
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Amendment No. 1 to FORM S-1 REGISTRATION STATEMENT

Under
The Securities Act of 1933

LUNA INNOVATIONS INCORPORATED

(Exact name of Registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

8731
(Primary Standard Industrial
Classification Code Number)
10 South Jefferson Street, Suite 130
Roanoke, Virginia 24011
(540) 552-5128

54-1560050
(I.R.S. Employer
Identification Number)

(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

Kent A. Murphy, Ph.D.
President, Chief Executive Officer and Chairman
Luna Innovations Incorporated
10 South Jefferson Street, Suite 130
Roanoke, Virginia 24011
(540) 552-5128

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this Registration Statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

EXPLANATORY NOTE

The purpose of this Amendment No. 1 is solely to file certain exhibits and update the information in Item 13. Other Expenses of Issuance and Distribution. No changes have been made to the prospectus that forms Part I of this Registration Statement and, accordingly, such prospectus has been omitted.

PART II

Information not required in prospectus

ITEM 13. Other Expenses of Issuance and Distribution

The following table sets forth the costs and expenses, other than the underwriting discount and commissions, payable by Luna Innovations Incorporated in connection with the sale of the common stock being registered hereby. All amounts are estimates except the SEC Registration Fee, the NASD filing fee and the Nasdaq National Market listing fee.

	Amount to be Paid
Securities and Exchange Commission registration fee	\$6,152.50
NASD filing fee	6,250.00
Nasdaq National Market listing fee	*
Blue Sky fees and expenses	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees	*
Miscellaneous	*
Total	*

* To be filed by amendment

ITEM 14. Indemnification of Directors and Officers

Section 145(a) of the Delaware General Corporation Law provides that a Delaware corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that such person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no cause to believe his or her conduct was unlawful.

Section 145(b) of the Delaware General Corporation Law provides that a Delaware corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that such person acted in any of the capacities set forth above, against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit if he or she acted under similar standards, except that no indemnification may be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the court in which such action or suit was brought shall determine that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to be indemnified for such expenses which the court shall deem proper.

Section 145 of the Delaware General Corporation Law further provides that: (i) to the extent that a former or present director or officer of a corporation has been successful in the defense of any action, suit or proceeding referred to in

subsections (a) and (b) or in the defense of any claim, issue or matter therein, such person shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by him or her in connection therewith; (ii) indemnification provided for by Section 145 shall not be deemed exclusive of any other rights to which the indemnified party may be entitled; and (iii) the corporation may purchase and maintain insurance on behalf of any present or former director, officer, employee or agent of the corporation or any person who at the request of the corporation was serving in such capacity for another entity against any liability asserted against such person and incurred by him or her in any such capacity or arising out of his or her status as such, whether or not the corporation would have the power to indemnify him or her against such liabilities under Section 145.

Article X of our amended and restated certificate of incorporation and Article VIII of our proposed amended and restated certificate of incorporation provides for the indemnification of directors to the fullest extent permissible under Delaware law.

Article VI of our proposed amended and restated bylaws provides for the indemnification of officers, directors and third parties acting on our behalf if such person acted in good faith and in a manner reasonably believed to be in and not opposed to our best interest and, with respect to any criminal action or proceeding, the indemnified party had no reason to believe his or her conduct was unlawful.

We have entered into indemnification agreements with our directors, executive officers and others, in addition to indemnification provided for in our bylaws, and intend to enter into indemnification agreements with any new directors and executive officers in the future.

We have purchased and intend to maintain insurance on behalf of any person who is or was a director or officer against any loss arising from any claim asserted against him or her and incurred by him or her in any such capacity, subject to certain exclusions.

See also the undertakings set out in response to Item 17 herein.

ITEM 15. Recent Sales of Unregistered Securities

In the past three years, we have issued and sold the following securities as adjusted for the -for- stock split:

1. From September 22, 2003 through the date hereof, we have granted options to purchase 10,831,660 shares of our Class B Common Stock at a weighted average exercise price of \$0.43 per share, which included 7,506,910 shares of Class B Common Stock issuable upon exercise of options outstanding at an exercise price of \$0.20 per share, 200,000 shares of Class B Common Stock issuable upon exercise of options outstanding at an exercise price of \$0.22 per share, and 3,124,750 shares of Class B Common Stock issuable upon exercise of options outstanding at an exercise price of \$1.00 per share. As of December 31, 2005, 556,623 of these options had been exercised at a price of \$0.20 per share.
2. In May 2003, we issued warrants to purchase 183,120 shares of our Class B Common Stock at a price of \$0.001 per share. Those warrants were exercised on November 22, 2005.
3. In August 2005, we issued and sold to an accredited investor 2,639,688 shares of our Class C Common Stock at a price of \$2.65 per share.
4. In September 2005, we issued 1,227,637 shares of our Class B Common Stock (of which 196,403 shares were held in escrow as of the date of issuance) and warrants for 4,287 shares of our Class B Common Stock exercisable at \$21.06 per share to accredited investors (of which 686 warrant shares were held in escrow as of the date of issuance) in consideration for the acquisition of Luna Technologies, Inc. In October 2005 we issued additional warrants for 2,636 shares of Class B Common Stock exercisable at \$1.00 per share in connection with this transaction.
5. In December 2005, we issued and sold to an accredited investor 1,131,294 shares of our Class C Common Stock at a price of \$2.65 per share. In connection with the transaction we issued to the same accredited investor a series of convertible promissory notes convertible into 1,885,490 shares of common stock upon the conversion of the principal amount outstanding under the convertible notes and, assuming we elect to convert all of the accrued interest on these notes into shares of common stock after these notes remain outstanding for eight years, up to an additional 905,035 shares of common stock.

6. In February 2006, we issued warrants to purchase 101,773 shares of our Class B Common Stock at an exercise price of \$1.00 per share.

The sales of the above securities were deemed to be exempt from registration under the Securities Act with respect to items 1 through 6 above in reliance on Section 4(2) of the Securities Act, or Regulation D promulgated thereunder, and with respect to item 1 above also in reliance on, in full or in part, Rule 701 promulgated under Section 3(b) of the Securities Act as transactions by an issuer not involving a public offering or transactions pursuant to compensatory benefit plans and contracts relating to compensation as provided under such Rule 701. The recipients of securities in each such transaction represented their intention to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the share certificates and warrants issued in such transactions. All recipients had adequate access, through their relationships with us, to information about us.

ITEM 16. Exhibits and Financial Statement Schedules

- (a) Exhibits.

A list of exhibits filed herewith is contained in the exhibit index that immediately precedes such exhibits and is incorporated herein by reference.

ITEM 17. Undertakings

The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the Underwriting Agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser. Insofar as indemnification by the Registrant for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the provisions described in Item 14 or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that:

- (1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.
- (2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

Signatures

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this Amendment No. 1 to the Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Roanoke, Commonwealth of Virginia, on the 6th day of March, 2006.

Luna Innovations Incorporated

By: /s/ KENT A. MURPHY
Kent A. Murphy, Ph.D.
President, Chief Executive Officer and Chairman

Pursuant to the requirements of the Securities Act of 1933, this Amendment No. 1 to the Registration Statement has been signed by the following persons in the capacities and on the dates indicated:

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ KENT A. MURPHY</u> Kent A. Murphy, Ph.D.	President, Chief Executive Officer (Principal Executive Officer) and Chairman	March 6, 2006
<u>*</u> Scott A. Graeff	Chief Financial Officer (Principal Financial and Accounting Officer), Vice President, Corporate Development and Director	March 6, 2006
<u>*</u> John C. Backus, Jr.	Director	March 6, 2006
<u>*</u> Edward G. Murphy, M.D.	Director	March 6, 2006
<u>*</u> Paul E. Torgersen, Ph.D.	Director	March 6, 2006
<u>*</u> Richard W. Roedel	Director	March 6, 2006

*By: /s/ KENT A. MURPHY
Kent A. Murphy
Attorney-in-fact

Exhibit Index

Exhibit Number	Description
1.1*	Form of Underwriting Agreement
2.1**	Agreement and Plan of Merger, dated as of September 30, 2005, by and among Luna Innovations Incorporated, Luna Technologies Acquisition Corp., Luna Technologies, Inc. and certain stockholders
3.1**	Amended and Restated Certificate of Incorporation of the Registrant as currently in effect
3.2**	Form of Amended and Restated Certificate of Incorporation of the Registrant to be effective upon closing of the offering
3.3**	Amended and Restated Bylaws of the Registrant as currently in effect
3.4**	Form of Amended and Restated Bylaws of the Registrant to be effective upon closing of the offering
4.1*	Specimen Common Stock certificate of the Registrant
4.2**	Form of Senior Convertible Promissory Note
4.3**	Warrant to Purchase 1,047 Shares of Class B Common Stock of Luna Innovations Incorporated, issued on September 30, 2005
4.4**	Warrant to Purchase 2,636 Shares of Class B Common Stock of Luna Innovations Incorporated, issued on November 11, 2005
4.5**	Warrant to Purchase 2,554 Shares of Class B Common Stock of Luna Innovations Incorporated, issued on September 30, 2005
4.6**	Form of Warrant to Purchase Shares of Common Stock of Luna Innovations Incorporated
4.7**	Form of Stock Option Agreement
5.1*	Opinion of Wilson Sonsini Goodrich & Rosati, Professional Corporation
10.1**	Form of Indemnification Agreement for directors and executive officers
10.2**	Employment Letter between Scott A. Graeff and Luna Innovations Incorporated dated April 14, 2005
10.3**	Employment Letter between Robert Lenk and Luna Innovations Incorporated dated August 13, 2005
10.4**	Employment Letter between John Goehrke and Luna Innovations Incorporated dated September 20, 2005
10.5**	Employment Letter between Kenneth Ferris and Luna Innovations Incorporated dated October 24, 2005
10.6**	Loan Agreement, dated as of November 10, 2005, by and between Luna Innovations Incorporated and First National Bank
10.7**	2003 Stock Plan
10.8**	Amended and Restated Investor Rights Agreement, dated December 30, 2005, by and among Luna Innovations Incorporated, Carilion Health System and certain stockholders
10.9*	2006 Equity Incentive Plan and forms of award agreements used thereunder
10.10**	Warehouse and Office Lease, dated June 2003, between Georgia Anne Snyder-Falkinham and Luna Innovations Incorporated (2851 Commerce Street, Blacksburg, Virginia)
10.11**	Lease Agreement between William M. Sterrett, Jr. Family Limited Partnership and Luna Innovations Incorporated (2903-A Commerce Street, Blacksburg, Virginia)
10.12**	Lease Agreement between William M. Sterrett, Jr. Family Limited Partnership and Luna Innovations Incorporated (2903-B Commerce Street, Blacksburg, Virginia)

Exhibit Number	Description
10.13**	Lease Agreement, dated November 29, 1999, between William M. Sterrett, Jr. Family Limited Partnership and Luna Innovations Incorporated, as amended, November 27, 2001 (2903-C Commerce Street, Blacksburg, Virginia)
10.14**	Commercial Lease, dated March 17, 2003, between Canvasback Real Estate & Investments LLC and Luna Innovations Incorporated (705 Dale Avenue, Charlottesville, Virginia)
10.15**	Full Service Office Lease, dated August 2003, between Hampton R&D Properties, LLC and Luna Innovations Incorporated (130 Research Drive, Hampton, Virginia)
10.16**	Office Service Agreement, dated August 19, 2005, between Tysons Business Center, LLC and Luna Innovations Incorporated (8300 Greensboro Drive, McLean, Virginia)
10.17**	Lease, effective as of January 1, 2005, between the Industrial Development Authority of Danville and Luna Innovations Incorporated (521 Bridge Street, Danville, Virginia)
10.18**	Sublease, dated as of February 1, 2006, between Gryphon Capital Partners, LLC and Luna Innovations Incorporated (10 South Jefferson Street, Roanoke, Virginia)
10.19**	Lease, dated December 30, 2005, between Carilion Medical Center and Luna Innovations Incorporated (Riverside Center, Roanoke, Virginia)
10.20**	Modification of Lease, dated August 26, 2003, between Virginia Tech Foundation, Inc. and Luna Technologies, Inc. (2020 Kraft Drive, Blacksburg, Virginia)
10.21**	Grant Agreement, dated March 25, 2004, by and between the City of Danville, Virginia, and Luna Innovations Incorporated
10.22†	License Agreement No. DN-982, dated June 10, 2002, by and between the National Aeronautics and Space Administration (NASA) and Luna Innovations Incorporated; Modification No. 1 to License Agreement No. DN-982, dated January 23, 2006, by and between NASA and Luna Innovations Incorporated
10.23†	License Agreement No. DN-951, dated December 20, 2000, by and between NASA and Luna Technologies, Inc.
10.24†	License Agreement No. DE-384, dated October 28, 2004, by and between NASA and Luna Technologies, Inc.
10.25†	Fiber Optic Patent License, dated September 22, 2003, by and between United Technologies Corporation and Luna Innovations Incorporated
10.26†	Amended and Restated License Agreement, dated March 19, 2004, by and between Virginia Tech Intellectual Properties, Inc. and Luna Innovations Incorporated
10.27*	Forms of Stock Sale Restriction Agreement
21.1**	List of Subsidiaries
23.1**	Consent of Grant Thornton LLP, Independent Registered Public Accounting Firm
23.2**	Consent of Brown, Edwards & Company, L.L.P.
23.3*	Consent of Wilson Sonsini Goodrich & Rosati, Professional Corporation (See Exhibit 5.1)
24.1**	Power of Attorney

* To be filed by amendment.

** Previously filed.

† Confidential treatment has been requested for certain provisions of this Exhibit pursuant to Rule 406 promulgated under the Securities Act.

CONFIDENTIAL TREATMENT REQUESTED: Certain portions of this document have been omitted pursuant to a request for confidential treatment and, where applicable, have been marked with an asterisk (“[****]”) to denote where omissions have been made. The confidential material has been filed separately with the Securities and Exchange Commission.

LICENSE AGREEMENT

UNITED STATES OF AMERICA

AND

LUNA INNOVATIONS, INCORPORATED

NONEXCLUSIVE LICENSE AGREEMENT DN-982

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LICENSE AGREEMENT

PREAMBLE

This License Agreement (“Agreement”) is entered into between the National Aeronautics and Space Administration (NASA), an agency of the United States Government, hereinafter referred to as LICENSOR, having its headquarters at Washington, D.C., and Luna Innovations, Inc., a corporation of the Commonwealth of Virginia, having its principal place of business at 2851 Commerce Street SE, Blacksburg, Virginia 26040, hereinafter referred to as LICENSEE, as of the date of execution of the last PARTY hereto.

WITNESSETH:

WHEREAS, under the authority of 35 U.S.C. § 200 *et seq.*, the U.S. Department of Commerce has issued Patent Licensing Regulations (37 CFR Part 404) specifying the terms and conditions upon which licenses may be granted for inventions assigned to LICENSOR; and

WHEREAS, LICENSOR is the assignee of U.S. Patent No. 5,798,521 for an invention entitled “Apparatus And Method For Measuring Strain In Bragg Gratings,” which issued on August 25, 1998; and, U.S. Patent Application No. 09/535,659 for an invention entitled “Distributed Rayleigh Scatter Fiber Optic Strain Sensor”, which was filed on March 24, 2000; and U.S. Patent Application No 09/535,661 for an invention entitled “Edge Triggered Apparatus And Method For Measuring Strain In Bragg Gratings”, which was filed on March 24, 2000; and U.S. Patent Application 09/648,529 for an invention entitled “High Precision Solid State Wavelength Monitor”, which was filed on August 22, 2000;

WHEREAS, LICENSEE, in consideration of the grant of a license under U.S. Patent No. 5,798,521 and U.S. Patent Application Nos. 09/535,659, 09/535,661, and 09/648,529, will pay royalties, make all necessary capital investments, and achieve PRACTICAL APPLICATION of the inventions; and,

WHEREAS, LICENSOR has determined that the granting of a license to LICENSEE under U.S. Patent No. 5,798,521 and U.S. Patent Application Nos. 09/535,659, 09/535,661, and 09/648,529 will provide the necessary incentive for LICENSEE to achieve the desired early PRACTICAL APPLICATION of the invention and the granting of such license to LICENSEE will therefore be in the public interest;

NOW, THEREFORE, in accordance with said Patent Licensing Regulations, and in consideration of the foregoing and of the terms hereinafter contained in this Agreement, the LICENSOR and LICENSEE agree as set forth below:

ARTICLE I

Definitions

“ACCOUNTING PERIOD” shall mean the period for which minimum and running royalties are calculated. For this Agreement, the period is every twelve (12) months beginning on January 1st and ending on December 31st of each calendar year. The first ACCOUNTING PERIOD for this Agreement commences on the LICENSE COMMENCEMENT DATE and ends on December 31, 2002. The last ACCOUNTING PERIOD for this Agreement shall end on the LICENSE EXPIRATION DATE.

“BREACH” shall mean (a) a violation or nonperformance by a PARTY of a MATERIAL term, condition, covenant or warranty herein, or (b) a misrepresentation made hereunder or (c) a misrepresentation by LICENSEE to induce LICENSOR to enter into this Agreement (also see “MATERIAL”).

“BREACHING PARTY” shall mean the PARTY in BREACH, as used in Article XVII.

“GROSS SALES” shall mean either the total amount invoiced by or for LICENSEE and its SUBLICENSEE(S), and, in the event that some or all of the amount invoiced by LICENSEE and/or its SUBLICENSEE(S) is in the form of non-monetary remuneration, then the equivalent dollar value sum of such remuneration, for all disposals, (sales, uses, including uses by LICENSEE and/or its SUBLICENSEES, leases, transfers, etc.) of ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES for consideration determined in, or as if in, an arm’s length transaction.

“INSOLVENT” shall mean that LICENSEE has either ceased to pay its debts (which may include failure to pay royalty payments under this Agreement) in the ordinary course of business or cannot pay its debts as they fall due or is insolvent within the meaning of the Federal Bankruptcy Code (11 U.S.C. § 101 (31)).

“LICENSE COMMENCEMENT DATE” shall mean the date that the last PARTY has executed this Agreement.

“LICENSE EXPIRATION DATE” shall mean the last day that this Agreement is in effect.

“LICENSE TERM” shall mean the period of time starting with the LICENSE COMMENCEMENT DATE and ending with the LICENSE EXPIRATION DATE.

“LICENSED AREA” shall mean the United States, its territories and possessions.

“LICENSED FIELD” shall mean all fields of use.

“LICENSED INVENTION(S)” shall mean the invention(s) defined by the claims of any LICENSED PATENT(S) or the invention(s) described in any LICENSED PATENT APPLICATION(S) before maturing into any LICENSED PATENT(S).

“LICENSED PATENT(S)” shall mean United States Patent No. 5,798,521 and any patents maturing from any LICENSED PATENT APPLICATION, and shall include any corresponding: reissue patents and modifications of said LICENSED PATENT(S) by means of certificates of correction or reexamination certificates.

“LICENSED PATENT APPLICATION(S),” shall mean U.S. Patent Application Serial Nos. 09/535,659, 09/535,661, and 09/648,529, and shall include any corresponding: continuation or divisional patent applications derived, directly or indirectly, from such patent applications, but specifically excluding any continuation or divisional patent application containing new matter.

“MATERIAL,” with respect to a particular matter (e.g., a BREACH), shall mean that the matter is shown to effect adversely (a) the rights and benefits of the other PARTY under this Agreement; or (b) the ability of the other PARTY to perform its obligations hereunder; and, in either case, to such a degree that a reasonable person in the management of his or her own affairs would be more likely than not to decline to enter into this Agreement in view of the matter in question.

“NET SALES” shall mean GROSS SALES, less allowances for returns and less (to the extent separately stated, and not charged to the customer or others, on the invoices): (1) regular trade and quantity discounts; (2) insurance and shipping charges from the point of origin; (3) duties, tariffs, and other customs charges; and (4) sales, use, and similar taxes. In the case of a sale or other disposition of ROYALTY-BASE PRODUCTS and/or ROYALTY-BASE SERVICES which are transferred to a purchaser who does not deal at arm’s length, or transferred or otherwise disposed of for other than monetary consideration (including allocations to LICENSEE’S own beneficial use), NET SALES shall be calculated in accordance with Sub-Article 7.7 of this Agreement.

“NONBREACHING PARTY” shall mean the PARTY not in BREACH, as used in Article XVII.

“PARTY” shall mean a party to this Agreement.

“PERSON” shall mean a natural person; a corporation (for profit or not-for-profit); an association; a partnership (general or limited); a joint venture; a trust; a government or political department, subdivision, or agency; or any other entity.

“PRACTICAL APPLICATION” shall mean, with respect to the LICENSED INVENTION(S), to reduce it to practice and to commercialize it, i.e., to manufacture it in the case of a composition or product, to practice it in the case of a process or method, or to operate it in the case of a machine or system; and, in each case, under such conditions as to establish: (i) that a market for the LICENSED INVENTION(S) has been created, and to the extent practicable, that a market has been created in the United States; (ii) that it is being utilized; (iii) that its benefits are, to the extent permitted by law or Government regulations, available to the public on reasonable terms; and (iv) that market demand, at least in the United States, shall be reasonably met.

“ROYALTY-BASE PRODUCTS” shall include: (i) the components of an item sold, used, leased, transferred, or otherwise disposed of by LICENSEE or its SUBLICENSEE(S) that are covered by, included within, or made by the LICENSED INVENTION(S); and (ii) other

components of the item not covered by or within the LICENSED INVENTION(S) that LICENSEE or its SUBLICENSEE(S) would not have sold, used, leased, transferred, or otherwise disposed of but for the sale, use, lease, transfer, or other disposition of the LICENSED INVENTION(S).

“ROYALTY-BASE SERVICES” shall include any services sold, used, leased, rented, transferred, or otherwise disposed of by LICENSEE or its SUBLICENSEE(S) or agents which use, employ, or are implemented by the practice of the LICENSED INVENTION(S) and for which consideration is due or received by LICENSEE.

“SUBLICENSEE” shall mean any PERSON who has the right, granted by LICENSEE, to make, have made, use, offer to sell, sell, transfer, or dispose of the LICENSED INVENTION(S).

“THIRD PARTIES” shall mean PERSONS other than the LICENSOR and the LICENSEE.

ARTICLE II

License Grant

2.1 LICENSOR hereby grants to LICENSEE a terminable, royalty-bearing, nonexclusive license to practice, i.e., to make, have made, use, offer to sell, sell, transfer, or dispose of, the LICENSED INVENTION(S) as limited to the LICENSED AREA and as may be limited to a LICENSED FIELD OR EMBODIMENT(S), as defined in ARTICLE I.

2.2 LICENSOR, upon request, will use reasonable efforts to grant LICENSEE, in accordance with 37 CFR 404, a license to practice any inventions assigned to LICENSOR, without which license or licenses, the practice of the LICENSED INVENTION(S) would result in infringement. The grant of said license or licenses shall be limited, however, to the extent necessary to practice the LICENSED INVENTION(S). There will be no such grant where said inventions are licensed exclusively.

2.3 Notwithstanding anything to the contrary in this Agreement, LICENSEE shall take the license granted in this ARTICLE II subject to any outstanding licenses or other rights in THIRD PARTIES under agreements executed by LICENSOR prior to the LICENSE COMMENCEMENT DATE.

2.4 LICENSOR retains a nontransferable, irrevocable, paid-up license for any Federal agency to practice and/or have practiced the LICENSED INVENTION(S), and/or any other inventions as provided in Section 2.2, throughout the world by or on behalf of the Government of the United States and/or on behalf of any foreign government pursuant to any existing or future treaty or agreement with the United States.

ARTICLE III

Sublicenses

3.1 Upon written approval by LICENSOR, LICENSEE may grant a written, royalty-bearing sublicense under the license granted in ARTICLE II provided that it submits to LICENSOR a written request, in advance, for permission to grant the sublicense, including with said request a copy of the proposed sublicense. The proposed sublicense shall refer to and be generally consistent with this Agreement and shall include the rights reserved by LICENSOR under Section 2.4. The proposed sublicense shall include the condition that the sublicense shall automatically terminate upon the revocation or termination of this Agreement.

3.2 LICENSEE shall furnish LICENSOR with a copy of the sublicense, consistent with the proposed sublicense approved by LICENSOR and executed by both LICENSEE and its SUBLICENSEE, within fifteen (15) days after the grant of the sublicense by LICENSEE.

3.3 LICENSEE shall submit to LICENSOR, for advance approval, any proposed modification of a sublicense. LICENSEE shall also submit to LICENSOR a copy of the sublicense modification (either as an addendum or a new sublicense), consistent with the proposed sublicense modification and executed by both LICENSEE and its SUBLICENSEE, within fifteen (15) days after the effective date of the sublicense modification.

3.4 The granting of a sublicense by LICENSEE shall not operate to relieve LICENSEE from any of its obligations under this Agreement.

3.5 LICENSEE shall be responsible for and remit royalties based upon its SUBLICENSEE(S)' activities as if said activities were its own.

ARTICLE IV

Term of License

4.1 Unless either PARTY terminates this Agreement in accordance with Article XVIII at an earlier date, the license granted in ARTICLE II shall have a LICENSE TERM that is equal to the unexpired term of the last patent of the LICENSED PATENT(S) to be in effect. Except as may be expressly provided otherwise herein or agreed to in writing by LICENSOR, the license shall expire automatically at the end of the LICENSE TERM without notice to LICENSEE.

ARTICLE V

Practical Application

5.1 LICENSEE shall achieve PRACTICAL APPLICATION of the LICENSED INVENTION(S) within [****] of the LICENSE COMMENCEMENT DATE and in accordance with the schedule set forth in the APPENDIX to this Agreement and incorporated into this Agreement. LICENSEE shall notify LICENSOR within thirty (30) days of achieving PRACTICAL APPLICATION that PRACTICAL APPLICATION has been achieved. LICENSEE shall also provide evidence to verify the achievement.

5.2 LICENSEE, once PRACTICAL APPLICATION of the LICENSED INVENTION(S) is achieved, shall thereafter maintain it throughout the LICENSE TERM.

ARTICLE VI

United States Manufacture

6.1 In achieving PRACTICAL APPLICATION of the LICENSED INVENTION(S), LICENSEE agrees that any products embodying the LICENSED INVENTION(S) or produced through the use of the LICENSED INVENTION(S) shall be reduced to practice and manufactured substantially in the United States, in accordance with 35 U.S.C. 209(b).

6.2 LICENSEE shall make a bona fide attempt to use or sell the LICENSED INVENTION(S) in the United States.

6.3 LICENSEE shall promptly report to LICENSOR its discontinuance of making the benefits of the LICENSED INVENTION(S) available to the public.

6.4 Failure to comply with the terms of this ARTICLE shall be cause for unilateral modification or termination by LICENSOR of this Agreement in accordance with ARTICLE XVIII.

ARTICLE VII

Royalty and Payment

7.1 In consideration of the license granted in ARTICLE II, LICENSEE shall remit to LICENSOR a nonrefundable license fee in the amount of [****] upon the execution of this Agreement by LICENSEE. This license fee shall be remitted to LICENSOR within thirty (30) days after the LICENSE COMMENCEMENT DATE.

7.2 LICENSEE agrees to pay LICENSOR a nonrefundable, repeatable license fee in the amount of [****] upon each issuance of a patent maturing from the LICENSED PATENT APPLICATION(S). This nonrefundable, repeatable license fee shall not exceed a total of [****]. LICENSEE shall remit each [****] payment within thirty (30) days after notice of the issuance of such patent is delivered.

7.3 LICENSEE agrees to pay LICENSOR a running royalty, based upon the NET SALES of ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES, in accordance with the following schedule for each ACCOUNTING PERIOD:

For NET SALES up to and including [****] of NET SALES; or

For NET SALES up to and including [****] of NET SALES exceeding [****]; or

For NET SALES exceeding [****] of NET SALES exceeding [****].

7.4 LICENSEE shall pay LICENSOR a minimum annual royalty according to the following payment schedule:

End of year 2003:	[****]
End of year 2004:	[****]
End of year 2005:	[****]

Starting with the beginning of year 2006 and continuing thereafter throughout the LICENSE TERM, LICENSEE agrees to pay LICENSOR a minimum guaranteed royalty of [****] for each ACCOUNTING PERIOD.

7.5 For any particular ACCOUNTING PERIOD, the running royalties specified in Section 7.3 shall be credited against the minimum royalty specified in Section 7.4.

7.6 LICENSEE shall pay LICENSOR the running royalty of Section 7.3 above for NET SALES of ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES of any and all SUBLICENSEES as if said activities were its own. In addition to the running royalties of Section 7.3, LICENSEE shall pay LICENSOR [****] of any consideration received from a SUBLICENSEE, including but not limited to sublicense issue fees, in exchange for the initial grant of a sublicense by LICENSEE for the LICENSED INVENTION. In the event LICENSEE shall receive non-monetary consideration, including but not limited to equity in a SUBLICENSEE, in exchange for granting a sublicense, then LICENSOR and LICENSEE shall negotiate, in good faith, the present market value of such consideration at the time of execution of such sublicense and the terms of payment of any amount due to LICENSOR with respect to such valued amount.

7.7 LICENSEE agrees that in the event any ROYALTY-BASE PRODUCTS OR ROYALTY-BASE SERVICES shall be sold, transferred, or disposed of to a THIRD PARTY for purposes of resale in a transaction that does not represent an arm's length transaction, then the royalties to be paid under this Agreement for the ROYALTY-BASE PRODUCTS or ROYALTY-BASE SERVICES shall be based upon the NET SALES of the ROYALTY-BASE PRODUCTS or ROYALTY-BASE SERVICES by such THIRD PARTY, rather than upon the NET SALES of the LICENSEE. Examples of transactions that do not reflect an arm's length transaction includes sales, transfers or disposals (1) to any type of organization or individual who owns a controlling interest in LICENSEE by stock ownership or otherwise; (2) to any type of organization in which LICENSEE shall own, directly or indirectly, a controlling interest by stock ownership or otherwise; or (3) to any type of organization with which, or individual with whom, LICENSEE, its stockholders, or associated companies shall have any agreement, understanding, or arrangement (such as, among other things, an option to purchase stock, an arrangement involving a division of profits, or special rebates or allowances) without which agreement, understanding, or arrangement, prices paid by such organization or individual for the ROYALTY-BASE PRODUCTS and/or ROYALTY-BASE SERVICES would be higher than the NET SALES reported by LICENSEE, or if such agreement, understanding, or arrangement results in extending to such organization or individual lower prices for ROYALTY-BASE PRODUCTS and/or ROYALTY-BASE SERVICES than those charged to outside concerns buying similar merchandise in similar amounts and under similar conditions.

7.8 Under this Agreement, ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES will be considered sold when invoiced, when shipped, or upon receipt of payment, whichever occurs first.

7.9 Minimum royalties, running royalties, and the royalties required under Section 7.6 shall be paid within thirty (30) days of the end of each ACCOUNTING PERIOD. Royalties shall be paid by check, denominated in United States dollars, and made payable to the National Aeronautics and Space Administration. The check shall be mailed to LICENSOR at the address set forth in ARTICLE XV of this Agreement concurrently with the report required in ARTICLE VIII of this Agreement. LICENSOR'S acceptance of any royalty payment does not eliminate LICENSOR'S right to contest the accuracy of such payment in the future.

7.10 LICENSOR shall assess interest, penalties, and administrative costs in accordance with the Federal Claims Collections Standards on all payments due LICENSOR which are not timely paid by LICENSEE. In addition to these charges, LICENSOR is authorized to charge to LICENSEE the costs of collection and any associated reasonable attorney fees.

ARTICLE VIII

Reports

8.1 LICENSEE shall submit to LICENSOR written reports within thirty (30) days of the end of every ACCOUNTING PERIOD whether or not royalties are due. Each report shall be submitted concurrently with the royalties required by ARTICLE VII. To ensure that any proprietary information submitted by LICENSEE is protected to the fullest extent of the law, LICENSEE should mark with a proprietary notice, any portions of the report that is considered proprietary to LICENSEE.

8.2 Each report shall include the following information:

(a) With reference to the schedule set forth in the Appendix to this Agreement, a narrative description of the steps being taken to reduce the LICENSED INVENTION(S) to practice.

(b) With reference to the schedule set forth in the Appendix to this Agreement, a narrative description of the steps being taken to create a market demand for the LICENSED INVENTION(S), to commercialize the LICENSED INVENTION(S), and to meet market demand for the LICENSED INVENTION(S).

(c) A narrative description of the ROYAL-BASE PRODUCTS and ROYALTY-BASE SERVICES currently being offered for sale by LICENSEE and its SUBLICENSEES. Copies of current sales brochures, promotional materials, and price lists shall be included with this description.

(d) A list of the geographic locations at which the LICENSED INVENTION(S) are being manufactured.

(e) The number and type of ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES sold or disposed of by LICENSEE and its SUBLICENSEES.

(f) The number and type of ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES sold or disposed of by each reseller of ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES under Section 7.7.

(g) LICENSEE'S GROSS SALES.

(h) GROSS SALES for each SUBLICENSEE (if any).

(i) GROSS SALES for each reseller under Section 7.7.

(j) LICENSEE'S NET SALES.

(k) NET SALES for each SUBLICENSEE (if any).

(l) NET SALES for each reseller under Section 7.7.

(m) The amount of royalties due LICENSOR.

8.3 Each report shall include a certification by an officer of LICENSEE that the LICENSEE is complying with the terms and conditions of this Agreement and that the responses to each part of Section 8.2 are accurate and complete.

8.4 LICENSEE shall, on an annual basis, submit to LICENSOR an audited balance sheet and an audited income statement. Internal audits are permissible, but LICENSOR reserves the right to require an independent audit and additionally reserves the right to approve of the auditor.

8.5 A final report shall be submitted to LICENSOR by LICENSEE within thirty (30) days after the termination of this Agreement.

ARTICLE IX

Audit Rights

9.1 LICENSEE shall keep full, true, and accurate records for the purpose of LICENSOR verifying LICENSEE'S reports to LICENSOR under ARTICLE VIII, verifying LICENSEE'S royalty payments to LICENSOR under ARTICLE VII, and for determining LICENSEE'S activities in general under the Agreement. These records shall include, but are not limited to, ledgers and journals of account, customer orders, invoices, shipping documents, inventory records, computer records, purchase orders, and tax records. These records, as a whole, shall include information which will allow, at a minimum, identification of suppliers, customers, items sold or otherwise transferred, and/or services rendered, as well as whether the LICENSEE is operating within the scope of its license.

9.2 The records described in Section 9.1 shall be available for audit by LICENSOR, or by an authorized representative of LICENSOR, at all reasonable times for the LICENSE TERM and for three (3) calendar years thereafter. In addition, LICENSEE shall permit inspection by LICENSOR, or by an authorized representative of LICENSOR, of LICENSEE'S assembly facilities and of LICENSEE'S inventory of ROYALTY-BASE PRODUCTS, including parts, works-in-progress, and finished goods, during any audit by LICENSOR.

9.3 If LICENSOR, as a result of an audit, discovers an underpayment of royalties, which exceeds [****], then LICENSEE shall reimburse LICENSOR for the cost of the audit, including all related costs of performing the audit (e.g., travel, food, lodging, cost of professional services, etc.), in addition to any penalties assessed pursuant to Section 7.10.

ARTICLE X

Marking

10.1 LICENSEE and all SUBLICENSEE(S) shall mark all ROYALTY-BASE PRODUCTS, or products incorporating ROYALTY-BASE PRODUCTS or ROYALTY-BASE SERVICES, in accordance with the statutes of the United States relating to the marking of patented articles (see 35 U.S.C. § 287). Such marking shall be accomplished by fixing on the article or when, from the character of the article, this cannot be done, by fixing to it, or to the package wherein one or more of the articles is contained, a label including the notation "Licensed from the National Aeronautics and Space Administration under U.S. Patent No. 5,798,521 and (insert other appropriate patent numbers)." Such marking shall also be included into all literature and/or advertising materials describing the LICENSED INVENTION(S).

ARTICLE XI

Use of the NASA Name

11.1 Except as required by Section 10.1, LICENSEE may use the name of LICENSOR, or the acronym "NASA", only in truthful statements concerning its relationship with LICENSOR. The letters 'NASA' may be used in such truthful statements only if they are:

- (a) used in their normal typed or printed form;
- (b) the same size, color, and intensity as the rest of the words in a sentence;
- (c) not used in their stylized version as they appear in the NASA logotype or NASA insignia; and
- (d) not used to indicate that NASA endorses the LICENSEE'S products, processes, etc.

11.2 Uses of the letters 'NASA', other than those required by Section 10.1 or specified in Section 11.1, shall require the express written approval of LICENSOR. Approval by LICENSOR

shall be based on applicable law (i.e., 42 U.S.C. §§ 2459b, 2472(a), and 2473(c)(1); and 14 CFR § 1221.100 *et seq.*) and NASA policy governing the use of the letters 'NASA' and the words 'National Aeronautics and Space Administration' and shall not be unreasonably withheld.

11.3 LICENSEE agrees to make copies of its marketing literature available to LICENSOR so that LICENSOR can determine that such use is in accordance with the terms of this ARTICLE.

ARTICLE XII

Disclaimer of Warranties

12.1 ALL REPRESENTATIONS AND WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXCLUDED HEREUNDER.

12.2 In particular, nothing in this Agreement shall be construed as:

(a) A warranty or representation by LICENSOR as to the validity or scope of any LICENSED PATENT; or

(b) A warranty or representation that anything made, used, sold, or otherwise disposed of under any license granted in this Agreement is or will be free from infringement of any type, including patent infringement, copyright infringement, and trademark infringement; or

(c) A requirement that LICENSOR shall file any patent application, secure any patent, or maintain any patent in force, other than the LICENSED PATENT; or

(d) An obligation to bring or prosecute actions or suits against THIRD PARTIES for infringement; or

(e) An obligation to furnish any manufacturing or technical information; or, if any such information is supplied, a warranty or representation that such information is accurate; or

(f) Conferring a right to use in advertising, publicity or otherwise the name of any inventor of the LICENSED INVENTION(S) or the NASA name, seal, insignia, logotype or any other adaptation without the prior written consent of LICENSOR (except as otherwise provided in ARTICLE XI); or

(g) Precluding the export from the United States of ROYALTY-BASE PRODUCTS on which royalties shall have been paid as provided in ARTICLE VII, provided that the item can be exported under the export control laws of the United States; or

(h) Granting by implication, estoppel, or otherwise, any licenses or other rights under any other patent of LICENSOR or any other PERSON in the United States or any foreign country; or

(i) Granting by implication, estoppel, or otherwise, any licenses or rights under patents or patent applications of LICENSOR other than the LICENSED INVENTION(S), regardless of whether such other patents or patent applications are dominant, subordinate, or an improvement to the invention or inventions as claimed, of the LICENSED PATENT(S) or LICENSED PATENT APPLICATION(S), nor to other applications that did not claim the invention.

(j) Conferring upon any PERSON (1) any immunity from or defenses under the antitrust laws, (2) any immunity from a charge of patent misuse, or (3) any immunity from the operation of Federal, State, or other law.

ARTICLE XIII

Risk Allocation and Indemnification

13.1 LICENSOR makes no representation, extends no warranties of any kind, either express or implied, and assumes no responsibility with respect to use, sales, or other disposition by LICENSEE or its vendees or other transferees of products incorporating or made by the use of (1) the LICENSED INVENTION(S) or (2) information, if any, furnished under this Agreement.

13.2 LICENSEE shall indemnify LICENSOR, its officers and employees, and hold them harmless against all liabilities, demands, damages, expenses, or losses including, but not limited to, attorney's fees, court costs, and the like, arising (1) out of the use by LICENSEE or its transferees of the LICENSED INVENTION(S) or information furnished under this Agreement, or (2) out of any sale, use, or other disposition by LICENSEE or its transferees of products, processes, or compositions, made by use of such inventions or information.

13.3 It shall be the sole responsibility of the LICENSEE to ensure that any and all embodiments of the LICENSED INVENTION(S) are safe under all circumstances.

13.4 Independent of, severable from, and to be enforced independently of any other enforceable or unenforceable provision of this Agreement, other than as provided in Sections 13.1 and 13.2, or other than for infringement of one PARTY'S intellectual property rights by another PARTY, (including any engagement in licensable activities by licenses beyond the scope of the license provided by this Agreement), neither PARTY will be liable to the other PARTY (nor to any THIRD PARTY claiming rights derived from the other PARTY'S rights) for incidental, consequential, special, punitive, or exemplary damages of any kind, including lost profits, loss of business, or other economic damage, and further including injury to property, as a result of breach of any warranty or other term of this Agreement, regardless of whether the PARTY liable or allegedly liable was advised, had reason to know, or in fact knew of the possibility thereof.

ARTICLE XIV

Patent Validity

14.1 If, in any proceeding in which the validity, infringement, or priority of invention of any claim of the LICENSED PATENT to LICENSEE is in issue, a judgement or decree is entered

which becomes final (below referred to as a “final judgement”), the construction placed upon any such claim by such final judgement shall thereafter be followed, not only as to such claim but as to all claims to which such construction applies, with respect to subsequently occurring acts. If such final judgement holds any claim invalid, LICENSEE shall be relieved prospectively (1) from including in its reports ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES sold or otherwise disposed of covered only by such claim or any broader claim to which such final judgement is applicable, and (2) from the performance of those other acts which may be required by this Agreement only because of any such claim. However, if there are two or more conflicting final judgements with respect to the same claim based on the same grounds or where the same issues were raised, the decision of the higher tribunal shall be followed, but if the tribunals be of equal dignity, then the decision more favorable to the claim shall be followed. In the event of conflicting irrevocable judgments of the Supreme Court of the United States, the latest shall control.

14.2 In the event evidentiary material comes to the attention of the LICENSEE after the LICENSEE’S execution of this Agreement which, in the judgement of the LICENSEE, bears on the validity or scope of any LICENSED PATENT, the LICENSOR will in good faith discuss with the LICENSEE whether such evidentiary material so affects the validity or scope of the LICENSED PATENT to which it is asserted to apply that the terms of the Agreement in respect to such LICENSED PATENT should be modified.

14.3 The LICENSEE, after the LICENSE COMMENCEMENT DATE, may assert the invalidity of any claim in any LICENSED PATENT, if coupled with or followed by:

(a) Withholding, or notice of intention to withhold, or denial of obligation to pay, royalties otherwise payable under this Agreement in respect to the LICENSEE’S operations under such claim; or

(b) Initiation or participation in a suit challenging or denying the validity of such claim in reference to LICENSEE’S operations under this Agreement, that may, at the option of the LICENSOR, be conclusively presumed to constitute LICENSEE’S termination, as of the earliest provable date of such withholding, notice, denial, initiation, or participation, of its Agreement including its obligation for payment of royalties due from the date of the termination.

ARTICLE XV

Points of Contact

15.1 The following individuals are designated as the points of contact for their respective PARTY. These points of contact are the principal representatives of the PARTIES involved in the performance of this Agreement.

LICENSOR

NASA Langley Research Center
Patent Counsel Office
Mail Stop 212, 3 Langley Blvd.
Bldg. 1229, Room 14
Hampton, Virginia 23681-2199

Telephone No.: [****]

Facsimile No.: [****]

LICENSEE

Luna Innovations, Inc.
Kent A. Murphy, President
2851 Commerce Street SE
Blacksburg, VA 24060

Telephone No.: [****]

Facsimile No.: [****]

ARTICLE XVI

Notices

16.1 Notices hereunder will be delivered and effective as follows:

(a) Every notice required or contemplated by this Agreement to be given either PARTY may be delivered in person or may be sent by courier, express mail, telex, telegraph or postage prepaid certified or registered mail (or its equivalent under the laws of the country where mailed), addressed to the PARTY for whom it is intended, at the address specified in ARTICLE XV. Either PARTY may change its address for notice by giving notice to the other PARTY of the change.

(b) Any written notice will be effective no earlier than the date delivered.

(c) Unless otherwise provided in this Agreement, notice by courier, or by express, certified, or registered mail, will be deemed delivered on the date it is officially recorded as delivered by return receipt or the equivalent, and in the absence of such record as to delivery, it will be rebuttably presumed to have been delivered on the fifth business day after it was deposited, first-class postage prepaid, in the mails.

(d) Notice by telex or telegraph will be deemed delivered at the time it is recorded by the carrier in the ordinary course of business as having been delivered, but in any event no later than one business day after dispatch.

(e) Notice delivered in person or not given in writing will be deemed delivered only if acknowledged in writing by a duly authorized officer of the PARTY to whom it was given.

(f) As used in this Article, a reference to a particular date means the date itself, if a business day, otherwise the first business day after the date.

ARTICLE XVII

Dispute or Breach

17.1 All disputes concerning the interpretation or application of this Agreement shall be discussed mutually between the PARTIES. Any disputes which are not disposed of by mutual Agreement shall be decided by the NASA Associate General Counsel (Intellectual Property), or designee, who shall reduce the decision to writing and mail or otherwise deliver a copy of such

decision to LICENSEE. LICENSEE shall have thirty (30) days after delivery of such copy of the decision to rebut such decision in accordance with the procedures set forth in Article 18.8.

17.2 In the event of a BREACH of any provision of this Agreement, the NONBREACHING PARTY shall give the BREACHING PARTY notice describing the BREACH and stating that the BREACHING PARTY has thirty (30) days after delivery of the notice of the BREACH to cure the BREACH or show cause why the Agreement should not be terminated in accordance with Article 18.8.

17.3 If a provision of this Agreement sets forth a cure period for the BREACH in question other than thirty (30) days, then that provision shall take precedence over the cure period set forth in Article 17.2.

17.4 No cure period is required, except as may be otherwise provided in this Agreement, if:

(a) this Agreement sets forth specific deadline dates for the obligation allegedly breached; or

(b) this Agreement otherwise states that no cure period is required in connection with the termination in question.

17.5 The BREACHING PARTY will be deemed to have cured such BREACH if within the cure period it takes steps reasonably adequate to alleviate any damage to the NONBREACHING PARTY resulting from the BREACH and to prevent a similar future BREACH.

ARTICLE XVIII

Termination or Modification

18.1 The PARTIES may terminate or modify this Agreement by mutual consent upon such terms as they may agree in writing.

18.2 Either PARTY may terminate this Agreement by failing to extend the LICENSE TERM, if an extension is provided for in Section 4.1.

18.3 Either PARTY may terminate this Agreement upon the discovery by one PARTY of any intentional MATERIAL false statement or misrepresentation made or submitted by the other PARTY which BREACHES any obligation under the terms of this Agreement or upon the discovery by one PARTY that the other PARTY has committed a MATERIAL BREACH of a provision of the Agreement.

18.4 LICENSEE may prospectively terminate this Agreement upon ninety (90) days written notice to LICENSOR.

18.5 This Agreement may be terminated by LICENSOR if:

(a) LICENSOR determines that LICENSEE has failed or will fail to achieve or maintain PRACTICAL APPLICATION of the LICENSED INVENTION(S) as provided by ARTICLE V.

(b) LICENSOR determines that LICENSEE has failed or will fail either to reduce to practice or to substantially manufacture the LICENSED INVENTION(S) in the United States as provided by Section 6.1

(c) LICENSOR determines that LICENSEE has failed or will fail to meet market demand for the LICENSED INVENTION(S).

(d) LICENSEE fails to pay royalties or submit reports as provided by ARTICLES VII and VIII.

(e) LICENSOR determines that such action is necessary to meet the requirements for public use specified by Federal regulations issued after the date of the license and such requirements are not reasonably satisfied by LICENSEE.

(f) LICENSEE commits a MATERIAL BREACH of a covenant contained in this Agreement.

18.6 LICENSOR may terminate this Agreement if LICENSEE becomes "INSOLVENT." LICENSEE must notify LICENSOR within thirty (30) days after becoming INSOLVENT. LICENSEE'S failure to conform to this requirement shall be deemed a MATERIAL, incurable BREACH.

18.7 LICENSEE must promptly inform LICENSOR of its intention to file a voluntary petition in bankruptcy or of another's communicated intention to file an involuntary petition in bankruptcy. LICENSOR may terminate this Agreement upon receiving notice of intention to file. LICENSEE's filing without conforming to this requirement shall be deemed a MATERIAL, pre-petition incurable BREACH.

18.8 Before LICENSOR unilaterally modifies or terminates this Agreement for any cause, LICENSOR will deliver to LICENSEE and all SUBLICENSEES of record a written notice stating LICENSOR'S intention to modify or terminate the Agreement and the reasons therefor. LICENSEE will be allowed thirty (30) days after such notice to remedy any BREACH of the Agreement or show cause why the Agreement should not be unilaterally modified or terminated. A response to a notice of modification or termination, or to a copy of a dispute decision as rendered in accordance with Article 17.1, should be addressed to the General Counsel, National Aeronautics and Space Administration, Washington, DC 20546. The General Counsel will render a determination, based on the LICENSEE'S response, within a reasonable time. Absent any response from LICENSEE to the notice regarding the modification, termination and/or dispute decision, the decision by the Associate General Counsel (Intellectual Property) will be final, or as applicable, the Agreement will be unilaterally modified or will terminate, effective thirty-one (31) days from the delivery of the notice of the modification, the termination or the dispute decision, with no right to appeal under Section 18.9.

18.9 LICENSEE may appeal in writing to the NASA Administrator, any determination rendered by the General Counsel in accordance with Section 18.8, within thirty (30) days of notice of such determination. The notice of appeal and all supporting documentation should be addressed to the Administrator, National Aeronautics and Space Administration, Washington, DC 20546. LICENSEE shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. The decision on the appeal shall be made by the NASA Administrator or designee, which shall be the final agency decision from which there will be no further right of administrative appeal. Nothing in this Article shall be interpreted as precluding actions at law.

18.10 If no action is taken under Section 18.9, then the determination to modify or terminate this Agreement shall become final within thirty-one (31) days after delivery of the determination rendered by the General Counsel in accordance with Section 18.8.

18.11 All royalties and reports due up to and including the date of termination of this Agreement are due within thirty (30) days of the date of termination.

18.12 The word "termination" and cognate words, such as "term" and "terminate", used in this ARTICLE XVIII are to be read, except where the contrary is specifically indicated, as omitting from their effect the following rights and obligations, all of which survive any termination to the degree necessary to permit their complete fulfillment or discharge:

(a) LICENSEE'S obligation to supply a final report as specified in Section 8.5 or ARTICLE VIII of this Agreement.

(b) LICENSOR'S right to receive or recover and LICENSEE'S obligation to pay royalties accrued or accruable for payment at the time of any termination.

(c) LICENSEE'S obligation to maintain records and LICENSOR'S right to conduct a final audit in accordance with ARTICLE IX of this Agreement.

(d) Any cause of action or claim of LICENSOR accrued or to accrue, because of any BREACH or default by LICENSEE.

(e) Licenses, releases, and agreements of nonassertion running in favor of customers or transferees of LICENSEE in respect to products sold or transferred by LICENSEE before any termination and on which royalties shall have been paid as provided in ARTICLE VII of this Agreement.

ARTICLE XIX

Assignment

19.1 Upon written approval by LICENSOR, LICENSEE may assign this Agreement provided that LICENSEE submits to LICENSOR, in advance, a written request for permission to grant the assignment, information that NASA considers necessary to evaluate the proposed assignment, and a copy of the proposed assignment. If LICENSOR approves the assignment as

being consistent with the U.S. Government's interests, the PARTIES and the assignee will be required to execute a novation Agreement. At a minimum, the novation Agreement will provide that LICENSEE waives all rights under the license, the assignee assumes all obligations under the Agreement and that LICENSOR recognizes the assignee as the successor in interest to the Agreement.

ARTICLE XX

Governing Law

20.1 This Agreement will be interpreted and enforced in accordance with United States federal law.

ARTICLE XXI

Independent Entities

21.1 The Parties are separate and independent entities. Except as may be expressly and unambiguously provided in this Agreement, no partnership or joint venture is intended to be created by this Agreement, nor any principal-agent or employer-employee relationship.

21.2 Except to the extent expressly provided in this Agreement, neither PARTY has, and neither PARTY shall attempt to assert, the authority to make commitments for or to bind the other PARTY to any obligation.

ARTICLE XXII

Effect of Partial Invalidity

22.1 If any one of more of the provisions of this Agreement should be ruled wholly or partly invalid or unenforceable by a court or other government body of competent jurisdiction, and as long as the fundamental objectives of the Agreement can be carried out, then:

(a) the validity and enforceability of all provisions of this Agreement not ruled to be invalid or unenforceable will be unaffected;

(b) the provision(s) held wholly or partly invalid or unenforceable will be deemed to be amended, and the court or other government body is authorized to reform the provision(s), to the minimum extent necessary to render them valid and enforceable in conformity with the PARTIES' intent as manifested herein; and

(c) if the ruling, and/or the controlling principle of law or equity leading to the ruling, is subsequently overruled, modified, or amended by legislative, judicial, or administrative action, then the provision(s) in question, as originally set forth in this Agreement, will be deemed to be valid and enforceable to the maximum extent permitted by the new controlling principle of law or equity.

ARTICLE XXIII

Nonwaiver

23.1 The failure of either PARTY at any time to require performance by the other PARTY of any provisions of this Agreement shall in no way affect the right of such PARTY to require future performance of that provision. Any waiver by either PARTY of any BREACH of any provision of this Agreement shall not be construed as a waiver of any continuing or succeeding BREACH of such provision, a waiver of the provision itself, or a waiver of any right under this Agreement.

ARTICLE XXIV

Entire Agreement

24.1 Except as may be expressly provided otherwise herein, this Agreement constitutes the entire Agreement between the PARTIES concerning the subject matter thereof. No prior or contemporaneous representations, inducements, promises, or Agreements, oral or otherwise, between the PARTIES with reference thereto will be of any force or effect. This Agreement may only be modified by written Agreement of the PARTIES.

ARTICLE XXV

Article Headings

25.1 The ARTICLE headings contained in this Agreement are for reference purposes only and shall not in any way control the meaning or interpretation of this Agreement.

ARTICLE XXVI

Counterparts

26.1 This Agreement may be executed in separate counterparts, each of which so executed and delivered shall constitute an original, but all such counterparts shall together constitute one and the same instrument. Any such counterpart may comprise one or more duplicates or duplicate signature pages, any of which may be executed by less than all of the PARTIES, provided that each PARTY executes at least one such duplicate or duplicate signature page. The PARTIES stipulate that a photostatic copy of an executed original will be admissible in evidence for all purposes in any proceeding as between the PARTIES.

ARTICLE XXVII

Acceptance

27.1 In witness whereof, each PARTY has caused this Agreement to be executed by its duly authorized representatives:

LICENSOR:

LICENSEE:

National Aeronautics and
Space Administration

Luna Innovations, Inc.

By: /s/ Paul G. Pastorek

By: /s/ Kent A. Murphy

Paul G. Pastorek
NASA General Counsel

Kent A. Murphy
President

Date: June 10, 2002

Date: May 14, 2002

APPENDIX

Luna Innovations Commercialization Plan Milestones

<u>Task Item</u>	<u>TaskCompletion Date</u>
1. [****]	[****]
2. [****]	[****]
3. [****]	[****]
4. [****]	[****]
5. [****]	[****]

CONFIDENTIAL TREATMENT REQUESTED: Certain portions of this document have been omitted pursuant to a request for confidential treatment and, where applicable, have been marked with an asterisk (“[****]”) to denote where omissions have been made. The confidential material has been filed separately with the Securities and Exchange Commission.

Modification No. 1

NASA and Luna Innovations, Inc. entered into Nonexclusive License Agreement No. DN-982 on June 10, 2002. By this Agreement, NASA and Luna Innovations, Inc. modify License Agreement DN-982 as follows:

1) Article V – Practical Application, Section 5.2, is replaced by:

5.2 LICENSEE, once PRACTICAL APPLICATION of the LICENSED INVENTION(S) is achieved, shall thereafter maintain it throughout the LICENSE TERM, and shall achieve the milestones provided in the APPENDIX to this Agreement.

2) Article VII – Royalty and Payment, Section 7.3, is replaced by:

7.3 LICENSEE agrees to pay LICENSOR a running royalty of [****] of the NET SALES of ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES.

3) Article VII – Royalty and Payment, Section 7.4, is replaced by:

7.4 LICENSEE shall pay LICENSOR a minimum annual royalty according to the following payment schedule:

End of year 2003:	[****]
End of year 2004:	[****]
End of year 2005:	[****]
End of year 2006:	[****]
End of year 2007:	[****]
End of year 2008:	[****]
End of year 2009:	[****]

Starting with the beginning of year 2010 and continuing thereafter throughout the LICENSE TERM, LICENSEE agrees to pay LICENSOR a minimum guaranteed royalty of [****] for each ACCOUNTING PERIOD.

4) Appendix is replaced by:

APPENDIX

Luna Innovations Commercialization Plan Milestones

<u>Task Item</u>	<u>Task Completion Date</u>
1. [****]	[****]
2. [****]	[****]
3. [****]	[****]
4. [****]	[****]
5. [****]	[****]
6. [****]	[****]
7. [****]	[****]
8. [****]	[****]

5) All other terms and conditions of Nonexclusive License Agreement No. DN-982 are hereby ratified and confirmed as remaining in full force and effect.

In witness thereof, each party has caused this Agreement to be executed by its duly authorized representative.

National Aeronautics and Space Administration

Luna Innovations, Inc.

By: /s/ Michael C. Wholley

By: /s/ Kent A. Murphy

Michael C. Wholley
General Counsel

Kent A. Murphy
President

Date: January 23, 2006

Date: December 19, 2005

CONFIDENTIAL TREATMENT REQUESTED: Certain portions of this document have been omitted pursuant to a request for confidential treatment and, where applicable, have been marked with an asterisk (“[****]”) to denote where omissions have been made. The confidential material has been filed separately with the Securities and Exchange Commission.

LICENSE AGREEMENT

UNITED STATES OF AMERICA

LUNA TECHNOLOGIES, INC.

NONEXCLUSIVE LICENSE AGREEMENT NO. DN-951

LICENSE EFFECTIVE DATE: 12/20/00

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LICENSE AGREEMENT

PREAMBLE

This License Agreement (“Agreement”) is entered into between the National Aeronautics and Space Administration (NASA), an agency of the United States, hereinafter referred to as LICENSOR, having its headquarters in Washington, D.C., and Luna Technologies, Inc., a corporation of the State of Delaware, having its principal place of business at P.O. Box 11704, Blacksburg, VA, 24062, hereinafter referred to as LICENSEE, as of the date of execution of the last PARTY hereto.

WITNESSETH:

WHEREAS, under the authority of 35 U.S.C. § 200 *et seq.*, the U.S. Department of Commerce has issued Patent Licensing Regulations (37 CFR § Part 404) specifying the terms and conditions upon which licenses may be granted for inventions assigned to LICENSOR; and

WHEREAS, LICENSOR is the assignee of U.S. Patent Application No. 09/606,120 for an invention entitled “Single Laser Sweep Full S-Parameter Characterization of Fiber Bragg Gratings,” which was filed on June 15, 2000; and of U.S. Patent Application No. 09/648,529 for an invention entitled “High Precision Solid State Wavelength Monitor,” which was filed on August 22, 2000.

WHEREAS, LICENSEE, in consideration of the grant of a license under U.S. Patent Application No. 09/606,120, and U.S. Patent Application No. 09/648,529, will pay royalties, make all necessary capital investments, and achieve PRACTICAL APPLICATION of the inventions; and,

WHEREAS, LICENSOR has determined that the granting of a license to LICENSEE under U.S. Patent Application No. 09/606,120, and U.S. Patent Application No. 09/648,529, will provide the necessary incentive for LICENSEE to achieve the desired early PRACTICAL APPLICATION of the inventions and the granting of such license to LICENSEE will therefore be in the public interest;

NOW, THEREFORE, in accordance with said Patent Licensing Regulations, and in consideration of the foregoing and of the terms hereinafter contained in this Agreement, the LICENSOR and LICENSEE agree as set forth below:

ARTICLE I

Definitions

“**ACCOUNTING PERIOD**” shall mean the period for which royalties are calculated. For this Agreement, the period is every twelve (12) months beginning on January 1st and ending on December 31st of each calendar year. The first ACCOUNTING PERIOD for this Agreement commences on the LICENSE COMMENCEMENT DATE and ends on December 31, 2001.

“**BREACH**” shall mean (a) a violation or nonperformance by a PARTY of a MATERIAL term, condition, covenant or warranty herein, or (b) a misrepresentation made hereunder or in the inducement by LICENSEE to LICENSOR to enter into this Agreement (also see “MATERIAL”).

“**BREACHING PARTY**” shall mean the PARTY in BREACH, as used in ARTICLE XIX.

“**GROSS SALES**” shall mean the total amount invoiced by or for LICENSEE, and equivalent dollar value sum of all disposals i.e., (sales, uses, including uses by LICENSEE, leases, transfers, etc.) of ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES for monetary consideration determined in, or as if in, an arm’s length transaction.

“**INSOLVENT**” shall mean that LICENSEE has ceased to pay its debts (which may include failure to pay royalty payments under this Agreement) in the ordinary course of business or cannot pay its debts as they fall due or is insolvent within the meaning of the Federal Bankruptcy Code (11 U.S.C. § 101 (31)).

“**LICENSE COMMENCEMENT DATE**” shall mean the date that the last PARTY has executed this Agreement.

“**LICENSE EXPIRATION DATE**” shall mean the date the first LICENSED PATENT(S) expires, or the date of abandonment of the last to be abandoned of any LICENSED PATENT APPLICATION(S), whichever is later, unless this Agreement is revoked or terminated in accordance with other provisions of this Agreement.

“**LICENSE TERM**” shall mean the period of time starting with the LICENSE COMMENCEMENT DATE and ending with the LICENSE EXPIRATION DATE.

“**LICENSED AREA**” shall mean the world.

“**LICENSED FIELD**” shall mean optical components, instrument, or systems for telecommunications, computers, or measurement.

“**LICENSED INVENTION(S)**” shall mean the invention(s) defined by the claims of the LICENSED PATENT(S) and as may be further limited by ARTICLE II.

“**LICENSED PATENT(S)**” shall mean all patents that issue from the LICENSED PATENT APPLICATION(S), and shall include any corresponding: reissue patents; modifications of said LICENSED PATENTS by means of certificates of correction or reexamination certificates; and any National or Regional Patent(s).

“**LICENSED PATENT APPLICATION(S)**” shall mean U.S. Patent Application No. 09/606,120 and/or U.S. Patent Application No. 09/648,529; any national or regional Patent Application(s) that rely on PCT Patent Application Numbers PCT/USOO/23588 and PCT/USOO/27454, and shall include any corresponding: continuation or divisional patent applications derived therefrom.

“MATERIAL,” with respect to a particular matter (e.g., a BREACH), shall mean that the matter is shown to effect adversely (a) the rights and benefits of the other PARTY under this Agreement; or (b) the ability of the other PARTY to perform its obligations hereunder; and, in either case, to such a degree that a reasonable person in the management of his or her own affairs would be more likely than not to decline to enter into this Agreement in view of the matter in question.

“NET SALES” shall mean GROSS SALES, less allowances for returns and less (to the extent separately stated, and not charged to the customer or others, on the invoices): (1) regular trade and quantity discounts; (2) insurance and shipping charges from the point of origin; (3) duties, tariffs, and other customs charges; and (4) sales, use, and similar taxes. In the case of a sale or other disposition of ROYALTY-BASE PRODUCTS which are transferred to a purchaser who does not deal at arm’s length, or transferred or otherwise disposed of for other than monetary consideration (including allocations to LICENSEE’s own beneficial use), NET SALES shall be calculated in accordance with Section 7.5 of this Agreement.

“NONBREACHING PARTY” shall mean the PARTY not in BREACH, as used in ARTICLE XIX.

“PARTY” shall mean a party to this Agreement.

“PERSON” shall mean a natural person; a corporation (for profit or not-for-profit); an association; a partnership (general or limited); a joint venture; a trust; a government or political department, subdivision, or agency; or any other entity.

“PRACTICAL APPLICATION” shall mean, with respect to the LICENSED INVENTION(S), to reduce it to practice and to commercialize it, i.e., to manufacture it in the case of a composition or product, to practice it in the case of a process or method, or to operate it in the case of a machine or system; and, in each case, under such conditions as to establish: (1) that a market for the LICENSED INVENTION(S) has been created, and to the extent practicable, that a market has been created in the United States; (2) that it is being utilized; (3) that its benefits are, to the extent permitted by law or Government regulations, available to the public on reasonable terms; and (4) that market demand, at least in the United States, shall be reasonably met.

“ROYALTY-BASE PRODUCTS” shall include: (1) the components of an item sold, used, leased, transferred, or otherwise disposed of by LICENSEE that are covered by or included within the LICENSED INVENTION(S); and (2) other components of the item not covered by or within the LICENSED INVENTION(S) that LICENSEE would not have sold, used, leased, transferred, or otherwise disposed of but for the sale, use, lease, transfer, or other disposition of the LICENSED INVENTION(S).

“ROYALTY-BASE SERVICES” shall include any services sold, used, leased, transferred, or otherwise disposed of by LICENSEE or its agents that use or employ the LICENSED INVENTION(S). Such ROYALTY-BASE SERVICES shall not include any services of the LICENSEE directly related to the initial installation and setup, including training or software installation, or to the repair of a ROYALTY-BASE PRODUCT purchased by a THIRD PARTY.

“THIRD PARTIES” shall mean PERSONS other than the LICENSOR and the LICENSEE.

ARTICLE II

License Grant

2.1 LICENSOR hereby grants to LICENSEE a terminable, royalty-bearing, nonexclusive license to practice, i.e., to make, have made, use, sell, offer for sale, import, transfer, or dispose of, the LICENSED INVENTION(S) as limited to the LICENSED AREA and the LICENSED FIELD, as defined in ARTICLE I.

2.2 LICENSOR, upon request, agrees to grant LICENSEE a license to practice any inventions assigned to LICENSOR, without which license or licenses, the practice of the LICENSED INVENTION(S) would result in infringement. The grant of said license or licenses shall be limited, however, to the extent necessary to practice the LICENSED INVENTION(S). There will be no such grant where said inventions are licensed exclusively.

2.3 Notwithstanding anything to the contrary in this Agreement, LICENSEE shall take the license granted in this ARTICLE II subject to any outstanding licenses or other rights in THIRD PARTIES under Agreements executed by LICENSOR prior to the LICENSE COMMENCEMENT DATE.

2.3 LICENSOR reserves an irrevocable, royalty-free right to practice and have practiced the LICENSED INVENTION(S), and any other inventions as provided in Section 2.2, throughout the world by or on behalf of the Government of the United States and on behalf of any foreign government pursuant to any existing or future treaty or Agreement with the United States.

2.5 NASA intends to file timely National or Regional Patent Applications corresponding to PCT Application Numbers PCT/USOO/23588, entitled “Single Laser Sweep Full S-Parameter Characterization of Fiber Bragg Gratings” and PCT/USOO/27454, entitled “High Precision Solid State Wavelength Monitor” after being timely notified in writing of the selected countries designated by the LICENSEE. To conserve costs, NASA also intends to file such applications directly through foreign associates. LICENSEE agrees to pay timely the foreign associate, upon receipt of billing, the official fees (including maintenance fees) and the foreign associate’s fees for assisting in prosecution of the National or Regional Patent Application.

ARTICLE III

Sublicenses

3.1 LICENSEE shall not have the right to grant sublicenses.

ARTICLE IV

Term of License

4.1 The license granted in ARTICLE II will be in effect for the LICENSE TERM. Except as may be expressly provided otherwise herein or agreed to in writing by LICENSOR, the license shall expire automatically at the end of the LICENSE TERM without notice to LICENSEE. In the event the LICENSE TERM will expire before the expiration of the LICENSED PATENT(S), LICENSEE may request extension of the LICENSE TERM before the expiration of the LICENSE TERM.

ARTICLE V

Practical Application

5.1 LICENSEE shall achieve PRACTICAL APPLICATION of the LICENSED INVENTION(S) within [****] of the LICENSE COMMENCEMENT DATE.

5.2 LICENSEE, once PRACTICAL APPLICATION of the LICENSED INVENTION(S) is achieved, shall thereafter maintain it throughout the LICENSE TERM.

ARTICLE VI

United States Manufacture

6.1 LICENSEE shall both reduce the LICENSED INVENTION(S) to practice and substantially manufacture the LICENSED INVENTION(S) in the United States.

6.2 LICENSEE shall make a bona fide attempt to use or sell the LICENSED INVENTION(S) in the United States.

6.3 LICENSEE shall promptly report to LICENSOR its discontinuance of making the benefits of the LICENSED INVENTION(S) available to the public.

6.4 Failure to comply with the terms of this ARTICLE shall be cause for unilateral modification or termination of this Agreement in accordance with ARTICLE XX.

ARTICLE VII

Royalty and Payment

7.1 In consideration of the license granted in ARTICLE II, LICENSEE shall remit to LICENSOR a nonrefundable license fee in the amount of [****] upon the execution of this Agreement by LICENSEE.

7.2 LICENSEE agrees to pay LICENSOR a running royalty of [****] of the NET SALES of ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES. The running royalty shall be remitted to LICENSOR annually, within THIRTY (30) days of the end of each ACCOUNTING PERIOD.

7.3 LICENSEE agrees to pay LICENSOR the following annual minimum guaranteed royalties according to the following payment schedule:

End Of the second ACCOUNTING PERIOD: [****]

End of the third ACCOUNTING PERIOD: [****]

End of the fourth ACCOUNTING PERIOD: [****]

End of the fifth and each subsequent ACCOUNTING PERIOD: [****]

The minimum royalty shall be remitted within THIRTY (30) days of the end of each ACCOUNTING PERIOD.

7.4 The minimum royalty specified in Section 7.3 shall not be due for any particular ACCOUNTING PERIOD if the running royalties specified in Section 7.2 are equal or greater than the minimum royalty.

7.5 To ensure that LICENSOR receives all royalty payments due under this Agreement, LICENSEE agrees that in the event any ROYALTY-BASE PRODUCTS shall be sold, transferred, or disposed of for purposes of resale (a) to any type of organization or individual who owns a controlling interest in LICENSEE by stock ownership or otherwise, (b) to any type of organization in which LICENSEE shall own, directly or indirectly, a controlling interest by stock ownership or otherwise, or (c) to any type of organization with which, or individual with whom, LICENSEE, its stockholders, or associated companies shall have any agreement, understanding, or arrangement (such as, among other things, an option to purchase stock, an arrangement involving a division of profits, or special rebates or allowances) without which agreement, understanding, or arrangement, prices paid by such organization or individual for the ROYALTY-BASE PRODUCTS would be higher than the NET SALES reported by LICENSEE, or if such agreement, understanding, or arrangement, results in extending to such organization or individual lower prices for ROYALTY-BASE PRODUCTS than those charged to outside concerns buying similar merchandise in similar amounts and under similar conditions, then, and in all similar events, the royalties to be paid under this Agreement for the ROYALTY-BASE PRODUCTS shall be based upon the NET SALES at which the purchaser of the ROYALTY-BASE PRODUCTS resells the ROYALTY-BASE PRODUCTS, rather than upon the NET SALES of LICENSEE.

7.6 Under this Agreement, ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES will be considered sold when invoiced, shipped, or paid, whichever occurs first.

7.7 Royalties shall be paid within THIRTY (30) days of the end of each ACCOUNTING PERIOD. Royalties shall be paid by check, denominated in United States dollars, and made payable to the National Aeronautics and Space Administration. The check shall be mailed to LICENSOR at the address set forth in ARTICLE XV of this Agreement concurrently with the report required in ARTICLE VIII of this Agreement.

7.8 LICENSOR shall assess interest, penalties, and administrative costs in accordance with the Federal Claims Collections Standards, 4 CFR §§ 100-105, on all payments due LICENSOR which are not timely paid by LICENSEE.

ARTICLE VIII

Reports

8.1 LICENSEE shall submit to LICENSOR written reports within THIRTY (30) days of the end of every ACCOUNTING PERIOD whether or not royalties are due. Each report shall be submitted concurrently with the royalties required by ARTICLE VII.

8.2 Each report shall include the following information:

(a) A narrative description of the steps being taken to reduce the LICENSED INVENTION(S) to practice.

(b) A narrative description of the steps being taken to create a market demand for the LICENSED INVENTION(S), to commercialize the LICENSED INVENTION(S), and to meet market demand for the LICENSED INVENTION(S).

(c) A narrative description of the ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES currently being offered for sale by LICENSEE. Copies of current sales brochures, promotional materials, and price lists shall be included with this description.

(d) A list of the geographic locations at which the LICENSED INVENTION(S) is being manufactured.

(e) The number and type of ROYALTY-BASE PRODUCTS sold or disposed of by LICENSEE.

(f) The number and type of ROYALTY-BASE PRODUCTS sold or disposed of by each reseller of ROYALTY-BASE PRODUCTS under Section 7.5.

(g) LICENSEE'S GROSS SALES.

(h) GROSS SALES for each reseller of ROYALTY-BASE PRODUCTS under Section 7.5.

(i) LICENSEE'S NET SALES.

(j) NET SALES for each reseller of ROYALTY-BASE PRODUCTS under Section 7.5.

(k) The amount of royalties due LICENSOR.

8.3 Each report shall be accompanied by a certification by an officer of LICENSEE that the LICENSEE is complying with the terms and conditions of this Agreement and that the responses to each part of Section 8.2 are accurate and complete.

8.4 LICENSEE shall, on an annual basis, submit to LICENSOR an audited balance sheet and an audited income statement. Internal audits are permissible, but LICENSOR reserves the right to require an independent audit and additionally reserves the right to approve of the auditor.

8.5 LICENSEE shall submit a final report to LICENSOR within THIRTY (30) days after the termination of this Agreement.

ARTICLE IX

Audit Rights

9.1 LICENSEE shall keep full, true, and accurate records for the purpose of LICENSOR verifying LICENSEE'S reports to LICENSOR under ARTICLE VIII, verifying LICENSEE'S royalty payments to LICENSOR under ARTICLE VII, and for determining LICENSEE'S activities in general under the Agreement. These records shall include, but are not limited to, ledgers and journals of account, customer orders, invoices, shipping documents, inventory records, computer records, purchase orders, and tax records. These records, as a whole, shall include information which will allow, at a minimum, identification of suppliers, customers, items sold or otherwise transferred, and/or services rendered, as well as whether the LICENSEE is operating within the scope of its license.

9.2 The records described in Section 9.1 shall be available for audit by LICENSOR, or by an authorized representative of LICENSOR, at all reasonable times for the LICENSE TERM and for three (3) calendar years thereafter. In addition, LICENSEE shall permit inspection by LICENSOR, or by an authorized representative of LICENSOR, of LICENSEE'S assembly facilities and of LICENSEE'S inventory of ROYALTY-BASE PRODUCTS, including parts, works-in-progress, and finished goods, during any audit by LICENSOR.

9.3 If LICENSOR, as a result of an audit, discovers an underpayment of royalties which exceeds [****] of the royalties due for a particular period, then LICENSEE shall reimburse LICENSOR for the cost of the audit, including all related costs of performing the audit (e.g., travel, food, lodging, cost of professional services, etc.), in addition to any penalties assessed pursuant to Section 7.8.

ARTICLE X

Marking

10.1 LICENSEE shall mark all ROYALTY-BASE PRODUCTS, or products incorporating ROYALTY-BASE PRODUCTS, in accordance with the statutes of the United States relating to the

marking of patented articles (see 35 U.S.C. § 287). Such marking shall be accomplished by fixing on the article or when, from the character of the article, this cannot be done, by fixing to it, or to the package wherein one or more articles is contained, a label including the notation "Licensed from the National Aeronautics and Space Administration under U.S. Patent No. X,XXX,XXX." Such marking shall also be included into all literature and/or advertising materials describing the LICENSED INVENTION(S).

ARTICLE XI

Use of the NASA Name

11.1 Except as required by Section 10.1, LICENSEE may use the name of LICENSOR, or the acronym "NASA", only in truthful statements concerning its relationship with LICENSOR. The letters "NASA" may be used in such truthful statements only if they are:

- (a) used in their normal typed or printed form;
- (b) the same size, color, and intensity as the rest of the words in a sentence;
- (c) not used in their stylized version as they appear in the NASA logotype insignia; and
- (d) not used to indicate that NASA approves of the LICENSEE'S products, processes, etc.

11.2 Uses of the letters "NASA" and the words "National Aeronautics and Space Administration", other than those specified in Section 11.1, shall require the express written approval of LICENSOR. Approval by LICENSOR shall be based on applicable law (i.e., 42 U.S.C. §§ 2459(b), 2472(a), and 2473 (c)(l); and 14 CFR § 1221.100 *et seq.*) and NASA policy governing the use of the words "National Aeronautics and Space Administration" and the letters "NASA".

11.3 LICENSEE agrees to make copies of its marketing literature or items available to LICENSOR so that LICENSOR can determine that such use is in accordance with the terms of this ARTICLE.

ARTICLE XII

Disclaimer of Warranties

12.1 LICENSOR MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, AS TO ANY MATTER WHATSOEVER.

12.2 In particular, nothing in this Agreement shall be construed as:

- (a) A warranty or representation by LICENSOR as to the validity or scope of any LICENSED PATENT(S); or

(b) A warranty or representation that anything made, used, sold, or otherwise disposed of under any license granted in this Agreement is or will be free from infringement of any type, including patent infringement, copyright infringement, and trademark infringement; or

(c) A requirement that LICENSOR shall file any patent application, secure any patent, or maintain any patent in force, other than the LICENSED PATENT(S); or

(d) An obligation to bring or prosecute actions or suits against THIRD PARTIES for infringement; or

(e) An obligation to furnish any manufacturing or technical information; or, if any such information is supplied, a warranty or representation that such information is accurate; or

(f) Conferring a right to use in advertising, publicity or otherwise the name of any inventor of the LICENSED INVENTION(S) or the NASA name, seal, insignia, logotype insignia or any other adaptation without the prior written consent of LICENSOR (except as otherwise provided in ARTICLE XI); or

(g) Precluding the export from the United States of ROYALTY-BASE PRODUCTS on which royalties shall have been paid as provided in ARTICLE VII, provided that the item can be exported under the export control laws of the United States; or

(h) Granting by implication, estoppel, or otherwise, any licenses or other rights under any other patent of LICENSOR (or any other PERSON in the United States or any foreign country); or

(i) Granting by implication, estoppel, or otherwise, any licenses or rights under other patents or patent applications of LICENSOR other than as provided by this Agreement in Section 2.2, regardless of whether such other patents or patent applications are dominant, subordinate, or an improvement to the inventions as claimed, of the LICENSED PATENT(S) or LICENSED PATENT APPLICATIONS), nor to other applications that did not claim the inventions.

(j) Conferring upon any PERSON (1) any immunity from or defenses under the antitrust laws, (2) any immunity from a charge of patent misuse, or (3) any immunity from the operation of Federal, State, or other law.

ARTICLE XIII

Risk Allocation and Indemnification

13.1 LICENSOR makes no representation, extends no warranties of any kind, either express or implied, and assumes no responsibility whatsoever with respect to use, sales, or other disposition by LICENSEE or its vendees or other transferees of products incorporating or made by the use of (1) the LICENSED INVENTION(S) or (2) information, if any, furnished under this Agreement.

13.2 LICENSEE shall indemnify LICENSOR, its officers and employees, and hold them harmless against all liabilities, demands, damages, expenses, or losses including, but not limited to, attorney's fees, court costs, and the like, arising (1) out of the use by LICENSEE or its transferees of the LICENSED INVENTION(S) or information furnished under this Agreement, or (2) out of any sale, use, or other disposition by LICENSEE or its transferees of products, processes, or compositions, made by use of such inventions or information.

13.3 It shall be the sole responsibility of the LICENSEE to ensure that any and all embodiments of the LICENSED INVENTION(S) are safe under all circumstances.

13.4 Independent of, severable from, and to be enforced independently of any other enforceable or unenforceable provision of this Agreement, other than as provided in Sections 13.1 and 13.2, or other than for infringement of one PARTY'S intellectual property rights by another PARTY, (including any engagement in licensable activities by licenses beyond the scope of the license provided by this Agreement), neither PARTY will be liable to the other PARTY (nor to any THIRD PARTY claiming rights derived from the other PARTY'S rights) for incidental, consequential, special, punitive, or exemplary damages of any kind, including lost profits, loss of business, or other economic damage, and further including injury to property, as a result of breach of any warranty or other term of this Agreement, regardless of whether the PARTY liable or allegedly liable was advised, had reason to know, or in fact knew of the possibility thereof.

ARTICLE XIV

Patent Validity

14.1 If, in any proceeding in which the validity, infringement, or priority of invention of any claim of the LICENSED PATENT(S) to LICENSEE is in issue, a judgment or decree is entered which becomes final (below referred to as an "final judgment"), the construction placed upon any such claim by such final judgment shall thereafter be followed, not only as to such claim but as to all claims to which such construction applies, with respect to subsequently occurring acts. If such final judgment holds any claim invalid, LICENSEE shall be relieved prospectively (1) from including in its reports ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES sold or otherwise disposed of covered only by such claim or any broader claim to which such final judgment is applicable, and (2) from the performance of those other acts which may be required by this Agreement only because of any such claim. However, if there are two or more conflicting final judgments with respect to the same claim based on the same grounds or where the same issues were raised, the decision of the higher tribunal shall be followed, but if the tribunals be of equal dignity, then the decision more favorable to the claim shall be followed.

14.2 In the event evidentiary material comes to the attention of the LICENSEE subsequent to the LICENSEE'S execution of this Agreement which, in the judgment of the LICENSEE, bears on the validity or scope of any LICENSED PATENT(S), the LICENSOR will in good faith discuss with the LICENSEE whether such evidentiary material so affects the validity or scope of the LICENSED PATENT(S) to which it is asserted to apply that the terms of the license in respect to such LICENSED PATENT(S) should be modified.

14.3 The LICENSEE, subsequent to the date of its execution of this Agreement, may assert the invalidity of any claim in any LICENSED PATENT(S), if coupled with or followed by:

(a) withholding, or notice of intention to withhold, or denial of obligation to pay, royalties otherwise payable under this Agreement in respect to the LICENSEE'S operations under such claim; or

(b) initiation or participation in a suit challenging or denying the validity of such claim in reference to LICENSEE'S operations under this Agreement, that may, at the option of the LICENSOR, be conclusively presumed to constitute LICENSEE'S termination, as of the earliest provable date of such withholding, notice, denial, initiation, or participation, of its Agreement including its obligation for payment of royalties due from the date of the termination.

14.4 If an action by a THIRD PARTY requires the LICENSEE to defend its right to practice the LICENSED PATENT(S) pursuant to this Agreement, then LICENSOR may, in its sole discretion, cooperate and assist in all respects and, to the extent possible, make available relevant records, papers, information, samples, models, specimens; and the like.

ARTICLE XV

Points of Contact

15.1 The following individuals are designated as the points of contact for their respective PARTY. These points of contact are the principal representatives of the PARTIES involved in the performance of this Agreement.

LICENSOR

LICENSEE

NASA Langley Research Center
Patent Counsel Office
3 Langley Blvd.
Mail Stop 212
Hampton, VA 23681-2199
Telephone No.: [****]
Facsimile No.: [****]

Luna Technologies, Inc.
Douglas B. Juanarena,
President/CEO
2851 Commerce Street SE
Blacksburg, VA 26040
Telephone No.: [****]
Facsimile No.: [****]

ARTICLE XVI

Notices

16.1 Notices hereunder will be delivered and effective as follows:

(a) Every notice required or contemplated by this Agreement to be given either PARTY may be delivered in person or may be sent by courier, telecopy, express mail, telex, telegraph or postage prepaid certified or registered air mail (or its equivalent under the laws of the country where mailed), addressed to the PARTY for whom it is intended, at the address specified in ARTICLE XV. Either PARTY may change its address for notice by giving notice to the other PARTY of the change.

(b) Any written notice will be effective no earlier than the date delivered.

(c) Unless otherwise provided in this Agreement, notice by courier, or by express, certified, or registered mail, will be effective on the date it is officially recorded as delivered by return receipt or the equivalent, and in the absence of such record as to delivery, it will be rebuttably presumed to have been delivered on the fifth business day after it was deposited, first-class postage prepaid, in the mail.

(d) Notice by telex or telegraph will be deemed given at the time it is recorded by the carrier in the ordinary course of business as having been delivered, but in any event no later than one business day after dispatch.

(e) Notice not given in writing will be effective only if acknowledged in writing by a duly authorized officer of the PARTY to whom it was given.

(f) As used in this ARTICLE, a reference to a particular date means the date itself, if a business day, otherwise the first business day after the date.

ARTICLE XVII

Nonassertion

17.1 LICENSOR agrees not to assert any of its rights under any others of its patents against LICENSEE or its transferees, which rights are necessary to the practice of rights granted to LICENSEE under this Agreement.

ARTICLE XVIII

Disputes

18.1 All disputes concerning the interpretation or application of this Agreement shall be discussed mutually between the PARTIES. Any disputes which are not disposed of by mutual Agreement shall be decided by the NASA Associate General Counsel (Intellectual Property), or designee, who shall reduce the decision to writing and mail or otherwise furnish a copy thereof to LICENSEE. The decision shall be final and conclusive, unless within THIRTY (30) days from the date of receipt of such decision, LICENSEE mails or otherwise furnishes a written appeal addressed to the Administrator, National Aeronautics and Space Administration, Washington, DC 20546. LICENSEE shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. The NASA Administrator, or designee, shall make the decision on the appeal, which shall be the final agency decision from which there will be no further right of administrative appeal.

ARTICLE XIX

Breach

19.1 In the event of a BREACH of any warranty, covenant, or other provision of this Agreement, the following notice and cure procedures, if the BREACH is curable, shall apply.

19.2 The NONBREACHING PARTY shall give the BREACHING PARTY notice describing the BREACH and stating the time, as provided below, within which the BREACH must be cured.

19.3 If a provision of this Agreement sets forth a cure period for the BREACH in question, then that provision shall take precedence over any cure period set forth in this ARTICLE.

19.4 No cure period is required, except as may be otherwise provided in this Agreement, if:

(a) this Agreement sets forth specific deadline dates for the obligation allegedly breached; or

(b) this Agreement otherwise states that no cure period is required in connection with the termination in question.

19.5 If the BREACH is of an obligation to pay money, or a nonwillful curable BREACH of an obligation of the BREACHING PARTY relating to the NONBREACHING PARTY'S intellectual property rights, then the BREACHING PARTY shall have FIVE (5) business days to cure the BREACH after written notice of such BREACH by the BREACHING PARTY.

19.6 If the BREACH is willful and of an obligation of the BREACHING PARTY relating to the NONBREACHING PARTY'S intellectual property rights, then the NONBREACHING PARTY may, in its sole discretion, specify in the notice of BREACH that no cure period will be permitted.

19.7 If the BREACH is other than a BREACH of the kind described above in this ARTICLE, then the cure period will be THIRTY (30) days after the effective date of notice of the BREACH from the NONBREACHING PARTY.

19.8 The BREACHING PARTY will be deemed to have cured such BREACH if within the cure period it takes steps reasonably adequate to alleviate any damage to the NONBREACHING PARTY resulting from the BREACH and to prevent a similar future BREACH.

19.9 If a BREACH has not been cured at the end of its cure period, if any, then this Agreement may be terminated upon expiration of the cure period as provided by ARTICLE XX.

ARTICLE XX

Termination

20.1 The PARTIES may terminate or modify this Agreement by mutual consent upon such terms as they may agree in writing.

20.2 Either PARTY may terminate this Agreement by failing to extend the LICENSE TERM.

20.3 Either PARTY may terminate this Agreement upon the discovery by that PARTY of any intentional MATERIAL false statement or other intentional MATERIAL misrepresentation made or submitted to that PARTY, by the other PARTY, which BREACHES any obligation under the terms of this Agreement.

20.4 Either PARTY may terminate this Agreement upon any failure by the other PARTY to provide, within TEN (10) business days after notice, satisfactory and adequate assurances to the terminating PARTY that the other PARTY is able and willing to fully and effectively perform its obligations under this Agreement.

20.5 LICENSEE may prospectively terminate this Agreement as a whole, as well as any concomitant future obligations evidenced in writing executed after the LICENSE COMMENCEMENT DATE, with respect to any LICENSED PATENT(S) upon ninety (90) days written notice to LICENSOR.

20.6 This Agreement may be terminated by LICENSOR if:

(a) LICENSOR determines that LICENSEE has failed or will fail to achieve PRACTICAL APPLICATION of the LICENSED INVENTION(S) as provided by Section 5.1.

(b) LICENSOR determines that LICENSEE has failed or will fail to maintain PRACTICAL APPLICATION of the LICENSED INVENTION(S) as provided by Section 5.2.

(c) LICENSOR determines that LICENSEE has failed or will fail to both reduce to practice and manufacture the LICENSED INVENTION(S) in the United States as provided by Section 6.1.

(d) LICENSOR determines that LICENSEE has failed or will fail to meet market demand for the LICENSED INVENTION(S) as provided by ARTICLE V.

(e) LICENSEE fails to pay royalties as provided by ARTICLE VII.

(f) LICENSEE fails to submit reports as provided by ARTICLE VIII.

(g) LICENSEE fails to pay royalties sufficient to cover the patent maintenance fees due on the LICENSED PATENT(S) for each of the years that patent maintenance fees are due.

(h) LICENSOR determines that such action is necessary to meet the requirements for public use specified by Federal regulations issued after the LICENSE COMMENCEMENT DATE and LICENSEE does not reasonably satisfy such requirements.

(i) LICENSEE commits a MATERIAL BREACH of a covenant or term contained in this Agreement.

20.7 LICENSOR may terminate this Agreement if LICENSEE becomes "INSOLVENT." LICENSEE must notify LICENSOR within THIRTY (30) days after becoming INSOLVENT. LICENSEE'S failure to conform to this requirement shall be deemed a material, incurable breach.

20.8 LICENSEE must promptly inform LICENSOR of its intention to file a voluntary petition in bankruptcy or of another's communicated intention to file an involuntary petition in bankruptcy. LICENSOR may terminate this Agreement upon receiving notice of intention to file. LICENSEE'S filing without conforming to this requirement shall be deemed a material, pre-petition incurable breach.

20.9 Before LICENSOR modifies or terminates this Agreement for any cause, LICENSOR will furnish to LICENSEE a written notice stating LICENSOR'S intention to modify or terminate the Agreement and the reasons therefor. LICENSEE will be allowed THIRTY (30) days after receipt of such notice to remedy any BREACH of the Agreement or show cause why the Agreement should not be terminated. A response to such notice should be addressed to the General Counsel, National Aeronautics and Space Administration, Washington, DC 20546.

20.10 LICENSEE may directly appeal in writing, within THIRTY (30) days of receipt of the notice stating LICENSOR'S intention to modify or terminate the Agreement, to the NASA Administrator on the question of whether the Agreement should be terminated. If reconsideration of the intention to terminate the Agreement has been requested under Section 20.9, then LICENSEE may appeal to the NASA Administrator within THIRTY (30) days after receiving notice of an adverse decision or determination from the NASA General Counsel. The notice of appeal and all supporting documentation should be addressed to the Administrator, National Aeronautics and Space Administration, Washington, DC 20546. LICENSEE shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. The NASA Administrator, or designee, shall make the decision on the appeal, which shall be the final agency decision from which there will be no further right of administrative appeal.

20.11 If no action is taken under Sections 20.9 and 20.10, then the decision to modify or terminate this Agreement shall become final.

20.12 All royalties and reports due up to and including the date of termination of this Agreement are due within THIRTY (30) days of the date of termination.

ARTICLE XXI

Assignment

21.1 LICENSEE may not assign or transfer this Agreement, and any purported assignment or transfer shall be null and void and a BREACH of this Agreement.

ARTICLE XXII

Governing Law

22.1 This Agreement will be interpreted and enforced in accordance with United States federal law.

ARTICLE XXIII

Independent Entities

23.1 The Parties are separate and independent entities. Except as may be expressly and unambiguously provided in this Agreement, no partnership or joint venture is intended to be employee relationship.

23.2 Except to the extent expressly provided in this Agreement, neither PARTY has, and neither PARTY shall attempt to assert, the authority to make commitments for or to bind the other PARTY to any obligation.

ARTICLE XXIV

Effect of Partial Invalidity

24.1 If any one or more of the provisions of this Agreement should be ruled wholly or partly invalid or unenforceable by a court or other government body of competent jurisdiction, and as long as the fundamental objectives of the Agreement can be carried out, then:

(a) the validity and enforceability of all provisions of this Agreement not ruled to be invalid or unenforceable will be unaffected;

(b) the provision(s) held wholly or partly invalid or unenforceable will be deemed to be amended, and the court or other government body is authorized to reform the provision(s), to the minimum extent necessary to render them valid and enforceable in conformity with the PARTIES' intent as manifested herein; and

(c) if the ruling, and/or the controlling principle of law or equity leading to the ruling, is subsequently *overruled*, modified, or amended by legislative, judicial, or administrative action, then the provision(s) in question, as originally set forth in this Agreement, will be deemed to be valid and enforceable to the maximum extent permitted by the new controlling principle of law or equity.

ARTICLE XXV

Nonwaiver

25.1 The failure of either PARTY at any time to require performance by the other PARTY of any provision of this Agreement shall in no way affect the right of such PARTY to require future performance of such provision. Any waiver by either PARTY of any BREACH of any provision of this Agreement shall not be construed as a waiver of any continuing or succeeding BREACH of such provision, a waiver of the provision itself, or a waiver of any right under this Agreement.

ARTICLE XXVI

Entire Agreement

26.1 Except as may be expressly provided otherwise herein, this Agreement constitutes the entire Agreement between the PARTIES concerning the subject matter thereof. No prior or contemporaneous representations, inducements, promises, or agreements, oral or otherwise, between the PARTIES with reference thereto will be of any force or effect. This Agreement may only be modified by written agreement of the PARTIES.

ARTICLE XXVII

Article Headings

27.1 The ARTICLE headings contained in this Agreement are for reference purposes only and shall not in any way control the meaning or interpretation of this Agreement.

ARTICLE XXVIII

Counterparts

28.1 This Agreement may be executed in separate counterparts, each of which so executed and delivered shall constitute an original, but all such counterparts shall together constitute one and the same instrument. Any such counterpart may comprise one or more duplicates or duplicate signature pages, any of which may be executed by less than all of the PARTIES, provided that each PARTY executes at least one such duplicate or duplicate signature page. The PARTIES stipulate that a photostatic copy of an executed original will be admissible in evidence for all purposes in any proceeding as between the PARTIES.

ARTICLE XXIX

Acceptance

29.1 In witness whereof, each PARTY has caused this Agreement to be executed by its duly authorized representatives:

LICENSOR:

National Aeronautics and Space Administration

By: /s/ Edward A. Frankle

Edward A. Frankle
NASA General Counsel

Date: December 20, 2000

cc:
Office of Patent Counsel
NAA Langley Research Center

LICENSEE:

Luna Technologies, Inc.

/s/ Douglas B. Juanarena

Douglas B. Juanarena
President and CEO

Date: December 6, 2000

CONFIDENTIAL TREATMENT REQUESTED: Certain portions of this document have been omitted pursuant to a request for confidential treatment and, where applicable, have been marked with an asterisk (“[****]”) to denote where omissions have been made. The confidential material has been filed separately with the Securities and Exchange Commission.

LICENSE AGREEMENT

UNITED STATES OF AMERICA

AND

LUNA INNOVATIONS INCORPORATED

EXCLUSIVE LICENSE AGREEMENT DE-384

EFFECTIVE DATE: 10/28/04

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LICENSE AGREEMENT

PREAMBLE

This License Agreement (“AGREEMENT”) is entered into between the National Aeronautics and Space Administration (NASA), an agency of the United States, hereinafter referred to as LICENSOR, having its headquarters at Washington, D.C., and Luna Innovations Incorporated, a corporation of the State of Delaware, having its principal place of business at 2851 Commerce Street, Blacksburg, VA 24060, hereinafter referred to as LICENSEE, as of the date of execution of the last PARTY hereto.

WITNESSETH:

WHEREAS, under the authority of 35 U.S.C. § 200 *et seq.*, the U.S. Department of Commerce has issued Patent Licensing Regulations (37 CFR Part 404) specifying the terms and conditions upon which licenses may be granted for inventions assigned to LICENSOR; and

WHEREAS, LICENSOR is the assignee of U.S. Patent No. 5,214,955 for an invention entitled “Constant Frequency Pulsed Phase-Lock Measuring Device,” which issued on June 1, 1993; U.S. Patent No. 5,150,620 for an invention entitled “Method of Recertifying Load Bearing Member,” which issued on September 29, 1992; U.S. Patent No. 5,841,032 for an invention entitled “Variable and Fixed Frequency Pulsed Phase-Locked Loop” which issued on November 24, 1998; U.S. Patent No. 5,617,873 for an invention entitled “Non-invasive Method And Apparatus For Monitoring Intracranial Pressure And Pressure Volume Index In Humans,” which issued on April 8, 1997; U.S. Patent No. 6,413,227 for an invention entitled “Method And Apparatus For Assessment Of Changes In Intracranial Pressure,” which issued on July 2, 2002; U.S. Patent No. 6,475,147 for an invention entitled “Ultrasonic Apparatus And Technique To Measure Changes In Intracranial Pressure,” which issued on November 5, 2002; U.S. Patent No. 6,761,695 for an invention entitled “Method and Apparatus for Non-Invasive Measurement of Changes in Intracranial Pressure,” which issued on July 13, 2004; U.S. Patent No. 6,746,410 for an invention entitled “Method And Apparatus For Determining Changes In Intracranial Pressure Utilizing Measurement Of The Circumferential Expansion Or Contraction Of A Patient’s Skull,” which issued on June 8, 2004; U.S. Patent No. 6,740,048 for an invention entitled “Non-Invasive Method Of Determining Diastolic Intracranial Pressure,” which issued on May 25, 2004; U.S. Patent No. 6,773,407 for an invention entitled “Non-Invasive Method of Determining Absolute Intracranial Pressure,” which issued on August 10, 2004; U.S. Patent Application No. 10/805,816, filed on March 22, 2004, entitled “Ultrasonic Apparatus and Method to Assess Compartment Syndrome;” and U.S. Patent Application No. 10/911,755 filed on August 2, 2004, entitled “Method and Apparatus to Assess Compartment Syndrome;” and PCT Patent Application Number PCT/US02/37580, filed on November 22, 2002, entitled “Method and Apparatus for Non-Invasive Measurement of Changes in Intracranial Pressure.”

WHEREAS, U.S. Patent Application No. 10/911,755, entitled, “Method and Apparatus to Assess Compartment Syndrome” is jointly owned by LICENSOR and THE REGENTS OF THE UNIVERSITY OF CALIFORNIA (hereinafter “JOINT OWNER”), having a system-wide business

address of 1111 Franklin Street, Oakland, CA, (hereinafter LICENSOR and JOINT OWNER collectively referred to as JOINT OWNERS); and JOINT OWNERS have entered into an Agreement in regard to this jointly owned invention(s), entitled: "AGREEMENT BETWEEN THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AND THE REGENTS OF THE UNIVERSITY OF CALIFORNIA CONCERNING LICENSING OF 'ULTRASONIC APPARATUS AND METHOD TO ASSESS COMPARTMENT SYNDROME'" (hereinafter the "JOINT OWNERSHIP AGREEMENT") in which The REGENTS OF THE UNIVERSITY OF CALIFORNIA, designates LICENSOR as the primary negotiating and commercializing agent for any license involving the subject jointly owned invention(s);

WHEREAS, LICENSOR and LICENSEE agree that the JOINT OWNERSHIP AGREEMENT between JOINT OWNERS is incorporated into this License Agreement by reference (Appendix B);

WHEREAS, LICENSEE, in consideration of the grant of a license under U.S. Patent Nos. 5,150,620; 5,214,955; 5,617,873; 5,841,032; 6,413,227; 6,475,147; 6,740,048; 6,746,410; 6,761,695; and 6,773,407; U.S. Patent Application Nos. 10/805,816 and 10/911,755; and any national or regional Patent Application(s) that rely on PCT Patent Application Number PCT/US02/37580, will pay royalties, make all necessary capital investments, and achieve PRACTICAL APPLICATION of the invention; and,

WHEREAS, LICENSOR has determined that the granting of a license to LICENSEE under U.S. Patent Nos. 5,150,620; 5,214,955; 5,617,873; 5,841,032; 6,413,227; 6,475,147; 6,740,048; 6,746,410; 6,761,695; and 6,773,407; U.S. Patent Application Nos. 10/805,816 and 10/911,755; and any national or regional Patent Application(s) that rely on PCT Patent Application Number PCT/US02/37580 will provide the necessary incentive for LICENSEE to achieve the desired early PRACTICAL APPLICATION of the invention and the granting of such license to LICENSEE will therefore be in the public interest;

NOW, THEREFORE, in accordance with said Patent Licensing Regulations, and in consideration of the foregoing and of the terms hereinafter contained in this AGREEMENT, the LICENSOR and LICENSEE agree as set forth below:

ARTICLE I

Definitions

"ACCOUNTING PERIOD" shall mean the period of time for which royalties are calculated. The first ACCOUNTING PERIOD will begin on the LICENSE COMMENCEMENT DATE and end on December 31, 2004. Each subsequent ACCOUNTING PERIOD shall begin on the first day and end on the last day of each subsequent calendar year. The last ACCOUNTING PERIOD shall end on the LICENSE EXPIRATION DATE.

"BREACH" shall mean (a) a violation or nonperformance by a PARTY of a MATERIAL term, condition, covenant or warranty herein, or (b) a misrepresentation made hereunder or (c) a misrepresentation by LICENSEE to induce LICENSOR to enter into this AGREEMENT (also see "MATERIAL").

“BREACHING PARTY” shall mean the PARTY in BREACH, as used in Section 18.2.

“GROSS SALES” shall mean either the total amount invoiced by or for LICENSEE, and, in the event that some or all of the amount invoiced by LICENSEE is in the form of non-monetary remuneration, then the equivalent dollar value sum of such remuneration, for all disposals (i.e., sales, uses, including uses by LICENSEE, leases, transfers, etc.) of ROYALTY-BASE PRODUCTS, ROYALTY-BASE SERVICES and ROYALTY-BASE PROCESSES for consideration determined in, or as if in, an arm’s length transaction.

“INSOLVENT” shall mean that LICENSEE has either ceased to pay its debts (which may include failure to pay royalty payments under this AGREEMENT) in the ordinary course of business or cannot pay its debts as they fall due or is insolvent within the meaning of the Federal Bankruptcy Code (11 U.S.C. § 101 (31)).

“LICENSE COMMENCEMENT DATE” shall mean the date that the last PARTY has executed this AGREEMENT.

“LICENSE EXPIRATION DATE” shall mean the last day that this AGREEMENT is in effect.

“LICENSE TERM” shall mean the period of time starting with the LICENSE COMMENCEMENT DATE and ending with the LICENSE EXPIRATION DATE.

“LICENSED AREA” shall mean the United States of America, its territories, and its possession; and any national or regional area in the world that is covered by a LICENSED PATENT or LICENSED PATENT APPLICATION.

“LICENSED FIELD OR EMBODIMENT(S)” shall mean all medical applications for assessing and measuring: (1) intracranial pressure, and (2) Compartment Syndrome.

“LICENSED INVENTION” shall mean the inventions described in the LICENSED PATENT APPLICATION and as subsequently defined by the claims of the corresponding LICENSED PATENT and as may be further limited by ARTICLE II, and shall mean the inventions defined by the claims of the LICENSED PATENT and as may be further limited by ARTICLE II.

“LICENSED PATENT” shall mean any patents maturing from any LICENSED PATENT APPLICATION, and shall mean United States Patent Nos. 5,150,620; 5,214,955; 5,617,873; 5,814,033 ; 6,413,227; 6,475,147; 6,740,048; 6,746,410; and 6,761,695, and shall include any corresponding reissue patents, re-examinations and extensions of such LICENSED PATENT; modifications of said LICENSED PATENT by means of certificates of correction or reexamination certificates.

“LICENSED PATENT APPLICATION” shall mean United States Patent Application Nos. 10/263,286; 10/805,816 and 10/911,755; and any national or regional Patent Application(s) that rely

on PCT Patent Application Number PCT/US02/37580; as well as any continuation or divisional patent applications derived from these applications (specifically excluding any patent applications containing new matter).

“MATERIAL,” with respect to a particular matter (e.g., a BREACH), shall mean that the matter is shown to affect adversely (a) the rights and benefits of the other PARTY under this AGREEMENT; or (b) the ability of the other PARTY to perform its obligations hereunder; and, in either case, to such a degree that a reasonable person in the management of his or her own affairs would be more likely than not to decline to enter into this AGREEMENT in view of the matter in question.

“NET SALES” as to ROYALTY-BASE PRODUCTS and ROYALTY-BASE SERVICES shall mean GROSS SALES, less allowances for returns and less (to the extent separately stated, and not charged to the customer or others, on the invoices): (1) regular trade and quantity discounts; (2) insurance and shipping charges from the point of origin; (3) duties, tariffs, and other customs charges; and (4) sales, use, value added, and similar taxes. In the case of a sale or other disposition of ROYALTY-BASE PRODUCTS or ROYALTY-BASE SERVICES which are transferred to a purchaser who does not deal at arm’s length, or transferred or otherwise disposed of for other than monetary consideration (including allocations to LICENSEE’S own beneficial use), NET SALES shall be calculated in accordance with Section 7.6 of this AGREEMENT. As to ROYALTY-BASE PROCESSES, “NET SALES” shall mean GROSS SALES derived from the use, application, lease, transfer, or other utilization of the ROYALTY-BASE PROCESSES, less allowances for returns and less (to the extent separately stated, and not charged to the customer or others, on the invoices): i) regular trade and quantity discounts; ii) insurance; iii) duties, tariffs, and other customs charges; and iv) use, value added, sales, and similar taxes. In the case of a use of ROYALTY-BASE PROCESSES for the benefit of a purchaser who does not deal at arm’s length, or for other than monetary consideration (including LICENSEE’S own beneficial uses), NET SALES shall be calculated in accordance with Section 7.6 of this AGREEMENT.

“NONBREACHING PARTY” shall mean the PARTY not in BREACH, as used in Section 18.2.

“PARTY” shall mean a party to this AGREEMENT.

“PERSON” shall mean a natural person; a corporation (for profit or not-for-profit); an association; a partnership (general or limited); a joint venture; a trust; a government or political department, subdivision, or agency; or any other entity.

“PRACTICAL APPLICATION” shall mean, with respect to the LICENSED INVENTION, to reduce it to practice and to commercialize it, i.e., to manufacture it in the case of a composition or product, to practice it in the case of a process or method, or to operate it in the case of a machine or system; and, in each case, under such conditions as to establish: i) that a market for the LICENSED INVENTION has been created, and to the extent practicable, that a market has been created in the United States; ii) that it is being utilized; iii) that its benefits are, to the extent permitted by law or Government regulations, available to the public on reasonable terms; and iv) that market demand, at least in the United States, shall be reasonably met.

“ROYALTY-BASE PROCESSES” shall include: (i) any and all processes or methods which employ or are implemented by the practice of the LICENSED INVENTION, or (ii) the steps of any processes or method used, leased, transferred, or otherwise practiced by LICENSEE or its SUBLICENSEES that is covered by or included within the LICENSED INVENTION; and shall also include other processes or method steps not covered by or within any of the claims of the LICENSED INVENTION that LICENSEE or its SUBLICENSEES, would not have used, leased, transferred, or otherwise utilized but for the use, lease, transfer, or other disposition of at least one of the LICENSED INVENTION.

“ROYALTY-BASE PRODUCTS” shall include: i) the components of an article sold, used, leased, transferred, or otherwise disposed of by LICENSEE or its SUBLICENSEES, that are covered by or included within the LICENSED INVENTION; and ii) other components of the item not covered by or within the LICENSED INVENTION that LICENSEE or its SUBLICENSEE would not have sold, used, leased, transferred, or otherwise disposed of but for the sale, use, lease, transfer, or other disposition of the LICENSED INVENTION.

“ROYALTY-BASE SERVICES” shall include any services sold, used, leased, rented, transferred, or otherwise disposed of by LICENSEE or SUBLICENSEE, or their agents, which use or employ the LICENSED INVENTION.

“SUBLICENSEE” shall mean any PERSON who has the right, granted by LICENSEE, to make, use, or sell the LICENSED INVENTION.

“THIRD PARTIES” shall mean PERSONS other than the LICENSOR and the LICENSEE.

ARTICLE II

License Grant

2.1 LICENSOR hereby grants to LICENSEE a terminable, royalty-bearing, exclusive license to practice, i.e., to make, have made, use, offer to sell, sell, transfer, or dispose of, the LICENSED INVENTION as limited to the LICENSED AREA and as may be limited to a LICENSED FIELD OR EMBODIMENT(S), as defined in ARTICLE I.

2.2 LICENSOR, upon request, will use reasonable efforts to grant LICENSEE, in accordance with 37 CFR 404, a license to practice any inventions assigned to LICENSOR, without which license or licenses, the practice of the LICENSED INVENTION would result in infringement. The grant of said license or licenses shall be limited, however, to the extent necessary to practice the LICENSED INVENTION. There will be no such grant where said inventions are licensed exclusively.

2.3 Notwithstanding anything to the contrary in this AGREEMENT, LICENSEE shall take the license granted in this ARTICLE II subject to any outstanding licenses or other rights in THIRD PARTIES under agreements executed by LICENSOR prior to the LICENSE COMMENCEMENT DATE.

2.4 LICENSOR reserves an irrevocable, royalty-free right to practice and have practiced the LICENSED INVENTION, and any other inventions as provided in Section 2.2, throughout the world by or on behalf of the Government of the United States and on behalf of any foreign government pursuant to any existing or future treaty or agreement with the United States.

2.5 JOINT OWNER expressly reserves the right to use the jointly owned invention(s) and associated, non-NASA owned, technology for educational and research purposes.

2.6 LICENSOR intends to file a European Patent Application corresponding to PCT Application Number PCT/US02/37580, entitled "Method and Apparatus for Non-Invasive Measurement of Changes in Intracranial Pressure," To conserve costs, LICENSOR also intends to file such application directly through a foreign associate. LICENSEE agrees to pay timely the foreign associate, upon receipt of billing, the official fees (including maintenance fees) and the foreign associate's fees for assisting in prosecution of the European Patent Application. While LICENSOR will control prosecution, nevertheless, LICENSOR will use reasonable efforts to provide LICENSEE assurance of LICENSEE'S involvement in cost containment as it relates to this European patent application.

ARTICLE III

Sublicenses

3.1 Upon written approval by LICENSOR, LICENSEE may grant a written royalty-bearing, sublicense under the license granted in ARTICLE II provided that it submits to LICENSOR a written request, in advance, for permission to grant the sublicense, including with said request a copy of the proposed sublicense. The proposed sublicense shall refer to and be generally consistent with this AGREEMENT and shall include the rights reserved by LICENSOR under Section 2.4 and JOINT OWNER under Section 2.5. The proposed sublicense shall include the condition that the sublicense shall automatically terminate upon the revocation or termination of this AGREEMENT.

3.2 LICENSEE shall furnish LICENSOR with a copy of the sublicense, consistent with the proposed sublicense approved by LICENSOR and executed by both LICENSEE and its SUBLICENSEE, within fifteen (15) days after the grant of the sublicense by LICENSEE.

3.3 LICENSEE shall submit to LICENSOR, for advance approval, any proposed modification of a sublicense. LICENSEE shall also submit to LICENSOR a copy of the sublicense modification (either as an addendum or a new sublicense), consistent with the proposed sublicense modification and executed by both LICENSEE and its SUBLICENSEE, within fifteen (15) days after the effective date of the sublicense modification.

3.4 The granting of a sublicense by LICENSEE shall not operate to relieve LICENSEE from any of its obligations under this AGREEMENT.

3.5 LICENSEE shall be responsible for and remit royalties based upon its SUBLICENSEE'S activities as if said activities were its own.

ARTICLE IV

Term of License

4.1 Unless either PARTY terminates this Agreement in accordance with Article XIX at an earlier date, the license granted in ARTICLE II will be in effect for a LICENSE TERM that is equal to the unexpired term of the last patent to be in effect of the patent(s) encompassed under the definition of LICENSED PATENT. Except as may be expressly provided otherwise herein or agreed to in writing by LICENSOR, the license shall expire automatically at the end of the LICENSE TERM without notice to LICENSEE.

ARTICLE V

Practical Application

5.1 LICENSEE shall achieve PRACTICAL APPLICATION of a LICENSED INVENTION within [****] of the LICENSE COMMENCEMENT DATE and in accordance with the schedule set forth in the APPENDIX A to this AGREEMENT and incorporated into this AGREEMENT. LICENSEE shall notify LICENSOR within 30 days of achieving PRACTICAL APPLICATION that PRACTICAL APPLICATION has been achieved. LICENSEE shall also provide evidence to verify the achievement.

5.2 LICENSEE, once PRACTICAL APPLICATION of the LICENSED INVENTION is achieved, shall thereafter maintain it throughout the LICENSE TERM.

5.3 After [****] from the LICENSE COMMENCEMENT DATE, and at LICENSOR'S sole discretion, LICENSOR may unilaterally modify this Agreement to revoke the license to any LICENSED INVENTION, as defined by the claims of a LICENSED PATENT, or as described by a LICENSED PATENT APPLICATION, for which PRACTICAL APPLICATION has not been achieved by LICENSEE. Nothing in Section 5.3 is to be interpreted in any manner as to affect or alter any dates, deadlines, schedules or remedies specifically set out elsewhere in this Agreement or the Appendix thereto.

5.4 Should LICENSOR revoke a license to one or more LICENSED INVENTION pursuant to Section 5.3, LICENSOR shall then be free to license the revoked LICENSED INVENTIONS as well as certain potentially non-revoked LICENSED INVENTIONS, namely, those defined by the claims of U.S. Patent No. 5,214,955 entitled "Constant Frequency Pulsed Phase-Lock Measuring Device," U.S. Patent No. 5,150,620 entitled "Method of Recertifying Load Bearing Members," and U.S. Patent No. 5,841,032 entitled "Variable and Fixed Frequency Pulsed Phase-Locked Loop," in the LICENSED FIELD or EMBODIMENT(S), to any THIRD PARTY which licenses one or more of the revoked LICENSED INVENTIONS. Such a THIRD PARTY license agreement shall not be a breach of this AGREEMENT.

ARTICLE VI

United States Manufacture

6.1 LICENSEE agrees that any products embodying the LICENSED INVENTION or produced through the use of the LICENSED INVENTION shall be reduced to practice and manufactured substantially in the United States, in accordance with 35 U.S.C. 209(b).

6.2 LICENSEE shall make a bona fide attempt to use or sell the LICENSED INVENTION in the United States.

6.3 LICENSEE shall promptly report to LICENSOR its discontinuance of making the benefits of the LICENSED INVENTION available to the public.

ARTICLE VII

Royalty and Payment

7.1 For purposes of Article VII, the term ROYALTY-BASE PRODUCTS shall include ROYALTY-BASE SERVICES and ROYALTY-BASE PROCESSES.

7.2 In consideration of the license granted in ARTICLE II, LICENSEE shall remit to JOINT OWNERS a nonrefundable license fee in the amount of [****] upon the execution of this AGREEMENT by LICENSEE, and an additional [****] due two years from the execution of this AGREEMENT by the LICENSEE. This fee is to be distributed in accordance with Section 7.8.

7.3 LICENSEE agrees to pay JOINT OWNERS a running royalty of [****] per LICENSED INVENTION used, with a maximum royalty of [****] and a minimum royalty of [****] of the NET SALES of ROYALTY-BASE PRODUCTS. The running royalty shall be remitted to JOINT OWNERS within 30 days of the end of every ACCOUNTING PERIOD, i.e., within 30 days after the last day of December of each year. These running royalties are to be distributed in accordance with Section 7.8.

7.4 LICENSEE agrees to pay JOINT OWNERS minimum annual royalties of [****] for the fourth ACCOUNTING PERIOD (i.e., January-December 2007), [****] for the fifth ACCOUNTING PERIOD, and [****] for the sixth and all subsequent ACCOUNTING PERIODS. The minimum annual royalties shall be remitted within 30 days of the end of each ACCOUNTING PERIOD. These minimum annual royalties are to be distributed in accordance with Section 7.8.

7.5 For any particular ACCOUNTING PERIOD, the running royalties specified in Section 7.3 shall be credited against the minimum royalty specified in Section 7.4.

7.6 LICENSEE agrees that in the event any ROYALTY-BASE PRODUCTS shall be sold, transferred, or disposed of, to a third-party for purposes of resale in a transaction that does not represent an arm's length transaction, then the royalties to be paid under this AGREEMENT for the

ROYALTY-BASE PRODUCTS shall be based upon the NET SALES of the ROYALTY-BASE PRODUCTS by the third-party, rather than upon the NET SALES of the LICENSEE. In the event ROYALTY-BASE PRODUCTS are sold, transferred, or disposed of, to a third-party in a transaction that does not represent an arm's length transaction, and the purpose is not resale, then NET SALES shall be calculated as if the ROYALTY-BASE PRODUCTS had been sold, transferred, or disposed of at the same prices as those charged to outside concerns buying similar merchandise in similar amounts under similar circumstances. Examples of transactions that do not reflect an arm's length transaction includes sales, transfers or disposals (1) to any type of organization or individual who owns a controlling interest in LICENSEE by stock ownership or otherwise, (2) to any type of organization in which LICENSEE shall own, directly or indirectly, a controlling interest by stock ownership or otherwise, or (3) to any type of organization with which, or individual with whom, LICENSEE, its stockholders, or associated companies shall have any agreement, understanding, or arrangement (such as, among other things, an option to purchase stock, an arrangement involving a division of profits, or special rebates or allowances) without which agreement, understanding, or arrangement, prices paid by such organization or individual for the ROYALTY-BASE PRODUCTS would be higher than the NET SALES reported by LICENSEE, or if such agreement, understanding, or arrangement results in extending to such organization or individual lower prices for ROYALTY-BASE PRODUCTS than those charged to outside concerns buying similar merchandise in similar amounts and under similar conditions.

7.7 Under this Agreement, ROYALTY-BASE PRODUCTS will be considered sold when invoiced, when shipped, or upon receipt of payment, whichever occurs first.

7.8 Royalties shall be paid within thirty (30) days of the end of each ACCOUNTING PERIOD. Royalties and fees shall be paid by checks denominated in United States dollars. One check should be made payable to the National Aeronautics and Space Administration and one check should be made payable to The Regents of the University of California. LICENSOR (NASA) shall receive [****] and JOINT OWNER (THE REGENTS OF THE UNIVERSITY OF CALIFORNIA) shall receive [****] of the royalties and fees due. The checks shall be mailed by the LICENSEE directly to each of the JOINT OWNERS at their respective addresses as set forth in ARTICLE XV of this AGREEMENT. The royalty checks shall be mailed concurrently with the report required in ARTICLE VIII of this AGREEMENT. The JOINT OWNERS' acceptance of any royalty or fee payment does not eliminate the JOINT OWNERS' right to contest the accuracy of such payment in the future.

7.9 LICENSOR shall assess interest, penalties, and administrative costs in accordance with the Federal Claims Collections Standards, 31 C.F.R. §§ 900-904, on all payments due LICENSOR which are not timely paid by LICENSEE. In addition to these charges, LICENSOR is authorized to charge to LICENSEE the costs of collection and any associated reasonable attorney fees.

ARTICLE VIII

Reports

8.1 For purposes of Article VIII, the term ROYALTY-BASE PRODUCTS shall include ROYALTY-BASE SERVICES and ROYALTY-BASE PROCESSES.

8.2 LICENSEE shall submit to JOINT OWNERS written reports within thirty (30) days of the end of every ACCOUNTING PERIOD whether or not royalties are due. Each report shall be submitted concurrently with the royalties required by ARTICLE VII. To ensure that any proprietary information submitted by LICENSEE is protected to the fullest extent of the law, LICENSEE should mark with a proprietary notice, any portions of the report that is considered proprietary to LICENSEE.

8.3 Each report shall include the following information:

(a) With reference to the schedule set forth in APPENDIX A to this AGREEMENT, a narrative description of the steps being taken to reduce the LICENSED INVENTION to practice.

(b) With reference to the schedule set forth in APPENDIX A to this AGREEMENT, a narrative description of the steps being taken to create a market demand for the LICENSED INVENTION, to commercialize the LICENSED INVENTION, and to meet market demand for the LICENSED INVENTION.

(c) A narrative description of the ROYALTY-BASE PRODUCTS currently being offered for sale by LICENSEE and its SUBLICENSEES. Copies of current sales brochures, promotional materials, and price lists shall be included with this description.

(d) A list of the geographic locations at which the LICENSED INVENTION is being manufactured.

(e) The number and type of ROYALTY-BASE PRODUCTS sold or disposed of by LICENSEE.

(f) The number and type of ROYALTY-BASE PRODUCTS sold or disposed of by each SUBLICENSEE (if any).

(g) The number and type of ROYALTY-BASE PRODUCTS sold or disposed of by each reseller of ROYALTY-BASE PRODUCTS under Section 7.6.

(h) LICENSEE'S GROSS SALES.

(i) GROSS SALES for each SUBLICENSEE (if any).

(j) GROSS SALES for each reseller of ROYALTY-BASE PRODUCTS under Section 7.6.

(k) LICENSEE'S NET SALES.

(l) NET SALES for each SUBLICENSEE (if any).

(m) NET SALES for each reseller of ROYALTY-BASE PRODUCTS under Section 7.6.

(n) The amount of royalties due JOINT OWNERS.

8.4 Each report shall be accompanied by a certification by an officer of LICENSEE that the LICENSEE is complying with the terms and conditions of this AGREEMENT and that the responses to each part of Section 8.3 are accurate and complete.

8.5 LICENSEE shall, upon request, submit to LICENSOR an audited balance sheet and an audited income statement. Internal audits are permissible, but JOINT OWNERS reserve the right to require an independent audit and additionally reserves the right to approve of the auditor.

8.6 A final report shall be submitted to JOINT OWNERS by LICENSEE within thirty (30) days after the termination of this AGREEMENT.

ARTICLE IX

Audit Rights

9.1 LICENSEE shall keep full, true, and accurate records for the purpose of LICENSOR verifying LICENSEE'S reports to LICENSOR under ARTICLE VIII, verifying LICENSEE'S royalty payments to LICENSOR under ARTICLE VII, and for determining LICENSEE'S activities in general under the AGREEMENT. These records shall include, but are not limited to, ledgers and journals of account, customer orders, invoices, shipping documents, inventory records, computer records, purchase orders, and tax records. These records, as a whole, shall include information which will allow, at a minimum, identification of suppliers, customers, items sold or otherwise transferred, and/or services rendered, as well as whether the LICENSEE is operating within the scope of its license.

9.2 The records described in Section 9.1 shall be available for audit by LICENSOR, or by an authorized representative of LICENSOR, at all reasonable times for the LICENSE TERM and for three (3) calendar years thereafter. In addition, LICENSEE shall permit inspection by LICENSOR, or by an authorized representative of LICENSOR, of LICENSEE'S assembly facilities and of LICENSEE'S inventory of ROYALTY-BASE PRODUCTS, including parts, works-in-progress, and finished goods, during any audit by LICENSOR.

9.3 If LICENSOR, as a result of an audit, discovers an underpayment of royalties which exceeds [****], then LICENSEE shall reimburse LICENSOR for the cost of the audit, including all related costs of performing the audit (e.g., travel, food, lodging, cost of professional services, etc.), in addition to any penalties assessed pursuant to Section 7.9.

ARTICLE X

Marking

10.1 LICENSEE and all SUBLICENSEE(S) shall mark all ROYALTY-BASE PRODUCTS, or products incorporating ROYALTY-BASE PRODUCTS, in accordance with the statutes of the United States relating to the marking of patented articles (*see* 35 U.S.C. § 287). Such marking shall be accomplished by fixing on the article or when, from the character of the article, this cannot be done, by fixing to it, or to the package wherein one or more of the articles is contained, a label including the notation "Licensed from the National Aeronautics and Space Administration under (insert patent number)." Such marking shall also be included in all literature and/or advertising materials describing the LICENSED INVENTION.

ARTICLE XI

Use of the JOINT OWNERS' Names and Disclosure

11.1 Except as required by Section 10.1, LICENSEE may use the name of LICENSOR, or the acronym "NASA," only in truthful statements concerning its relationship with LICENSOR. The letters 'NASA' may be used in such truthful statements only if they are:

- (a) used in their normal typed or printed form;
- (b) the same size, color, and intensity as the rest of the words in a sentence;
- (c) not used in their stylized version as they appear in the NASA logotype or NASA insignia; and
- (d) not used to indicate that NASA endorses the LICENSEE'S products, processes, etc.

11.2 Uses of the letters 'NASA', other than those required by Section 10.1 or specified in Section 11.1, shall require the express written approval of LICENSOR. Approval by LICENSOR shall be based on applicable law (i.e., 42 U.S.C. §§ 2459(b), 2472 (a), and 2473 (c) (l); and 14 CFR § 1221.100 *et seq.*) and NASA policy governing the use of the letters 'NASA' and the words 'National Aeronautics and Space Administration' and shall not be unreasonably withheld.

11.3 LICENSEE agrees to make copies of its marketing literature available to LICENSOR so that LICENSOR can determine that such use is in accordance with the terms of this ARTICLE.

11.4 Nothing contained in this Agreement confers any right on LICENSEE to use in advertising, publicity, or other promotional activities any name, trade name, trademark, or other

designation of JOINT OWNER (including contraction, abbreviation or simulation of any of the foregoing). Unless required by law, the use by LICENSEE of the name, "The Regents of the University of California" or the name of any campus of the University Of California is prohibited, without the express written consent of JOINT OWNER.

11.5 JOINT OWNERS may disclose to the Inventors the terms and conditions of this Agreement upon their request. If such disclosure is made, UNIVERSITY shall request the Inventors not disclose such terms and conditions to others.

11.6 JOINT OWNER may acknowledge the existence of this Agreement and the extent of the grant in Article II to third parties, but JOINT OWNER shall not disclose the financial terms of this Agreement to third parties, except where JOINT OWNER is required by law to do so, such as under the California Public Records Act.

ARTICLE XII

Disclaimer of Warranties

12.1 LICENSOR MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, AS TO ANY MATTER WHATSOEVER.

12.2 In particular, nothing in this AGREEMENT shall be construed as:

(a) A warranty or representation by JOINT OWNERS as to the validity or scope of any LICENSED PATENT; or

(b) A warranty or representation that anything made, used, sold, or otherwise disposed of under any license granted in this AGREEMENT is or will be free from infringement of any type, including patent infringement, copyright infringement, and trademark infringement; or

(c) A requirement that LICENSOR shall file any patent application, secure any patent, or maintain any patent in force, other than the LICENSED PATENT; or

(d) An obligation to bring or prosecute actions or suits against THIRD PARTIES for infringement; or

(e) An obligation to furnish any manufacturing or technical information; or, if any such information is supplied, a warranty or representation that such information is accurate; or

(f) Conferring a right to use in advertising, publicity or otherwise the name of any inventor of the LICENSED INVENTION or the NASA name, seal, insignia, logotype or any other adaptation without the prior written consent of LICENSOR (except as otherwise provided in ARTICLE XI); or

(g) Precluding the export from the United States of ROYALTY-BASE PRODUCTS on which royalties shall have been paid as provided in ARTICLE VII, provided that the item can be exported under the export control laws of the United States; or

(h) Granting by implication or estoppel, any licenses or other rights under any patent of JOINT OWNERS or any other PERSON in the United States or any foreign country; or

(i) Granting by implication, estoppel, or otherwise, any licenses or rights under patents or patent applications of JOINT OWNERS other than the LICENSED INVENTION, regardless of whether such other patents or patent applications are dominant, subordinate, or an improvement to the invention or inventions as claimed, of the LICENSED PATENT or LICENSED PATENT APPLICATION, nor to other applications that did not claim the invention.

(j) Conferring upon any PERSON (1) any immunity from or defenses under the antitrust laws, (2) any immunity from a charge of patent misuse, or (3) any immunity from the operation of Federal, State, or other law.

ARTICLE XIII

Risk Allocation and Indemnification

13.1 JOINT OWNERS make no representation, extend no warranties of any kind, either express or implied, and assumes no responsibility whatsoever with respect to use, sales, or other disposition by LICENSEE or its vendees or other transferees of products incorporating or made by the use of (1) the LICENSED INVENTION or (2) information, if any, furnished under this AGREEMENT.

13.2 LICENSEE shall indemnify JOINT OWNERS, their officers and employees, and hold them harmless against all liabilities, demands, damages, expenses, or losses including, but not limited to, attorney's fees, court costs, and the like, arising (1) out of the use by LICENSEE or its transferees of the LICENSED INVENTION or information furnished under this AGREEMENT, or (2) out of any sale, use, or other disposition by LICENSEE or its transferees of products, processes, or compositions, made by use of such inventions or information.

13.3 It shall be the sole responsibility of the LICENSEE to ensure that any and all embodiments of the LICENSED INVENTION are safe under all circumstances.

13.4 Independent of, severable from, and to be enforced independently of any other enforceable or unenforceable provision of this AGREEMENT, other than as provided in Sections 13.1 and 13.2, or other than for infringement of one PARTY'S intellectual property rights by another PARTY, (including any engagement in licensable activities by licenses beyond the scope of the license provided by this AGREEMENT), neither PARTY will be liable to the other PARTY (nor to any THIRD PARTY claiming rights derived from the other PARTY'S rights) for incidental, consequential, special, punitive, or exemplary damages of any kind, including lost profits, loss of business, or other economic damage, and further including injury to property, as a result of breach of any warranty or other term of this AGREEMENT, regardless of whether the PARTY liable or allegedly liable was advised, had reason to know, or in fact knew of the possibility thereof.

ARTICLE XIV

Patent Validity

14.1 If, in any proceeding in which the validity, infringement, or priority of invention of any claim of the LICENSED PATENT to LICENSEE is in issue, a judgment or decree is entered which becomes final (below referred to as a “final judgment”), the construction placed upon any such claim by such final judgment shall thereafter be followed, not only as to such claim but as to all claims to which such construction applies, with respect to subsequently occurring acts. If such final judgment holds any claim invalid, LICENSEE shall be relieved prospectively (1) from including in its reports ROYALTY-BASE PRODUCTS, ROYALTY-BASE PROCESSES or ROYALTY-BASE SERVICES sold or otherwise disposed of covered only by such claim or any broader claim to which such final judgment is applicable, and (2) from the performance of those other acts which may be required by this AGREEMENT only because of any such claim. However, if there are two or more conflicting final judgments with respect to the same claim based on the same grounds or where the same issues were raised, the decision of the higher tribunal shall be followed, but if the tribunals be of equal dignity, then the decision more favorable to the claim shall be followed.

14.2 In the event evidentiary material comes to the attention of the LICENSEE which, in the judgment of the LICENSEE, bears on the validity or scope of any LICENSED PATENT, the LICENSOR will in good faith discuss with the LICENSEE whether such evidentiary material so affects the validity or scope of the LICENSED PATENT to which it is asserted to apply that the terms of the AGREEMENT in respect to such LICENSED PATENT should be modified.

14.3 The LICENSEE, after the LICENSE COMMENCEMENT DATE, may assert the invalidity of any claim in any LICENSED PATENT, if coupled with or followed by:

(a) Withholding, or notice of intention to withhold, or denial of obligation to pay, royalties otherwise payable under this AGREEMENT in respect to the LICENSEE’S operations under such claim; or

(b) Initiation or participation in a suit challenging or denying the validity of such claim in reference to LICENSEE’S operations under this AGREEMENT, that may, at the option of the LICENSOR, be conclusively presumed to constitute LICENSEE’S termination, as of the earliest provable date of such withholding, notice, denial, initiation, or participation, of its AGREEMENT including its obligation for payment of royalties due from the date of the termination

ARTICLE XV
Points of Contact

15.1 The following individuals are designated as the points of contact for their respective PARTY and are responsible for keeping this information current by providing updated information as warranted. These points of contact are the principal representatives of the PARTIES involved in the performance of this AGREEMENT.

LICENSOR (NASA)

Patent Counsel
NASA Langley Research Center
Office of Chief Counsel
Mail Stop 212
Hampton, VA 23681-2199
Telephone No.: [****]
Facsimile No.: [****]

LICENSEE

Patents and Licensing
Luna Innovations Incorporated
2851 Commerce Street
Blacksburg, VA 24060
Telephone No.: [****]
Facsimile No.: [****]

JOINT OWNER (THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, REPRESENTED BY ITS SAN DIEGO CAMPUS)

If sent to JOINT OWNER by mail:
University of California, San Diego
Technology Transfer & Intellectual Property Services
9500 Gilman Drive
Mail Code 0910
La Jolla, CA 92093-0910
Attention: Assistant Vice Chancellor
Telephone No.: [****]
Facsimile No.: [****]

If sent to JOINT OWNER by courier:
University of California, San Diego
Technology Transfer & Intellectual Property Services
10300 North Torrey Pines Road
Torrey Pines Center North, First Floor
La Jolla, CA 92037
Attention: Assistant Vice Chancellor

For wire payments to JOINT OWNER:

All payments due UNIVERSITY and made by wire transfers shall include an additional wire transfer fee of twenty-five dollar (US\$25) to the amount due.

Wire transfers shall be made using the following information:

UCSD receiving bank name: [****]

UCSD bank account no.: [****]

UCSD bank routing (ABA) no.: [****]

UCSD bank account name: [****]

UCSD bank ACH format code: [****]

UCSD bank address:

[****]

[****]

[****]

[****]

UCSD addendum information:

Reference UCSD-TechTIPS Case No.: [****]

Department contact: Financial Manager

A fax copy of the transaction receipt should be sent to Financial Manager at: [****].

LICENSEE is responsible for all bank charges of wire transfer funds.

The bank charges should not be deducted from total amount due to the JOINT OWNER.

ARTICLE XVI

Notices

16.1 All notices hereunder will be in writing and will be delivered and effective as follows:

(a) Every notice required or contemplated by this AGREEMENT to be given either PARTY may be delivered in person or may be sent by commercial courier or U.S. mail, addressed to the PARTY for whom it is intended, at the address specified in ARTICLE XV.

(b) Any notice will be effective on the date that it is hand delivered or on the fifth business day after it was deposited with the commercial courier or the U.S. mail.

(c) As used in this ARTICLE, a reference to a particular date means the date itself, if a business day, otherwise the first business day after the date.

ARTICLE XVII

Infringement

17.1 If LICENSEE becomes aware of an infringement or has reasonable cause to believe that there has been an infringement of any LICENSED PATENT, LICENSEE shall notify

LICENSOR in writing concerning LICENSEE'S knowledge of any infringement or of the reasonable cause for belief of infringement. Such notice should include: an analysis of how the claims of any LICENSED PATENT read-on the allegedly infringing articles; the identity of the alleged infringers; a statement as to whether the alleged infringers are making, using, or selling the allegedly infringing articles; a statement describing the extent of the alleged infringement; and a statement which describes and quantifies the harm being suffered by the LICENSEE as a result of the alleged infringement. If such notice and information are furnished, LICENSOR may volunteer its opinion as to whether reasonable cause exists to believe that there has been an infringement. LICENSEE is authorized under the provisions of Chapter 29 of Title 35, United States Code, or other statutes, (a) to bring suit in its own name, at its own expense, and on its own behalf, for infringement of the LICENSED PATENT, and (b) in any such suit, to enjoin infringement and to collect for its use, damages, profits and awards of whatever nature, recoverable from such infringement, subject to payment of royalties due to JOINT OWNERS, and further, (c) to settle any claim or suit for infringement of the LICENSED PATENT, as by granting a sublicense under this AGREEMENT. With respect to the royalties due to JOINT OWNERS from LICENSEE'S successful infringement action, the parties agree to enter into good faith negotiations to arrive at the appropriate amount of royalties due to JOINT OWNERS. The authority to bring suit is subject to the continuing right of the United States to bring suit itself or to intervene in LICENSEE'S suit; and, in either event, LICENSEE shall give LICENSOR reasonable notice and assistance.

ARTICLE XVIII

Dispute or Breach

18.1 All disputes concerning the interpretation or application of this AGREEMENT shall be discussed mutually between the PARTIES. Any disputes that are not disposed of by mutual agreement shall be decided by the NASA Lead Counsel for the Intellectual Property Law Group, or designee, who shall reduce the decision to writing and mail or otherwise deliver a copy thereof to LICENSEE. LICENSEE may respond to such notice of a decision in accordance with the procedures set forth in Section 19.8.

18.2 In the event of a BREACH of any provision of this AGREEMENT, the NONBREACHING PARTY shall give the BREACHING PARTY notice describing the BREACH and stating that the BREACHING PARTY has thirty (30) days after notice of the BREACH to cure the BREACH or show cause why the AGREEMENT should not be terminated.

18.3 If a provision of this AGREEMENT sets forth a cure period for the BREACH in question other than thirty (30) days, then that provision shall take precedence over the cure period set forth in Section 18.2.

18.4 No cure period is required, except as may be otherwise provided in this AGREEMENT, if:

- (a) this AGREEMENT sets forth specific deadline dates for the obligation allegedly breached; or

(b) this AGREEMENT otherwise states that no cure period is required in connection with the termination in question.

18.5 The BREACHING PARTY will be deemed to have cured such BREACH if within the cure period it takes steps reasonably adequate to alleviate any damage to the NONBREACHING PARTY resulting from the BREACH and to prevent a similar future BREACH.

ARTICLE XIX

Termination or Modification

19.1 The PARTIES may terminate or modify this AGREEMENT by mutual consent upon such terms as they may agree in writing.

19.2 Either PARTY may terminate this AGREEMENT by failing to extend the LICENSE TERM, if an extension is provided for in Section 4.1.

19.3 Either PARTY may terminate this AGREEMENT upon the discovery by one PARTY of any intentional MATERIAL false statement or misrepresentation made or submitted by the other PARTY which BREACHES any obligation under the terms of this AGREEMENT or upon the discovery by one PARTY that the other PARTY has committed a MATERIAL BREACH of a provision of the AGREEMENT.

19.4 LICENSEE may prospectively terminate this AGREEMENT upon ninety (90) days written notice to LICENSOR.

19.5 This AGREEMENT may be terminated by LICENSOR if:

(a) LICENSOR determines that LICENSEE has failed or will fail to achieve or maintain PRACTICAL APPLICATION of the LICENSED INVENTION as provided by ARTICLE V.

(b) LICENSOR determines that LICENSEE has failed or will fail to reduce to practice and substantially manufacture the LICENSED INVENTION in the United States as provided by Section 6.1

(c) LICENSOR determines that LICENSEE has failed or will fail to meet market demand for the LICENSED INVENTION.

(d) LICENSEE fails to pay royalties or submit reports as provided by ARTICLE VII and VIII.

(e) LICENSOR determines that such action is necessary to meet the requirements for public use specified by Federal regulations issued after the date of the license and such requirements are not reasonably satisfied by LICENSEE.

(f) LICENSEE commits a BREACH of a covenant contained in this AGREEMENT.

19.6 LICENSOR may terminate this AGREEMENT if LICENSEE becomes "INSOLVENT." LICENSEE must notify LICENSOR within thirty (30) days after becoming INSOLVENT. LICENSEE'S failure to conform to this requirement shall be deemed a MATERIAL, incurable BREACH.

19.7 LICENSEE must promptly inform LICENSOR of its intention to file a voluntary petition in bankruptcy or of another's communicated intention to file an involuntary petition in bankruptcy. LICENSOR may terminate this AGREEMENT upon receiving notice of intention to file. LICENSEE'S filing without conforming to this requirement shall be deemed a MATERIAL, pre-petition incurable BREACH.

19.8 Before LICENSOR unilaterally modifies, or terminates this AGREEMENT for any cause, LICENSOR will deliver to LICENSEE and all SUBLICENSEES of record a written notice stating LICENSOR'S intention to modify or terminate the AGREEMENT and the reasons therefor. LICENSEE and SUBLICENSEES of record will be allowed thirty (30) days after: (1) such notice to remedy any BREACH of the AGREEMENT or show cause why the AGREEMENT should not be unilaterally modified or terminated; or, (2) such notice of a decision regarding a dispute, rendered in accordance with Article 18.1, to rebut such decision. A response to a notice of modification or termination or to a notice of a dispute decision should be addressed to the General Counsel, National Aeronautics and Space Administration, Washington, DC 20546. The General Counsel will render a determination based on the LICENSEE'S response within a reasonable time. Absent any response from LICENSEE to the notice regarding the modification, termination and/or dispute decision, the decision by the Lead Counsel for the Intellectual Property Law Group will be final and/or the AGREEMENT will be unilaterally modified or will terminate, effective thirty-one (31) days from the notice of modification, termination or dispute decision, with no right to appeal under Section 19.9.

19.9 LICENSEE may appeal in writing to the NASA Administrator, any determination rendered by the General Counsel in accordance with Section 19.8, within thirty (30) days after delivery of such determination. The notice of appeal and all supporting documentation should be addressed to the Administrator, National Aeronautics and Space Administration, Washington, DC 20546. LICENSEE shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. The decision on the appeal shall be made by the NASA Administrator or designee, which shall be the final agency decision from which there will be no further right of administrative appeal. Nothing in this Article shall be interpreted as precluding actions at law.

19.10 If no action is taken under Section 19.9, then the determination rendered by the General Counsel shall become final within thirty-one (31) days after delivery of the notice of such determination.

19.11 All royalties and reports due up to and including the date of termination of this AGREEMENT are due within thirty (30) days of the date of termination.

ARTICLE XX

Assignment

20.1 Upon written approval by LICENSOR, LICENSEE may assign this AGREEMENT provided that LICENSEE submits to LICENSOR, in advance, a written request for permission to grant the assignment, information that LICENSOR considers necessary to evaluate the proposed assignment, and a copy of the proposed assignment. If LICENSOR approves the assignment as being consistent with the Government's interests, the PARTIES and the assignee will be required to execute a novation agreement. At a minimum, the novation agreement will provide that LICENSEE waives all rights under the license, the assignee assumes all obligations under the AGREEMENT and that LICENSOR recognizes the assignee as the successor in interest to the AGREEMENT.

ARTICLE XXI

Governing Law

21.1 This AGREEMENT will be interpreted and enforced in accordance with United States federal law.

ARTICLE XXII

Independent Entities

22.1 The Parties are separate and independent entities. Except as may be expressly and unambiguously provided in this AGREEMENT, no partnership or joint venture is intended to be created by this AGREEMENT, nor any principal-agent or employer-employee relationship.

22.2 Except to the extent expressly provided in this AGREEMENT, neither PARTY has, and neither PARTY shall attempt to assert, the authority to make commitments for or to bind the other PARTY to any obligation.

ARTICLE XXIII

Effect of Partial Invalidity

23.1 If any one of more of the provisions of this AGREEMENT should be ruled wholly or partly invalid or unenforceable by a court or other government body of competent jurisdiction, and as long as the fundamental objectives of the AGREEMENT can be carried out, then:

- (a) the validity and enforceability of all provisions of this AGREEMENT not ruled to be invalid or unenforceable will be unaffected;

(b) the provision(s) held wholly or partly invalid or unenforceable will be deemed to be amended, and the court or other government body is authorized to reform the provision(s), to the minimum extent necessary to render them valid and enforceable in conformity with the PARTIES' intent as manifested herein; and

(c) if the ruling, and/or the controlling principle of law or equity leading to the ruling, is subsequently overruled, modified, or amended by legislative, judicial, or administrative action, then the provision(s) in question, as originally set forth in this AGREEMENT, will be deemed to be valid and enforceable to the maximum extent permitted by the new controlling principle of law or equity.

ARTICLE XXIV

Nonwaiver

24.1 The failure of either PARTY at any time to require performance by the other PARTY of any provisions of this AGREEMENT shall in no way affect the right of such PARTY to require future performance of that provision. Any waiver by either PARTY of any BREACH of any provision of this AGREEMENT shall not be construed as a waiver of any continuing or succeeding BREACH of such provision, a waiver of the provision itself, or a waiver of any right under this AGREEMENT.

ARTICLE XXV

Entire Agreement

25.1 Except as may be expressly provided otherwise herein, this AGREEMENT constitutes the entire agreement between the PARTIES concerning the subject matter thereof. No prior or contemporaneous representations, inducements, promises, or agreements, oral or otherwise, between the PARTIES with reference thereto will be of any force or effect. This AGREEMENT may only be modified by written agreement of the PARTIES.

ARTICLE XXVI

Article Headings

26.1 The ARTICLE headings contained in this AGREEMENT are for reference purposes only and shall not in any way control the meaning or interpretation of this AGREEMENT.

ARTICLE XXVII

Counterparts

27.1 This AGREEMENT may be executed in separate counterparts, each of which so executed and delivered shall constitute an original, but all such counterparts shall together constitute one and the same instrument. Any such counterpart may comprise one or more duplicates or duplicate signature pages, any of which may be executed by less than all of the PARTIES, provided that each PARTY executes at least one such duplicate or duplicate signature page. The PARTIES stipulate that a photostatic copy of an executed original will be admissible in evidence for all purposes in any proceeding as between the PARTIES.

ARTICLE XXVIII

Acceptance

28.1 In witness whereof, each PARTY has caused this AGREEMENT to be executed by its duly authorized representatives:

LICENSOR:

LICENSEE:

National Aeronautics and Space Administration

Luna Innovations Incorporated

By: /s/ Michael C. Wholley

By: /s/ Michael F. Gunther

Michael C. Wholley
General Counsel

Michael F. Gunther
Vice President Operations

Date: October 28, 2004

Date: September 24, 2004

Luna License Technical and Commercialization Milestones

[***]

APPENDIX B

Copy of Joint Ownership Agreement DE-382 Between The
National Aeronautics and space Administration and the
Regents of the University of California Concerning
Licensing of “Ultrasonic Apparatus and Method to Assess
Compartment Syndrome”

[**]**

CONFIDENTIAL TREATMENT REQUESTED: Certain portions of this document have been omitted pursuant to a request for confidential treatment and, where applicable, have been marked with an asterisk (“[****]”) to denote where omissions have been made. The confidential material has been filed separately with the Securities and Exchange Commission.

FIBER OPTIC PATENT LICENSE

This Agreement, effective as of the last date signed below (hereinafter, “Effective Date”) Is made by and between UNITED TECHNOLOGIES CORPORATION, a Delaware corporation, having an office and a place of business at United Technologies Research Center, 411 Silver Lane, East Hartford, Connecticut, USA 06108 (hereinafter, “UTC”) and LUNA INNOVATIONS INCORPORATED, a Delaware corporation, having a place of business at 2851 Commerce Street, Blacksburg, VA 24080 (hereinafter, “LICENSEE”).

Whereas, UTC owns certain patents relating to measurement systems and fiber optic devices; and

Whereas LICENSEE is desirous of obtaining a license to practice such patents of UTC.

NOW, THEREFORE, in consideration for mutual promises and covenants contained herein, the Parties hereby agree as follows:

1. DEFINITIONS

1.1 “LICENSEE” means the above-mentioned corporation and all its divisions and subsidiaries in which LICENSEE has an ownership or controlling interest of not less than fifty percent (50%).

1.2 “Parties” means UTC and LICENSEE jointly, “Party” means either UTC or LICENSEE individually.

1.3 “Term of this Agreement” means the time from the Effective Date of this Agreement until either the termination or expiration of this Agreement, whichever occurs first, pursuant to Article 4 herein.

1.4 “UTC Licensed Patents” means the UTC patents listed in Appendix A of this Agreement including any continuations, divisional, foreign counterparts, reissues, or reexaminations thereof.

1.5 “Licensed Patents” means UTC Licensed Patents.

1.6 “Licensed Product” means any product which is covered by one or more claims of a Licensed Patent that has not expired or been abandoned or been finally declared Invalid or unenforceable by a tribunal from which no further appeal can be taken.

1.7 “Licensed Use” means any permitted use of a Licensed Product or practice of a method which is covered by one or more claims of a Licensed Patent that has not expired or been abandoned or been finally declared invalid or unenforceable by a tribunal from which no further appeal can be taken.

1.8 "Net Invoice Price" means the invoice price after deduction of regular volume and trade discounts, but before deduction of any other terms, including but not limited to shipping costs, duties, tariffs, sales and similar taxes. In no event shall the Net Invoice Price be less than the invoice price LICENSEE uses when Selling to a bona fide third party in an arms-length transaction, whether or not the Sale is to a third party or an entity enjoying a specially favored course of dealing with LICENSEE.

1.9 "Sale" or "Sales" means every disposition of Licensed Product or provision of a service using a Licensed Product or Licensed Use, including selling, renting, leasing, lending and bartering of an item or service. A Sale is considered to occur when the Licensed Product is delivered or Licensed Use service is provided or when an invoice is issued, whichever occurs first. A Sale exists irrespective of the collection of any debt. "Sold" or "Sell" have a corresponding meaning.

1.10 "UTC" as used herein means United Technologies Corporation as defined above and all its non-minority owned or controlled divisions, subsidiaries, and affiliates, and their successors in interest, including all other entities in which United Technologies Corporation, or its divisions or subsidiaries, have a non-minority ownership or controlling interest.

2. LICENSE AND SUB-LICENSE GRANT

2.1 UTC hereby grants to LICENSEE, a non-exclusive, non-transferable, worldwide, royalty-bearing license under UTC Licensed Patents to make, have made, use, offer for sale, and sell Licensed Products, without the right to sublicense others. This license, without the right to sublicense, extends to all fields of use *except* the field of underground oil, gas, and geothermal (steam) exploration, characterization, and extraction and associated oil and gas extraction and delivery equipment, including but not limited to, oil and gas off-shore pipelines and platform structures.

3. LICENSE FEE, ROYALTIES, REPORTING

3.1 LICENSEE shall pay to UTC a non-refundable license fee of [****], due as follows:

[****] on the Effective Date of this Agreement;

[****] on or before December 1, 2004.

3.2 No royalties paid in Section 3.3 below shall count toward the payment of the license fee listed in Section 3.1 and neither expiration nor termination of this Agreement, for any reason, shall alter LICENSEE'S obligation to pay UTC the full license fee recited in Section 3.1.

3.3 In addition to the license fee paid in Section 3.1, LICENSEE shall pay to UTC, during the Term of this Agreement and subsequent thereto as set forth in Section 3.7, a royalty

of [****] of Sales by LICENSEE. If a royalty is also payable for Licensed Product under the UTC/CRC Bragg Grating Patent License previously entered into by the Parties, LICENSEE shall pay under this Agreement [****] of the Net Invoice Price for each of such Licensed Product Sold by LICENSEE.

Such payment to UTC shall be due at the end of each calendar quarter (hereinafter, "Due Date", i.e., on March 31, June 30, Sept. 30, and Dec. 31 of each year, for Sales during the preceding quarter, and shall be paid within [****] calendar days of each Due Date.

3.4 At the end of every calendar quarter during the Term of this Agreement and subsequent thereto as set forth in Section 3.7, LICENSEE shall provide a quarterly report to UTC indicating the total royalty due for the preceding quarter and itemizing each Sale by LICENSEE during the preceding quarter (or Sold earlier if not previously reported) and the Net Invoice Price. Such quarterly report shall be provided within sixty (60) calendar days of the Due Date and shall be provided even if no Sales occur In that quarter, LICENSEE'S failure to provide UTC such quarterly report within sixty (60) days of the Due Date shall be treated as a material breach of this Agreement.

3.5 During the Term of this Agreement and for six years thereafter, LICENSEE shall maintain appropriate business records regarding all Sales including the Net invoice Price. Additionally, LICENSEE will allow UTC, at UTC's discretion during normal LICENSEE business hours, to conduct or have conducted an audit of LICENSEE'S business records and operation regarding such Sales and will allow copies to be made and extracts taken from such records. The Parties shall immediately settle any underpayment or overpayment of royalty based on the results of such audit. In the event that such audit reveals an underpayment of more than [****] of the royalty owed in any single quarter, LICENSEE shall reimburse UTC for the cost of such audit.

3.6 Any unpaid balance for any fees and royalties due hereunder from LICENSEE to UTC, after the time required for payment by this Article 3, shall be subject to Interest of [****] per month (30 days) or portion thereof, or the highest rate allowed by law, whichever is less, from the Due Date until the amount due is fully paid.

3.7 Within sixty (60) calendar days of the termination or expiration of this Agreement, LICENSEE shall make a final payment to UTC of any outstanding payments owed to UTC during the Term of this Agreement and shall provide a final report pursuant to Section 3.4 associated with such final payment.

3.8 All payments due hereunder shall be made in US Dollars. Foreign currency/US dollar exchange rate used to calculate royalties due hereunder shall be an average foreign currency/US dollar exchange rate calculated from the sum of the foreign currency/US dollar exchange rates published in the *New York Wall Street Journal*, on the last business day of each of the three months in the calendar quarter for which a payment is due, divided by three (3).

4. TERM, TERMINATION, AND EXPIRATION

4.1 This Agreement shall become effective on the Effective Date and shall expire when the last of the Licensed Patents expires or is abandoned.

4.2 This Agreement may be terminated prior to expiration under Section 4.1 by:

4.2.1 mutual written agreement of the parties; or

4.2.2 by UTC in the event of a failure of LICENSEE to make any payment due or report within the time required by this Agreement; or

4.2.3 by UTC in the event of a material breach by LICENSEE of any other term or condition of this Agreement; or

4.2.4 by UTC in the event of a (i) declaration by a court of competent jurisdiction of the bankruptcy or insolvency of LICENSEE, (ii) filing

by LICENSEE of a voluntary petition to any bankruptcy, insolvency, or other laws of any jurisdiction relating to or affecting enforcement of creditor's rights, (iii) filing by LICENSEE of any answer to any insolvency petition pursuant to any reorganization or insolvency law of any jurisdiction that admits the material allegations thereof; (iv) consent by LICENSEE to the filing of such involuntary petition, (v) making by LICENSEE of an assignment of a substantial part of its property for the benefit of creditors, (vi) application by LICENSEE for, or consent by LICENSEE to the appointment of a receiver or trustee for a substantial part of its property.

4.3 If UTC intends to terminate this Agreement pursuant to a condition set forth in Sections 4.2.2 or 4.2.3 of this Agreement, UTC shall notify LICENSEE of such intention by sending written notice to LICENSEE via the applicable Contact Points identified in Article 8 of this Agreement. If such condition is not cured within 30 days from the mailing of such notice, then UTC may, by written notice to LICENSEE, terminate this Agreement immediately.

4.4 If UTC intends to terminate this Agreement pursuant to any of the conditions set forth in Section 4.2.4 of this Agreement, UTC may immediately terminate this Agreement by sending written notice thereof to LICENSEE via the applicable Contact Points identified in Article 8 of this Agreement.

4.5 Upon expiration of this Agreement as set forth in Section 4.1 or termination of this Agreement under any of the conditions set forth in Section 4.2 of this Agreement, all the licenses, sub-licenses and rights granted to LICENSEE under this Agreement, including but not limited to the licenses and sub-licenses granted in Sections 2.1 and 2.2 shall be automatically revoked.

4.6 The following Sections of this Agreement shall survive termination and expiration of this Agreement: 3.1, 3.5-3.7, 5.2-5.4 and 5.6,

5. WARRANTY, LIABILITY, INDEMNITY

5.1 UTC warrants to LICENSEE that it has the authority to grant the licenses to LICENSEE herein.

5.2 LICENSEE, its successors and assigns, shall defend, indemnify and hold UTC harmless from any claim, demand, lawsuit, loss, cost, expense, obligation, liability, action,

proceeding, agreement, contract, judgment, or debt (including court costs and reasonable fees of attorneys and other professionals) of any nature whatsoever, whether or not well founded in fact or in law, whether in law or equity or otherwise, in connection with or related to use of Licensed Patents by LICENSEE, its customers, sub-contractors, agents, or employees (collectively, LICENSEE'S Representatives) or in connection with or related to LICENSEE'S or LICENSEE'S Representatives' manufacture, use, sale or service.

5.3 LICENSEE, its successors and assigns, shall have no recourse against UTC, whether by way of any suit, demand, proceeding, claim, or action, whether in law or equity or otherwise, for any loss, liability, damage, expense, debt, judgment, or cost that LICENSEE may suffer or incur at any time, in connection with or related to use by LICENSEE or LICENSEE'S Representatives of Licensed Patents or LICENSEE'S or LICENSEE'S Representatives' manufacture, use, sale or service related to the Licensed Patents.

5.4 THE PARTIES FURTHER AGREE THAT UTC DOES NOT MAKE ANY NOR DOES LICENSEE RECEIVE ANY REPRESENTATION OR WARRANTY OF ANY KIND WITH RESPECT TO THE ACCURACY, USEFULNESS, NOVELTY, VALIDITY, SCOPE, OR ENFORCEABILITY OF THE LICENSED PATENTS, LICENSED PRODUCTS, OR LICENSED USES, AND THAT UTC EXPRESSLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE LICENSED PATENTS, LICENSED PRODUCTS, OR LICENSED USES.

5.5 Nothing in this Agreement, or otherwise, shall be construed as:

5.5.1 granting LICENSEE any right or license under any UTC patent other than those specifically identified as Licensed Patents as set forth herein; or

5.5.2 a warranty or representation by either Party that any manufacture, sale, lease, or use of any tangible or intangible property covered under this Agreement will be free from infringement of any patents, except for Licensed Patents and only to the extent set forth herein; or

5.5.3 requiring either Party to defend, enforce, or otherwise assert any intellectual property right or other cause of action against a third party; or

5.5.4 requiring either Party to file or prosecute any patent application, to secure any patent, or maintain any patent in force; or

5.5.5 conferring to anyone by implication, estoppel, or otherwise any license or other right under any patent, except as expressly provided herein; or

5.5.6 conferring to anyone any right to use in any way, any of UTC's trademarks or trade names or any contraction, abbreviation, or simulation thereof.

5.6 In no event shall one Party be liable to the other Party for any incidental or consequential damages relating to or arising out of this Agreement.

5.7 In the event that the Dispute Resolution proceedings in Section 9 of this Agreement or a proceeding in a court of competent jurisdiction results in a finding/decision that one Party breached this Agreement, the breaching Party, its successors and assigns, shall indemnify the non-breaching Party for any expense(s) the non-breaching party incurs (including court approved costs and reasonable fees of attorneys and other professionals) in connection with or related to such a Dispute, as defined in Section 9.1 of this Agreement.

6. DEFENSE OF PATENTS

6.1 UTC shall have the sole discretion to decide whether to assert or defend the Licensed Patents. Any assertion or defense of the Licensed Patents shall be at UTC's sole expense and under UTC's sole control. If UTC asserts or defends any Licensed Patents for any reason, UTC shall be entitled to retain all damages, attorney fees, and other costs awarded in its favor as a result of such assertion or defense.

7. CHOICE OF LAW

7.1 This Agreement shall be governed by the laws of the State of Connecticut, USA, without regard to the conflicts of law principles of such State.

8. CONTACT POINTS FOR NOTICES AND PAYMENTS

8.1 Any notice, request, demand, waiver, consent, approval, or other communication not listed in Section 8.2 herein which is required or permitted to be given by a Party hereunder shall be given in writing and addressed to the appropriate Party at its address set forth below, or transmitted by Facsimile:

If to LICENSEE, to;

Michael Gunther
Luna Innovations Incorporated
2851 Commerce Street
Blacksburg, VA 24060
Fax: [****]

If to UTC, to:

Intellectual Property Counsel
United Technologies Research Center
411 Silver Lane
East Hartford, CT 06108
FAX: [****]

with copy to:

Timothy J. Halter
Niro, Scavone, Haller & Niro
181 West Madison Street
Suite 4600
Chicago, IL 60602
FAX: [****]

8.2 All payments to UTC, if made by wire transfer, shall be to:

[****]
[****]
[****]
[****]
[****]

unless otherwise directed by UTC. All payments, if by check, and quarterly reports (per Article 3) owed to UTC under this Agreement shall, unless otherwise directed by UTC, be sent to:

Niro, Scavone, Mailer & Niro
181 West Madison Street
Suite 4600
Chicago, IL 60602
ATTN: Timothy J. Haller

A copy of such reports shall be sent to:

United Technologies Research Center
Financial Dept.
Manager, Financial Operations
MS 129-03
411 Silver Lane
East Hartford, CT 06108

and

Intellectual Property Counsel
United Technologies Research Center
411 Silver Lane
East Hartford, CT 06108

9. DISPUTE RESOLUTION (negotiation, mediation, arbitration)

9.1 The Parties shall attempt in good faith to resolve any dispute of whatever nature arising out of the making or performance of, or otherwise relating to this Agreement or the breach, termination, enforceability, arbitrability or validity thereof (hereinafter, "Dispute"), promptly

by negotiations between the Parties in the normal course of business. If such good faith attempts do not resolve the Dispute, either Party may give the other party written notice of any such Dispute and request formal negotiations between the Parties. Such written notice shall be sent to the other Party via the applicable Contact Points identified in Article 8 of this Agreement and shall include the specific provision(s) of this Agreement involved in such Dispute, any facts or arguments in support of the matter, and a specific description of the relief or remedy sought. Within thirty (30) days from the date of mailing of such written notice, representatives of both Parties, having the authority to settle the Dispute, shall agree to meet at a mutually acceptable time and place, and thereafter as often as they reasonably deem necessary, to attempt to resolve the Dispute. If the Dispute has not been resolved within sixty (60) days from the date of mailing of such written notice or a mutually agreed upon extension thereof, or if the Parties fail to meet within such thirty (30) days or a mutually agreed upon extension thereof, the Parties shall initiate mediation of the Dispute pursuant to Section 9.2 herein. All negotiations pursuant to this Section 9.1 are deemed confidential and shall be treated as compromise and settlement negotiations for the purposes of Rule 408 of the Federal Rules of Evidence and any comparable law provision. Either Party may seek a preliminary injunction, attachment or other similar remedy available to it pending the outcome of negotiation, mediation, or arbitration hereunder, or a suit to compel compliance with this Article 9 dispute resolution process, in a U.S. court of competent jurisdiction.

9.2 Each Party shall provide the other Party with a written offer of terms of settlement that are acceptable as a minimum, if the Parties are still unable to resolve such Dispute by negotiation within the time limits set by Section 9.1 the Parties shall, within thirty (30) days thereafter, select a mediator and begin a good faith attempt to settle the Dispute by mediation, to be conducted at their joint cost. Unless the parties agree otherwise, the mediation shall be conducted in accordance with the Commercial Mediation Rules of the American Arbitration Association (AAA) then in effect by a mediator selected by mutual agreement of the Parties. If the Parties are unable to agree on a mediator within such thirty (30) days, or a mutually agreed extension thereof, the mediator will be selected by the AAA. Within thirty (30) days after the mediator has been selected, both Parties and their respective attorneys shall meet with the mediator for one mediation session of at least four hours, it being agreed that each Party representative attending such mediation session shall be senior to the representatives designated in Section 9.1 herein, with the authority to settle the Dispute. If the Dispute cannot be settled at such mediation session or at any mutually agreed continuation thereof, either Party may give the other Party and the mediator a written notice declaring the mediation process at an end, in which event the Dispute shall be resolved by arbitration as provided in Section 9.3 herein.

9.3 Upon completion of mediation pursuant to Section 9.2 herein, if no resolution of the Dispute has been reached, the Parties shall, within thirty (30) days thereafter, select an arbitrator and begin arbitration proceedings to be conducted in Hartford, Connecticut. Unless the parties agree otherwise, the arbitration shall be conducted in accordance with the applicable Arbitration Rules of the American Arbitration Association (AAA) then in effect, by a single arbitrator selected by mutual agreement of the Parties. If the Parties are unable to agree on an arbitrator within such thirty (30) days, or a mutually agreed extension thereof, the arbitrator will be selected by the AAA. The arbitrator shall be an attorney-at-law having at least ten (10) years experience in handling patent license disputes similar to the Dispute hereunder, shall complete arbitration proceedings within ninety (90) days after appointment, shall provide a written opinion of

any decision, and shall base such decision on the terms of this Agreement and on applicable law and judicial precedent. The arbitrator may award all costs and reasonable attorney's fees to the prevailing party plus applicable interest on any monetary damages. The findings of the arbitrator shall be final, binding, and enforceable as between the Parties and judgment on any award rendered by the arbitrator may be entered in any court having jurisdiction thereof.

10. GENERAL PROVISIONS

10.1 This Agreement represents the entire understanding between the Parties about the subject matter contained herein and supersedes all prior oral and/or written agreements, communications, and documents between the Parties with respect thereto.

10.2 No amendment or modification of this Agreement shall be valid or binding upon the Parties unless made in a writing specifically identifying this Agreement and executed by authorized representatives of both Parties.

10.3 LICENSEE shall have no right to assign, sell, or otherwise transfer any right or benefit hereunder.

10.4 Any failure of either Party to exercise a right granted by the terms or conditions of this Agreement shall not be construed as a waiver of such right or of any other rights under this Agreement by that Party and shall in no way affect that Party's exercise of such right or any other rights under this Agreement at a later date. No term or provision hereof shall be deemed waived and no breach consented to unless such waiver or consent shall be in writing and signed by the party claimed to have waived or consented.

10.5 The provisions of this agreement shall be deemed separable. If any provision of this Agreement shall be adjudged wholly or partially invalid, illegal, unenforceable or void by an arbitrator appointed under Article 9 or a court or tribunal of competent jurisdiction, such provision shall be deemed modified to the extent necessary to make it valid, legal, enforceable, or not void, if such modification does not materially alter the intention of the Parties nor substantially impair the value of this Agreement as to any Party. If such provision cannot be so modified, such provision shall be stricken from this Agreement and the validity, legality, and enforceability of the remaining provisions or parts thereof shall not in any way be affected or impaired.

10.6 The exercise by a party of its right to terminate this Agreement under Article 4 hereunder shall not constitute a waiver of any other rights, remedies, or damages available to such party under applicable law.

10.7 The Parties shall use their best efforts to maintain the terms of this Agreement confidential with access thereto being limited to those with a "need to know".

11. OFFSET CREDITS

11.1 LICENSEE agrees to notify UTC in advance of LICENSEE becoming involved in any prospective business venture in a foreign country which will make Licensed Products or in any way utilize Licensed Patents, including but not limited to starting a new business

or expanding an existing business, and agrees to give UTC the right of first refusal to obtain, at no cost, offset credits in such foreign country as a result of such venture. UTC will reimburse LICENSEE for out-of-pocket expenses of LICENSEE associated with the transfer of such offset credits to UTC.

BY SIGNING BELOW, the Parties have executed this Agreement by their duly authorized representatives, effective as of the last date signed below.

UNITED TECHNOLOGIES CORPORATION

United Technologies Research Center

By: /s/

Typed Name:

Title:

Date:

LUNA INNOVATIONS

By: /s/ Michael F. Gunther

Typed Name: Michael F. Gunther

Title: VP Operations

Date: September 22, 2003

CONFIDENTIAL TREATMENT REQUESTED: Certain portions of this document have been omitted pursuant to a request for confidential treatment and, where applicable, have been marked with an asterisk (“[****]”) to denote where omissions have been made. The confidential material has been filed separately with the Securities and Exchange Commission.

FIBER OPTIC PATENT LICENSE
APPENDIX A
NON-EXCLUSIVELY LICENSED PATENTS
US PATENTS AND FOREIGN COUNTERPARTS

US Patent No (Doc)	Title	Issued	Foreign
4,761,073 (R-2909A)	Distributed Spatially Resolving Optical Fiber Strain Gauge	08/02/88	EPC PA No. 0192659; France, Germany, UK, Italy Japan PA No. 1885629 Priority Filing Date: 08/13/84
4,806,012 (R-2909B)	Distributed Spatially Resolving Optical Fiber Strain Gauge	01/21/89	EPC PA No. 0192659; France, Germany, UK, Italy Japan PA No. 1885629 Priority Filing Date: 08/13/84

CONFIDENTIAL TREATMENT REQUESTED: Certain portions of this document have been omitted pursuant to a request for confidential treatment and, where applicable, have been marked with an asterisk (“[****]”) to denote where omissions have been made. The confidential material has been filed separately with the Securities and Exchange Commission.

**AMENDED AND RESTATED
LICENSE AGREEMENT**

This agreement (“Agreement”) is made by and between Luna Innovations, Inc., a Virginia corporation having an address at 2851 Commerce Street, Blacksburg, Virginia 24062 (“LICENSEE”) and Virginia Tech Intellectual Properties, Inc., a non-profit organization having an address at 1872 Pratt Drive, Suite 1625, Blacksburg, Virginia 24060 (“VTIP”).

This Agreement is effective as of March 19, 2004 (“Effective Date”).

RECITALS

WHEREAS, VTIP is the owner by assignment of certain intellectual property listed in Appendix A, relating to (i) the discovery of a new class of endohedral metallofullerenes utilizing a trimetallic nitride template process, (ii) endohedral metallofullerenes as multi-functional medicinal agents, (iii) synthesis of the first water-soluble trimetallic nitride endohedral metallofullerols, and (iv) symmetric derivatives;

WHEREAS, the research was sponsored in part by the Government of the United States of America and as a consequence this license is subject to overriding obligations to the Federal Government under 35 U.S.C. §§ 200-212 and applicable regulations;

WHEREAS, the Inventors (as defined below) are employees of Virginia Polytechnic Institute and State University (“Virginia Tech”), and they are obligated to assign all of their right, title and interest in the Invention (as defined below) to Virginia Tech;

WHEREAS, Virginia Tech has assigned all of their right, title and interest in the Invention to VTIP;

WHEREAS, LICENSEE entered into a Confidential Disclosure Agreement with VTIP, effective September 7, 1999 (“CDA”), for the purpose of evaluating the Invention;

WHEREAS, VTIP is desirous that the Invention be developed and utilized to the fullest possible extent so that its benefits can be enjoyed by the general public;

WHEREAS, LICENSEE is desirous of obtaining certain rights from VTIP for commercial development, use, and sale of the Invention, and VTIP is willing to grant such rights;

WHEREAS, LICENSEE understands that VTIP may publish or otherwise disseminate information concerning the Invention and Technology (as defined below) at any time and that LICENSEE is paying consideration thereunder for its early access to the Invention and Technology, not continued secrecy therein, subject to Section 5.1(b) and the confidentiality obligations of Section 10.2.;

WHEREAS, the parties entered into a License Agreement effective June 26, 2002 (the "License Agreement"); and

WHEREAS, the parties desire to amend certain provisions thereof and to restate such License Agreement in its entirety.

NOW, THEREFORE, the parties agree:

ARTICLE 1. DEFINITIONS

The terms, as defined herein, shall have the same meanings in both their singular and plural forms.

1.1 "Affiliate" means any corporation or other business entity (i) in which LICENSEE owns or controls, directly or indirectly, at least fifty-one percent (51%) of the outstanding stock or other voting rights entitled to elect directors, or (ii) by which LICENSEE is owned or controlled directly or indirectly by at least fifty-one percent (51%) of the outstanding stock or other voting rights entitled to elect directors, or (iii) under common control with LICENSEE through ownership of at least fifty-one percent (51%) of the outstanding stock or other voting rights entitled to elect directors.

1.2 "Field" means all fields of human endeavor.

1.3 "Inventions" shall mean the inventions described in the patents, patent applications and disclosures set forth on Appendix A.

1.4 "Inventors" shall mean the inventors of the Inventions.

1.5 "Licensed Method" means any method, the use of which would constitute, but for the license granted to LICENSEE under this Agreement, an infringement of any Valid Claim.

1.6 "Licensed Product" means any composition or product, produced by the Licensed Method, or one the manufacture, use, sale, offer for sale, or importation of which would constitute, but for the license granted to LICENSEE under this Agreement, an infringement of any Valid Claim.

1.7 "Net Sales" means the total of the gross invoice prices of Licensed Products sold by LICENSEE, its Sublicensees, and Affiliates, or any combination thereof, less the sum of the following actual and customary deductions where applicable and separately listed: cash, trade, or quantity discounts; sales, use, tariff, import/export duties or other excise taxes imposed on particular sales (except for value-added and income taxes imposed on the sales of Product in foreign countries); transportation charges; or credits to customers because of rejections or returns.

1.8 "Patent Costs" means all out-of-pocket expenses for the preparation, filing, prosecution, and maintenance of all United States and foreign patents included in Patent Rights. Patent Costs shall also include reasonable out-of-pocket expenses for patentability opinions, inventorship determination, the preparation and prosecution of patent application, re-examination, re-issue, interference, and opposition activities related to patents or applications in Patent Rights.

1.9 "Patent Rights" means any of the following: the U.S. patent applications listed in Appendix A disclosing and claiming the Invention, filed by Inventors and assigned to VTIP; and continuing applications thereof including divisions, substitutions, and continuations-in-part; any patents issuing on said applications including re-issues, re-examinations and extensions; and any corresponding foreign applications or patents.

1.10 "Sponsor Rights" means all the applicable provisions of any license to the United States Government executed by VTIP and the overriding obligations to the Federal Government under 35 U.S.C. §§ 200-212 and applicable governmental implementing regulations.

1.11 "Sublicensee" means a third party to whom LICENSEE grants a sublicense of certain rights granted to LICENSEE under this Agreement.

1.12 "Technology" means the written technical information relating to the Invention which the Inventors provide to LICENSEE prior to the Effective Date.

1.13 "Term" means the period of time beginning on the Effective Date and ending on the expiration date of the longest-lived Patent Rights.

1.14 "Territory" means worldwide.

1.15 "Valid Claim" shall mean a claim of an issued and unexpired patent or a claim of a pending patent application within the Patent Rights which has not been held unpatentable, invalid or unenforceable by a court or other governmental agency of competent jurisdiction and has not been admitted to be invalid or unenforceable through re-issue, re-examination, disclaimer or otherwise; provided, however, that if the holding of such court or agency is later reversed by a court or agency with overriding authority, the claim shall be reinstated as a Valid Claim with respect to Net Sales made after the date of such reversal. Notwithstanding the foregoing provisions of this Paragraph 1.15, if a claim of a pending patent application within the Patent Rights has not issued as a claim of an issued patent within the Patent Rights, within four (4) years after the filing date from which such claim takes priority, such pending claim shall not be a Valid Claim for purposes of this Agreement.

ARTICLE 2. GRANTS

2.1 License. Subject to the limitations set forth in this Agreement and Sponsor's Rights, VTIP hereby grants to LICENSEE, and LICENSEE hereby accepts, a license under Patent Rights to make, have made, use, sell, offer for sale, and import Licensed Products and to practice Licensed Methods and to use Technology, in the Field within the Territory and during the Term (the "Grant"). Improvements to Technology that are funded by LICENSEE and which would in the absence of this Agreement infringe Patent Rights are included in the Grant. The license granted herein is exclusive and VTIP shall not grant to third parties a further license under Patent Rights or to use Technology in the Field, within the Territory and during the Term.

2.2 Sublicense.

(a) The license granted in Paragraph 2.1 includes the right of LICENSEE to grant sublicenses to third parties during the Term.

(b) With respect to sublicense granted pursuant to Paragraph 2.2(a), LICENSEE shall:

(1) not receive, or agree to receive, anything of value in lieu of cash as consideration from a third party under a sublicense granted pursuant to Paragraph 2.2(a) (except for research and development funds, milestone payments, scientific benchmark payments and equity investments) without the express written consent of VTIP;

(2) to the extent applicable, include all of the rights of and obligations due to VTIP (and, if applicable, the Sponsor's Rights) and contained in this Agreement;

(3) promptly provide VTIP with a copy of each sublicense issued; and

(4) collect all payments due from Sublicensees and summarize and deliver to VTIP all reports due from Sublicensees.

(c) Upon termination of this Agreement for any reason, VTIP, at its sole discretion, shall determine whether LICENSEE shall assign to VTIP any and all sublicenses.

2.3 Reservation of Rights.

(a) VTIP and Virginia Tech reserve the right to use the Invention, Technology and Patent Rights for educational and research purposes, subject to Section 5.1(b) and the confidentiality obligations of Section 10.2.

(b) VTIP and Virginia Tech reserve the right to publish or otherwise disseminate any information about the Invention and Technology at any time; and subject to Section 5.1(b) and the confidentiality obligations of Section 10.2.

ARTICLE 3. CONSIDERATION

3.1 Fees and Royalties. As consideration for the license granted herein to LICENSEE under the Technology and Patent Rights, LICENSEE shall pay to VTIP the fees and royalties set forth in this Article 3. LICENSEE shall pay VTIP:

(a) a license issue fee of [****] upon execution of this Agreement.

(b) a license issue fee of [****], payable in [****] equal installments within 30 days after the LICENSEE has raised in excess of [****] in venture funding, and ending on the fourth anniversary thereof.

(c) milestone payments in the amounts payable according to the following schedule or events:

For each product

- | | |
|----------------------------|--------|
| (1) Phase I Complete | [****] |
| (2) Phase II Complete | [****] |
| (3) Phase III complete/NDA | [****] |

(d) an earned royalty of up to [****] of Net Sales on sales of Licensed Products by LICENSEE and/or its Affiliates.

(e) the applicable percentage (set forth below) of all sublicense fees from Sublicenses enacted during the Period as set forth below that are not earned royalties irrespective of date of receipt of payment:

<u>Percentage</u>	<u>Period</u>
[****]	6/26/04-6/25/05
[****]	6/26/05-6/25/06
[****]	6/26/06-6/25/07
[****]	6/26/07-6/25/08
[****]	6/26/08 and thereafter

(f) on sublicense royalty payments received by LICENSEE from its Sublicensees on sales of Licensed Product by Sublicensees, [****] of the Net Sales of Sublicensees.

(g) For the avoidance of doubt, sales by Affiliates of LICENSEE shall be included under the royalty calculation under paragraph (d) above, and shall not be included in the royalty calculations under paragraphs (e) and (f) even if such Affiliates are Sublicensees of LICENSEE.

(h) Should LICENSEE be obligated to pay royalties to third parties for certain patent rights in order to manufacture, use or sell the Licensed Products or to practice the Licensed Methods, the parties agree to renegotiate, in good faith, the provisions of this Section 3.1 so that LICENSEE pays a reasonable aggregate royalty to VTIP and such third parties.

3.2 Patent Costs. LICENSEE shall reimburse VTIP all past (prior to the Effective Date) and future (on or after the Effective Date) Patent Costs within thirty (30) days following receipt by LICENSEE of an itemized invoice from VTIP.

3.3 Due Diligence.

(a) LICENSEE shall:

- (1) diligently proceed with the development, manufacture and sale of Licensed Products;
- (2) prepare and supply a business plan to VTIP within six (6) months of the Effective Date;
- (3) raise in excess of [****] within five (5) years of the Effective Date;

(4) annually spend not less than [****] for the development of Licensed Products during the first [****] of this Agreement. LICENSEE may, at its sole option, fund the research of any one of the Inventors and credit the amount of such funding actually paid to VTIP against its obligations under this paragraph;

(5) use commercially reasonable efforts to market Licensed Products in the United States within [****] of receiving regulatory approval to market such Licensed Products;

(6) reasonably fill the market demand for Licensed Products following commencement of marketing at any time during the term of this Agreement;

(7) use commercially reasonable efforts to obtain all necessary governmental approvals for the manufacture, use and sale of Licensed Products; and

(8) LICENSEE agrees that wide distribution under a Material Transfer Agreement (as defined below) of research quantities of Licensed Product for non-commercial research and development will add to the potential commercial value of this license. To this end LICENSEE agrees to distribute research samples under terms and conditions satisfactory to VTIP and to LICENSEE. If such terms and conditions are not agreed upon and in place within 60 days of effective date then this license is terminated. The Material Transfer Agreement will contain terms and conditions satisfactory to VTIP and to LICENSEE.

(b) If LICENSEE fails to perform any of its obligations specified in Paragraphs 3.3(a) (1)-(7), then VTIP shall provide written notice to LICENSEE specifying in reasonable detail the alleged failure, citing a specific paragraph above in such notice. LICENSEE shall have ninety (90) days from the date of receipt of such notice to cure such breach. If, within such ninety-day period LICENSEE has not cured such breach (if such breach is reasonably capable of cure within such period) or diligently commenced efforts to cure such breach (if such breach is not reasonably capable of cure during such period), then VTIP shall have the right and option to either terminate this Agreement or change LICENSEE'S exclusive license to a nonexclusive license by providing written notice thereof to LICENSEE. This right, if exercised by VTIP shall supersede the rights granted in Article 2.

ARTICLE 4. REPORTS, RECORDS AND PAYMENTS

4.1 Reports.

(a) Progress Reports.

(1) Beginning January 1, 2005 and ending on the date of first commercial sale of a Licensed Product in the United States, LICENSEE shall submit to VTIP annual progress reports covering LICENSEE'S (and Affiliate's and Sublicensee's) activities to develop and test all Licensed Products and obtain governmental approvals necessary for marketing the same. Such reports shall include a summary of work completed; summary of work in progress; current schedule of anticipated events or milestones; and market plans for introduction of Licensed Products.

(b) Royalty Reports. After the first commercial sale of a Licensed Product anywhere in the world, LICENSEE shall submit to VTIP annual royalty reports on or before the date that is sixty (60) days after the anniversary date thereof. Each royalty report shall cover LICENSEE'S (and each Affiliate's and Sublicensee's) most recently completed calendar year and shall show:

(1) the gross sales, deductions as provided in Paragraph 1.7, and Net Sales during the most recently completed calendar quarter and the royalties, in US dollars, payable with respect thereto;

(2) the number of each type of Licensed Product sold;

(3) sublicense fees and royalties received during the most recently completed calendar quarter in US dollars, payable with respect thereto;

(4) the method used to calculate the royalties; and

(5) the exchange rates used.

If no sales of Licensed Products have been made and no sublicense revenues have been received by LICENSEE during any reporting period, LICENSEE shall so report.

4.2 Records and Audits.

(a) LICENSEE shall keep, and shall require its Affiliates and Sublicensees to keep accurate and correct records of all Licensed Products manufactured, used, and sold, and sublicense fees received under this Agreement. Such records shall be retained by LICENSEE for at least three (3) years following a given reporting period.

(b) All records shall be available during normal business hours for inspection at the expense of VTIP by VTIP's Internal Audit Department or by a Certified Public Accountant selected by VTIP and in compliance with the other terms of this Agreement for the sole purpose of verifying reports and payments. Such inspector shall not disclose to VTIP any information other

than information relating to the accuracy of reports and payments made under this Agreement or other compliance issues. In the event that any such inspection shows an under-reporting and underpayment in excess of [****] for any twelve (12) month period, then LICENSEE shall pay the cost of the audit as well as any additional sum that would have been payable to VTIP had the LICENSEE reported correctly, plus an interest charge at a rate of [****] per year. Such interest shall be calculated from the date the correct payment was due to VTIP up to the date when such payment is actually made by LICENSEE. For underpayment not in excess of [****] for any twelve (12) month period, LICENSEE shall pay the difference within thirty (30) days without interest charge or inspection cost.

4.3 Payments.

(a) All fees and royalties due VTIP shall be paid in United States dollars and all checks shall be made payable to Virginia Tech Intellectual Properties, Inc. When Licensed Products are sold in currencies other than United States dollars, LICENSEE shall first determine the royalty in the currency of the country in which Licensed Products were sold and then convert the amount into equivalent United States funds, using the average of the exchange rate quoted in *The Wall Street Journal* during the period that is thirty (30) days prior to the last business day of the applicable reporting period.

(b) Royalty Payments.

(1) Royalties shall accrue when Licensed Products are invoiced, or if not invoiced, when delivered to a third party or Affiliate.

(2) LICENSEE shall pay earned royalties quarterly on or before February 28, May 31, August 31, and November 30 of each calendar year. Each such payment shall be for earned royalties accrued within LICENSEE'S most recently completed calendar quarter.

(3) Royalties earned on sales occurring or under sublicense granted pursuant to this Agreement in any country outside the United States shall not be reduced by LICENSEE for any taxes, fees, or other charges imposed by the government of such country on the payment of royalty income, except that all payments made by LICENSEE in fulfillment of VTIP tax liability in any particular country may be credited against earned royalties or fees due VTIP for that country. LICENSEE shall pay all bank charges resulting from the transfer of such royalty payments.

(4) If at any time legal restrictions prevent the prompt remittance of part or all royalties by LICENSEE with respect to any country where a Licensed Product is sold or a sublicense is granted pursuant to this Agreement, LICENSEE shall convert the amount owed to VTIP into US currency and shall pay VTIP directly from its US sources of fund for as long as the legal restrictions apply.

(5) LICENSEE shall not collect royalties from, or cause to be paid on, Licensed Products sold to the account of the U.S. Government or any agency thereof as provided for in the license to the U.S. Government.

(c) Late Payments. In the event royalty, reimbursement and/or fee payments are not received by VTIP when due, LICENSEE shall pay to VTIP interest charges at a rate of [****] per year. Such interest shall be calculated from the date payment was due until actually received by VHP.

ARTICLE 5. PATENT MATTERS

5.1 Patent Prosecution and Maintenance.

(a) Provided that LICENSEE has reimbursed VTIP for Patent Costs pursuant to Paragraph 3.2, VTIP shall diligently prosecute and maintain the United States and, if available, foreign patents, and applications in Patent Rights using counsel of its choice. VTIP shall provide LICENSEE with copies of all relevant documentation relating to such prosecution and LICENSEE shall keep this documentation confidential. The counsel shall take instructions only from VTIP, and all patents and patent applications in Patent Rights shall be assigned solely to VTIP. Notwithstanding the foregoing, VTIP shall consult with LICENSEE regarding the prosecution of such patent applications and provide LICENSEE with a reasonable opportunity to review and comment on all proposed submissions to any patent office before submittal, and VTIP shall keep LICENSEE reasonably informed as to the status of such patent applications. All such comments shall reasonably be conveyed by VTIP to patent counsel.

(b) VTIP shall cooperate with LICENSEE in seeking such patent protection for the Inventions, and shall not publish, disclose, publicly use or sell the Inventions until it has taken reasonable and appropriate steps, after seeking comments from LICENSEE, to obtain patent protection for the Inventions in the appropriate jurisdictions.

(c) VTIP shall consider amending any patent application in Patent Rights to include claims reasonably requested by LICENSEE to protect the products contemplated to be sold by LICENSEE under this Agreement.

(d) LICENSEE shall apply for an extension of the term of any patent in Patent Rights if appropriate under the Drug Price Competition and Patent Term Restoration Act of 1984 and/or European, Japanese and other foreign counterparts of this law. LICENSEE shall prepare all documents for such application, and VTIP shall execute such documents and to take any other additional action as LICENSEE reasonably requests in connection therewith.

(e) LICENSEE may elect to terminate its reimbursement obligations with respect to any patent application or patent in Patent Rights upon three (3) months' written notice to VTIP. VTIP shall use reasonable efforts to curtail further Patent Costs for such application or patent when such notice of termination is received from LICENSEE. VTIP, in its sole discretion and at its sole expense, may continue prosecution and maintenance of said application or patent, and LICENSEE shall then have no further license with respect thereto. Non-payment of any portion of Patent Costs with respect to any application or patent may be deemed by VTIP as an election by LICENSEE to terminate its reimbursement obligations with respect to such application or patent.

5.2 Patent Infringement.

(a) If LICENSEE learns of any substantial infringement of Patent Rights, LICENSEE shall so inform VTIP and provide VTIP with reasonable evidence of the infringement. Neither party shall notify a third party of the infringement of Patent Rights without the consent of the other party. Both parties shall use reasonable efforts and cooperation to terminate infringement without litigation.

(b) LICENSEE may request VTIP to take legal action against such third party for the infringement of Patent Rights. Such request shall be made in writing and shall include reasonable evidence of such infringement and damages to LICENSEE. If the infringing activity has not abated thirty (30) days following LICENSEE'S request, VTIP shall elect to or not to commence suit on its own account. VTIP shall give notice of its election in writing to LICENSEE by the end of the sixtieth (60th) day after receiving notice of such request from LICENSEE. LICENSEE may thereafter bring suit for patent infringement at its own expense, if and only if VTIP elects not to commence suit and the infringement occurred in a jurisdiction where LICENSEE has an exclusive license under this Agreement. If LICENSEE elects to bring suit, VTIP may join that suit at its own expense.

(c) Recoveries from actions brought pursuant to Paragraph 5.2(b) shall belong to the party bringing suit. Legal actions brought jointly by VTIP and LICENSEE and fully participated in by both shall be at the joint expense of the parties and all recoveries shall be shared jointly by them in proportion to the share of expense paid by each party.

(d) Each party shall cooperate with the other in litigation proceedings at the expense of the party bringing suit. Litigation shall be controlled by the party bringing the suit, except that VTIP may be represented by counsel of its choice in any suit brought by LICENSEE.

5.3 Patent Marking. LICENSEE shall mark all Licensed Products made, used or sold under the terms of this Agreement, or their containers, in accordance with the applicable patent marking laws.

ARTICLE 6. GOVERNMENTAL MATTERS

6.1 Governmental Approval or Registration. If this Agreement or any associated transaction is required by the law of any nation to be either approved or registered with any governmental agency, LICENSEE shall assume all legal obligations to do so. LICENSEE shall notify VTIP if it becomes aware that this Agreement is subject to a United States or foreign government reporting or approval requirement. LICENSEE shall make all necessary filings and pay all costs including fees, penalties, and all other out-of-pocket costs associated with such reporting or approval process.

6.2 Export Control Laws. LICENSEE shall observe all applicable United States and foreign laws with respect to the transfer of Licensed Products and related technical data to foreign countries, including, without limitation, the International Traffic in Arms Regulations and the Export Administration Regulations.

6.3 Preference for United States Industry. If LICENSEE sells a Licensed Product or Combination Product in the US, LICENSEE shall manufacture said product substantially in the US. Upon LICENSEE'S written notice to VTIP and LICENSEE'S expense, VTIP shall reasonably assist LICENSEE in seeking an exemption from the foregoing requirement under the Bayh-Dole Act or other applicable law.

ARTICLE 7. TERMINATION OF THE AGREEMENT

7.1 Termination by VTIP. If LICENSEE fails to perform or violates any material term of Articles 2 and 3, then VTIP may give written notice of default ("Notice of Default") to LICENSEE. If LICENSEE fails to cure the default within ninety (90) days of the Notice of Default (except where a specific cure or cure period are prescribed for a breach or default in which event such cure or cure periods shall control), VTIP may terminate this Agreement and the license granted herein by a second written notice ("Notice of Termination") to LICENSEE. If a Notice of Termination is sent to LICENSEE, this Agreement shall automatically terminate on the effective date of that notice. Termination shall not relieve LICENSEE of its obligation to pay any fees owed at the time of termination and shall not impair any accrued right of VTIP or LICENSEE.

7.2 Termination by LICENSEE.

(a) LICENSEE shall have the right at any time and for any reason to terminate this Agreement upon a sixty (60) day written notice to VTIP. Said notice shall state LICENSEE'S reason for terminating this Agreement.

(b) Any termination under Paragraph 7.2(a) shall not relieve LICENSEE or VTIP of any obligation or liability accrued under this Agreement prior to termination or to rescind any payment made to VTIP or action by LICENSEE or VTIP prior to the time termination becomes effective. Termination shall not affect in any manner any rights of LICENSEE or VTIP arising under this Agreement prior to termination.

7.3 Survival on Termination. The following Paragraphs and Articles shall survive the termination or expiration of this Agreement in accordance with their terms:

- (a) Article 4 (REPORTS, RECORDS AND PAYMENTS);
- (b) Paragraph 5.2 (Patent Infringement);
- (c) Paragraph 7.4 (Disposition of Licensed Products on Hand);
- (d) Paragraph 8.1(c) (Limitation of Liability);
- (e) Paragraph 8.2 (Indemnification);

(f) Article 9 (USE OF NAMES AND TRADEMARKS); and

(g) Article 10 (MISCELLANEOUS PROVISIONS).

7.4 Disposition of Licensed Products on Hand. Upon termination or expiration of this Agreement, LICENSEE may dispose of all previously made or partially made Licensed Product within a period of one hundred and twenty (120) days of the effective date of such termination or expiration provided that the sale of such Licensed Product by LICENSEE, its Sublicensees, or Affiliates shall be subject to the terms of this Agreement, including but not limited to the rendering of reports and payment of royalties required under this Agreement.

ARTICLE 8. LIMITED WARRANTY AND INDEMNIFICATION

8.1 Limited Warranty.

(a) VTIP represents and warrants that (i) it has the lawful right to grant this license, (ii) it has the power and authority to execute, deliver and perform under this Agreement, (iii) the execution, delivery and performance of this Agreement will not conflict with or cause a default under any other agreement to which VTIP is a party or by which VTIP is bound, and (iv) VTIP has not received any notice of infringement with respect to the Inventions or the Technology from any third party.

(b) Except as set forth above, the license granted herein and the associated Technology are provided "AS IS" and without WARRANTY OF MERCHANTABILITY or WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE or any other warranty, express or implied. Except as set forth above, VTIP makes no representation or warranty that the Licensed Product, Licensed Method or the use of Patent Rights or Technology will not infringe any other patent or other proprietary rights.

(c) In no event shall VTIP be liable for any incidental, special or consequential damages resulting from exercise of the license granted herein or the use of the Invention, Licensed Product, Licensed Method or Technology.

(d) Nothing in this Agreement shall be construed as:

(1) a warranty or representation by VTIP as to the validity or scope of any Patent Rights;

(2) a warranty or representation that anything made, used, sold or otherwise disposed of under any license granted in this Agreement is or shall be free from infringement of patents of third parties;

(3) an obligation to bring or prosecute actions or suits against third parties for patent infringement except as provided in Paragraph 5.2 hereof,

(4) conferring by implication, estoppel or otherwise any license or rights under any patents of VTIP other than Patent Rights as defined in this Agreement, regardless of whether those patents are dominant or subordinate to Patent Rights;

(5) an obligation to furnish any know-how not provided in Patent Rights and Technology; or

(6) an obligation to update Technology.

8.2 Indemnification.

(a) LICENSEE shall indemnify, hold harmless and defend VTIP, its officers, employees, and agents; the sponsors of the research that led to the Invention; and the Inventors of the patents and patent applications in Patent Rights and their employers against any and all claims, suits, losses, damage, costs, fees, and expenses resulting from or arising out of exercise of this license or any sublicense. This indemnification shall include, but not be limited to, any product liability.

(b) LICENSEE, at its sole cost and expense, shall insure its activities in connection with the work under this Agreement and obtain, keep in force and maintain insurance or an equivalent program of self-insurance as follows:

(1) comprehensive or commercial general liability insurance (contractual liability included) with reasonable coverage limits appropriate for LICENSEE'S commercial activities; and

(2) the coverage and limits referred to above shall not in any way limit the liability of LICENSEE.

(c) LICENSEE shall furnish VTIP with certificates of insurance showing compliance with all requirements. Such certificates shall: (i) provide for thirty (30) day advance written notice to VTIP of any modification; (ii) indicate that VTIP has been endorsed as an additional insured under the coverage referred to above; and (iii) include a provision that the coverage shall be primary and shall not participate with nor shall be excess over any valid and collectable insurance or program of self-insurance carried or maintained by VTIP.

(d) VTIP shall notify LICENSEE in writing of any claim or suit brought against VTIP in respect of which VTIP intends to invoke the provisions of this Article. LICENSEE shall keep VTIP informed on a current basis of its defense of any claims under this Article.

ARTICLE 9. USE OF NAMES AND TRADEMARKS

9.1 Nothing contained in this Agreement confers any right to use in advertising, publicity, or other promotional activities any name, trade name, trademark, or other designation of either party hereto (including contraction, abbreviation or simulation of any of the foregoing). Unless required by law, the use by LICENSEE of the name Virginia Tech Intellectual Properties, Inc. is prohibited, without the express written consent of VTIP.

9.2 VTIP may disclose to the Inventors the terms and conditions of this Agreement upon their request. If such disclosure is made, VTIP shall request the Inventors not to disclose such terms and conditions to others pursuant to a non-disclosure agreement reasonably acceptable to LICENSEE.

9.3 VTIP may acknowledge the existence of this Agreement and the extent of the Grant in Article 2 to third parties, but VTIP shall not disclose the identity of LICENSEE or the financial terms of this Agreement to third parties, except where VTIP is required by law to do so.

ARTICLE 10. MISCELLANEOUS PROVISIONS

10.1 Correspondence. Any notice or payment required to be given to either party under this Agreement shall be deemed to have been properly given and effective:

(a) on the date of delivery if delivered in person, or

(b) five (5) days after mailing if mailed by first-class or certified mail, postage paid, to the respective addresses given below, or to such other address as is designated by written notice given to the other party.

If sent to LICENSEE:

Luna Innovations, Inc.
2851 Commerce Street
Blacksburg, VA 24060
Attention: Chief Financial Officer

If sent to VTIP:

Virginia Tech Intellectual Properties, Inc.
1872 Pratt Drive, Suite 1625
Blacksburg, VA 24060
Attention: Business Manager

10.2 Secrecy.

(a) "Confidential Information" shall mean the confidential or proprietary information of a party, including Technology, relating to the Invention and disclosed by either party to other party during the term of this Agreement, which if disclosed in writing shall be marked "Confidential", or if first disclosed otherwise, shall within thirty (30) days of such disclosure be reduced to writing by the disclosing party and sent to the recipient.

(b) The recipient shall:

(1) use the Confidential Information for the sole purpose of performing under the terms of this Agreement;

(2) safeguard Confidential Information against disclosure to others with the same degree of care as it exercises with its own data of a similar nature, which shall be no less than reasonable care;

(3) not disclose Confidential Information to others (except to its employees, agents, professional advisers, consultants, potential investors or acquirers who are bound to the recipient by a like obligation of confidentiality) without the express written permission of the disclosing party, except that the recipient shall not be prevented from using or disclosing any of the Confidential Information that:

(i) the recipient can demonstrate by written records was previously known to it;

(ii) is now, or becomes in the future, public knowledge other than through acts or omissions of the recipient; or

(iii) is lawfully obtained by the recipient from sources independent of the disclosing party; and

(c) The secrecy obligations of the recipient with respect to Confidential Information shall continue for a period ending five (5) years from the termination date of this Agreement.

10.3 Assignability. This Agreement may not be assigned by either party without the prior written consent of the other party, except that LICENSEE may assign the rights and obligations hereunder in connection with a merger and acquisition transaction or other change in control of LICENSEE.

10.4 No Waiver. No waiver by either party of any breach or default of any covenant or agreement set forth in this Agreement shall be deemed a waiver as to any subsequent and/or similar breach or default.

10.5 Failure to Perform. In the event of a failure of performance due under this Agreement and if it becomes necessary for either party to undertake legal action against the other on account thereof, then the prevailing party shall be entitled to reasonable attorneys' fees in addition to costs and necessary disbursements.

10.6 Governing Laws. THIS AGREEMENT SHALL BE INTERPRETED AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE COMMONWEALTH OF VIRGINIA, but the scope and validity of any patent or patent application shall be governed by the applicable laws of the country of the patent or patent application.

10.7 Force Majeure. A party to this Agreement may be excused from any performance required herein if such performance is rendered impossible or unfeasible due to any catastrophe or other major event beyond its reasonable control, including, without limitation, war, riot, and insurrection; laws, proclamations, edicts, ordinances, or regulations; strikes, lockouts, or other serious labor disputes; and floods, fires, explosions, or other natural disasters. When such events have abated, the non-performing party's obligations herein shall resume.

10.8 Headings. The headings of the several articles, paragraphs and sections are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement.

10.9 Entire Agreement. This Agreement embodies the entire understanding of the parties and supersedes all previous communications, representations or understandings, either oral or written, between the parties relating to the subject matter hereof.

10.10 Amendments. No amendment or modification of this Agreement shall be valid or binding on the parties unless made in writing and signed on behalf of each party.

10.11 Severability. In the event that any of the provisions contained in this Agreement is held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement, and this Agreement shall be construed as if the invalid, illegal, or unenforceable provisions had never been contained in it.

IN WITNESS WHEREOF, both VTIP and LICENSEE have executed this Agreement, in duplicate originals, by their respective and duly authorized officers as of the Effective Date.

VTIP:

LICENSEE

By /s/ JAMES BLAIR

By /s/ KENT A. MURPHY

James Blair
President

Kent A. Murphy
President

Date: March 19, 2004

Date: March 19, 2004

APPENDIX A

- VTIP # 99.021 “Discovery of a New Class of Endohedral Metallofullerenes Utilizing a Trimetallic Nitride Template Process”
Patent No: 6,303,760
- VTIP # 02.040 “Endohedral Metallofullerenes as Multi-Functional Medicinal Agents”
US Patent Application 60/368,960
PCT Application PCT/US03/10137
- VTIP #02.002 “Synthesis of the First Water-Soluble Trimetallic Nitride Endohedral Metallofullerols”
(Disclosure)
- VTIP # 02.001 “Symmetric Derivatives”
US Patent Application 10/244,747

June 16, 2004

Keith Jones, Ph.D.
Director of Commercialization
Virginia Tech Intellectual Properties, Inc.
1872 Pratt Drive
Suite 1625
Blacksburg, VA 24060

Re: **Amended and Restated License Agreement with Luna Innovations, Inc.**

Dear Keith:

Reference is hereby made to the Amended and Restated License Agreement between Luna Innovations Incorporated. ("Luna") and Virginia Tech Intellectual Properties, Inc. ("VTIP"), effective March 19, 2004 ("License Agreement"). Section 3.3(a)(8) of the License Agreement provides generally that Luna shall distribute research samples of certain materials under terms and conditions satisfactory to VTIP and to Luna. The License Agreement further provides that if such terms and conditions are not agreed upon and in place within sixty (60) days of its effective date, the license is terminated.

The Material Transfer Agreement attached as Exhibit A hereto ("MTA") is hereby agreed to by the parties to this letter agreement as an acceptable form of Material Transfer Agreement pursuant to Section 3.3(a)(8) of the License Agreement. In addition, the parties agree as follows:

1. VTIP acknowledges that the materials to be provided pursuant to the MTA are likely to be scarce and very expensive. As such, VTIP agrees that Luna shall not be obligated to provide pursuant to such MTA, more than [****], by mass, of such materials that are under the control of Luna and not committed in writing to third parties at any given time.
2. VTIP further agrees that any recipient of such materials shall be obligated to pay for the materials, as indicated in Section 11 of the MTA. Such price shall, remunerate Luna for the costs incurred in, manufacturing, shipping and preparing the materials.

2851 Commerce Street
Blacksburg, VA 24060
P: 540.552.5128
F: 540.951.0760
www.lunainnovations.com

3. Luna agrees to make wide distribution of research quantities of Licensed Product for non-commercial research and development (Research Samples)
4. To this end LICENSEE agrees to make available at [****] samples of Licensed Product that are in inventory. Luna will supply on an annual basis to VTIP a list (herein the List) of Licensed Product on hand and a price list for Research Samples. The initial List is attached as Exhibit B.
5. VTIP further agrees that any dissemination of the Licensed Product pursuant to the MTA shall be effected so as not to jeopardize Luna's relationship with its corporate partners, joint venturers and other alliance partners ("Corporate Partners"). Should any such Corporate Partners object, in writing, to the distribution of a single compound or closely related group of compounds, contained in Licensed Product for use in any single field of use, even for research purposes, VTIP agrees to give Luna permission to cease such distribution for the requested field of use promptly.
6. Notwithstanding section 5 Luna agrees to continue to supply research quantities to existing customers.
7. Orders for Licensed Product will be tracked and reported to VTIP at least annually or on reasonable notice but not more than once a quarter. Order means a written request from a non-commercial research organization that includes a description of material, quantity, and price; and has a reasonable expectation of receiving payment. All orders will be distributed under the terms of the Material Transfer Agreement attached to this agreement as Exhibit A

If the foregoing terms properly reflect our agreement regarding the matters set forth in this letter agreement, please indicate your agreement with such terms by signing in the space indicated below and returning a duplicate original of this letter agreement to us.

Sincerely,

/s/ KENT A. MURPHY

Name: Kent A. Murphy
Title: CEO, Luna Innovations

Accepted and Agreed to:

VIRGINIA TECH INTELLECTUAL PROPERTIES, INC.

By: /s/ JAMES B. BLAIR

Name: James B. Blair

Title: President

Exhibit A
MATERIAL TRANSFER AGREEMENT

This Material Transfer Agreement (“Agreement”) effective as of _____, 200__, is entered into by and between **Luna Innovations, Inc.**, a Delaware corporation (“Provider”), and _____, (“Recipient”).

The Recipient has requested sample(s) of experimental material(s) for non commercial research purposes in connection with _____ (“Purpose”).

The material(s) to be provided are _____ (*provide full description of material to be provided*) _____ (“Material”), which Material is the exclusive property of Provider.

Provider’s [Chief Technology Officer] (*Name*) _____, will provide Recipient’s _____ Scientist, _____ (*Name*) _____, _____ (*Title*) _____, with the Material.

The parties agree to the following terms and conditions for this material transfer:

1. Ownership and Use of Material; Quantities. The Material is the property of Provider and is to be used by Recipient solely for non commercial research purposes only in connection with the field of research described in Appendix A and only under the direction of the Recipient’s Scientist. Recipient acknowledges and agrees that only _____ (*quantity*) of Material shall be furnished to Recipient.

Restrictions. Recipient shall not transfer received or modified Material to any other party without the prior written consent of Provider.

2. Data; Results. The following data and related information will be supplied to the Provider’s [Chief Technology Officer] at the end of the investigations or studies: _____ (*identify the testing data/information to be delivered—ex: report outlining the studies that were done, a summary of the results and its conclusions regarding the performance of the Material*) _____. Provider shall be granted an irrevocable royalty free license to said information. Provider will not disclose these data to a third party without prior approval by the Recipient.

3. Reciprocal Obligations. The Recipient agrees to deliver reasonable quantities of derivatives of Licensed Material to Provider if available, not otherwise encumbered and for reasonable compensation for Provider’s research and development purposes pursuant to a material transfer agreement reasonably satisfactory to the parties.

4. Compliance with Law. Any and all studies conducted utilizing the Material will be conducted in accordance with all applicable laws, rules and regulations.

5. Return of Material. Any and all unused Material may be returned to Provider for a full refund.

6. Patent and Other Rights. Subject to any prior obligations to third parties existing and any rights reserved by the United States Government pursuant to 35 U.S.C. §§ 200 et seq, Recipient hereby grants to Provider an exclusive right of first negotiation for an agreement which would include a license (with the right to authorize and grant sublicenses), to any inventions and discoveries resulting from Recipient's use of the Material (herein inventions and discoveries). Provider shall have sixty (60) days from the date it receives such written description of any particular invention or discovery to evaluate its interest to develop and commercialize such inventions and discoveries. If Provider, within such sixty (60) day period, gives express written notice to Recipient of Provider's interest in first negotiating with Recipient regarding such inventions and discoveries, the parties shall negotiate in good faith and attempt to reach mutually acceptable agreement on the terms and conditions on which Recipient would grant rights to Provider to develop and commercialize such inventions and discoveries. If Provider fails to timely give such written notice, or if the parties fail to reach such mutually acceptable agreement within one hundred twenty (120) days after Recipient's receipt of Provider's notice of intent to negotiate, thereafter Recipient shall grant to Provider a royalty free non exclusive license to any inventions and discoveries resulting from Recipient's use of the Material.

7. Confidentiality. The parties may have need to disclose confidential information to one another relating to the Material and its use ("Confidential Information"). Information to be subject to this Agreement shall be disclosed in writing and labeled with an appropriate proprietary legend. When disclosed verbally or visually, the Confidential Information shall be designated as confidential at the time of such disclosure, with subsequent confirmation provided in writing within thirty (30) calendar days following such disclosure, referencing the date and description of the Confidential Information disclosed with an appropriate proprietary legend affixed thereto. In consideration of the disclosure of Confidential Information, the parties agree as follows:

a. Neither party will directly or indirectly divulge to unauthorized persons any Confidential Information received from the other party pursuant to this Agreement. The receiving party will disclose such information only to its employees or agents with a need to know for the Purpose of this Agreement, and any employees or agents to whom such information is disclosed shall be informed of the confidential nature of the disclosure and of this Agreement and shall agree, pursuant to an agreement or instrument reasonably acceptable to the disclosing party, to hold such information in confidence and be bound by this Agreement in the same manner that each party is bound. Each party will exercise the same degree of care as is normally applied to protect their own such information, but in any event, no less than reasonable care.

b. Each party may use Confidential Information only to the extent required to accomplish the Purpose of this Agreement. The receiving party will not copy any Confidential Information of the disclosing party, except as necessary to carry out the Purpose of this Agreement and shall protect any such copies in accordance with this Agreement. Confidential Information shall not be used for any purpose or in any manner that would constitute a violation of any laws or regulations, including without limitation, the export control laws of the United States.

c. The termination of this Agreement shall not relieve either party of its obligations with respect to Confidential Information received under this Agreement, and the confidentiality obligations under this Agreement shall survive the termination of this Agreement and continue for a term of Five (5) years from the initial receipt of any Confidential Information.

d. All Confidential Information shall remain the property of the disclosing party. Upon written request of the disclosing party, the receiving party shall immediately return or destroy the Confidential Information supplied by the disclosing party, including any and all copies thereof and including all analyses, compilations, summaries, studies and other material prepared by such party or its employees and based in whole or in part on, or otherwise containing or reflecting, any of the Confidential Information.

e. Recipient hereby acknowledges and agrees that in the event of any breach of this Section 7 by Recipient, including, without limitation, the disclosure of Confidential Information without the prior express written consent of Provider, Provider may suffer irreparable injury, such that no remedy at law will afford it adequate protection against, or appropriate compensation for, such injury. Accordingly, the Recipient hereby agrees that Provider may be entitled to specific performance of Recipient's obligations under this Section 7, as well as such further injunctive relief as may be granted by a court of competent jurisdiction.

f. Any confidentiality obligation under this Agreement shall not apply to any information, knowledge, data, and/or know-how with respect to which any of the following conditions exist:

i. If the receiving party can show that such information was already in its possession at the time of the disclosure; or,

ii. If the information disclosed by one party is or becomes publicly known during the term of this Agreement otherwise than through a breach of the receiving party's obligations under this Agreement; or,

iii. If the receiving party later receives such information from a third party who is not under any obligation to keep such information confidential; or,

iv. If such information is developed by one party independently of any disclosures made under this Agreement, as evidenced by that party's written records; or

v. Such disclosure is in response to a valid order of a court of competent jurisdiction or other governmental body of the United States or any political subdivision thereof, or is otherwise required to be disclosed by law; provided, however, that the receiving party shall first have given prompt written notice to the disclosing party in order to allow the disclosing party to participate in objecting to production of the information.

8. Publication. Recipient will be free to publish results of the research utilizing the Material after providing Provider with a thirty (30) day period in which to review each publication to identify patentable subject matter and to identify any inadvertent disclosure of Provider's proprietary information. If necessary to permit the preparation and filing of U.S. patent applications, the Recipient agrees to grant an additional review period not to exceed sixty (60) days. Any further extension will require subsequent written agreement between the Recipient and Provider. Recipient agrees to provide appropriate acknowledgment of the source of the Material in all publications. Recipient shall not use the name of the Provider or any contraction or derivative thereof or the name(s) of the Provider's affiliates or employees in any advertising, promotional, sales literature, or fundraising documents without prior written consent from Provider. No news release, publicity or other public announcement, either written or oral, regarding the terms and/or the existence of this Agreement, or performance hereunder, shall be made by Provider or Recipient without the prior written approval of the other party.

9. No Other Licenses or Rights. Nothing in this Agreement grants any rights, either expressly, by implication, estoppel, or otherwise, to any license under any invention, patent, or in any know-how of the Provider nor any rights to use the Material or any product or process related thereto or derived therefrom for profit making or commercial purposes. If Recipient desires to use Material and related patents, if any, for profit-making or commercial purposes, Recipient agrees to negotiate in good faith a license with Provider prior to making any profit-making or commercial use. Provider shall have no obligation to grant such license to Recipient, and may grant exclusive or non-exclusive licenses to others who may be investigating uses of the Material.

10. Payment. Recipient shall make the following payment to cover the cost of producing the Material and shipping and preparation of the Material:
_____ (amount required) _____.

11. No Alteration of Rights. The provision of Material to Recipient is understood to alter in no way any rights of the U.S. Government or other research sponsor or Provider.

12. Disclaimer of Warranties. Any Material delivered pursuant to this Agreement is understood to be experimental in nature and may have hazardous properties. PROVIDER MAKES NO REPRESENTATIONS AND EXTENDS NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED. THERE ARE NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF ANY PATENT, COPYRIGHT, TRADEMARK, OR OTHER PROPRIETARY RIGHTS.

13. Limitation of Liability; Indemnity. Recipient assumes all liability for damages that may arise from its use, storage or disposal of the Material. In no event shall Provider be liable to Recipient for any use of such Material, and Recipient hereby agrees, where not precluded by federal or state law, to defend, indemnify, and hold Provider harmless from any loss, claim, damage, or liability, of whatsoever kind or nature, which may arise from or in connection with this Agreement or the use, storage or disposal of such Material hereunder.

14. **Termination.** Either party may terminate this Agreement at any time, in which case Recipient will discontinue within fifteen (15) days its use of the Material until such time as a new agreement between the parties is established. If no agreement is established between the parties, Recipient agrees, upon direction of Provider, to return any unused portions of the Material to the Provider, or dispose of it in a manner mutually agreeable to both parties.

15. **Entire Agreement.** This Agreement represents the entire, complete, and final understanding between the parties on the subject matter herein and supersedes any previous or other understandings, commitments, or agreements, oral or written.

16. **Assignment.** Neither party may assign its rights or obligations under this Agreement without the prior written consent of the other party, except that Provider may assign its rights and obligations hereunder in connection with a merger, acquisition or sale of substantially all of its assets or business.

17. **Counterparts.** This Agreement may be executed by the parties hereto in separate counterparts, each of which when so executed and delivered shall be an original, but all such counterparts shall together constitute one and the same agreement.

IN WITNESS WHEREOF, the parties have, through duly authorized representatives, executed this Agreement effective as of the date in the preamble hereof.

LUNA INNOVATIONS, INC.

(Recipient)

By: _____

By: _____

Name

Name

Title

Title

Date

Date