc., a Pennsylvania corporation, on behalf of the
corporation.

My commission expires:

May 12, 1999

Louis A. Moffitt

Notary Public

(Notarial Seal)