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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

(MARK ONE)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

FOR THE FISCAL YEAR ENDED DECEMBER 31, 2011

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

FOR THE TRANSITION PERIOD FROM TO
COMMISSION FILE NUMBER 000-52008

LUNA INNOVATIONS INCORPORATED

(Exact name of Registrant as Specified in its Charter)

Delaware	**54-1560050**
(State or Other Jurisdiction of Incorporation or Organization)	*(I.R.S. Employer Identification Number)*

1 Riverside Circle, Suite 400
Roanoke, VA 24016
(Address of Principal Executive Offices)
(540) 769-8400
(Registrant's Telephone Number, Including Area Code)

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on which Registered
Common Stock, par value $0.001 per share	The NASDAQ Stock Market, LLC

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of "large accelerated filer", "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐ Accelerated filer ☐
Non-accelerated filer ☐ (Do not check if a smaller reporting company) Smaller reporting company ☒

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant on June 30, 2011, based upon the closing price of Common Stock on such date as reported by the NASDAQ Capital Market, was approximately $13.7 million.

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Section 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court. Yes ☒ No ☐

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date: As of March 15, 2012 there were 13,888,454 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Specified portions of the registrant's Proxy Statement with respect to its 2012 Annual Meeting of stockholders, anticipated to be filed within 120 days after the end of its fiscal year ended December 31, 2011, are incorporated by reference into Part III of this annual report on Form 10-K.

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LUNA INNOVATIONS INCORPORATED
ANNUAL REPORT ON FORM 10-K
FOR THE YEAR ENDED DECEMBER 31, 2011

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CAUTIONARY NOTE REGARDING FORWARD LOOKING STATEMENTS

This Annual Report on Form 10-K, including the "Management's Discussion and Analysis of Financial Condition and Results of Operation" section in Item 7 of this report, and other materials accompanying this Annual Report on Form 10-K contain forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, and Section 27A of the Securities Act of 1933, as amended. All statements other than statements of historical facts are "forward-looking statements" for purposes of these provisions, including those relating to future events or our future financial performance. In some cases, you can identify these forward- looking statements by words such as "intends," "will," "plans," "anticipates," "expects," "may," "might," "estimates," "believes," "should," "projects," "predicts," "potential" or "continue," or the negative of those words and other comparable words, and other words or terms of similar meaning in connection with any discussion of future operating or financial performance. Similarly, statements that describe our business strategy, goals, prospects, opportunities, outlook, objectives, plans or intentions are also forward-looking statements. These statements are only predictions and may relate to, but are not limited to, expectations of future operating results or financial performance, capital expenditures, introduction of new products, regulatory compliance, plans for growth and future operations, as well as assumptions relating to the foregoing.

These statements are based on current expectations and assumptions regarding future events and business performance and involve known and unknown risks, uncertainties and other factors that may cause actual events or results to be materially different from any future events or results expressed or implied by these statements. These factors include those set forth in the following discussion and within Item 1A "Risk Factors" of this Annual Report on Form 10-K and elsewhere within this report.

You should not place undue reliance on these forward-looking statements, which apply only as of the date of this Annual Report on Form 10-K. You should carefully review the risk factors described in other documents that we file from time to time with the U.S. Securities and Exchange Commission, or SEC. Except as required by applicable law, including the rules and regulations of the SEC, we do not plan to publicly update or revise any forward-looking statements, whether as a result of any new information, future events or otherwise, other than through the filing of periodic reports in accordance with the Securities Exchange Act of 1934, as amended.

PART I

ITEM 1. BUSINESS

Company Overview and Business Model

We develop, manufacture and market fiber optic test & measurement, sensing, and instrumentation products and are focused on bringing new and innovative technology solutions to measure, monitor, protect and improve critical processes in the telecommunications, medical, composite and defense industries. Our business model is designed to accelerate the process of bringing new and innovative products to market. We use our in-house technical expertise across a range of technologies to perform applied research services for companies and government-funded projects. We continue to invest in product development and commercialization, which we anticipate will lead to increased product sales growth.

Our corporate strategy focuses on three key objectives for growth as we seek to commercialize our technologies:

- Develop and become the leading supplier of fiber optic shape sensing technology for robotic and minimally invasive surgical systems.
- Become the leading provider of fiber optic sensing systems and standard test methods for composite materials.

- Become the leading choice for ensuring the integrity of integrated circuits used in defense systems.

We are organized into two main business segments, our Products and Licensing segment and our Technology Development segment. Our Products and Licensing segment develops, manufactures and markets our fiber optic test and measurement, sensing, and instrumentation products and also conducts applied research in the fiber optic sensing area for both corporate and government customers. Revenues in this segment are currently largely derived from sales of test and measurement equipment for optical components and networks. Our Products and Licensing segment is also focused on two of our key strategic objectives. We are working to develop and commercialize our fiber optic shape sensing technology in the medical industry with the goal of supplying fiber optic shape sensing components for use in robotic and minimally invasive surgical systems. We are also working to develop and commercialize our fiber optic technology for strain and temperature sensing applications for the composite materials industry. Our Products and Licensing segment revenues represented approximately 27%, 35% and 37% of our total revenues for the years ended December 31, 2009, 2010 and 2011, respectively.

Our Technology Development segment performs applied research for government funded projects and includes our secure computing and communications group, or SCC. SCC provides innovative solutions designed to secure critical technologies within the U.S. government. SCC conducts applied research and provides services to the government in this area, with its revenues primarily derived from U.S. government contracts and purchase orders. SCC is focused on our strategic objective of developing a leading technology for ensuring the integrity of integrated circuits used in defense systems. We believe this technology may also have other commercial applications.

Our Technology Development segment also performs applied research in the areas of sensing and materials. Our Technology Development segment comprised approximately 73%, 65% and 63% of our total revenues for the years ended December 31, 2009, 2010 and 2011, respectively. Most of the government funding in the part of our Technology Development segment outside of SCC is derived from the Small Business Innovation Research, or SBIR, program coordinated by the U.S. Small Business Administration, or SBA. Our SBIR research is focused on technological areas with commercial potential and we strive to commercialize any resulting scientific advancements. For the year ended December 31, 2011, approximately 46% of our revenues was generated under the SBIR program, compared to 40% in 2010 and 42% in 2009.

Products and Licensing

In our Products and Licensing segment we have a history of marketing numerous fiber optic test and measurement products with a primary focus on the telecommunications industry. We are also pursuing our strategic goal of becoming a leading provider of fiber optic sensing systems and standard test methods for composite materials through the introduction of our new Optical Distributed Sensor Interrogator (ODiSI) product, which we believe will represent a significant improvement over our existing products that serve this market. Our Products and Licensing segment is also performing the customer-driven development work to help accomplish our strategic goal of becoming the leading supplier of fiber optic shape sensing technology for robotic and minimally invasive surgical systems. Our Products and Licensing segment includes approximately 40 full-time employees. Our primary product lines and development services in this segment are described in more detail below.

Test & Measurement, Sensing, and Instrumentation Products

Test and Measurement Equipment for Fiber Optic Components and Sub-Assemblies

Our product lines in the test and measurement domain include our Optical Vector Analyzer, or OVA, our Optical Backscatter Reflectometer, or OBR, and the Phoenix family of tunable lasers.

Historically, our test and measurement products have primarily served the telecommunications industry, although most of our products have valuable applications in other fields. Our test and measurement products

monitor the integrity of fiber optic network components and sub-assemblies. These products are designed for manufacturers and suppliers of optical components and sub-assemblies and allow them to reduce development, test and production costs and improve the quality of their products. Most manufacturers and suppliers of optical components and modules currently use a combination of different types of optical test equipment to identify and measure failures in optical networks, such as bad splices, bends, crimps and other reflective and non-reflective events that can cause defects and negatively impact product performance. Our optical test equipment products replace the need to employ multiple test products by addressing all stages of the end user's product development lifecycle, including design verification, component qualification, assembly process verification and failure analysis. Our OVA platform allows manufacturers and suppliers of optical components and sub-assemblies to reduce development, test and production costs and time-to-market by replacing multiple, time consuming and expensive measurement platforms with a single, integrated and easy-to-use instrument.

Our OBR is a highly sensitive diagnostic device that is both valuable for application in the telecommunications industry and flexible in its ability to provide measurements in various other applications. Our OBR allows data and telecommunications companies and the service providers who maintain their own fiber optic networks to reduce test time and improve product quality. Our OBR provides the ability to inspect fiber networks with higher resolution and better sensitivity than is possible with other existing test products. Its user-friendly graphical user interface also makes the OBR product suitable for both research and manufacturing applications. The OBR gives end users a very high resolution view that is similar to an "X-Ray" into the inner workings of a fiber optic network. The OBR also has a feature that allows users to turn standard optical fiber into multiple sensors that could be used in a variety of temperature measurement and monitoring applications including power generation; civil structure monitoring; industrial process control; component-level heating in optical amplifiers; strain and load distribution measurements of aircraft harnesses; and temperature monitoring inside telecommunications cabinets and enclosures.

New ODiSI Sensing Solution; Distributed Sensing Systems

In 2011, we launched our new sensing platform called ODiSI. It provides fully distributed strain or temperature measurements and delivers an extraordinary amount of data by using an optical fiber as a continuous sensor over up to 50 meters of surface. Compared to traditional sensing methods, such as strain gages, this technology provides greater insight into the performance, tolerances and failure mechanisms of structures and vehicles. We believe the technology will provide exceptional value to the fast-growing composites manufacturing market, particularly in aerospace and green energy applications.

We have significant expertise in distributed sensing systems, such as ODiSI, which are products composed of multiple sensors whose inputs are integrated through a fiber optic network and software. These products use fiber optic sensing technology with an innovative monitoring system that allows several thousand sensors to be networked along a single optical fiber.

Potential key applications and markets of our fiber optic sensing solutions include the airframe industry, integrated structural monitoring of civil structures and space applications. For example, a major airframe manufacturer has explored the use of our system during fatigue testing to measure strain through a network of sensors distributed throughout an aircraft. Our ODiSI platform also enables the direct monitoring of temperature. Potential markets include industrial process control and electrical system monitoring. For example, our network of distributed temperature sensors has been tested by a major manufacturer of electrical generators for the purpose of increasing operational efficiency and prolonging generator life.

Tunable Lasers

We have acquired the rights to manufacture a line of swept tunable lasers to allow us to compete more effectively in our existing fiber optic test and measurement as well as sensing markets. This laser is in production, and this technology is being integrated into current and new products to help us provide our

customers with faster, more flexible and cost-effective test and measurement products. The laser is unique in the quality of the laser light produced, the speed at which it can operate, the small size of the package, and the environmental conditions in which it can operate. We believe that these traits make it possible for us to move our fiber optic sensing capabilities out of the laboratory, and into more demanding environments such as aircraft, operating rooms, and challenging industrial conditions. We are, therefore, using this technology to pursue business opportunities in new markets such as industrial and medical sensing, as described above and below.

Sales & Marketing

We market our fiber optic products to telecommunications companies, defense agencies, government system integrators, researchers, OEMs, distributors and strategic partners worldwide. We have a regional sales force that markets and sells our products through manufacturer representative organizations to customers in North America and through partner and distribution channels for other sales around the world.

We believe that we provide a high level of support in developing and maintaining our long-term relationships with our customers. Customer service and support are provided through our offices and those of our partners that are located throughout the world.

Fiber Optic Shape Sensing Solutions for Robotic and Minimally Invasive Surgical Systems

We are developing our fiber optic sensing technology to enhance medical devices used for minimally invasive procedures for diagnostics, surgery or therapy. This technology can be applied to measure the position and shape of an instrument inside the body, as well as to measure pressure and temperature. This information can be collected in real time and used as feedback to aid in the navigation of robotic surgical devices while inside the body by providing the device's current shape and position. It can also provide similar benefits to non-robotic devices.

We have entered into an intellectual property licensing, development and supply agreement with Intuitive Surgical, Inc., or Intuitive, a technology leader in robotic-assisted minimally invasive surgery and the manufacturer of the da Vinci ® Surgical System. We have also entered into similar agreements with Hansen Medical, Inc., or Hansen, a global leader in flexible robotics and the manufacturer of the Sensei ® and Magellan® robotic catheter systems.

Under our multi-year agreement with Intuitive, we are developing a fiber optic-based shape sensing and position tracking system to be integrated into Intuitive's products. We entered into the agreement with Intuitive to expand our presence within the medical devices market. Our shape sensing and position tracking system provides real-time shape and position measurements, which will help surgeons navigate through the body. The system consists of software, instrumentation and disposable optical sensing fiber. Our technology is unique and designed to provide the user with an accurate, direct and continuous measurement of device location within the body without limiting the surgeon's line of sight or introducing electrical signals or radiation into the body. Depending on the progress of these services and the development of a resulting product, we have certain exclusive supply rights for the component that would implement our fiber optic shape sensing technology.

Under our agreements with Hansen, we are developing a localization and shape sensing solution for Hansen's medical robotics system. Hansen pays us for our development work on a time and materials basis. We have also agreed on certain terms under which we would supply fiber optic shape sensing systems to Hansen. Our business relationship with Hansen is further described below under "Litigation and Agreements with Hansen Medical, Inc."

Ultrasound Medical Device

We launched our Emboli Detection and Classification (EDAC®) QUANTIFIER ultrasound product in 2006 and received FDA clearance of our 510(k) application for this product in 2007. The EDAC® QUANTIFIER is a non-invasive medical device that uses quantitative ultrasound technology to count emboli in ex-vivo blood

circuits in real time. Emboli can be air bubbles or solid matter, such as lipids or blood clots, and can enter the blood circuit during critical and invasive medical procedures such as cardiopulmonary bypass surgery. We have an agreement with Terumo Cardiovascular Systems Corporation, or Terumo CVS, a leading supplier of products for cardiopulmonary bypass surgeries, for Terumo CVS to distribute this product in the United States.

Technology Development

We provide applied research for customers in our primary areas of focus, including secure computing, sensing and materials such as nanomaterials, coatings, adhesives, composites and bio-engineered materials. We generally compete to win contracts in these areas on a fee-for-service basis. Our Technology Development segment has a successful track record of evaluating innovative technologies to address the needs of our customers.

We seek to maximize the benefits we derive from our contract research business, including revenue generation and identification of promising technologies for further development. We focus primarily on opportunities in which we develop intellectual property rights in areas that we believe have commercialization potential. We take a disciplined approach to contract research to try to ensure that the costs of any contract we undertake will be fully reimbursed. We believe that this model is cost-efficient and significantly reduces our development risk in that it enables us to defray the costs of riskier technology development with third-party funding.

As of December 31, 2011, our Technology Development segment was engaged in over 75 active contracts, with typical terms ranging from six months to three years. These projects span a wide range of applications across our areas of focus.

Although we conduct our applied research on a fee-for-service basis for third parties, we seek to retain full or partial rights to the technologies and patents developed under those contracts and to continuously enlarge and strengthen our intellectual property portfolio. Often, a new technology that we develop complements existing technologies and enables us to develop applications and products that were not previously possible. In addition, the technologies we develop are often applicable to commercial markets beyond the scope of the applications originally contemplated for those technologies in the contract research stage, and we endeavor to capture the value of those opportunities.

As of December 31, 2011, our Technology Development segment consisted of 115 full time employees, of whom 77 hold advanced degrees, including 26 Ph.D. degrees. We also utilize the knowledge and experience of researchers employed through the academic institutions, corporations and government agencies with which we subcontract. Our Technology Development segment is organized into subgroups according to areas of technology, with each subgroup being managed by its own director who is responsible for its financial performance. In addition, we have in place disciplined processes designed to ensure quality control of proposal preparation, program reviews, pipeline reviews, revenue tracking and financial reporting.

Each year, U.S. government federal agencies and departments are required to set aside a portion of their grant awards for SBIR-qualified organizations. SBIR contracts include Phase I feasibility contracts of up to $150,000 and Phase II proof-of-concept contracts, which can be as high as $1,000,000. We have won three National Tibbetts Awards from the SBA for outstanding SBIR performance. We have also won research contracts outside the SBIR program from corporations and government entities. These contracts typically have a longer duration and higher value than SBIR grants. As we strive to grow, one of our goals is to derive a larger portion of our contract research revenues from contracts outside of the SBIR program.

Secure Computing and Communications

Our Secure Computing and Communications group, which we refer to as SCC, provides innovative solutions designed to secure critical technologies within U.S. government systems, including the protection of

deployed hardware and software systems and the communications between them. SCC develops and deploys world leading Field-Programmable Gate Array (FPGA) design integrity solutions that:

- Ensure design trust;
- Enable high reliability verification;
- Migrate designs from obsolete chips to modern chips; and
- Provide design and security analysis.

SCC conducts both applied research and provides cybersecurity services to the government. SCC's revenue is primarily derived from non-SBIR U.S. government contracts and purchase orders.

Our team of digital design researchers, software developers, and security experts includes academics, experienced communications and military systems engineers, and program and business management professionals. We have strong theoretical researchers who have experience translating theory into practice. Moreover, we excel at creating and integrating complex solutions into usable toolsets in short timeframes.

We believe that some of our technological capabilities related to ensuring the integrity of integrated circuits used in defense systems may also have commercial applications outside the government market.

Materials

We are actively developing a wide variety of materials. One of these is a new class of non-halogenated fire retardant additives developed as a possible replacement for brominated fire retardants, which are coming under increasing criticism due to health concerns. Our non-halogenated fire retardant additives are being evaluated for use in composites, such as fiber reinforced composites.

We have developed a range of coatings, including both hydrophobic and super oleo phobic coatings. These coatings are being evaluated for use in a number of applications. Other coatings under development include anti-corrosion and damage indicating coatings.

We are also working on a variety of bioengineered materials for homeostatic agents and wound healing. These materials must be approved by the FDA or similar foreign regulatory agencies before they can be marketed, which we do not expect to occur for at least several years, if at all.

Our nanomaterials activity is focused on fullerenes and tri-metal nitride endohedral fullerene (Trimetasphere ®) materials. The Trimetasphere® nanomaterial is a carbon sphere with three metal atoms and an enclosed nitrogen atom. We have obtained an exclusive license from Virginia Tech to commercialize Trimetasphere nanomaterials under an issued U.S. patent and pending U.S. patent applications.

One potential market application of our nanomaterial technology is magnetic resonance imaging, or MRI. We believe that our Trimetasphere nanomaterial contrast agents may be able to provide a higher image contrast than existing contrast agents but with a lower risk of toxicity. Medical contrast agents for human use, such as our Trimetasphere nanomaterials, must be approved by the FDA or similar foreign regulatory agencies before they can be marketed, which we do not expect to occur for at least several years, if at all. As described below under "Government Regulation," this approval process can involve significant time and expense and may delay or prevent our products from reaching the market.

We are also researching other applications for nanomaterial-based drugs based on the anti-oxidative characteristics of fullerenes. These products are in the early stages of development, but if successful, could offer new market opportunities for us.

In 2009, we acquired a patent portfolio from Tego Biosciences, Inc., including in- and out-licenses, generally for the use of carbon fullerene nanomolecules in the treatment of human health. We believe this acquisition strengthens our patent position in this area, but there can be no assurances that we will be able to obtain commercial success as a result of these patents and licenses.

Sensing

Our Technology Development segment also performs a significant amount of applied research towards developing new sensors. This includes sensors for the purpose of corrosion, temperature, strain, pressure, structural health and chemical detection. Much of the work is directed to harsh environments and uses optics. Examples include measuring temperature and neutron flux in nuclear reactors, pressure and temperature in gas turbines, and temperatures of cryogenic lines. The effort utilizes both discrete and distributed sensors. Our technology development work in this area is closely aligned with our Products and Licensing segment and is directed at advancing the technology and the development of new applications.

Intellectual Property

We seek patent protection on inventions that we consider important to the development of our business. We rely on a combination of patent, trademark, copyright and trade secret laws in the United States and other jurisdictions, as well as confidentiality procedures and contractual provisions to protect our proprietary technology and our brand. We control access to our proprietary technology and enter into confidentiality and invention assignment agreements with our employees and consultants and confidentiality agreements with other third parties.

Our success depends in part on our ability to develop patentable products and obtain, maintain and enforce patent and trade secret protection for our products, as well as to successfully defend these patents against third-party challenges both in the United States and in other countries. We will only be able to protect our technologies from unauthorized use by third parties to the extent that we own or have licensed valid and enforceable patents or trade secrets that cover them. Furthermore, the degree of future protection of our proprietary rights is uncertain because we may not be able to obtain patent protection on some or all of our technology and because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage.

Currently, we own or license approximately 73 U.S. and international patents and approximately 70 U.S. and international patent applications, and we intend to file, or request that our licensors file, additional patent applications for patents covering our products. Our issued patents, and the patents that may issue from our applications, generally have terms that are scheduled to expire between 2015 and 2031. However, patents may not be issued for any pending or future pending patent applications owned by or licensed to us. Claims allowed under any issued patent or future issued patent owned or licensed by us may not be valid or sufficiently broad to protect our technologies. Any issued patents owned by or licensed to us now or in the future may be challenged, invalidated or circumvented, and, in addition, the rights under such patents may not provide us with competitive advantages. In addition, competitors may design around our technology or develop competing technologies. Intellectual property rights may also be unavailable or limited in some foreign countries, which could make it easier for competitors to capture or increase their market share with respect to related technologies.

Corporate History and Chapter 11 Reorganization

We were incorporated in the Commonwealth of Virginia in 1990 and reincorporated in the State of Delaware in April 2003. We completed our initial public offering in June 2006. Our executive offices are located at 1 Riverside Circle, Suite 400, Roanoke, Virginia 24016 and our main telephone number is (540) 769-8400.

On July 17, 2009, we filed a voluntary petition for relief in order to reorganize under Chapter 11 of the United States Bankruptcy Code, including a proposed plan of reorganization, which we refer to in this report as the Reorganization Plan, with the United States Bankruptcy Court for the Western District of Virginia. On January 12, 2010, the Bankruptcy Court approved the Reorganization Plan and we emerged from bankruptcy on that date.

Litigation and Agreements with Hansen Medical, Inc.

In June 2007, Hansen, a company for which we had conducted certain research and performed certain services, filed a lawsuit against us for using allegedly misappropriated trade secrets from Hansen in connection with our work with Intuitive or otherwise. On April 21, 2009, a jury found in favor of Hansen and awarded a verdict of $36.3 million against us. As a result of this jury verdict, we filed for Chapter 11 reorganization in July 2009.

On December 11, 2009, we and our wholly owned subsidiary Luna Technologies, Inc. entered into a settlement agreement with Hansen to settle all claims arising out of the litigation. On January 12, 2010, as part of our Reorganization Plan, we entered into a series of agreements with Hansen and Intuitive that were contemplated by the settlement agreement. The following is a summary of the material terms of these agreements.

License Agreement with Hansen (the "Hansen License")

Under the Hansen License, we granted Hansen (i) a co-exclusive (with Intuitive), royalty-free, fully paid, perpetual and irrevocable license to our fiber optic shape sensing/localization technology within the medical robotics field. The license can only be sublicensed by Hansen in connection with Hansen products, except that Hansen can grant full sublicenses to third parties for single degree of freedom robotic medical devices; (ii) an exclusive (and fully sublicenseable) royalty-free, fully paid, perpetual and irrevocable license to our fiber optic shape sensing/localization technology for non-robotic medical devices within the orthopedics, vascular, and endoluminal fields; and (iii) a co-exclusive (with us) royalty-free, fully paid, perpetual and irrevocable license to our fiber optic shape sensing/localization technology for non-robotic medical devices in other medical fields (including colonoscopies but not including devices described in clause (ii) above). In 2011, Hansen entered into certain agreements with Philips Medical Systems (and/or its affiliates) under which Hansen sublicensed its non-robotic medical rights to our fiber optic shape sensing/localization technology.

The Hansen License provides that Hansen and Intuitive have the right to enforce the intellectual property licensed by us within the medical robotics field. Hansen has the sole right to enforce such intellectual property for non-robotic devices in the orthopedics, vascular and endoluminal fields. We have the right to enforce such intellectual property in other non-robotic medical fields.

In addition, Hansen granted us a nonexclusive, sublicenseable, royalty-free, fully paid, perpetual and irrevocable license to certain Hansen fiber optic shape sensing/localization technology in all fields outside of the medical robotics field and the orthopedics, vascular and endoluminal fields. Furthermore, we confirmed Hansen's ownership of certain intellectual property developed in whole or in part by us under a prior agreement between us and Hansen.

Note Payable to Hansen (the "Hansen Note")

In connection with the settlement agreement, we issued a promissory note to Hansen, which we refer to in this report as the Hansen Note, in the principal amount of $5.0 million, payable in 16 quarterly installments through January 2014. The note bore interest at a fixed rate of 8.5% and was secured by substantially all of our assets. In May 2011, we and Hansen entered into an amendment to the Hansen Note and a payoff letter. Under the terms of the payoff letter, we and Hansen agreed to a final payoff, including a discount of $190,000, of the Hansen Note as payment in full for all principal and accrued interest.

Development and Supply Agreement

In connection with the settlement agreement, we also entered into a development and supply agreement with Hansen. Under the terms of this agreement, we will perform product development services with respect to fiber optic shape sensing at Hansen's request and provide our shape sensing products to Hansen. Revenues earned for

product development will be determined in a manner consistent with our normal contract development services and will be payable monthly to us. The agreement also sets forth certain terms under which we would supply fiber optic components to Hansen.

In May 2011, we amended this development and supply agreement with Hansen in order to update the specifications and estimated budget amounts for certain development milestones and provide for additional development milestones and related budget estimates and specifications to be achieved. The amendment also provides for a payment structure whereby we share a specified percentage of the development expenses otherwise payable in connection with certain of the development milestones, up to a certain cumulative maximum, and changes the mechanism for calculating amounts that Hansen may hold back from being paid to us while such expenses are being shared by the parties. Finally, the amendment adjusted the commercial transfer pricing mechanism for the Company's supply of fiber optic components to Hansen.

Common Stock Issued to Hansen

In connection with the settlement agreement, on January 12, 2010, we issued 1,247,330 shares of common stock to Hansen, representing 9.9% of our common stock then outstanding. In addition, we issued to Hansen a warrant entitling Hansen to purchase, until January 12, 2013, a number of shares of common stock as necessary for Hansen to maintain a 9.9% ownership interest in our common stock, at an exercise price of $0.01 per share.

Competition

We compete for government, university and corporate research contracts relating to a broad range of technologies. Competition for contract research is intense and the industry has few barriers to entry. We compete against a number of in-house research and development departments of major corporations, as well as a number of small, limited-service contract research providers and companies backed by large venture capital firms. The contract research industry continues to experience consolidation, which has resulted in greater competition for clients. Increased competition might lead to price and other forms of competition that could harm our operating results. We compete for contract research on the basis of a number of factors, including reliability, past performance, expertise and experience in specific areas, scope of service offerings, technological capabilities and price.

We also compete, or will compete, with a variety of companies in several different product markets. The products that we have developed or are currently developing will compete with other technologically innovative products, as well as products incorporating conventional materials and technologies. We expect that we will compete with companies in a wide range of industries, including semiconductors, electronics, biotechnology, textiles, alternative energy, military, defense, healthcare, telecommunications, industrial measurement, security applications and consumer electronics. Although there can be no assurance that we will continue to do so, we believe that we compete favorably in these areas because our products leverage advanced technologies to offer superior performance. If we are unable to effectively compete in these areas in the future, we could lose business to our competitors, which could harm our operating results.

Government Regulation

Qualification for Small Business Innovation Research Grants

SBIR is a highly competitive program that encourages small businesses to explore their technological potential and provides them with incentives to commercialize their technologies by funding research that might otherwise be prohibitively expensive or risky for companies like us. As noted above, we presently derive a significant portion of our revenue from this program, but we must continue to qualify for the SBIR program in order to be eligible to receive future SBIR awards. The eligibility requirements are:

- **Ownership.** The company must be at least 51 percent owned and controlled by U.S. citizens or permanent resident aliens, or owned by an entity that is itself at least 51 percent owned and controlled by U.S. citizens or permanent resident aliens; and

- **Size.** The company, including its affiliates, cannot have more than 500 employees.

These requirements are set forth in the SBA's regulations and are interpreted by the SBA's Office of Hearings and Appeals. In determining whether we satisfy the 51% ownership requirement, agreements to merge, stock options, convertible debt and other similar instruments are given "present effect" by the SBA as though the underlying security were actually issued unless the exercisability or conversion of such securities is speculative, remote or beyond the control of the security holder. We therefore believe our outstanding options and warrants held by eligible individuals may be counted as outstanding equity for purposes of meeting the 51% equity ownership requirement. We believe that we are in compliance with the SBA ownership requirements.

In addition, to be eligible for SBIR contracts, the number of our employees, including those of any entities that are considered to be affiliated with us, cannot exceed 500. As of December 31, 2011, we, including all of our divisions, had 186 full- and part-time employees. In determining whether we have 500 or fewer employees, the SBA may count the number of employees of entities that are large stockholders who are "affiliated" or have the power to control us. In determining whether firms are affiliated, the SBA evaluates factors such as stock ownership and common management, but it ultimately may make its determination based on the totality of the circumstances. Under its regulations, the SBA may conclude that a stockholder that is large compared to others has the power to control us and is our affiliate. Eligibility protests can be raised to the SBA by a competitor or by the awarding contracting agency. We understand that the SBA is in the process of performing a formal size determination in connection with some of our SBIR contracts. We cannot provide assurance that the SBA will interpret its regulations in our favor. Regardless of the outcome of the SBA's pending determination, if we grow larger, and if our ownership becomes more diversified, we may no longer qualify for the SBIR program, and we may be required to seek alternative sources and partnerships to fund some of our research and development costs. Additional information regarding these risks may be found below in "Risk Factors."

FDA Regulation of Products

Some of the products that we are developing are subject to regulation under the Food, Drug, and Cosmetic (FDC) Act. In particular, any Trimetasphere nanomaterial-based MRI contrast agent would be considered a drug, and our ultrasound diagnostic devices for measuring certain medical conditions will be considered medical devices, under the FDC Act. Both the statutes and regulations promulgated under the FDC Act govern, among other things, the testing, manufacturing, safety efficacy, labeling, storage, recordkeeping, advertising and other promotional practices involving the regulation of drug and devices. Compliance with the FDC Act may add time and expense to product development, and there can be no assurance that any of our products will be successfully developed and approved for marketing by the FDA.

Medical Devices

Our existing and future health care products, including our EDAC ® product, are regulated by the FDA as medical devices. The nature of the requirements applicable to devices depends on their classification by the FDA. A device we develop would be automatically classified as a Class III device, requiring pre-market approval, unless the device is substantially equivalent to an existing device that has been classified in Class I or Class II or to a pre-1976 device that has not yet been classified. Class I or Class II devices require registration through the 510(k) exemption. If we were unable to demonstrate such substantial equivalence and unable to obtain reclassification, we would be required to undertake the costly and time-consuming approval process, comparable to that for new drugs, of conducting preclinical studies, obtaining an investigational device exemption to conduct clinical tests, filing a pre-market approval application and obtaining FDA approval.

If the device were a Class I product, the general controls of the FDC Act, primarily requirements relating to adulteration, misbranding and good manufacturing practices, would nevertheless apply, which would subject the device to regulatory oversight and compliance requirements. If substantial equivalence to a Class II device could be shown, the general controls plus special controls, such as performance standards, guidelines for safety and effectiveness and post-market surveillance, would apply. While demonstrating substantial equivalence to a

Class I or Class II product is not as costly or time-consuming as the pre-market approval process for Class III devices, it can in some cases also involve conducting clinical tests to demonstrate that any differences between the new device and devices already on the market do not affect safety or effectiveness. If substantial equivalence to a pre-1976 device that has not yet been classified has been shown, it is possible that the FDA would subsequently classify the device as a Class III device and require the filing of pre-market approval applications at that time. If the FDA took that step, then filing an application acceptable to the FDA would be a prerequisite to remaining on the market.

New Drug Development

Any nanomaterial-based drug candidates, including any MRI contrast agent product candidates, are regulated by the FDA as pharmaceuticals. Obtaining FDA approval for a new drug has historically been a costly and time-consuming process. Generally, in order to gain FDA pre-market approval, a developer first must conduct preclinical studies in the laboratory and in animal model systems to gain preliminary information on an agent's efficacy and to identify any safety problems. The results of these studies are submitted as a part of an investigational new drug, or IND, application which the FDA must review before human clinical trials of an investigational drug can start. The IND application includes a detailed description of the clinical investigations to be undertaken. In order to commercialize any drug, we must sponsor and file an IND application and be responsible for initiating and overseeing the clinical studies to demonstrate the safety, efficacy and potency that are necessary to obtain FDA approval of any of the products. We will be required to select qualified investigators to supervise the administration of the products and ensure that the investigations are conducted and monitored in accordance with FDA regulations.

Clinical trials are normally done in three phases, although the phases may overlap. Phase I trials are concerned primarily with the safety and preliminary effectiveness of the drug, typically involve fewer than 100 subjects and may take from six months to over one year. Phase II trials typically involve larger patient populations and are designed primarily to demonstrate effectiveness in treating or diagnosing the disease or condition for which the drug is intended, although short-term side effects and risks in people whose health is impaired may also be examined. Phase III trials are expanded clinical trials with even larger numbers of patients and are intended to evaluate the overall benefit-risk relationship of the drug and to gather additional information for proper dosage and labeling of the drug. We believe the process of clinical trials generally takes two to five years to complete, but may take longer in certain circumstances. The FDA receives reports on the progress of each phase of clinical testing and may require the modification, suspension or termination of clinical trials if it concludes that an unwarranted risk is presented to patients.

If clinical trials of a new product are completed successfully, the sponsor of the product may seek FDA marketing approval. If the product is regulated as a drug, the FDA will require the submission and approval of a new drug application, or NDA, before commercial marketing of the drug. The NDA must include detailed information about the drug and its manufacture and the results of product development, preclinical studies and clinical trials. The testing and approval processes require substantial time and effort, and we cannot guarantee that any approval will be granted on a timely basis, if at all. If questions arise during the FDA review process, the approval process may be delayed or may not occur at all. Even with the submissions of relevant data, the FDA may ultimately decide that the NDA does not satisfy its regulatory criteria for approval and may deny approval or require additional clinical studies. In addition, the FDA may condition marketing approval on the conduct of specific post-marketing studies to further evaluate safety and effectiveness. Even if FDA regulatory clearances are obtained, a marketed product is subject to continual review. Later discovery of previously unknown problems or failure to comply with the applicable regulatory requirements may result in restrictions on the marketing of a product or withdrawal of the product from the market as well as possible civil or criminal sanctions.

Environmental, Health and Safety Regulation

Our facilities and current and proposed activities involve the use of a broad range of materials that are considered hazardous under applicable laws and regulations. Accordingly, we are subject to a number of

domestic and foreign laws and regulations and other requirements relating to employee health and safety, protection of the environment, product labeling and product take back. Regulated activities include the storage, use, transportation and disposal of, and exposure to, hazardous or potentially hazardous materials and wastes. Our current and proposed activities also include potential exposure to physical hazards associated with work environment and equipment. We could incur costs, fines, civil and criminal penalties, personal injury and third-party property damage claims, or we could be required to incur substantial investigation or remediation costs, if we were to violate or become liable under environmental, health and safety laws and regulations or requirements. Liability under environmental, health and safety laws can be joint and several and without regard to fault. There can be no assurance that violations of environmental, health and safety laws will not occur in the future as a result of the inability to obtain permits in a timely manner, human error, equipment failure or other causes. Environmental, health and safety laws could also become more stringent over time, imposing greater compliance costs and increasing risks and penalties associated with violations, which could harm our business. Further, violations of present and future environmental, health and safety laws could restrict our ability to expand facilities and pursue certain technologies, as well as require us to acquire costly equipment or to incur potentially significant costs to comply with environmental, health and safety regulations and other requirements.

We have made, and will continue to make, expenditures to comply with current and future environmental, health and safety laws. We anticipate that we could incur additional capital and operating costs in the future to comply with existing environmental, health and safety laws and new requirements arising from new or amended statutes and regulations. In addition, because the applicable regulatory agencies have not yet promulgated final standards for some existing environmental, health and safety programs, we cannot at this time reasonably estimate the cost for compliance with these additional requirements. The amount of any such compliance costs could be material. We cannot predict the impact that future regulations will impose upon our business.

Employees

As of December 31, 2011, we had 185 total employees and 171 full-time employees, 104 of whom hold advanced degrees, including 34 Ph.D. degrees. None of our employees are covered by a collective bargaining agreement, and we consider our relationship with our employees to be good.

Backlog

We have historically had a backlog of contracts for which work has been scheduled, but for which a specified portion of work has not yet been completed. The approximate value of our backlog was $20.8 million at December 31, 2011, of which $20.4 million was from our Technology Development segment and $0.4 million was from our Products and Licensing segment. At December 31, 2010, our backlog was $29.4 million, of which $26.3 million was from our Technology Development segment and $3.1 million was from our Products and Licensing segment.

We define backlog as the dollar amount of obligations payable to us under negotiated contracts upon completion of a specified portion of work that has not yet been completed, exclusive of revenues previously recognized for work already performed under these contracts, if any. Total backlog includes funded backlog, which is the amount for which money has been directly authorized by the U.S. Congress or for which a purchase order has been received from a commercial customer, and unfunded backlog, which represents firm orders for which funding has not yet been appropriated. Unfunded backlog was $5.8 million and $13.7 million as of December 31, 2010 and 2011, respectively. Indefinite delivery and quantity contracts and unexercised options are not reported in total backlog. Our backlog is subject to delays or program cancellations that may be beyond our control.

Research, Development and Engineering

We incur research, development and engineering expenses that are not related to our contract performance. These expenses were $2.9 million, $1.7 million and $2.7 million for the years ended December 31, 2009, 2010 and 2011, respectively. In addition, during these years, we spent $19.6 million, $18.3 million and $19.1 million,

respectively, on customer-sponsored research activities, which amounts are reimbursed as part of our performance of customer contracts.

Operating Segments and Geographic Areas

For information with respect to our operating segments and geographic markets, see Note 13 to our Consolidated Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K.

Website Access to Reports

Our website address is www.lunainnovations.com. We make available, free of charge under "SEC Filings" on the Investor Relations portion of our website, access to our annual report on Form 10-K, our quarterly reports on Form 10-Q and our current reports on Form 8-K, as well as amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after such material is electronically filed with or furnished to the Securities and Exchange Commission, or SEC. Information appearing on our website is not incorporated by reference in and is not a part of this annual report. A copy of this annual report, as well as our other periodic and current reports, may be obtained from the SEC's public reference room at 100 F Street, N.E., Washington, D.C. 20549. Information on the operation of the Public Reference Room can be obtained by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding our filings at www.sec.gov.

ITEM 1A. RISK FACTORS

You should carefully consider the risks described below before deciding whether to invest in our common stock. The risks described below are not the only ones we face. Additional risks not presently known to us or that we currently believe are immaterial may also impair our business operations and financial results. If any of the following risks actually occurs, our business, financial condition or results of operations could be adversely affected. In such case, the trading price of our common stock could decline and you could lose all or part of your investment. Our filings with the Securities and Exchange Commission also contain forward-looking statements that involve risks or uncertainties. Our actual results could differ materially from those anticipated or contemplated by these forward-looking statements as a result of a number of factors, including the risks we face described below, as well as other variables that could affect our operating results. Past financial performance should not be considered to be a reliable indicator of future performance, and investors should not use historical trends to anticipate results or trends in future periods.

RISKS RELATING TO OUR BUSINESS GENERALLY

We rely and will continue to rely on contracts and grants awarded under the SBIR program for a significant portion of our revenues. A finding by the SBA that we no longer qualify to receive SBIR awards could adversely affect our business.

We compete as a small business for some of our government contracts. As described above, our revenues derived from the SBIR program account for a significant portion of our consolidated total revenues, and contract research, including SBIR contracts, will remain a significant portion of our consolidated total revenues for the foreseeable future.

We may not continue to qualify to participate in the SBIR program or to receive new SBIR awards from federal agencies. In order to qualify for SBIR contracts and grants, we must meet certain size and ownership eligibility criteria. These eligibility criteria are applied as of the time of the award of a contract or grant. A company can be declared ineligible for a contract award as a result of a size challenge filed with the SBA by a competitor or a federal agency.

In order to be eligible for SBIR contracts and grants, we must be 51% owned and controlled by individuals who are U.S. citizens or permanent resident aliens. In the event our institutional ownership significantly

increases, either because of increased buying by institutions or selling by individuals, we could lose eligibility for new SBIR contracts, public contracts, grants and other awards that are set aside for small businesses, including SBIR grants.

Also, in order to be eligible for SBIR contracts and grants, the number of our employees, including those of any entities that are considered to be affiliated with us, cannot exceed 500. As of December 31, 2011, we had approximately 171 full-time employees. In determining whether we are affiliated with any other entity, the SBA will analyze whether another entity controls or has the power to control us. Carilion Clinic is our largest institutional stockholder. We understand that the SBA is in the process of performing a formal size determination that will focus on whether or not Carilion is our affiliate. Although we do not believe that Carilion has the power to control our company, we cannot assure you that the SBA will interpret its regulations in our favor on this question. Under its regulations, the SBA may conclude that a stockholder that is large compared to others has the power to control us and is our affiliate. If the SBA were to make a determination that we are affiliated with Carilion, we would exceed the size limitations, as Carilion has over 500 employees. In that case, we would lose eligibility for new SBIR grants and other SBA contracts, public contracts, grants and other awards that are set aside for small businesses based on the criterion of number of employees, and the relevant government agency would have the discretion to suspend performance on existing SBIR grants.

In addition, it is possible that the sale of common stock in the future by our founder, Dr. Kent Murphy, could negatively affect the interpretation of SBA regulations on this question of affiliation, as well as possibly result in an increase in our institutional ownership. Dr. Murphy has recently advised us of his intent to exercise his right to require us to register his shares for resale in a registered offering on Form S-3. If Dr. Murphy pursues the registration of his shares, and sells a substantial portion of his shares to institutions or non-U.S. citizens, we may cease to meet the 51% ownership requirement described above, in which case we would become ineligible to receive SBIR contract awards. Moreover, if Dr. Murphy were to sell any portion of his shares without corresponding sales by Carilion, such sales may increase the likelihood that the SBA may conclude that Carilion is a stockholder that is large compared to others and hence has the power to control us and is our affiliate, in which case we would lose SBIR eligibility, as described above. The loss of our eligibility to receive SBIR awards would have a material adverse effect on our revenues, cash flows and ability to fund our growth.

Moreover, as we grow our business, it is foreseeable that we will eventually exceed the SBIR size limitations, in which case we may be required to seek alternative sources of revenues or capital.

If there are substantial sales of our common stock, or the perception that such sales may occur, our stock price could decline.

If any of our stockholders were to sell substantial amounts of our common stock, the market price of our common stock may decline, which might make it more difficult for us to sell equity or equity-related securities in the future at a time and price that we deem appropriate. Substantial sales of our common stock, or the perception that such sales may occur, may have a material adverse effect on the prevailing market price of our common stock.

Carilion, Dr. Kent Murphy and certain other stockholders have rights to require us, subject to certain conditions, to file one or more registration statements providing for the sale of up to an aggregate of approximately 6.4 million shares of our common stock, which number includes approximately 1.3 million shares of common stock issuable to Carilion upon conversion of shares of Series A Preferred Stock it currently holds, or to include their shares in registration statements that we may file for ourselves or other stockholders. Once we register the issuance of these shares, they can generally be freely sold in the public market.

Dr. Murphy currently owns approximately 2.8 million shares of our common stock and Carilion owns approximately 2.2 million shares of our common stock (excluding approximately 1.3 million shares of common stock issuable upon conversion of Series A Preferred Stock held by Carilion). Dr. Murphy recently advised us of his intent to exercise his right to require us to register his shares for resale in a registered offering on Form S-3. If Dr. Murphy pursues the registration of his shares, we may also be obligated to register shares held by Carilion for

resale pursuant to our Investor Rights Agreement. Sales of shares by Dr. Murphy or Carilion, or even the filing of a registration statement registering the resale of such shares, may have a material adverse effect on the market price of our stock.

Even if Dr. Murphy elects not to require us to register his shares at this time, we cannot assure you that Carilion, Dr. Murphy or any of our other significant stockholders will not seek to sell their shares at any time, which could have an adverse effect on the market price of our stock.

Any such continuing material adverse effect on the market price of our stock could impair our ability to comply with NASDAQ's continuing listing standards in respect of our minimum stock price, as further described below.

A decline in government research contract awards or government funding for existing or future government research contracts, including SBIR contracts, could adversely affect our revenues, cash flows and ability to fund our growth.

Technology development revenue, which consists primarily of government-funded research, accounted for approximately 63%, 65% and 73% of our consolidated total revenues for the years ended December 31, 2011, 2010, and 2009, respectively. As a result, we are vulnerable to adverse changes in our revenues and cash flows if a significant number of our research contracts and subcontracts were to be simultaneously delayed or canceled for budgetary, performance or other reasons. For example, the U.S. government may cancel these contracts at any time without cause and without penalty or may change its requirements, programs or contract budget, any of which could reduce our revenues and cash flows from U.S. government research contracts. Our revenues and cash flows from U.S. government research contracts and subcontracts could also be reduced by declines or other changes in U.S. defense, homeland security and other federal agency budgets. In addition, we compete as a small business for some of these contracts, and in order to maintain our eligibility to compete as a small business, we, together with any affiliates, must continue to meet size and revenue limitations established by the U.S. government.

Our contract research customer base includes government agencies, corporations and academic institutions. Our customers are not obligated to extend their agreements with us and may elect not to do so. Also, our customers' priorities regarding funding for certain projects may change and funding resources may no longer be available at previous levels.

In addition to contract cancellations and changes in agency budgets, our future financial results may be adversely affected by curtailment of or restrictions on the U.S. government's use of contract research providers, including curtailment due to government budget reductions and related fiscal matters or any legislation or resolution limiting the number or amount of awards we may receive. These or other factors could cause U.S. defense and other federal agencies to conduct research internally rather than through commercial research organizations or direct awards to other organizations, to reduce their overall contract research requirements or to exercise their rights to terminate contracts. Alternatively, the U.S. government may discontinue the SBIR program or its funding altogether. Also, pending regulations implementing the recently-enacted SBIR reauthorization will allow increased competition for SBIR awards from companies backed by venture capital firms. Any of these developments could limit our ability to obtain new contract awards and adversely affect our revenues, cash flows and ability to fund our growth.

Our failure to attract, train and retain skilled employees or members of our senior management and to obtain necessary security clearances for such persons or maintain a facility security clearance would adversely affect our business and operating results.

The availability of highly trained and skilled technical and professional personnel is critical to our future growth and profitability. Competition for scientists, engineers, technicians and professional personnel is intense and our competitors aggressively recruit key employees. In the past, we have experienced difficulties in recruiting and hiring these personnel as a result of the tight labor market in certain fields. Any difficulty in hiring or retaining qualified employees, combined with our growth strategy and future needs for additional experienced

personnel, particularly in highly specialized areas such as nanomaterial manufacturing and fiber optic sensing technologies, may make it more difficult to meet all of our needs for these employees in a timely manner. Although we intend to continue to devote significant resources to recruit, train and retain qualified employees, we may not be able to attract and retain these employees, especially in technical fields in which the supply of experienced qualified candidates is limited or at the senior management level. Any failure to do so would have an adverse effect on our business. Any loss of key personnel could have a material adverse effect on our ability to meet key operational objectives, such as timely and effective project milestones and product introductions, which in turn could adversely affect our business, results of operations and financial condition. We also have contractual obligations to adequately staff certain development projects, and a loss of key personnel could lead to our inability to meet these obligations, which in turn could expose us to claims for significant damages under any such agreement.

We provide certain services to the U.S. government that require us to maintain a facility security clearance and for certain of our employees and our board chairman to hold security clearances. In general, the failure for necessary persons to obtain or retain sufficient security clearances, any loss by us of a facility security clearance or any public reprimand related to security matters could result in a U.S. government customer terminating an existing contract or choosing not to renew a contract or prevent us from bidding on or winning certain new government contracts, which would have an adverse result on our operations and financial results. The Defense Industrial Security Clearance Office is evaluating the continuing security clearances of an employee and our board chairman and also a security clearance application for another employee. These evaluations are under review by the Defense Office of Hearings and Appeals for final determination. If any of these individuals is unable to retain or obtain a security clearance, then we would need to exclude him from access to classified information and, if applicable, appoint a new chairman who either already has a security clearance or would need to apply for a security clearance.

In addition, our future success depends in a large part upon the continued service of key members of our senior management team. We do not maintain any key-person life insurance policies on our officers. The loss of any members of our management team or other key personnel could seriously harm our business.

The results of our operations could be adversely affected by economic and political conditions and the effects of these conditions on our customers' businesses and levels of business activity.

Global economic and political conditions affect our customers' businesses and the markets they serve. A severe or prolonged economic downturn or a negative or uncertain political climate could adversely affect our customers' financial conditions and the timing or levels of business activity of our customers and the industries we serve. This may reduce the demand for our products or depress pricing for our products and have a material adverse effect on our results of operations. Changes in global economic conditions could also shift demand to products or services for which we do not have competitive advantages, and this could negatively affect the amount of business we are able to obtain. In addition, if we are unable to successfully anticipate changing economic and political conditions, we may be unable to effectively plan for and respond to those changes, and our business could be negatively affected as a result.

There was a rapid softening of the economy and tightening of the financial markets in the second half of 2008 that continued into 2011. This slowing of the economy has reduced the financial capacity of our customers and possibly our potential customers, thereby slowing spending on the products and services we provide. The outlook for the economy for 2012 remains uncertain, and until there is a sustained economic recovery our revenues and results of operations could be negatively impacted.

We have a history of losses, and because our strategy for expansion may be costly to implement, we may experience continuing losses and may never achieve or maintain profitability or positive cash flow.

We realized a consolidated net loss attributable to common stockholders of approximately $1.5 million, $3.0 million and $20.4 million for the years ended December 31, 2011, 2010 and 2009 respectively. We expect to

continue to incur significant expenses as we expand our operations, including increased expenses for research and development, sales and marketing, manufacturing, finance and accounting personnel and expenses associated with being a public company. We may also grow our business in part through acquisitions of additional companies and complementary technologies which could cause us to incur greater than anticipated transaction expenses, amortization or write-offs of intangible assets and other acquisition-related expenses. As a result, we expect to incur net losses for the foreseeable future, and these losses could be substantial. At a certain level, continued net losses could impair our ability to comply with NASDAQ continued listing standards, as described further below.

Our ability to generate additional revenues and to become profitable will depend on our ability to develop and commercialize innovative technologies, expand our contract research capabilities and sell the products that result from those development initiatives. We are unable to predict when or if we will be able to achieve profitability. If our revenues do not increase, or if our expenses increase at a greater rate than our revenues, we will continue to experience losses. Even if we do achieve profitability, we may not be able to sustain or increase our profitability on a quarterly or annual basis.

We have obtained capital by borrowing money under a credit facility and we might require additional capital to support and expand our business; our credit facility has various loan covenants with which we must comply and if we need any such additional capital or we fail to comply with our loan covenants, this capital might not be available or only available on unfavorable terms.

We intend to continue to make investments to support our business growth, including developing new products, enhancing our existing products, obtaining important regulatory approvals, enhancing our operating infrastructure, completing our development activities and building our commercial scale manufacturing facilities. To the extent that we are unable to become or remain profitable and to finance our activities from our continuing operations, we may require additional funds to support these initiatives and to grow our business.

If we are successful in raising additional funds through issuances of equity or convertible debt securities, our existing stockholders could suffer significant dilution, including as the result of the issuance of warrants in connection with the financing, and any new equity securities we issue could have rights, preferences and privileges superior to those of our existing common stock. Furthermore, such financings may jeopardize our ability to apply for SBIR grants or qualify for SBIR contracts or grants, and our dependence on SBIR grants may restrict our ability to raise additional outside capital. If we raise additional funds through debt financings, these financings may involve significant cash payment obligations and covenants that restrict our ability to operate our business and make distributions to our stockholders.

We have issued to Hansen a warrant exercisable for a number of shares of our common stock such that Hansen may maintain ownership of 9.9% of our total outstanding common stock through January 2013, at a price of one cent per common share. In the event that we raise capital through the issuance of common stock, shareholders will experience further dilution to the extent that Hansen exercises this warrant, which may make it more difficult to raise equity capital or may adversely affect the price at which we are able to raise equity capital.

We maintain a credit facility with Silicon Valley Bank, or SVB, which requires us to observe a number of financial and operational covenants, including maintenance of a specified liquidity ratio, achievement of certain adjusted EBITDA targets, protection and registration of intellectual property rights, and certain customary negative covenants, as well as other customary events of default. If any event of default occurs SVB may declare due immediately all borrowings under our credit facility and foreclose on the collateral. Furthermore, an event of default would result in an increase in the interest rate on any amounts outstanding.

If we are unable to borrow under the SVB credit facility or otherwise obtain adequate financing or financing terms satisfactory to us when we require it, our ability to continue to support our business growth and to respond to business challenges could be significantly limited.

RISKS RELATING TO OUR OPERATIONS AND BUSINESS STRATEGY

If we cannot successfully transition our revenue mix from contract research revenues to product sales and license revenues, we may not be able to fully execute our business model or grow our business.

Our business model and future growth depend on our ability to transition to a revenue mix that contains significantly larger product sales and revenues from the provision of services or from licensing. Product sales and these revenues potentially offer greater scalability than contract research revenues. Our current plan is to increase our sales of commercial products, our licensing revenue and our provision of non-research services to customers so as to represent a larger percentage of our total revenues. If we are unable to develop and grow our product sales and revenues from the provision of services or from licensing to augment our contract research revenues, however, our ability to execute our business model or grow our business could suffer. There can be no assurance that we will be able to achieve increased revenues in this manner.

If we are unable to manage growth effectively, our revenue and net loss could be adversely affected.

While historically we have developed and commercialized only a few products at a time, we plan to grow our revenues by developing and commercializing multiple products concurrently across many industries, technologies and markets. Our ability to expand our business by developing and commercializing multiple products simultaneously requires that we manage a diverse range of projects and expand our personnel resources. Our inability to do any of these could prevent us from successfully implementing our growth strategy, causing our revenues and profits to be adversely affected.

To advance the development of multiple promising potential products concurrently, we need to manage effectively the logistics of maintaining the requisite corporate, operational, administrative and financing functions for each of these product opportunities. Potentially expanding our operations into new geographic areas and relying on multiple facilities to develop and manufacture different products concurrently pose additional challenges. We have little experience in managing these functions simultaneously for multiple projects in development or in building new infrastructure and integrating the operations of various facilities. If we cannot manage this process successfully, we may experience operating difficulties, additional expenditures and limited revenue growth.

We may need to expand our personnel resources to grow our business effectively. We believe that sustained growth at a higher rate will place a strain on our management as well as on our other human resources. To manage this growth, we must continue to attract and retain qualified management, professional, scientific and technical and operating personnel. If we are unable to recruit a sufficient number of qualified personnel, we may be unable to staff and manage projects adequately, which in turn may slow the rate of growth of our contract research revenue or our product development efforts.

We may not be successful in identifying market needs for new technologies and developing new products to meet those needs.

The success of our business model depends on our ability to correctly identify market needs for new technologies. We intend to identify new market needs, but we may not always have success in doing so in part because our contract research largely centers on identification and development of unproven technologies, often for new or emerging markets. Furthermore, we must identify the most promising technologies from a sizable pool of projects. If our commercialization strategy process fails to identify projects with commercial potential or if management does not ensure that such projects advance to the commercialization stage, we may not successfully commercialize new products and grow our revenues.

Our growth strategy requires that we not only identify new technologies that meet market needs, but that we also develop successful commercial products that address those needs. We face several challenges in developing successful new products. Many of our existing products and those currently under development, including our Trimetasphere® carbon nanomaterials, are technologically innovative and require significant and lengthy product

development efforts. These efforts include planning, designing, developing and testing at the technological, product and manufacturing-process levels. These activities require us to make significant investments. Although there are many potential applications for our technologies, our resource constraints require us to focus on specific products and to forgo other opportunities. We expect that one or more of the potential products we choose to develop will not be technologically feasible or will not achieve commercial acceptance, and we cannot predict which, if any, of our products we will successfully develop or commercialize. The technologies we research and develop are new and steadily changing and advancing. The products that are derived from these technologies may not be applicable or compatible with the state of technology or demands in existing markets. Our existing products and technologies may become uncompetitive or obsolete if our competitors adapt more quickly than we do to new technologies and changes in customers' requirements. Furthermore, we may not be able to identify if and when new markets will open for our products given that future applications of any given product may not be readily determinable, and we cannot reasonably estimate the size of any markets that may develop. If we are not able to successfully develop new products, we may be unable to increase our product revenues.

We depend on third-party vendors for specialized components in our manufacturing operations, making us vulnerable to supply shortages and price fluctuations that could harm our business.

We primarily rely on third-party vendors for the manufacture of the specialized components used in our products. The highly specialized nature of our supply requirements poses risks that we may not be able to locate additional sources of the specialized components required in our business. For example, there are few manufacturers who produce the special lasers used in our optical test equipment. Our reliance on these vendors subjects us to a number of risks that could negatively affect our ability to manufacture our products and harm our business, including interruption of supply. Although we are now manufacturing tunable lasers in low-rate initial production, we expect our overall reliance on third-party vendors to continue. Any significant delay or interruption in the supply of components, or our inability to obtain substitute components or materials from alternate sources at acceptable prices and in a timely manner, could impair our ability to meet the demand of our customers and could harm our business.

We face and will face substantial competition in several different markets that may adversely affect our results of operations.

We face and will face substantial competition from a variety of companies in several different markets. Our competitors in contract research include, but are not limited to, companies such as General Dynamics Corporation, Lockheed Martin Corporation, SAIC, Inc. and SRA International, Inc. In the instrumentation and test and measurement products market, our competitors include, but are not limited to, large companies such as Agilent Technologies, Inc., Analog Devices, Inc., Freescale Semiconductor, Inc., JDS Uniphase Corp., Robert Bosch GmbH and Silicon Sensing, as well as emerging companies.

The products that we have developed or are currently developing will compete with other technologically innovative products as well as products incorporating conventional materials and technologies. We expect that our products will face competition in a wide range of industries, including telecommunications, industrial instrumentation, healthcare, military and security applications.

Many of our competitors have longer operating histories, greater name recognition, larger customer bases and significantly greater financial, sales and marketing, manufacturing, distribution, technical and other resources than we do. These competitors may be able to adapt more quickly to new or emerging technologies and changes in customer requirements. In addition, current and potential competitors have established or may establish financial or strategic relationships among themselves or with existing or potential customers or other third parties. Accordingly, new competitors or alliances among competitors could emerge and rapidly acquire significant market share. We cannot assure you that we will be able to compete successfully against current or new competitors, in which case our net revenues may fail to increase or may decline.

We have limited experience manufacturing our products in commercial quantities in a cost-effective manner, which could adversely impact our business.

In the past, we produced most of our products on a custom order basis rather than pursuant to large contracts that require production on a large volume basis. Accordingly, other than the commercial manufacture of products by our Product and License segment, we have no experience manufacturing products in large volumes. Because our experience in large scale manufacturing is limited, we may encounter unforeseen difficulties in our efforts to manufacture other products or materials in commercial quantities or have to rely on third-party contractors over which we may not have direct control to manufacture our products. For example, we may need to develop or in-license Trimetasphere nanomaterial purification and isolation technology, which would result in manufacturing delays or shortfalls. We may also encounter difficulties and delays in manufacturing our products for any of the following reasons:

- we may need to expand our manufacturing operations, and our production processes may have to change to accommodate this growth;
- to increase our manufacturing output significantly, we will have to attract and retain qualified employees, who are in short supply, for the assembly and testing operations;
- we might have to sub-contract to outside manufacturers which might limit our control of costs and processes; and
- our manufacturing operations may have to comply with government specifications.

If we are unable to keep up with demand for our products, our revenues could be impaired, market acceptance of our products could be adversely affected and our customers might instead purchase our competitors' products. Moreover, failure to develop and maintain a U.S. market for goods developed with U.S. government-licensed technology may result in the cancellation of the relevant U.S. government licenses. Our inability to manufacture our products successfully would have a material adverse effect on our revenues.

Even if we are able to manufacture our products on a commercial scale, the cost of manufacturing our products may be higher than we expect. If the costs associated with manufacturing are not significantly less than the prices at which we can sell our products, we may not be able to operate at a profit.

Our nanotechnology-enabled products are new and may be, or may be perceived as being, harmful to human health or the environment.

While we believe that none of our current products contain chemicals known by us to be hazardous or subject to environmental regulation, it is possible that our current or future products, particularly carbon-based nanomaterials, may become subject to environmental or other regulation. We intend to develop and sell carbon-based nanomaterials as well as nanotechnology-enabled products, which are products that include nanomaterials as a component to enhance those products' performance. Nanomaterials and nanotechnology-enabled products have a limited historical safety record. Because of their size or shape or because they may contain harmful elements, such as gadolinium and other rare-earth metals, our products could pose a safety risk to human health or the environment. These characteristics may also cause countries to adopt regulations in the future prohibiting or limiting the manufacture, distribution or use of nanomaterials or nanotechnology-enabled products. Such regulations may inhibit our ability to sell some products containing those materials and thereby harm our business or impair our ability to develop commercially viable products.

The subject of nanotechnology has received negative publicity and has aroused public debate. Government authorities could, for social or other purposes, prohibit or regulate the use of nanotechnology. Ethical and other concerns about nanotechnology could adversely affect acceptance of our potential products or lead to government regulation of nanotechnology-enabled products.

We face risks associated with our international business.

We currently conduct business internationally and we might considerably expand our international activities in the future. Our international business operations are subject to a variety of risks associated with conducting business internationally, including:

- having to comply with U.S. export control regulations and policies that restrict our ability to communicate with non-U.S. employees and supply foreign affiliates and customers;
- changes in or interpretations of foreign regulations that may adversely affect our ability to sell our products, perform services or repatriate profits to the United States;
- the imposition of tariffs;
- hyperinflation or economic or political instability in foreign countries;
- imposition of limitations on or increase of withholding and other taxes on remittances and other payments by foreign subsidiaries or joint ventures;
- conducting business in places where business practices and customs are unfamiliar and unknown;
- the imposition of restrictive trade policies;
- the imposition of inconsistent laws or regulations;
- the imposition or increase of investment and other restrictions or requirements by foreign governments;
- uncertainties relating to foreign laws and legal proceedings;
- having to comply with a variety of U.S. laws, including the Foreign Corrupt Practices Act; and
- having to comply with licensing requirements.

We do not know the impact that these regulatory, geopolitical and other factors may have on our international business in the future.

We could be negatively affected by a security breach, either through cyber attack, cyber intrusion or other significant disruption of our IT networks and related systems.

We face the risk, as does any company, of a security breach, whether through cyber attack or cyber intrusion over the Internet, malware, computer viruses, attachments to e-mails, persons inside our organization or persons with access to systems inside our organization, or other significant disruption of our IT networks and related systems. The risk of a security breach or disruption, particularly through cyber attack or cyber intrusion, including by computer hackers, foreign governments and cyber terrorists, has increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased.

As a technology company, and particularly as a government contractor, we may face a heightened risk of a security breach or disruption from threats to gain unauthorized access to our proprietary, confidential or classified information on our IT networks and related systems. These types of information and IT networks and related systems are critical to the operation of our business and essential to our ability to perform day-to-day operations, and, in some cases, are critical to the operations of certain of our customers. In addition, as certain of our technological capabilities become widely known, it is possible and perhaps even foreseeable that we may be subjected to cyber attack or cyber intrusion as third parties seeks to gain improper access to information regarding these capabilities. We have therefore taken particular steps to protect some of our most sensitive technologies, but cyber attacks or cyber intrusion could still compromise other of our confidential information or our IT networks and systems generally, as it is not practical as a business matter to isolate all of our confidential information and trade secrets from email and internet access. There can be no assurance that our security efforts and measures will be effective or that attempted security breaches or disruptions would not be successful or damaging.

A security breach or other significant disruption involving these types of information and IT networks and related systems could disrupt the proper functioning of these networks and systems and therefore our operations, could compromise our confidential information and trade secrets, or damage our reputation among our customers, particularly among agencies of the U.S. Government and potential customers of our secure computing and communications group, as well as the public generally. Any or all of foregoing developments could have a negative impact on our results of operations, financial condition and cash flows.

RISKS RELATING TO OUR REGULATORY ENVIRONMENT

As a provider of contract research to the U.S. government, we are subject to federal rules, regulations, audits and investigations, the violation or failure of which could adversely affect our business.

We must comply with and are affected by laws and regulations relating to the award, administration and performance of U.S. government contracts. Government contract laws and regulations affect how we do business with our government customers and, in some instances, impose added costs on our business. A violation of a specific law or regulation could result in the imposition of fines and penalties, termination of our contracts or debarment from bidding on contracts. In some instances, these laws and regulations impose terms or rights that are more favorable to the government than those typically available to commercial parties in negotiated transactions. For example, the U.S. government may terminate any of our government contracts and, in general, subcontracts, at their convenience, as well as for default based on performance.

In addition, U.S. government agencies, including the Defense Contract Audit Agency and the Department of Labor, routinely audit and investigate government contractors. These agencies review a contractor's performance under its contracts, cost structure and compliance with applicable laws, regulations and standards. The U.S. government also may review the adequacy of, and a contractor's compliance with, its internal control systems and policies, including the contractor's purchasing, property, estimating, compensation and management information systems. Any costs found to be improperly allocated to a specific contract will not be reimbursed, while such costs already reimbursed must be refunded. If an audit uncovers improper or illegal activities, we may be subject to civil and criminal penalties and administrative sanctions, including termination of contracts, forfeiture of profits, suspension of payments, fines and suspension or prohibition from doing business with the U.S. government. In addition, our reputation could suffer serious harm if allegations of impropriety were made against us.

In addition to the risk of government audits and investigations, U.S. government contracts and grants impose requirements on contractors and grantees relating to ethics and business practices, which carry civil and criminal penalties including monetary fines, assessments, loss of the ability to do business with the U.S. government and certain other criminal penalties.

We may also be prohibited from commercially selling certain products that we develop under our Technology Development segment or related products based on the same core technologies if the U.S. government determines that the commercial availability of those products could pose a risk to national security. For example, certain of our wireless technologies have been classified as secret by the U.S. government and as a result we cannot sell them commercially. Any of these determinations would limit our ability to generate product sales and license revenues.

Our operations are subject to domestic and foreign laws, regulations and restrictions, and noncompliance with these laws, regulations and restrictions could expose us to fines, penalties, suspension or debarment, which could have a material adverse effect on our profitability and overall financial position.

Our international sales subject us to numerous U.S. and foreign laws and regulations, including, without limitation, regulations relating to imports, exports (including the Export Administration Regulations and the International Traffic in Arms Regulations), technology transfer restrictions, anti-boycott provisions, economic sanctions and the Foreign Corrupt Practices Act. Failure by us or our sales representatives or consultants to comply with these laws and regulations could result in administrative, civil, or criminal liabilities and could

result in suspension of our export privileges, which could have a material adverse effect on our business. Changes in regulation or political environment may affect our ability to conduct business in foreign markets including investment, procurement and repatriation of earnings.

Our healthcare and medical products are or may be subject to a lengthy and uncertain domestic regulatory approval process. If we do not obtain and maintain the necessary domestic regulatory approvals or clearances, we will not be able to market and sell our products for clinical use in the United States. Complying with applicable regulations is an expensive and time-consuming process and any failure to fully comply with such regulations could subject us to enforcement actions.

Certain of our current and potential products will require regulatory clearances or approvals prior to commercialization. In particular, our Trimetasphere® nanomaterial-based MRI contrast agent would be considered a drug under the Federal Food, Drug and Cosmetic Act, or FDC Act, and our EDAC® ultrasound diagnostic devices for measuring certain medical conditions will be considered medical devices under the FDC Act. Drugs and some medical devices are subject to rigorous preclinical testing and other approval requirements by the U.S. Food and Drug Administration, or FDA, pursuant to the FDC Act, and regulations under the FDC Act, as well as by similar health authorities in foreign countries.

Various federal statutes and regulations also govern or influence the testing, manufacturing, safety, labeling, packaging, advertising, storage, registration, listing and recordkeeping related to marketing of pharmaceuticals. The process of obtaining these clearances or approvals and the subsequent compliance with appropriate federal statutes and regulations require the expenditure of substantial resources, which we may not be able to obtain on favorable terms, if at all. We cannot be certain that any required FDA or other regulatory approval will be granted or, if granted, will not be withdrawn. Our failure to obtain the necessary regulatory approvals, or our failure to obtain them in a timely manner, will prevent or delay our commercialization of new products and our business or our stock price could be adversely affected as a result.

Our commercially distributed medical device products will be subject to various post-market regulatory requirements, compliance with which will be expensive and time-consuming.

We will also become subject to inspection and marketing surveillance by the FDA to determine our compliance with regulatory requirements. If the FDA determines that we have failed to comply, it can institute a wide variety of enforcement actions ranging from a regulatory letter to a public warning letter to more severe civil and criminal sanctions. Our failure to comply with applicable requirements could lead to an enforcement action that may have an adverse effect on our financial condition and results of operations.

If our manufacturing facilities do not meet Federal, state or foreign country manufacturing standards, we may be required to temporarily cease all or part of our manufacturing operations, which would result in product delivery delays and negatively impact revenue.

Our manufacturing facilities are subject to periodic inspection by regulatory authorities and our operations will continue to be regulated by the FDA for compliance with Good Manufacturing Practice requirements contained in the QSRs. We are also required to comply with International Organization for Standardization, or ISO, quality system standards in order to produce products for sale in Europe. If we fail to continue to comply with Good Manufacturing Practice requirements or ISO standards, we may be required to cease all or part of our operations until we comply with these regulations. Obtaining and maintaining such compliance is difficult and costly. We cannot be certain that our facilities will be found to comply with Good Manufacturing Practice requirements or ISO standards in future inspections and audits by regulatory authorities. In addition, if we cannot maintain or establish manufacturing facilities or operations that comply with such standards or do not meet the expectations of our customers, we may not be able to realize certain economic opportunities in our current or future supply arrangements.

Our medical products are subject to various international regulatory processes and approval requirements. If we do not obtain and maintain the necessary international regulatory approvals, we may not be able to market and sell our medical products in foreign countries.

To be able to market and sell our products in other countries, we must obtain regulatory approvals and comply with the regulations of those countries. These regulations, including the requirements for approvals and the time required for regulatory review, vary from country to country. Obtaining and maintaining foreign regulatory approvals are expensive, and we cannot be certain that we will have the resources to be able to pursue such approvals or whether we would receive regulatory approvals in any foreign country in which we plan to market our products. For example, the European Union requires that manufacturers of medical products obtain the right to affix the CE mark to their products before selling them in member countries of the European Union, which we have not yet obtained and may never obtain. If we fail to obtain regulatory approval in any foreign country in which we plan to market our products, our ability to generate revenue will be harmed.

We are subject to additional significant foreign and domestic government regulations, including environmental and health and safety regulations, and failure to comply with these regulations could harm our business.

Our facilities and current and proposed activities involve the use of a broad range of materials that are considered hazardous under applicable laws and regulations. Accordingly, we are subject to a number of foreign, federal, state and local laws and regulations relating to health and safety, protection of the environment and the storage, use, disposal of, and exposure to, hazardous materials and wastes. We could incur costs, fines and civil and criminal penalties, personal injury and third party property damage claims, or could be required to incur substantial investigation or remediation costs, if we were to violate or become liable under environmental, health and safety laws. Moreover, a failure to comply with environmental laws could result in fines and the revocation of environmental permits, which could prevent us from conducting our business. Liability under environmental laws can be joint and several and without regard to fault. There can be no assurance that violations of environmental health and safety laws will not occur in the future as a result of the inability to obtain permits, human error, equipment failure or other causes. Environmental laws could become more stringent over time, imposing greater compliance costs and increasing risks and penalties associated with violations, which could harm our business. Accordingly, violations of present and future environmental laws could restrict our ability to expand facilities, pursue certain technologies, and could require us to acquire costly equipment or incur potentially significant costs to comply with environmental regulations.

Compliance with foreign, federal, state and local environmental laws and regulations represents a small part of our present budget. If we fail to comply with any such laws or regulations, however, a government entity may levy a fine on us or require us to take costly measures to ensure compliance. Any such fine or expenditure may adversely affect our development. We are committed to complying with and, to our knowledge, are in compliance with, all governmental regulations. We cannot predict the extent to which future legislation and regulation could cause us to incur additional operating expenses, capital expenditures or restrictions and delays in the development of our products and properties.

RISKS RELATING TO OUR INTELLECTUAL PROPERTY

Our proprietary rights may not adequately protect our technologies.

Our commercial success will depend in part on our obtaining and maintaining patent, trade secret, copyright and trademark protection of our technologies in the United States and other jurisdictions as well as successfully enforcing this intellectual property and defending it against third-party challenges. We will only be able to protect our technologies from unauthorized use by third parties to the extent that valid and enforceable intellectual property protections, such as patents or trade secrets, cover them. In particular, we place considerable emphasis on obtaining patent and trade secret protection for significant new technologies, products and processes. The degree of future protection of our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive

advantage. The degree of future protection of our proprietary rights is also uncertain for products that are currently in the early stages of development because we cannot predict which of these products will ultimately reach the commercial market or whether the commercial versions of these products will incorporate proprietary technologies.

Our patent position is highly uncertain and involves complex legal and factual questions. Accordingly, we cannot predict the breadth of claims that may be allowed or enforced in our patents or in third-party patents. For example:

- we or our licensors might not have been the first to make the inventions covered by each of our pending patent applications and issued patents;
- we or our licensors might not have been the first to file patent applications for these inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies;
- it is possible that none of our pending patent applications or the pending patent applications of our licensors will result in issued patents;
- patents may issue to third parties that cover how we might practice our technology;
- our issued patents and issued patents of our licensors may not provide a basis for commercially viable technologies, may not provide us with any competitive advantages, or may be challenged and invalidated by third parties; and
- we may not develop additional proprietary technologies that are patentable.

Patents may not be issued for any pending or future pending patent applications owned by or licensed to us, and claims allowed under any issued patent or future issued patent owned or licensed by us may not be valid or sufficiently broad to protect our technologies. Moreover, protection of certain of our intellectual property may be unavailable or limited in the United States or in foreign countries, and we have not sought to obtain foreign patent protection for certain of our products or technologies due to cost, concerns about enforceability or other reasons. Any issued patents owned by or licensed to us now or in the future may be challenged, invalidated, or circumvented, and the rights under such patents may not provide us with competitive advantages. In addition, competitors may design around our technology or develop competing technologies. Intellectual property rights may also be unavailable or limited in some foreign countries, and in the case of certain products no foreign patents were filed or can be filed. This could make it easier for competitors to capture or increase their market share with respect to related technologies. We could incur substantial costs to bring suits in which we may assert our patent rights against others or defend ourselves in suits brought against us. An unfavorable outcome of any litigation, such as our litigation with Hansen, could have a material adverse effect on our business and results of operations.

We also rely on trade secrets to protect our technology, especially where we believe patent protection is not appropriate or obtainable. However, trade secrets are difficult to protect. We regularly attempt to obtain confidentiality agreements and contractual provisions with our collaborators, employees and consultants to protect our trade secrets and proprietary know-how. These agreements may be breached or may not have adequate remedies for such breach. While we use reasonable efforts to protect our trade secrets, our employees, consultants, contractors or scientific and other advisors, or those of our strategic partners, may unintentionally or willfully disclose our information to competitors. If we were to enforce a claim that a third party had illegally obtained and was using our trade secrets, our enforcement efforts would be expensive and time consuming, and the outcome would be unpredictable. In addition, courts outside the United States are sometimes unwilling to protect trade secrets. Moreover, if our competitors independently develop equivalent knowledge, methods and know-how, it will be more difficult for us to enforce our rights and our business could be harmed.

If we are not able to defend the patent or trade secret protection position of our technologies, then we will not be able to exclude competitors from developing or marketing competing technologies and we may not generate enough revenues from product sales to justify the cost of developing our technologies and to achieve or maintain profitability.

We also rely on trademarks to establish a market identity for our company and our products. To maintain the value of our trademarks, we might have to file lawsuits against third parties to prevent them from using trademarks confusingly similar to or dilutive of our registered or unregistered trademarks. Also, we might not obtain registrations for our pending trademark applications, and we might have to defend our registered trademark and pending trademark applications from challenge by third parties. Enforcing or defending our registered and unregistered trademarks might result in significant litigation costs and damages, including the inability to continue using certain trademarks.

Third parties may claim that we infringe their intellectual property, and we could suffer significant litigation or licensing expense as a result.

Various U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in our technology areas. Such third parties may claim that we infringe their patents. Because patent applications can take several years to result in a patent issuance, there may be currently pending applications, unknown to us, which may later result in issued patents that our technologies may infringe. For example, we are aware of competitors with patents in technology areas applicable to our optical test equipment products. Such competitors may allege that we infringe these patents. There could also be existing patents of which we are not aware that our technologies may inadvertently infringe. We have from time to time, and may in the future, be contacted by third parties, including patent monetization firms or intellectual property advisors, about licensing opportunities that also contain claims that we are infringing on third party patent rights. If third parties assert these claims against us—including third parties that have asserted claims against businesses that we have acquired, prior to our acquisition of these businesses—we could incur extremely substantial costs and diversion of management resources in defending these claims, and the defense of these claims could have a material adverse effect on our business, financial condition and results of operations. Even if we believe we have not infringed on a third party's patent rights, we may have to settle a claim on unfavorable terms because we cannot afford to litigate the claim. In addition, if third parties assert claims against us and we are unsuccessful in defending against these claims, these third parties may be awarded substantial damages as well as injunctive or other equitable relief against us, which could effectively block our ability to make, use, sell, distribute or market our products and services in the United States or abroad.

Commercial application of nanotechnologies in particular, or technologies involving nanomaterials, is new and the scope and breadth of patent protection is uncertain. Consequently, the patent positions of companies involved in nanotechnologies have not been tested, and there are complex legal and factual questions for which important legal principles will be developed or may remain unresolved. In addition, it is not clear whether such patents will be subject to interpretations or legal doctrines that differ from conventional patent law principles. Changes in either the patent laws or in interpretations of patent laws in the United States and other countries may diminish the value of our nanotechnology-related intellectual property. Accordingly, we cannot predict the breadth of claims that may be allowed or enforced in our nanotechnology-related patents or in third party patents. In the event that a claim relating to intellectual property is asserted against us, or third parties not affiliated with us hold pending or issued patents that relate to our products or technology, we may seek licenses to such intellectual property or challenge those patents. However, we may be unable to obtain these licenses on commercially reasonable terms, if at all, and our challenge of the patents may be unsuccessful. Our failure to obtain the necessary licenses or other rights could prevent the sale, manufacture or distribution of our products and, therefore, could have a material adverse effect on our business, financial condition and results of operations.

A substantial portion of our technology is subject to retained rights of our licensors, and we may not be able to prevent the loss of those rights or the grant of similar rights to third parties.

A substantial portion of our technology is licensed from academic institutions, corporations and government agencies. Under these licensing arrangements, a licensor may obtain rights over the technology, including the

right to require us to grant a license to one or more third parties selected by the licensor or that we provide licensed technology or material to third parties for non-commercial research. The grant of a license for any of our core technologies to a third party could have a material and adverse effect on our business. In addition, some of our licensors retain certain rights under the licenses, including the right to grant additional licenses to a substantial portion of our core technology to third parties for non-commercial academic and research use. It is difficult to monitor and enforce such non-commercial academic and research uses, and we cannot predict whether the third-party licensees would comply with the use restrictions of such licenses. We have incurred and could incur substantial expenses to enforce our rights against them. We also may not fully control the ability to assert or defend those patents or other intellectual property which we have licensed from other entities, or which we have licensed to other entities.

In addition, some of our licenses with academic institutions give us the right to use certain technology previously developed by researchers at these institutions. In certain cases we also have the right to practice improvements on the licensed technology to the extent they are encompassed by the licensed patents and are within our field of use. Our licensors may currently own and may in the future obtain additional patents and patent applications that are necessary for the development, manufacture and commercial sale of our anticipated products. We may be unable to agree with one or more academic institutions from which we have obtained licenses whether certain intellectual property developed by researchers at these academic institutions is covered by our existing licenses. In the event that the new intellectual property is not covered by our existing licenses, we would be required to negotiate a new license agreement. We may not be able to reach agreement with current or future licensors on commercially reasonable terms, if at all, or the terms may not permit us to sell our products at a profit after payment of royalties, which could harm our business.

Some of our patents may cover inventions that were conceived or first reduced to practice under, or in connection with, U.S. government contracts or other federal funding agreements. With respect to inventions conceived or first reduced to practice under a federal funding agreement, the U.S. government may retain a non-exclusive, non-transferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the invention throughout the world. We may not succeed in our efforts to retain title in patents, maintain ownership of intellectual property or in limiting the U.S. government's rights in our proprietary technologies and intellectual property when there exists an issue as to whether such intellectual property was developed in the performance of a federal funding agreement or developed at private expense.

RISKS RELATING TO OUR COMMON STOCK

We may not be able to comply with all applicable listing requirements or standards of the NASDAQ Capital Market and NASDAQ could delist our common stock.

Our common stock is listed on the NASDAQ Capital Market. In order to maintain that listing, we must satisfy minimum financial and other continued listing requirements and standards. There can be no assurances that we will be able to comply with applicable listing standards. In the event that our common stock is not eligible for quotation on another market or exchange, trading of our common stock could be conducted in the over-the-counter market or on an electronic bulletin board established for unlisted securities such as the Pink Sheets or the OTC Bulletin Board. In such event, it could become more difficult to dispose of, or obtain accurate price quotations for, our common stock, and there would likely also be a reduction in our coverage by security analysts and the news media, which could cause the price of our common stock to decline further. Also, it may be difficult for us to raise additional capital if we are not listed on a major exchange.

Our common stock price has been volatile and we expect that the price of our common stock will fluctuate substantially in the future, which could cause you to lose all or a substantial part of your investment.

The public trading price for our common stock is volatile and may fluctuate significantly. For example, since January 1, 2009, our common stock has traded between a high of $5.00 per share and a low of $0.26 per share. Among the factors, many of which we cannot control, that could cause material fluctuations in the market price for our common stock are:

- changes in earnings estimates, investors' perceptions, recommendations by securities analysts or our failure to achieve analysts' earnings estimates;

- changes in our status as an entity eligible to receive SBIR contracts and grants;
- sales of our common stock by our significant stockholders, or the perception that such sales may occur, including as a result of the registration for resale of shares of common stock owned by Dr. Kent Murphy;
- quarterly variations in our or our competitors' results of operations;
- general market conditions and other factors unrelated to our operating performance or the operating performance of our competitors;
- announcements by us, or by our competitors, of acquisitions, new products, significant contracts, commercial relationships or capital commitments;
- litigation;
- any major change in our board of directors or management or any competing proxy solicitations for director nominees;
- changes in governmental regulations or in the status of our regulatory approvals;
- announcements related to patents issued to us or our competitors;
- a lack of, limited or negative industry or securities analyst coverage;
- discussions of our company or our stock price by the financial and scientific press and online investor communities such as chat rooms; and
- general developments in our industry.

In addition, the stock prices of many technology companies have experienced wide fluctuations that have often been unrelated to the operating performance of those companies. These factors may materially and adversely affect the market price of our common stock.

If our internal controls over financial reporting are found not to be effective or if we make disclosure of existing or potential significant deficiencies or material weaknesses in those controls, investors could lose confidence in our financial reports, and our stock price may be adversely affected.

Section 404 of the Sarbanes-Oxley Act of 2002 requires us to include an internal control report with our Annual Report on Form 10-K. That report must include management's assessment of the effectiveness of our internal control over financial reporting as of the end of the fiscal year.

We evaluate our existing internal control over financial reporting based on the framework issued by the Committee of Sponsoring Organizations of the Treadway Commission. During the course of our ongoing evaluation of the internal controls, we may identify areas requiring improvement, and may have to design enhanced processes and controls to address issues identified through this review. Remedying any deficiencies, significant deficiencies or material weaknesses that we identify may require us to incur significant costs and expend significant time and management resources. We cannot assure you that any of the measures we implement to remedy any such deficiencies will effectively mitigate or remedy such deficiencies. Investors could lose confidence in our financial reports, and our stock price may be adversely affected, if our internal controls over financial reporting are found not to be effective by management or if we make disclosure of existing or potential significant deficiencies or material weaknesses in those controls.

Anti-takeover provisions in our amended and restated certificate of incorporation and bylaws and Delaware law could discourage or prevent a change in control, even if an acquisition would be beneficial to our stockholders, which could affect our stock price adversely and prevent attempts by our stockholders to replace or remove our current management.

Our amended and restated certificate of incorporation and bylaws and Delaware law contain provisions that might delay or prevent a change in control, discourage bids at a premium over the market price of our common

stock and adversely affect the market price of our common stock and the voting and other rights of the holders of our common stock. These provisions include:

- a classified board of directors serving staggered terms;
- advance notice requirements to stockholders for matters to be brought at stockholder meetings;
- a supermajority stockholder vote requirement for amending certain provisions of our amended and restated certificate of incorporation and bylaws; and
- the right to issue preferred stock without stockholder approval, which could be used to dilute the stock ownership of a potential hostile acquirer.

We are also subject to provisions of the Delaware corporation law that, in general, prohibit any business combination with a beneficial owner of 15% or more of our common stock for five years unless the holder's acquisition of our stock was approved in advance by our board of directors.

The existence of these provisions could adversely affect the voting power of holders of common stock and limit the price that investors might be willing to pay in the future for shares of our common stock.

We may become involved in securities class action litigation that could divert management's attention and harm our business and our insurance coverage may not be sufficient to cover all costs and damages.

The stock market has from time to time experienced significant price and volume fluctuations that have affected the market prices for the common stock of technology companies. These broad market fluctuations may cause the market price of our common stock to decline. In the past, following periods of volatility in the market price of a particular company's securities, securities class action litigation has often been brought against that company. We may become involved in this type of litigation in the future. Litigation often is expensive and diverts management's attention and resources, which could adversely affect our business.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2. PROPERTIES

We lease approximately 24,000 square feet of space in Roanoke, Virginia from Carilion Clinic, our largest institutional stockholder. This property is used for our corporate headquarters and our SCC group, as well as for general administrative functions.

We lease approximately 37,000 square feet of space in Blacksburg, Virginia, near Virginia Tech, which is used by both our Technology Development segment and our Products and Licensing segment.

We lease approximately 16,000 square feet of space in Charlottesville, Virginia, near the University of Virginia, for use by certain groups in our Technology Development segment.

We own a 24,000 square foot facility in Danville, Virginia. This property was previously the subject of a lease with the city, and we exercised a purchase option during 2010 to acquire the building for approximately $70,000. Our Technology Development segment primarily uses this facility for nanomaterials research and development and manufacturing.

We believe that our existing facilities are adequate for our current needs and suitable additional or substitute space will be available as needed to accommodate expansion of our operations.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we may become involved in litigation or claims arising out of our operations in the normal course of business. Management currently believes the amount of ultimate liability, if any, with respect to these actions will not materially affect our financial position, results of operations, or liquidity.

ITEM 4. MINE SAFETY DISCLOSURE

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

PRICE RANGE OF COMMON STOCK

Our common stock trades on The NASDAQ Capital Market. The following table sets forth the high and low closing prices of our common stock for each period indicated and are as reported by NASDAQ.

	2011		2010	
Fiscal Period	High	Low	High	Low
First Quarter	$ 2.47	$ 1.55	$ 4.50	$ 2.20
Second Quarter	$ 2.43	$ 1.50	$ 2.51	$ 2.01
Third Quarter	$ 2.05	$ 1.21	$ 2.25	$ 1.77
Fourth Quarter	$ 1.73	$ 1.00	$ 2.10	$ 1.67

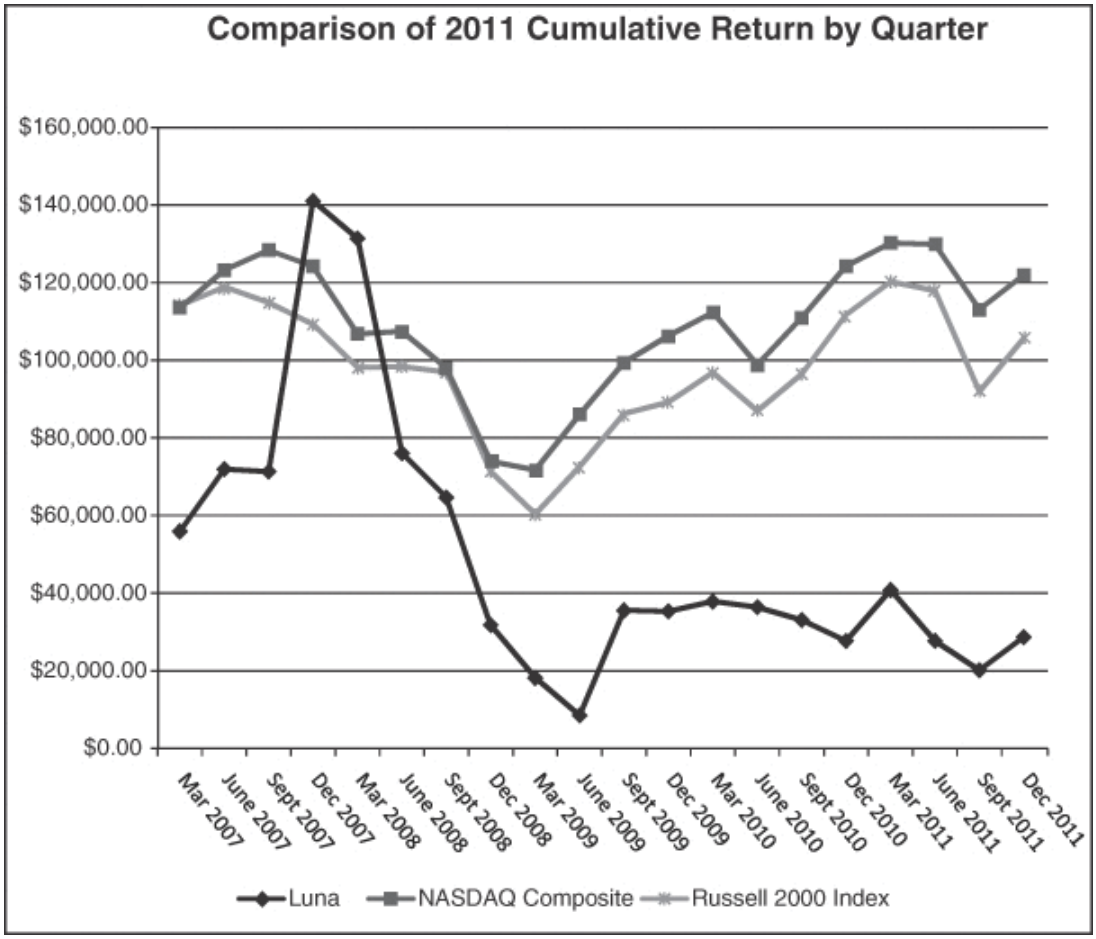
We have a single class of common stock outstanding. As of March 15, 2012, there were approximately 88 stockholders of record of our common stock. The number of holders of record of our common stock does not reflect the number of beneficial holders whose shares are held by depositories, brokers or other nominees.

STOCK PERFORMANCE GRAPH

The graph set forth below compares the cumulative total stockholder return on our common stock for the previous five years, during which our common stock was traded on the NASDAQ Global Market until being transferred to the NASDAQ Capital Market in 2009, as compared to the cumulative total return of the NASDAQ Composite Index and the Russell 2000 Index over the same period. This graph assumes the investment of $100,000 in our common stock at the closing price of the market on January 1, 2007, and an equivalent amount in the NASDAQ Composite Index and the Russell 2000 Index on that date, and assumes the reinvestment of dividends, if any. We have never paid dividends on our common stock and have no present plans to do so.

Since there is no published industry or line-of-business index for our business reflective of our performance, nor do we believe we can reasonably identify a peer group, we measure our performance against issuers with similar market capitalizations. We selected the Russell 2000 Index because it measures the performance of a broad range of companies with lower market capitalizations than those companies included in the S&P 500 Index.

The comparisons shown in the graph below are required by the Securities and Exchange Commission and are based upon historical data. We caution that the stock price performance shown in the graph below is not necessarily indicative of, nor is it intended to forecast, the potential future performance of our common stock.



The preceding Stock Performance Graph is not deemed filed with the Securities and Exchange Commission and shall not be incorporated by reference in any of our filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

DIVIDEND POLICY

Since our inception, we have never declared or paid any cash dividends on our common stock. We currently expect to retain any future earnings for use in the operation and expansion of our business, and therefore do not anticipate paying any cash dividends in the foreseeable future. In addition, our line of credit facility with Silicon Valley Bank restricts us from paying cash dividends on our capital stock without the bank's prior written consent.

ITEM 6. SELECTED FINANCIAL DATA

The consolidated statement of operations data for each of the three years in the period ended December 31, 2011 and the consolidated balance sheet data as of December 31, 2010 and 2011 have been derived from our audited consolidated financial statements appearing elsewhere in this report. The consolidated statement of operations data for the years ended December 31, 2007 and 2008 and the consolidated balance sheet data as of December 31, 2007, 2008 and 2009 have been derived from our audited consolidated financial statements that do not appear in this report. The following selected consolidated financial data should be read in conjunction with our consolidated financial statements and the accompanying notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included at Part II, Item 7 in this Annual Report on Form 10-K. The selected data in this section is not intended to replace the consolidated financial statements, and the historical results are not necessarily indicative of the results to be expected in any future period.

	Years ended December 31,				
In thousands, except share and per share data	**2007**	**2008**	**2009 (a)**	**2010**	**2011**
Consolidated Statement of Operations Data:					
Revenues:					
Technology development revenues	$ 23,356	$ 26,518	$ 25,198	$ 22,405	$ 22,418
Products and Licensing revenues	10,326	10,380	9,374	12,133	13,196
Total revenues	33,682	36,898	34,572	34,538	35,614
Cost of revenues:					
Technology development costs	16,546	17,367	17,032	15,808	15,793
Products and Licensing costs	4,820	5,490	4,784	5,787	6,590
Total cost of revenues	21,366	22,858	21,815	21,595	22,383
Gross profit	12,316	14,041	12,757	12,944	13,231
Operating expense	20,570	21,335	30,200	14,992	14,464
Operating loss	(8,254)	(7,294)	(17,444)	(2,049)	(1,233)
Other income, net	33	1,198	1	77	228
Interest income (expense), net	372	(190)	(504)	(474)	(377)
Loss before reorganization items and income tax	(7,850)	(6,286)	(17,947)	(2,446)	(1,382)
Reorganization Costs	—	—	1,898	174	—
Loss before income tax	(7,850)	(6,286)	(19,845)	(2,620)	(1,382)
Income tax expense	—	—	600	—	10
Net loss	(7,850)	(6,286)	(20,445)	(2,620)	(1,392)
Preferred stock dividend	—	—	—	361	127
Net loss attributable to common stockholders	$ (7,850)	$ (6,286)	$ (20,445)	$ (2,981)	$ (1,519)
Net loss per common share:					
Basic	$ (0.77)	$ (0.57)	$ (1.82)	$ (0.23)	$ (0.11)
Diluted	$ (0.77)	$ (0.57)	$ (1.82)	$ (0.23)	$ (0.11)
Weighted-average number of shares used in per share calculations:					
Basic	10,219,711	10,974,010	11,232,716	13,009,326	13,647,555
Diluted	10,219,711	10,974,010	11,232,716	13,009,326	13,647,555

	2007	**2008**	**2009**	**2010**	**2011**
Consolidated Balance Sheet Data:					
Cash and cash equivalents	$ 12,047	$ 15,519	$ 5,229	$ 7,217	$ 8,939
Working capital	14,115	14,992	16,529	8,055	10,928
Total assets	32,549	34,017	21,758	22,876	22,919
Total current liabilities	10,053	11,129	5,556	10,648	8,407
Total debt	5,000	10,000	5,000	6,307	5,250

(a) In April 2009, a jury awarded Hansen Medical Inc. ("Hansen") a judgment of $36.3 million following a trial. In January 2010, we and Hansen entered into a settlement agreement that reduced our liability to $9.7 million. This amount was recognized in operating expenses for the year ended December 31, 2009 and is included in accrued liabilities at December 31, 2009. As a result of the jury award, we performed an interim goodwill and intangible asset impairment analysis. As a result of this analysis, we recognized an impairment of $1.3 million during the quarter ended March 31, 2009. We also determined that our remaining deferred tax asset was no longer likely to be realized and placed a valuation allowance of $0.6 million against the asset. On July 17, 2009, we filed a voluntary petition for relief in order to reorganize under Chapter 11 of the United States Bankruptcy Code. As a result of this action, we incurred significant legal expenses that are included in reorganization expenses for the year ended December 31, 2009 in the table above.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and the related notes to those statements included elsewhere in this report. In addition to historical financial information, the following discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results and timing of selected events may differ materially from those anticipated in these forward-looking statements as a result of many factors, including those discussed under "Risk Factors" and elsewhere in this report.

Business Overview

We develop, manufacture and market fiber optic test & measurement, sensing, and instrumentation products and are focused on bringing new and innovative technology solutions to measure, monitor, protect and improve critical processes in the telecommunications, medical, composite and defense industries. Our business model is designed to accelerate the process of bringing new and innovative products to market. We use our in-house technical expertise across a range of technologies to perform applied research services for companies and government-funded projects. We continue to invest in product development and commercialization, which we anticipate will lead to increased product sales growth.

Our corporate strategy focuses on three key objectives for growth as we seek to commercialize our technologies:

- Develop and become the leading supplier of fiber optic shape sensing technology for robotic and minimally invasive surgical systems.
- Become the leading provider of fiber optic sensing systems and standard test methods for composite materials.
- Become the leading choice for ensuring the integrity of integrated circuits used in defense systems.

We are organized into two main business segments, our Products and Licensing segment and our Technology Development segment. Our Products and Licensing segment develops, manufactures and markets our fiber optic test and measurement, sensing, and instrumentation products and also conducts applied research in the fiber optic sensing area for both corporate and government customers. Revenues in this segment are currently largely derived from sales of test and measurement equipment for optical components and networks. Our Products and Licensing segment is also focused on two of our key strategic objectives. We are working to develop and commercialize our fiber optic shape sensing technology in the medical industry with the goal of supplying fiber optic shape sensing components for use in robotic and minimally invasive surgical systems. We are also working to develop and commercialize our fiber optic technology for strain and temperature sensing applications for the composite materials industry. Our Products and Licensing segment revenues represented approximately 27%, 35% and 37% of our total revenues for the years ended December 31, 2009, 2010 and 2011, respectively. A breakdown of our operating income (loss) by segment, as well as our total assets by segment, is provided in footnote 13 to our consolidated financial statements included in this report.

Our Technology Development segment performs applied research for government funded projects and includes our secure computing and communications group, or SCC. Our Technology Development segment comprised approximately 73%, 65% and 63% of our total revenues for the years ended December 31, 2009, 2010 and 2011, respectively. SCC provides innovative solutions designed to secure critical technologies within the U.S. government. SCC conducts applied research and provides services to the government in this area, with its revenues primarily derived from U.S. government contracts and purchase orders. SCC is focused on our strategic objective of developing a leading technology for ensuring the integrity of integrated circuits used in defense systems. Our Technology Development segment also performs applied research in the areas of sensing and

materials. Most of the government funding in the part of our Technology Development segment outside of SCC is derived from the Small Business Innovation Research, or SBIR, program coordinated by the U.S. Small Business Administration, or SBA.

We generate revenues through technology development services provided under contractual arrangements, product sales, product development under contractual relationships and license fees. Our Technology Development segment revenues have historically accounted for a large portion of our total revenues, and we expect that they will continue to represent a significant portion of our total revenues for the foreseeable future. Our Technology Development segment revenues, however, decreased from $25.2 million in 2009 to $22.4 million in 2010 and remained unchanged at $22.4 million in 2011. The decline in revenues from 2009 to 2010 corresponded with a drop in the rate at which we received new research contract awards contemporaneously with our Chapter 11 reorganization in 2009 and early 2010. Within our Technology Development segment, some groups appear to be continuing to experience program win rates below their historical averages, while other groups, most notably our optical systems group, have experienced significant growth in new programs, creating an offsetting effect when considering total revenues for this segment.

Within the Technology Development segment, we have historically had a backlog of contracts for which work has been scheduled, but for which a specified portion of work has not yet been completed. We define backlog as the dollar amount of obligations payable to us under negotiated contracts upon completion of a specified portion of work that has not yet been completed, exclusive of revenues previously recognized for work already performed under these contracts, if any. Total backlog includes funded backlog, which is the amount for which money has been directly authorized by the U.S. Congress and for which a purchase order has been received by a commercial customer, and unfunded backlog, representing firm orders for which funding has not yet been appropriated. Indefinite delivery and quantity contracts and unexercised options are not reported in total backlog. The approximate value of our Technology Development segment backlog was $20.4 million at December 31, 2011, compared to $26.3 million at December 31, 2010.

Revenues from product sales currently represent a smaller portion of our total revenues, and, historically, we have derived most of these revenues from the sales of our sensing systems and products that make use of light-transmitting optical fibers, or fiber optics. We continue to invest in product development and commercialization, which we anticipate will lead to increased product sales growth. Although we have been successful in licensing certain technology in past years, we do not expect license revenues to represent a significant portion of future revenues. Over time, however, we do intend to gradually increase such revenues. In the near term, we expect revenues from product sales and product development to be primarily in areas associated with our fiber optic instrumentation, test and measurement and sensing platforms. In the long term, we expect that revenues from product sales will represent a larger portion of our total revenues and that as we develop and commercialize new products, these revenues will reflect a broader and more diversified mix of products.

We incurred net losses attributable to common stockholders of approximately $20.4 million, $3.0 million and $1.5 million for the years ended December 31, 2009, 2010 and 2011, respectively. The significant net loss for 2009 was primarily attributable to the costs incurred with respect to our litigation with Hansen Medical, Inc., or Hansen, and subsequent Chapter 11 reorganization, as discussed below. We settled our litigation and emerged from bankruptcy in January 2010 and, accordingly, we did not incur significant reorganization or related litigation costs in 2010 or 2011.

We expect to continue to incur increasing expenses as we expand our business, including expenses for research and development, sales and marketing and manufacturing capabilities. We may also grow our business in part through acquisitions of additional companies and complementary technologies, which could cause us to incur transaction expenses, amortization or write-offs of intangible assets and other acquisition-related expenses. As a result, we expect to incur net losses for the foreseeable future, and these losses could be substantial.

Economic conditions have experienced a significant prolonged downturn and remain uncertain. This slowing of the economy has reduced the financial capacities of our customers and possibly our potential customers, thereby slowing spending on the products and services we provide. The outlook for the economy for 2012 remains uncertain.

Chapter 11 Reorganization and Settlement with Hansen

On July 17, 2009, we filed for reorganization under Chapter 11 of the United States Bankruptcy Code. During the period from the filing date until January 12, 2010, the date we emerged from bankruptcy, we operated as a Debtor in Possession. As a result of these Chapter 11 filings, actions to collect pre-petition indebtedness and the pending Hansen litigation were stayed. In addition, under the Bankruptcy Code we had the right to assume or reject executory contracts, including real estate leases, employment contracts, personal property leases, service contracts and other unexpired executory pre-petition contracts, subject to court approval. We did not reject any such contracts in our Chapter 11 plan as confirmed by the court.

Our plan of reorganization was confirmed by the bankruptcy court on January 12, 2010, and we emerged from bankruptcy on that date.

In December 2009, we entered into a settlement agreement with Hansen which reduced our liability with respect to our outstanding litigation to $9.7 million. As part of the settlement, in January 2010 we issued to Hansen a $5.0 million secured promissory note, referred to in this report as the Hansen Note, approximately 1.3 million shares of our common stock and a warrant entitling Hansen to purchase, until January 12, 2013, a number of shares of our common stock as necessary for Hansen to maintain a 9.9% ownership interest in our common stock, at an exercise price of $0.01 per share, referred to in this report as the Hansen Warrant. We also entered into several related agreements described in this report. We repaid the Hansen Note in May 2011, as described further below.

The Hansen litigation, including settlement efforts, resulted in significant legal expenses and related costs that are included in operating expenses for the year ended December 31, 2009. The Chapter 11 reorganization also resulted in significant legal expenses and related costs that are included in reorganization expenses for the year ended December 31, 2009. While we incurred certain expenses for both our Chapter 11 reorganization and the Hansen litigation during the year ended December 31, 2010, these amounts were not material and we incurred no such costs during the year ended December 31, 2011.

Description of Our Revenues, Costs and Expenses

Revenues

We generate revenues from technology development, product sales and commercial product development and licensing activities. We derive technology development revenues from providing research and development services to third parties, including government entities, academic institutions and corporations, and from achieving milestones established by some of these contracts and in collaboration agreements. In general, we complete contracted research over periods ranging from six months to three years, and recognize these revenues over the life of the contract as costs are incurred or upon the achievement of certain milestones built into the contracts. Our technology development revenues represented approximately 65% and 63% of our total revenues for the years ended December 31, 2010 and 2011, respectively.

Our product and license revenues reflect amounts that we receive from sales of our products or development of products for third parties, as well as fees paid to us in connection with licenses or sublicenses of certain patents and other intellectual property, and represented approximately 35% and 37% of our total revenues for the years ended December 31, 2010 and 2011, respectively.

Cost of Revenues

Cost of revenues associated with technology development revenues consists of costs associated with performing the related research activities including direct labor, amounts paid to subcontractors and overhead allocated to technology development activities.

Cost of revenues associated with product sales and license revenues consists of license fees for use of certain technologies; product manufacturing costs including all direct material and direct labor costs; amounts paid to our contract manufacturers; manufacturing, shipping and handling; provisions for product warranties; and inventory obsolescence, as well as overhead allocated to each of these activities.

Operating Expense

Operating expense consists of selling, general and administrative expenses, as well as expenses related to research, development and engineering, depreciation of fixed assets and amortization of intangible assets. These expenses also include compensation for employees in executive and operational functions including certain non-cash charges related to expenses from option grants, facilities costs, professional fees, salaries, commissions, travel expense and related benefits of personnel engaged in sales, product management and marketing activities; costs of marketing programs and promotional materials; salaries, bonuses and related benefits of personnel engaged in our own research and development beyond the scope and activities of our Technology Development segment; product development activities not provided under contracts with third parties; and overhead costs related to these activities.

Interest Income/Expense

In February 2010, we entered into a new line of credit facility with Silicon Valley Bank, or SVB, with a borrowing capacity of $5.0 million. As of December 31, 2010, we had borrowed $2.5 million under the line of credit. In May 2011, we entered into a loan modification agreement with SVB under which we repaid the outstanding balance under the prior line of credit and obtained a term loan in the amount of $6.0 million, along with a new $1.0 million line of credit. At December 31, 2011, we had $5.3 million outstanding on the term loan and no amounts outstanding on the line of credit.

During 2010 and 2011, interest expense included interest accrued on our outstanding bank credit facilities, interest incurred with respect to the Hansen Note until it was paid in full in May 2011, and interest incurred with respect to our capital lease obligations.

Interest income includes amounts earned on our cash deposits with financial institutions.

Critical Accounting Policies and Estimates

Technology Development Revenues

We perform research and development for U.S. Federal government agencies, educational institutions and commercial organizations. We recognize revenue under research contracts when a contract has been executed, the contract price is fixed and determinable, delivery of services or products has occurred, and collectability of the contract price is considered reasonably assured and can be reasonably estimated. Revenue is earned under cost reimbursable, time and materials and fixed price contracts. Direct contract costs are expensed as incurred.

Under cost reimbursable contracts, we are reimbursed for costs that are determined to be reasonable, allowable and allocable to the contract and paid a fixed fee representing the profit negotiated between us and the contracting agency. Revenue from cost reimbursable contracts is recognized as costs are incurred plus an estimate of applicable fees earned. We consider fixed fees under cost reimbursable contracts to be earned in proportion to the allowable costs incurred in performance of the contract.

Revenue from time and materials contracts is recognized based on direct labor hours expended at contract billing rates plus other billable direct costs.

Fixed price contracts may include either a product delivery or specific service performance throughout a period. For fixed price contracts that are based on the proportional performance method and involve a specified number of deliverables, we recognize revenue based on the proportion of the cost of the deliverables compared to

the cost of all deliverables included in the contract as this method more accurately measures performance under these arrangements. For fixed price contracts that provide for the development and delivery of a specific prototype or product, revenue is recognized based upon the percentage of completion method.

Our contracts with agencies of the U.S. government are subject to periodic funding by the respective contracting agency. Funding for a contract may be provided in full at inception of the contract or ratably throughout the contract as the services are provided. In evaluating the probability of funding for purposes of assessing collectability of the contract price, we consider our previous experience with our customers, communication with our customers regarding funding status and our knowledge of available funding for the contract or program. If funding is not assessed as probable, revenue recognition is deferred until realization is reasonably assured.

Contract revenue recognition inherently involves estimation, including the contemplated level of effort to accomplish the tasks under the contract, the cost of the effort and an ongoing assessment of progress toward completing the contract. From time to time, as part of normal management processes, facts may change, causing revisions to estimated total costs or revenues expected. The cumulative impact of any revisions to estimates and the full impact of anticipated losses on any type of contract are recognized in the period in which they become known.

The underlying bases for estimating our contract research revenues are measurable expenses, such as labor, subcontractor costs and materials, and data that are updated on a regular basis for purposes of preparing our cost estimates. Our research contracts generally have a period of performance of six to 18 months, and our estimates of contract costs have historically been consistent with actual results. Revisions in these estimates between accounting periods to reflect changing facts and circumstances have not had a material impact on our operating results, and we do not expect future changes in these estimates to be material.

Whether certain costs under government contracts are allowable is subject to audit by the government. Certain indirect costs are charged to contracts using provisional or estimated indirect rates, which are subject to later revision based on government audits of those costs. Management is of the opinion that costs subsequently disallowed, if any, would not likely have a significant impact on revenues recognized for those contracts.

Products and Licensing Revenues

We recognize revenue relating to our product sales when persuasive evidence of an arrangement exists, delivery has occurred, the selling price is fixed or determinable and collectability of the resulting receivable is reasonably assured. For tangible products that contain software that is essential to the tangible product's functionality, we consider the product and software to be a single unit of accounting and recognize revenue accordingly. We evaluate product sales that are a part of multiple-element revenue arrangements to determine whether separate units of accounting exist, and we follow appropriate revenue recognition policies for each separate unit. For multi-element arrangements we allocate revenue to all significant deliverables based on their relative selling prices. In such circumstances, we use a hierarchy to determine the selling price to be used for allocating revenue to deliverables: (i) vendor-specific objective evidence of fair value or VSOE, (ii) third-party evidence of selling price or TPE, and (iii) best estimate of the selling price, or ESP. VSOE generally exists only when we sell the deliverable separately and is the price actually charged by us for that deliverable. Our product sales often include bundled products, options and services and therefore VSOE is not readily determinable. In addition, we believe that because of unique features of our products, TPE also is not available. ESPs reflect our best estimates of what the selling prices of elements would be if they were sold regularly on a stand-alone basis.

Our process for determining ESP for deliverables without VSOE or TPE considers multiple factors that may vary depending upon the unique facts and circumstances related to each deliverable. Key factors considered in developing the ESPs include prices charged by us for similar offerings, our historical pricing practices, the nature of the deliverables, and the relative ESP of all of the deliverables as compared to the total selling price of the product. We may also consider, when appropriate, the impact of other products and services, on selling price assumptions when developing and reviewing our ESPs.

Income Taxes

We estimate our tax liability through calculating our current tax liability, together with assessing temporary differences resulting from the different treatment of items for tax and accounting purposes. These differences result in deferred tax assets and liabilities, which we record on our balance sheet. Management then assesses the likelihood that deferred tax assets will be recovered in future periods. In assessing the need for a valuation allowance against the net deferred tax asset, management considers factors such as future reversals of existing taxable temporary differences, taxable income in prior carry back years, whether carry back is permitted under the tax law, tax planning strategies and estimated future taxable income exclusive of reversing temporary differences and carry forwards. To the extent that we cannot conclude that it is more likely than not that the benefit of such assets will be realized, we establish a valuation allowance to reduce their net carrying value.

As we assess our projections of future taxable income or other factors that may impact our ability to generate taxable income in future periods, our estimate of the required valuation allowance may change, which could have a material impact on future earnings or losses.

We recognize tax benefits from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities. While it is often difficult to predict the final outcome of timing of the resolution of any particular tax matter, we establish a liability at the time we determine it is probable we will be required to pay additional taxes related to certain matters. These liabilities are recorded in accrued liabilities in our consolidated balance sheets. We adjust this provision, including any impact on the related interest and penalties, in light of changing facts and circumstances, such as the progress of a tax audit. A number of years may elapse before a particular matter for which we have established a liability is audited and finally resolved. The number of years with open tax audits varies depending on the tax jurisdiction. Settlement of any particular issue would usually require the use of cash. We recognize favorable resolutions of tax matters for which we have previously established liabilities as a reduction to our income tax expense when the amounts involved become known.

Due to differences between federal and state tax law, and accounting principles generally accepted in the United States of America, or GAAP, certain items are included in the tax return at different times than when those items are reflected in the consolidated financial statements. Therefore, the annual tax rate reflected in our consolidated financial statements is different than that reported in our tax return. Some of these differences are permanent, such as expenses that are not deductible in our tax return. Some differences, such as depreciation expense, reverse over time and create deferred tax assets and liabilities. The tax rates used to determine deferred tax assets or liabilities are the enacted tax rates in effect for the year in which the differences are expected to reverse. Based on the evaluation of all available information, we recognize future tax benefits, such as net operating loss carry forwards, to the extent that realizing these benefits is considered more likely than not.

Stock-Based Compensation

We recognize stock-based compensation expense based upon the fair value of the underlying equity award on the date of the grant. We have elected to use the Black-Scholes option pricing model to value any awards granted. We amortize stock-based compensation for such awards on a straight-line basis over the related service period of the awards taking into account the effects of the employees' expected exercise and post-vesting employment termination behavior. To compute the volatility used in this model, we use the lifetime volatility of our common stock.

Long-lived and Intangible Assets

Long-lived assets and certain identifiable intangibles are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset might not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to future undiscounted net cash flows expected to be generated by the asset. If such assets are considered to be impaired,

the impairment to be recognized is measured by the amount by which the carrying amount of the asset exceeds the fair value of the asset. Assets to be disposed of are reported at the lower of the carrying amount or fair value, less cost to sell.

Results of Operations

The following table shows information derived from our consolidated statements of operations expressed as a percentage of total revenues for the periods presented.

	Year ended December 31,		
	2009	2010	2011
Revenues:			
Technology development revenues	72.9%	64.9%	62.9%
Product and licensing revenues	27.1	35.1	37.1
Total revenues	100.0	100.0	100.0
Cost of Revenues:			
Technology development costs	49.3	45.8	44.3
Product and licensing costs	13.8	16.8	18.5
Total cost of revenues	63.1	62.5	62.8
Gross Profit	36.9	37.5	37.2
Operating Expense	87.4	43.4	40.7
Operating Loss	(50.5)	(5.9)	(3.5)
Total Other Income (Expense), net	(1.5)	(1.1)	(0.4)
Loss before reorganization items and income tax	(52.0)	(7.0)	(3.9)
Reorganization Costs	5.5	0.5	—
Loss Before Income Taxes	(57.4)	(7.6)	(3.9)
Net Loss	(59.1)	(7.6)	(3.9)

Year Ended December 31, 2011 Compared to Year Ended December 31, 2010

Revenues

	2011	2010	$ Difference	% Difference
Technology development revenues	$ 22,417,902	$22,404,931	$ 12,971	0.1%
Products and licensing revenues	13,195,822	12,133,463	1,062,359	8.8%
Total revenues	$ 35,613,724	$34,538,394	$ 1,075,330	3.1%

Our Technology Development segment revenue was unchanged at $22.4 million in each of the years ended December 31, 2011 and 2010. Within this segment SCC's revenues for 2011 were $6.8 million compared to $8.0 million for 2010, a decrease of $1.2 million. Revenues for SCC are typically driven by a single significant government contract. During 2011 SCC's primary contract reached its scheduled end date. SCC received a follow-on contract in 2011, with a lower overall contract value than the preceding contract, with the reduction in contract value largely driven by lower pass-through type costs. Within our Technology Development segment, revenues in our materials groups were $7.1 million for 2011 as compared to $7.9 for 2010. The decrease of $0.8 million was due primarily to lower contract awards within our Nanotechnology group. These decreases were partially offset by an increase in revenues in our sensing groups, which generated $6.4 million in revenue for 2011 and $5.0 million for 2010. This increase of $1.4 million was due to an increase in phase II awards in our optical sensing groups.

Our Products and Licensing segment revenue increased from $12.1 million to $13.2 million, an increase of 8.8%, for 2011 as compared to 2010. Within our Products and Licensing segment, product sales revenue increased by 5.6% to $9.4 million during the year ended December 31, 2011 as compared to $8.9 million for

2010. Product sales increased primarily due to higher sales of our OVA and OBR products, principally in the first two quarters of the year. Our product development revenue also increased to $3.6 million for the year ended December 31, 2011 as compared to $3.2 million for 2010, an increase of $0.4 million. This increase was due to the increased level of work performed under the Hansen supply and development agreement. There can be no assurances, however, that this increased level of work performed under this agreement will continue through 2012.

Cost of Revenues

	2011	2010	$ Difference	% Difference
Technology development costs	$15,793,279	$ 15,808,108	$ (14,829)	(0.1%)
Products and licensing costs	6,589,943	5,786,567	803,376	13.9%
Total costs of revenues	$ 22,383,222	$21,594,675	$788,547	3.7%

Our Technology Development segment costs were substantially unchanged at $15.8 million for each of the years ended December 31, 2011 and 2010. Within the Technology Development segment, SCC's cost of revenues decreased from $5.4 million for 2010 to $4.3 million for 2011, a decrease of $1.1 million, due primarily to a decrease in costs, primarily for subcontracts required to support the group's new contract awarded in 2011 compared to its previous primary government contract. Our materials groups also saw a decline in their cost of revenues from $5.8 million for 2010 to $5.5 million for 2011, a decline of $0.3 million, due to a decrease in direct labor and subcontracts in our nanotechnology area. Cost of revenues in our sensing groups increased from $3.6 million for 2010 to $4.6 million for 2011, an increase of $1.0 million, with all areas of direct costs in our sensing groups showing increases, commensurate with their increases in revenue.

Our Products and Licensing segment costs increased from $5.8 million for 2010 to $6.6 million for 2011, an increase of 13.9%. Within our Products and Licensing segment, product sales costs for 2011 increased to $3.3 million from $3.2 million for 2010. This increase of $0.1 million of costs related to component costs for our increased OBR and OVA product sales. Contract development costs of revenues were $3.3 million for 2011, as compared to $2.5 million for 2010, an increase of $0.8 million. This increase in costs was primarily associated primarily with an increase in resources assigned to work performed on the Hansen supply and development agreement.

Operating Expense

	2011	2010	$ Difference	% Difference
Selling general and administrative expense	$11,788,866	$13,297,705	$(1,508,839)	(11.3%)
Research, development, and engineering expense	2,674,730	1,694,643	980,087	57.8%
Total operating expense	$ 14,463,596	$ 14,992,348	$ (528,752)	(3.5%)

Selling, general and administrative expenses decreased by $1.5 million, or 11.3%, to $11.8 million for 2011, as compared to $13.3 million for 2010. Stock-based compensation expense decreased by $1.3 million as some stock options ceased vesting, resulting in no additional expense recognition during 2011. We account for options granted at fair value on the date of grant and then recognize the compensation expense over the applicable vesting period of the option.

Research, development, and engineering expenses increased $1.0 million, or 57.8%, from $1.7 million for 2010 to $2.7 million for 2011. This can be partially attributed to a higher amount of internal research and development expenses for SCC of $0.4 million, principally during the period between the end of SCC's prior large government contract and the commencement of its new follow-on contract during 2011. Research, development and engineering expenses also increased in 2011 compared to 2010 due to additional product

development expenses incurred in our Products and Licensing segment of $0.4 million, primarily due to increased labor expenses in enhancement and support of our Luna Technologies brand of products.

Interest and Other Income (Expense)

Our net interest expense was approximately $377,000 for the year ended December 31, 2011 compared to approximately $474,000 for the year ended December 31, 2010. During 2010 we incurred interest with respect to the Hansen note and our $2.5 million outstanding balance under our line of credit with SVB. During the year ended December 31, 2011 we maintained the $2.5 million balance on our line of credit until May at which time we refinanced both the line of credit and the remaining balance under the Hansen Note with a $6.0 million term loan also provided by SVB. Interest expense incurred in 2011 included approximately $267,000 associated with our SVB debt facility and approximately $97,000 associated with the Hansen Note. Interest expense in 2010 included approximately $120,000 associated with our SVB facility and $365,000 associated with the Hansen Note.

Other income was approximately $77,000 for the year ended December 31, 2010 and $228,000 for the year ended December 31, 2011. During the year ended December 31, 2011, we received approximately $154,000 for reimbursement of costs incurred by us in anticipation of a new development agreement. We also recognized approximately $58,000 in Other Income from the discount we received on the final payoff of the Hansen Note in 2011.

Income Tax Expense

During 2011 we paid alternative minimum income taxes in the amount of $10,307.

Preferred Stock Dividend

In January 2010, we issued 1,321,514 shares of our newly designated Series A Convertible Preferred Stock to Carilion. The Series A Convertible Preferred Stock carries an annual cumulative dividend of 6%, or approximately $0.2815 per share. During 2011 and 2010, we accrued approximately $127,000 and $361,000, respectively, for the dividends payable to Carilion. The dividends are not payable in cash, but rather in shares of our Common Stock, until a liquidation event occurs. During 2011 and 2010, 79,292 and 76,649 shares of common stock, respectively, for a cumulative total of 155,941 shares of common stock, became issuable to Carilion as dividends and have been recorded in the statement of stockholders' equity.

Year Ended December 31, 2010 Compared to Year Ended December 31, 2009

Revenues

	2010	2009	$ Difference	% Difference
Technology development revenues	$22,404,931	$25,198,038	$(2,793,107)	(11.1%)
Products and licensing revenues	12,133,463	9,373,849	2,759,614	29.4%
Total revenues	$34,538,394	$ 34,571,887	$ (33,493)	(0.1%)

Total revenues for 2010 were $34.5 million, representing a decrease of $33,000, or 0.1%, from total revenues of $34.6 million for 2009.

Our Technology Development segment revenue decreased by $2.8 million, or 11%, from $25.2 million for 2009 to $22.4 million for 2010. Our activities in this segment were adversely affected by our Chapter 11 reorganization, which resulted in the loss of some awards for development contracts and significant delays in the receipt of other contract awards and the potential revenue from those awards. We also experienced a drop in the rate at which we received new research contract awards contemporaneously with our Chapter 11 reorganization in 2009 and early 2010.

Our Products and Licensing segment revenues for 2010 and 2009 were $12.1 million and $9.4 million, respectively, representing an increase of $2.8 million, or 29.4%. Product sales revenue increased by 50% to $8.9 million during 2010 from $5.9 million for 2009, while revenues in this segment relating to product development activities decreased slightly to $3.2 million for 2010 from $3.3 million during 2009. During both years, product development activities included work under our arrangements with Intuitive and Hansen, as well as arrangements with a number of governmental entities.

Cost of Revenues

	2010	2009	$ Difference	% Difference
Technology development costs	$ 15,808,108	$ 17,031,768	$(1,223,660)	(7.2%)
Products and licensing costs	5,786,567	4,783,586	1,002,981	21.0%
Total costs of revenues	$21,594,675	$21,815,354	$ (220,679)	(1.0%)

Cost of revenues decreased 1% to $21.6 million for 2010 from $21.8 million for 2009. Cost of revenues for our Technology Development segment decreased $1.2 million, or 7%, to $15.8 million for 2010 from $17.0 million for 2009. This decrease primarily resulted from a decline in direct labor hours and other direct costs associated with a reduction or slowing in awards for new long-term development projects during our reorganization in the latter half of 2009.

Products and Licensing cost of revenues increased $1.0 million, or 21%, from $4.8 million to $5.8 million, largely attributable to a 50% increase in product sales during 2010 compared to 2009.

Operating Expense

	2010	2009	$ Difference	% Difference
Selling general and administrative expense	$13,297,705	$16,345,578	$ (3,047,873)	(18.6%)
Research, development, and engineering expense	1,694,643	2,874,666	(1,180,023)	(41.0%)
Litigation settlement		9,669,728	(9,669,728)	(100.0%)
Impairment of intangible assets		1,310,598	(1,310,598)	(100.0%)
Total operating expense	$ 14,992,348	$ 30,200,570	$(15,208,222)	(50.4%)

Operating expense decreased by 50% to $15.0 million for 2010 from $30.2 million for 2009. A large part of the decrease in operating expense was approximately $9.7 million incurred in 2009 with respect to the litigation settlement with Hansen, as well as $3.7 million in professional fees and other costs associated with that litigation, included in our selling, general and administrative expenses above, incurred during 2009, and the $1.3 million non-cash impairment charge associated with certain of our intangible assets. Professional fees and other litigation costs incurred during 2010 were approximately $122,000.

Share-based compensation expense was $3.5 million for the year ended December 31, 2010, an increase of $0.3 million, or 9%, over share-based compensation expense of $3.2 million for the year ended December 31, 2009. We account for options granted at fair value on the date of grant and then recognize the compensation expense over the applicable vesting period of the option. This increase is primarily due to the stock options granted in January 2010 to three new non-employee directors and to existing directors in recognition of their service during our reorganization in 2009, as well as stock options granted in May 2010 upon the re-election of another non-employee director. These stock options granted to non-employee directors result in relatively higher annual compensation expense than those generally granted to employees, due to the fact they will vest over 36 months rather than 60 months.

Our research, development, and engineering expense decreased from $2.9 million in 2009 to $1.7 million in 2010. The primary reason for this decrease was a $0.5 million decrease in expenses our nanomaterials group and

the introduction of two new products in our products group, the OBR 4200 and OVA 5000, in early 2010 for which research, development and engineering expenses had been incurred in prior years.

Interest and Other Income (Expense)

Our net interest expense for 2010 was $474,000, down from $504,000 for 2009. During 2009, we incurred interest expense on our $5.0 million bank loan into July, as well as interest on the convertible promissory notes issued to Carilion. During 2010, the Carilion promissory notes were converted into stock, and we borrowed $2.5 million against our $5.0 million line of credit facility with SVB. We paid a fee of 0.5% per year, billed quarterly, for the unused portion of the line of credit.

During 2010, we earned $89,000 of grant revenue under a grant from the city of Danville, Virginia, which was recorded as other income, compared to $35,000 of other income from this grant during 2009.

Reorganization Costs

We filed for Chapter 11 reorganization on July 17, 2009. Expenses incurred for professional fees and other costs associated with our reorganization were $1.9 million for the year ended December 31, 2009. During the year ended December 31, 2010, we incurred approximately $174,000 of such costs, as our plan of reorganization was approved in January 2010.

Income Tax Expense

As of December 31, 2008, we had recorded a $600,000 deferred tax asset in connection with projected future net operating loss carryforwards. During 2009, we determined that the tax benefit was no longer likely to be realized, as a result of accrued costs related to the Hansen litigation, and we therefore provided for a full valuation allowance against the deferred tax asset, resulting in a $600,000 non-cash tax expense for the year.

Liquidity and Capital Resources

At December 31, 2011, our total cash and cash equivalents were approximately $8.9 million. On May 18, 2011, we entered into an agreement with SVB under which SVB made a term loan to us in the amount of $6.0 million. The term loan is to be repaid by us in 48 monthly installments, plus accrued interest payable monthly in arrears, and, unless earlier terminated, matures on the earlier of either May 1, 2015 or an event of a default under the underlying loan and security agreement. The term loan carries a floating annual interest rate equal to SVB's prime rate then in effect plus 2%.

We may prepay amounts due under the term loan for a fee equal to (i) $120,000, if such prepayment is made on or before May 18, 2012; (ii) $60,000, if such prepayment is made after May 18, 2012, but on or before May 18, 2013; or (iii) zero, if such prepayment is made after May 18, 2013.

In addition to the terms and conditions of the term loan, we have a revolving credit facility with SVB with a maximum borrowing capacity of $1.0 million and a maturity date of May 18, 2012.

The annual interest rate on the revolving facility is equal to SVB's prime rate plus 1.25%, payable monthly in arrears, with an unused line of credit fee one-quarter of one percent (0.25%), payable monthly. We may terminate the line of credit for a termination fee of $10,000, which fee would not be payable in the event that the line of credit is replaced by another loan facility with SVB.

Amounts due under the term loan and the revolving line of credit, which we refer to together as the Credit Facilities, are secured by substantially all of our assets, including intellectual property, personal property and bank accounts.

The Credit Facilities require us to observe a number of financial and operational covenants, including maintenance of a specified liquidity ratio, achievement of certain adjusted EBITDA targets, protection and registration of intellectual property rights, and certain customary negative covenants. As of December 31, 2011, we were in compliance with all covenants.

In addition, the Credit Facilities contain customary events of default, including nonpayment of principal, interest or other amounts, violation of covenants, material adverse change, an event of default under any subordinated debt documents, incorrectness of representations and warranties in any material respect, bankruptcy, judgments in excess of a threshold amount, and violations of other agreements in excess of a threshold amount. If any event of default occurs SVB may declare due immediately all borrowings under the Credit Facilities and foreclose on the collateral. Furthermore, an event of default under the Credit Facilities would result in an increase in the interest rate on any amounts outstanding.

The balance under the term loan at December 31, 2011 was $5,250,000, of which $3,625,000 was classified as long-term and $1,625,000 was classified as short-term. No amounts were outstanding under the line of credit at December 31, 2011.

We believe that our current cash balance, our cash flow from operations, and the funds available to us under the Credit Facilities with SVB, provide adequate liquidity for us to meet our working capital needs during the remainder of 2012.

Discussion of Cash Flows

	Twelve months ended		
	2011	2010	2009
Net cash (used in)/provided by operating activities	$2,990,389	$ (87,282)	$ (4,635,490)
Net cash used in investing activities	(675,517)	(450,682)	(695,986)
Net cash (used in)/provided by financing activities	(592,325)	2,525,742	(4,958,682)
	$ 1,722,547	$1,987,778	$(10,290,158)

During 2011, operations provided $3.0 million of net cash, as compared to 2010 in which operations used $87,000 of net cash and 2009 in which operations used $4.6 million in net cash. In 2011, our net loss of $1.4 million was offset by $3.6 million in non-cash expenses and $0.8 million of net cash inflows from changes in operating assets and liabilities.

In 2010, our operating cash outflow was the result of our net loss of $2.6 million, which was offset by $4.8 million of non-cash expenses, while net changes in operating assets and liabilities during the year resulted in a net cash outflow of $2.3 million. Included in these working capital changes was our $9.7 million settlement with Hansen, which was accrued as an expense during 2009 but paid in 2010.

During 2009, our operating cash flow was the result of our $20.4 million net loss, offset by the $9.7 million accrued Hansen settlement and $7.9 million of other non-cash expenses, including reorganization costs and intangible asset impairment charges, and a $1.8 million net cash outflow from changes in operating assets and liabilities.

Cash used in investing activities relates to the purchase of property and equipment as well as capitalized costs associated with securing intellectual property rights. During 2009, we also made a small acquisition of intellectual property assets from a third party. Our overall cash used in investing activities was $0.7 million in 2011 compared to $0.5 million in 2010 and $0.7 million in 2009.

Cash used in financing activities for the year ended December 31, 2011 was $0.6 million compared to cash flows provided by financing activities of $2.5 million in 2010 and cash used in financing activities of $4.9 million in 2009.

During 2011, we received $6.0 million in term loan proceeds from SVB, which we used to repay the then outstanding balance on our revolving line of credit with SVB of $2.5 million and the then outstanding balance on

our Hansen Note of approximately $3.0 million. We also made additional payments on those loans during 2011 prior to their repayment in full as well as approximately $42,000 in principal on capitalized lease obligations. Also during 2011 we received approximately $317,000 from the exercise of options and warrants.

During 2010, we borrowed $2.5 million from our line of credit with SVB, repaid $834,000 of indebtedness to Hansen, received $865,000 in proceeds from the exercise of options and warrants and paid $5,000 on our capital leases.

During 2009, we received $51,000 from the exercise of options and warrants and made $10,000 in payments on capital leases. Also in 2009 we paid off a promissory note to Carilion in the amount of $5.0 million.

Summary of Contractual Obligations

The following table sets forth information concerning our known contractual obligations as of December 31, 2011 that are fixed and determinable.

	Total	Less than 1 year	1 - 3 years	3 - 5 years	More than 5 years
Long-term debt obligations (1)	$ 5,250,000	$ 1,625,000	$ 3,000,000	$ 625,000	$ —
Operating facility leases (2)	4,139,622	1,288,862	2,187,546	663,214	—
Other leases (3)	233,957	50,949	111,518	71,490	—
Purchase order obligation (4)	1,230,765	1,230,765	—	—	—
City of Danville grant (5)	64,779	21,633	43,146	—	—
Other liabilities (6)	3,080,000	342,000	875,000	454,000	1,409,000
Total	$13,999,123	$4,559,209	$ 6,217,210	$1,813,704	$1,409,000

(1) Amounts due under our debt obligations to SVB are payable in monthly installments through May 2015.

(2) We lease our facilities in Blacksburg, Charlottesville and Roanoke, Virginia under operating leases that expire between September 2012 and December 2015. Upon expiration of the leases, we may exercise certain renewal options as specified in the leases.

(3) In February 2011 we executed a $274,000 lease for equipment for our offices in Roanoke, Blacksburg and Charlottesville, Virginia. The lease expires in February of 2016.

(4) In August 2010, our Luna Technologies subsidiary executed a non-cancelable $1.8 million purchase order for multiple shipments of tunable lasers to be delivered over an 18-month period beginning in October 2010. In September 2011 we executed a non-cancelable $1.2 million purchase order for multiple shipments of tunable lasers to be delivered over a 12 month period subsequent to the completion in February of 2012 of the purchase order executed in August 2010.

(5) In March 2004, we received a $900,000 grant from the City of Danville, Virginia. One-half of the grant was to be used to offset certain capital expenditures for leasehold improvements being made at our Danville facility, and one-half was to be used for our creation of new jobs. We satisfied the job creation criteria in full and the capital expenditures criteria in part in 2008 and recognized $668,000 of the grant as income for that year. In 2009 and 2010 we satisfied additional criteria and earned another approximately $124,000 of the grant. In January 2010, we agreed to repay the remaining $108,000 of the grant in quarterly installments through November 2014.

(6) Other liabilities include remaining amounts payable for minimum royalty payments for certain licensed technologies payable over the remaining patent terms of the underlying technology.

Off-Balance Sheet Arrangements

We have no off-balance sheet arrangements as defined in Regulation S-K, Item 303(a)(4)(ii).

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. We do not hold or issue financial instruments for trading purposes or have any derivative financial instruments. Our exposure to market risk is limited to interest rate fluctuations due to changes in the general level of United States interest rates.

Interest Rate Risk

We do not use derivative financial instruments as a hedge against interest rate fluctuations, and, as a result, interest income earned on our cash and cash equivalents and short-term investments is subject to changes in interest rates. However, we believe that the impact of these fluctuations does not have a material effect on our financial position due to the immediate available liquidity or short-term nature of these financial instruments.

We are exposed to interest rate fluctuations as a result of our SVB debt facility having a variable interest rate. However, the loan facility has a minimum fixed interest rate of 6%, which was in effect during both 2010 and 2011. We do not currently use derivative instruments to alter the interest rate characteristics of our debt. For the principal amount of $5.3 million outstanding under the term loan as of December 31, 2011, a change in the interest rate by one percentage point for one year would result in a change in our annual interest expense of approximately $44,000.

Foreign Currency Exchange Rate Risk

As of December 31, 2011, all payments made under our research contracts have been denominated in United States dollars. Our product sales to foreign customers are also denominated in U.S. dollars, and we do not receive payments in foreign currency. As such, we are not directly exposed to currency gains or losses resulting from fluctuations in foreign exchange rates.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders
Luna Innovations Incorporated

We have audited the accompanying consolidated balance sheets of Luna Innovations Incorporated (a Delaware corporation) and subsidiaries (the "Company") as of December 31, 2011 and 2010, and the related consolidated statements of operations, comprehensive income, shareholders' equity (deficit), and cash flows for each of the three years in the period ended December 31, 2011. Our audits of the basic financial statements included the financial statement schedule listed in the index appearing under Item 15 (a)(2). These financial statements and financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and financial statement schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Luna Innovations Incorporated and subsidiaries as of December 31, 2011 and 2010, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2011, in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the related financial statement schedule, when consolidated in relation to the basic financial statements taken as a whole, present fairly, in all material respects, the information set forth therein.

/s/ GRANT THORNTON LLP

McLean, Virginia
March 29, 2012

CONSOLIDATED BALANCE SHEETS

	December 31, 2010	December 31, 2011
Assets		
Current assets		
Cash and cash equivalents	$ 7,216,580	$ 8,939,127
Accounts receivable, net	7,669,625	5,958,086
Inventory, net	3,106,600	3,330,773
Prepaid expenses	665,210	1,071,438
Other current assets	45,348	35,717
Total current assets	18,703,363	19,335,141
Property and equipment, net	3,204,670	2,816,674
Intangible assets, net	664,418	539,563
Other assets	303,210	228,043
Total assets	**$ 22,875,661**	**$ 22,919,421**
Liabilities and stockholders' equity		
Current Liabilities;		
Current portion of long term debt obligation	1,195,784	1,625,000
Current portion of capital lease obligation	2,194	50,949
Line of credit	2,500,000	—
Accounts payable	2,008,183	1,656,602
Accrued liabilities	3,549,604	3,612,193
Deferred credits	1,392,602	1,462,603
Total current liabilities;	10,648,367	8,407,347
Long-term debt obligation	2,611,609	3,625,000
Long-term capital lease obligation	—	183,008
Total liabilities	13,259,976	12,215,355
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, par value $0.001, 1,321,514 shares authorized, issued and outstanding at December 31, 2010 and 2011, respectively	1,322	1,322
Common stock, par value $0.001, 100,000,000 shares authorized, 13,449,345 and 13,812,490 shares issued and outstanding at December 31, 2010 and 2011, respectively	13,526	13,969
Additional paid-in capital	56,681,756	59,289,516
Accumulated deficit	(47,080,919)	(48,600,741)
Total stockholders' equity	**9,615,685**	**10,704,066**
Total liabilities and stockholders' equity	**22,875,661**	**22,919,421**

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF OPERATIONS

	Years ended December 31,		
	2009	2010	2011
Revenues:			
Technology development revenues	$ 25,198,038	$ 22,404,931	$ 22,417,902
Product and license revenues	9,373,849	12,133,463	13,195,822
Total revenues	34,571,887	34,538,394	35,613,724
Cost of revenues:			
Technology development costs	17,031,768	15,808,108	15,793,279
Product and license costs	4,783,586	5,786,567	6,589,943
Total cost of revenues	21,815,354	21,594,675	22,383,222
Gross profit	12,756,533	12,943,719	13,230,502
Operating expense:			
Selling, general & administrative	16,345,578	13,297,705	11,788,866
Research, development, and engineering	2,874,666	1,694,643	2,674,730
Litigation settlement	9,669,728	—	—
Impairment of intangible assets	1,310,598	—	—
Total operating expense	30,200,570	14,992,348	14,463,596
Operating loss	(17,444,037)	(2,048,629)	(1,233,094)
Other income (expense):			
Other income, net	735	77,299	227,565
Interest (expense), net	(503,699)	(474,408)	(376,524)
Total other income (expense)	(502,964)	(397,109)	(148,959)
Loss before reorganization costs and income tax expense	(17,947,001)	(2,445,738)	(1,382,053)
Reorganization costs	1,897,580	174,292	—
Loss before income tax expense	(19,844,581)	(2,620,030)	(1,382,053)
Income tax expense	600,000	—	10,307
Net loss	$ (20,444,581)	$ (2,620,030)	$ (1,392,360)
Preferred stock dividend	—	360,631	127,462
Net loss attributable to common stockholders	$ (20,444,581)	$ (2,980,661)	$ (1,519,822)
Net loss per share:			
Basic	$ (1.82)	$ (0.23)	$ (0.11)
Diluted	$ (1.82)	$ (0.23)	$ (0.11)
Weighted average shares:			
Basic and diluted	11,232,716	13,009,326	13,647,555

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY (DEFICIT)

	Preferred Stock		Common Stock		Additional Paid in Capital	Accumulated Deficit	Total
	Shares	$	Shares	$			
Balance—January 1, 2009	—	—	11,137,882	$ 11,138	$ 37,960,928	$(23,655,677)	$ 14,316,389
Stock-based payments	—	—	69,220	69	3,216,711	—	3,216,780
Exercise of options and warrants	—	—	144,865	145	51,059	—	51,204
Net loss	—	—	—	—	—	(20,444,581)	(20,444,581)
Balance—December 31, 2009	—	—	11,351,967	11,352	41,228,698	(44,100,258)	(2,860,208)
Issuance of Preferred Stock, in exchange of Carilion notes	1,321,514	$1,322	—	—	4,835,420	—	4,836,742
Issuance of Common Stock, Hansen Settlement	—	—	1,247,330	1,247	4,563,981	—	4,565,228
Stock-based payments	—	—	11,522	12	3,472,318	—	3,472,330
Issuance of Warrants, other	—	—	—	—	1,264,946	—	1,264,946
Issuance of Common Stock, Other (1)	—	—	25,000	25	91,475	—	91,500
Exercise of options and warrants	—	—	813,526	814	864,363	—	865,177
Stock dividends (2)	—	—	—	76	360,555	(360,631)	—
Net loss	—	—	—	—	—	(2,620,030)	(2,620,030)
Balance—December 31, 2010	1,321,514	1,322	13,449,345	13,526	56,681,756	(47,080,919)	9,615,685
Exercise of stock options and warrants	—	—	249,388	249	219,327	—	219,576
Stock-based payments	—	—	51,648	52	2,163,238	—	2,163,290
Stock dividends (2)	—	—	—	80	127,382	(127,462)	—
Issuance of Common Stock, Other (3)	—	—	62,109	62	97,813	—	97,875
Net loss from operations	—	—	—	—	—	(1,392,360)	(1,392,360)
Balance—December 31, 2011	1,321,514	$1,322	13,812,490	$13,969	$59,289,516	$ (48,600,741)	$ 10,704,066

(1) In January 2010 we settled a complaint filed by a former employee in exchange for the payment of $13,000 in cash and the issuance of 25,000 shares of our common stock. The settlement was included as an accrued liability on our December 31, 2009 consolidated balance sheet.

(2) The stock dividends payable in connection with the Series A Convertible Preferred Stock are issuable upon the request of Carilion.

(3) Fees paid to our board of directors by issuance of our common stock.

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	2009	2010	2011
Cash flows (used in)/provided by operating activities:			
Net loss	$ (20,444,581)	$ (2,620,030)	$ (1,392,360)
Adjustments to reconcile net loss to net cash (used in)/provided by operating activities:			
Depreciation and amortization	1,853,188	1,331,809	1,462,511
Stock-based compensation	3,216,780	3,472,330	2,163,290
Deferred tax expense	600000	—	—
Bad debt expense	135,162	—	—
Reorganization costs	826,234	—	—
Impairment of intangible assets	1,310,598	—	—
Changes in operating assets and liabilities:			
Accounts receivable	(6,332)	(466,422)	1,711,539
Inventory	(61,373)	(261,972)	(224,173)
Refundable income taxes	98,092	—	—
Other assets	(1,264,865)	669,759	(321,430)
Accounts payable and accrued expenses	259,145	7,091,386	(288,989)
Accrued litigation settlement	9,669,728	(9,669,728)	—
Deferred credits	(827,266)	365,586	(119,999)
Net cash (used in)/provided by operating activities	(4,635,490)	(87,282)	2,990,389
Cash flows used in investing activities:			
Acquisition of property and equipment	(53,111)	(85,149)	(327,704)
Intangible property costs	(642,875)	(365,533)	(347,813)
Net cash used in investing activities	(695,986)	(450,682)	(675,517)
Cash flows from financing activities:			
Proceeds from debt obligations	—	2,500,000	6,000,000
Payments on debt obligations	(5,000,000)	(834,119)	(6,867,393)
Payments on capital lease obligation	(9,886)	(5,316)	(42,383)
Proceeds from the exercise of options and warrants	51,204	865,177	317,451
Net cash provided by (used in) financing activities	(4,958,682)	2,525,742	(592,325)
Net change in cash	(10,290,158)	1,987,778	1,722,547
Cash and cash equivalents—beginning of period	15,518,960	5,228,802	7,216,580
Cash and cash equivalents—end of period	$ 5,228,802	$ 7,216,580	$ 8,939,127
Supplemental disclosure of cash flow information			
Cash paid for interest	$ 177,973	$ 397,020	$ 239,521
Cash received from income tax refunds	$ 107,581	$ —	$ —
Common stock issued in litigation settlement (1,247,330 shares)	$ —	$ 4,565,228	$ —
Installment note issued in litigation settlement	$ —	$ 5,000,000	$ —
Preferred stock issued in exchange of notes (1,321,514 shares)	$ —	$ 4,836,742	$ —
Warrants issued in exchange of notes payable (356,000 warrants)	$ —	$ 1,261,879	$ —
Common stock issued in settlement of other claims (25,000 shares)	$ —	$ 91,500	$ —
Dividend on preferred stock, 76,649 and 79,292 shares of common stock issuable at 12/31/2010 and 2011, respectively	$ —	$ 360,631	$ 127,462
Reduction to principal of Hansen Note in exchange for development services	$ —	$ 358,488	$ —
Property and equipment financed by capital leases	$ —	$ —	$ 274,145
Cash paid for income taxes	$ —	$ —	$ 10,307

The accompanying notes are an integral part of these consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Organization and Summary of Significant Accounting Policies

Luna Innovations Incorporated ("We" or "the Company"), headquartered in Roanoke, Virginia was incorporated in the Commonwealth of Virginia in 1990 and reincorporated in the State of Delaware in April 2003.

We research, develop and commercialize innovative technologies in three primary areas of focus: fiber optic shape sensing technology for robotic and minimally invasive surgical systems, fiber optic sensing systems and standard test methods for composite materials, and ensuring the integrity of integrated circuits used in defense systems. Our business model is designed to accelerate the process of bringing new and innovative products to market. We use our in-house technical expertise to perform applied research services on government-funded projects across a range of technologies and also for corporate customers in the fiber optic sensing area. We are organized into two business segments: our Technology Development segment and our Products and Licensing segment. Our Technology Development segment performs applied research on government-funded projects and includes our secure computing and communications group, or SCC. Most of the government funding in our Technology Development segment other than SCC is derived from the U.S. Government's Small Business Innovation Research, or SBIR, program coordinated by the U.S. Small Business Administration, or SBA. Our Products and Licensing segment focuses on fiber optic test and measurement, sensing, and instrumentation products and also conducts applied research in the fiber optic sensing area to corporate and government customers. The Products and Licensing segment also includes healthcare products.

We have a history of net losses and, and prior to 2011, negative cash flow from operations. We have historically managed our liquidity through cost reduction initiatives, debt financings and capital markets transactions.

Since the second half of 2008, the increased turmoil in the U.S. and global capital markets and a global slowdown of economic growth created a substantially more difficult business environment. Our ability to access the capital markets is expected to be extremely limited. Economic and market conditions may not improve significantly during 2012 and could get worse.

Although there can be no guarantees, we believe that our current cash balance, our cash flow from operations, and the funds available to us under the Credit Facility described in Note 3 below, provide adequate liquidity for us to meet our working capital needs through 2012.

Consolidation Policy

Our consolidated financial statements are prepared in accordance with generally accepted accounting principles in the United States ("GAAP") and include the accounts of the Company, its wholly owned subsidiaries and other entities in which the Company has a controlling financial interest. We eliminate from our financial results all significant intercompany transactions. We do not have any investments in entities we believe are variable interest entities for which the Company is the primary beneficiary.

Emergence from Chapter 11 Reorganization

On July 17, 2009, we and our wholly owned subsidiary Luna Technologies, Inc. filed a voluntary petition for relief in order to reorganize under Chapter 11 of the United States Bankruptcy Code, including a proposed plan of reorganization, in the United States Bankruptcy Court for the Western District of Virginia (the "Bankruptcy Court"). During the period from July 17, 2009 through January 12, 2010, the Company continued to operate its business in the ordinary course as a Debtor-in-Possession. On January 12, 2010, the Bankruptcy Court approved our plan of reorganization, and the Company successfully emerged from bankruptcy.

Upon our emergence from bankruptcy and in connection with our litigation settlement, we issued approximately 1.2 million shares of common stock to Hansen Medical, Inc., or Hansen, as described below. Other outstanding shares of common stock were not directly affected by our plan of reorganization. Because the shareholders immediately prior to our emergence from bankruptcy continued to own more than 50% of the total outstanding common stock immediately following our emergence from bankruptcy, we did not adopt the fresh-start reporting principles of Accounting Standards Codification ("ASC") 852-10-45, Financial Reporting during Reorganization.

Settlement of Hansen Litigation

In June 2007, Hansen, a company for which we had conducted certain research and performed certain services, filed a lawsuit against us for using allegedly misappropriated trade secrets from Hansen in connection with our work with Intuitive Surgical, Inc., or Intuitive, or otherwise. On April 21, 2009, a jury found in favor of Hansen and awarded a verdict for $36.3 million against us. As a result of this jury verdict, we filed for Chapter 11 reorganization in July 2009, as described above under "Emergence from Chapter 11 Reorganization."

On December 11, 2009, we and our wholly owned subsidiary Luna Technologies, Inc. entered into a settlement agreement with Hansen to settle all claims arising out of the litigation. As a result of the settlement, our accrual of $36.3 million recorded during the quarter ended March 31, 2009 was adjusted to $9.7 million at December 31, 2009.

Preferred Stock Issued to Carilion Clinic

In January 2010, we entered into a transaction with Carilion Clinic ("Carilion"), in which Carilion agreed to exchange all of its Senior Convertible Promissory Notes in the principal amount of $5.0 million plus all accrued but unpaid interest, totaling $1.2 million, for (i) 1,321,514 shares of our newly designated Series A Convertible Preferred Stock and (ii) an additional warrant to purchase 356,000 shares of our common stock at an exercise price of $2.50 per share. This warrant is exercisable beginning February 1, 2013, and continuing until December 31, 2020. We also agreed to reduce the exercise price of Carilion's prior common stock warrant from $7.98 to $2.50 per share and to extend its expiration date to December 31, 2020. The Series A Convertible Preferred Stock carries a dividend of 6% payable in shares of common stock and maintains a liquidation preference up to $6.2 million. As of December 31, 2010 and 2011, 76,649 and 79,292, respectively, for a cumulative total of 155,941 shares of common stock were issuable to Carilion, on their demand, as dividends and have been recorded in the statement of stockholders' equity. Each share of Series A Convertible Preferred Stock may be converted into one share of our common stock at the option of the holder. We recorded the fair value of the Series A Convertible Preferred Stock, determined based upon the conversion value immediately prior to the exchange, the fair value of the new warrant issued, determined using the Black-Scholes valuation model, and the incremental fair value of the prior warrant due to the re-pricing and extension of maturity to stockholders' equity.

Use of Estimates

The preparation of our consolidated financial statements in accordance with U.S. GAAP requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses and the disclosure of contingent assets and liabilities in our consolidated financial statements and accompanying notes.

Although these estimates are based on our knowledge of current events and actions we may undertake in the future, actual results may differ from such estimates and assumptions.

Technology Development Revenues

We perform research and development for U.S. government agencies, educational institutions and commercial organizations. We recognize revenues under research contracts when a contract has been executed, the contract price is fixed and determinable, delivery of services or products has occurred and collection of the contract price is considered reasonably assured. Revenue is earned under cost reimbursable, time and materials and fixed price contracts. Direct contract costs are expensed as incurred.

Under cost reimbursable contracts, we are reimbursed for costs that are determined to be reasonable, allowable and allocable to the contract and are paid a fixed fee representing the profit negotiated between us and the contracting agency. Revenue from cost reimbursable contracts is recognized as costs are incurred plus a portion of the fee earned. Revenue from time and materials contracts is recognized based on direct labor hours expended at contract billing rates plus other billable direct costs.

Revenue from fixed price research contracts that involve the delivery of services and a prototype model is recognized under the percentage of completion method. Fixed price arrangements that involve the delivery of research reports are recognized under the proportional performance method based upon the ratio of costs incurred to achieve contract milestones to total estimated cost as this method more accurately measures performance under these arrangements. Losses on contracts, if any, are recognized in the period in which they become known.

Intellectual Property License Revenues

Amounts received from third parties for licenses to our intellectual property are recognized when earned under the terms of the agreements. Revenues are recognized upon transfer of the license unless we have continuing obligations for which fair value cannot be established, in which case the revenues are recognized over the period of the obligation. If there are extended payment terms, license fee revenues are recognized as these payments become due and collection is reasonably assured. We consider all arrangements with payment terms extending beyond 12 months not to be fixed and determinable.

Certain of our license arrangements have also required us to enter into research and development agreements. Accordingly, we allocate our arrangement fees to the various elements based upon objective reliable evidence of fair value, if available. For those arrangements in which evidence of fair value is not available, we defer revenues from any up-front payments and recognize them over the service period in the arrangement. Certain of these arrangements also include the payment of performance bonuses based upon the achievement of specific milestones. Generally, there are no assurances at the onset of these arrangements that the milestones will be achieved. As such, fees related to such milestones are excluded from the initial allocation of the arrangement fee and are recognized upon achievement of the milestone provided that all other revenue recognition criteria are met.

Product Sales Revenues

Revenues from product sales are generated by the sale of commercial products and services under various sales programs to the end user and through distribution channels. We sell fiber optic sensing systems to end users for use in numerous fiber optic based measurement applications. Revenues are recorded net of applicable sales taxes collected from customers and payable to state or local governmental entities.

We recognize revenue relating to our products when persuasive evidence of an arrangement exists, delivery has occurred, the selling price is fixed or determinable and collectability of the resulting receivable is reasonably assured.

For multi-element arrangements that include tangible products that contain software that is essential to the tangible product’s functionality, we allocate revenue to all deliverables based on their relative selling prices. In such circumstances, we use a hierarchy to determine the selling price to be used for allocating revenue to deliverables: (i) vendor-specific objective evidence of fair value or VSOE, (ii) third-party evidence of selling price or TPE, and (iii) best estimate of the selling price or ESP. VSOE generally exists only when we sell the deliverable separately and is the price actually charged by us for that deliverable. ESPs reflect our best estimates of what the selling prices of elements would be if they were sold regularly on a stand-alone basis.

Our process for determining our ESP for deliverables without VSOE or TPE considers multiple factors that may vary depending upon the unique facts and circumstances related to each deliverable. Key factors considered in developing the ESPs include prices charged by us for similar offerings, our historical pricing practices, the

nature of the deliverables, and the relative ESP of all of the deliverables as compared to the total selling price of the product. We may also consider, when appropriate, the impact of other products and services on selling price assumptions when developing and reviewing our ESPs.

Revenues from product sales that require no ongoing obligations are recognized as revenues when shipped to the customer, title has passed and collection is reasonably assured. In transactions in which a right-of-return exists, revenues are deferred until acceptance has occurred and the period for the right-of-return has lapsed.

Allowance for Uncollectible Receivables

Accounts receivable are recorded at their face amount, less an allowance for doubtful accounts. We review the status of our uncollected receivables on a regular basis. In determining the need for an allowance for uncollectible receivables, we consider our customers' financial stability, past payment history and other factors that bear on the ultimate collection of such amounts. The allowance was unchanged at approximately $22,000 at December 31, 2010 and 2011, respectively.

Cash Equivalents

We consider all highly liquid investments purchased with maturities of three months or less to be cash equivalents. To date, we have not incurred losses related to cash and cash equivalents.

Fair Value Measurements

The Company's financial assets and liabilities are measured at fair value, which is defined as the price that would be received to sell an asset, or paid to transfer a liability, in an orderly transaction between market participants. Valuation techniques are based on observable or unobservable inputs. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company's market assumptions. These two types of inputs have created the following fair value hierarchy:

- Level 1—Quoted prices for identical instruments in active markets.
- Level 2—Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which significant value drivers are observable.
- Level 3—Valuations derived from valuation techniques in which significant value drivers are unobservable.

The carrying values of cash and cash equivalents, accounts receivable and accounts payable approximate fair value because of the short-term nature of these instruments. The carrying value of the promissory notes approximate fair value as the interest rate is comparable to the interest rate on our credit facility with Silicon Valley Bank, which we consider to be at market.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation. We record depreciation using the straight-line method over the following estimated useful lives:

Equipment	3 – 7 years
Furniture and fixtures	7 years
Software	3 years
Leasehold improvements	Lesser of lease term or life of improvements

Intangible Assets

Intangible assets consist of patents related to certain intellectual property that we have developed or acquired. We amortize our patents over their estimated useful life of five years, and analyze them whenever events or circumstances indicate that the carrying amount may not be recoverable to determine whether their carrying value has been impaired.

Research, Development and Engineering

Research, development and engineering expenses not related to contract performance are expensed as incurred. We expensed $2.9 million, $1.7 million and $2.7 million of non-contract related research, development and engineering expenses for the years ended December 31, 2009, 2010 and 2011, respectively.

Valuation of Long-Lived Assets

We review our long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets is measured by comparing the carrying amount of an asset to future undiscounted net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds their fair value. Assets to be disposed of by sale are reflected at the lower of their carrying amount or fair value less cost to sell.

Inventory

Inventory consists of finished goods and parts valued at the lower of cost (determined on the first-in, first-out basis) or market. We provide reserves for estimated obsolescence or unmarketable inventory equal to the difference between the carrying value of the inventory and the estimated market value based upon assumptions about future demand and market conditions. Inventory reserves at December 31, 2010 and 2011 were $83,820 and $172,902, respectively.

Net Loss per Share

Basic per share data is computed by dividing loss available to common stockholders by the weighted average number of shares outstanding during the period. Diluted per share data is computed by dividing loss available to common stockholders by the weighted average shares outstanding during the period increased to include, if dilutive, the number of additional common share equivalents that would have been outstanding if potential common shares had been issued using the treasury stock method. Diluted per share data would also include the potential common share equivalents relating to convertible securities by application of the if-converted method.

The effect of 4.6 million, 6.5 million and 2.5 million common stock equivalents (which include outstanding warrants and stock options) are not included for the years ended December 31, 2009, 2010 and 2011 respectively, as they are antidilutive to earnings per share. In addition, the conversion of the $5.0 million in convertible promissory notes outstanding at December 31, 2008 and 2009 would have been antidilutive.

Stock-Based Compensation

We have a stock-based compensation plan, which is described further in Note 8. We recognize compensation expense based upon the fair value of the underlying equity award as of the date of grant. The Company has elected to use the Black-Scholes option pricing model to value any awards granted. We amortize stock-based compensation for such awards on a straight-line method over the related service period of the awards taking into account the effects of the employees' expected exercise and post-vesting employment termination behavior.

The Company recognizes expense for equity instruments issued to non-employees based upon the fair value of the equity instruments issued.

The fair value of each option granted is estimated as of the grant date using the Black-Scholes option pricing model with the following assumptions:

	2009	2010	2011
Risk-free interest rate range	2.80% – 3.17%	2.09% – 3.22%	1.48% – 2.81%
Expected life of option-years	7.5	7.5	7.5
Expected stock price volatility	83% – 117%	117%	111%
Expected dividend yield	—	—	—

The risk-free interest rate is based on U.S. Treasury interest rates, the terms of which are consistent with the expected life of the stock options. Expected volatility is based upon the average volatility of our common stock. The expected life and estimated post-employment termination behavior is based upon historical experience of homogeneous groups within our company.

Advertising

We expense the cost of advertising as incurred. Historically such amounts have not been significant to our operations.

Income Taxes

We account for income taxes using the liability method. Deferred tax assets or liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities as measured by the enacted tax rates which will be in effect when the differences reverse. A valuation allowance against net deferred tax assets is provided unless we conclude it is more likely than not that the deferred tax assets will be realized.

We recognize tax benefits from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities.

Recent Accounting Pronouncements

May 2011, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2011-04, “Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs”. The ASU attempts to clarify the FASB’s intent about the application of existing fair value measurement requirements and changes certain principles or requirements for measuring fair value or for disclosing information about fair value measurements. The ASU’s amendments will result in common fair value measurement and disclosure requirements in U.S. GAAP and IFRSs and are effective for the first interim or annual period beginning on or after December 15, 2011. Our adoption of this ASU, effective January 1, 2012, is presentation and disclosure related and therefore will not have an effect on our consolidated financial position or results of operations.

In September 2011, the FASB issued ASU No. 2011-08, Intangibles-Goodwill and Other (Topic 350) – Testing Goodwill for Impairment was issued. ASU 2011-08 provides companies with a new option to determine whether or not it is necessary to apply the traditional two-step quantitative goodwill impairment test in ASC 350, Intangibles – Goodwill and Other. Under ASU 2011-08 companies are no longer required to calculate the fair value of a reporting unit unless it determines, on the basis of qualitative information, that it is more likely than not (i.e., greater than 50%) that the fair value of a reporting unit is less than its carrying amount. ASU 2011-08 is effective for periods ending after December 15, 2011; however, early adoption is permitted for periods ending after September 15, 2011. We do not anticipate the adoption to have a material impact on our consolidated financial statements.

Reclassifications

Certain prior year amounts have been reclassified to conform to current presentation.

2. Inventory

Inventory consists of finished goods, work-in-process and parts valued at the lower of cost (determined on the first-in, first-out basis) or market. We provide reserves for estimated obsolescence or unmarketable inventory equal to the difference between the cost of the inventory and the estimated market value based upon assumptions about future demand and market conditions.

Components of inventory are as follows:

	December 31, 2010	December 31, 2011
Finished goods	$ 476,375	$ 531,418
Work-in-process	222,623	210,459
Parts	2,468,958	2,739,335
	3,167,956	3,481,212
Less: Inventory reserves	61,356	150,439
Total inventory, net	$ 3,106,600	$ 3,330,773

3. Debt

Silicon Valley Bank Facility

On February 18, 2010, we entered into a Loan and Security Agreement with Silicon Valley Bank or SVB to provide us with a revolving credit facility that provided us with borrowing capacity of up to $5.0 million, subject to a percentage of our outstanding eligible accounts receivable, at a floating annual interest rate equal to the greater of (a) 6% or (b) SVB's prime rate then in effect plus 2%. The credit facility was originally scheduled to mature on February 17, 2011, but it was amended to extend the maturity date until May 18, 2011 and to revise the calculation of eligible borrowing base and add certain financial covenants relating to our adjusted EBITDA.

On May 18, 2011, we entered into a Second Loan Modification Agreement with SVB. Under the Second Loan Modification Agreement, SVB made a term loan to us in the amount of $6.0 million (the "Term Loan"). The Term Loan is to be repaid by us in 48 monthly installments, plus accrued interest payable monthly in arrears, and unless earlier terminated, matures on the earlier of either May 1, 2015 or an event of a default under the loan agreement. The Term Loan carries a floating annual interest rate equal to SVB's prime rate then in effect plus 2%.

We may prepay amounts due under the Term Loan for a fee equal to (i) $120,000, if such prepayment is made on or before May 18, 2012; (ii) $60,000, if such prepayment is made after May 18, 2012, but on or before May 18, 2013; or (iii) zero, if such prepayment is made after May 18, 2013.

In addition to the terms and conditions of the Term Loan, the Second Loan Modification Agreement reduced our maximum borrowing capacity under a separate revolving credit facility (the "Line of Credit" and together with the Term Loan, the "Credit Facilities") from $5.0 million to $1.0 million and extended its maturity date until May 18, 2012.

As modified by the Second Loan Modification Agreement, the annual interest rate on the Line of Credit has been reduced to SVB's prime rate plus 1.25%, payable monthly in arrears, and we are required to pay an unused Line of Credit fee of one-quarter of one percent (0.25%), payable monthly. We may terminate the Line of Credit for a termination fee of $10,000, which fee would not be payable in the event that the Line of Credit is replaced by another loan facility with SVB.

Amounts due under the Credit Facilities are secured by substantially all of our assets, including intellectual property, personal property and bank accounts.

The Credit Facilities require us to observe a number of financial and operational covenants, including maintenance of a specified liquidity ratio, achievement of certain adjusted EBITDA targets, protection and registration of intellectual property rights, and certain customary negative covenants. As of December 31, 2011, we were in compliance with all covenants.

In addition, the Credit Facilities contain customary events of default, including nonpayment of principal, interest or other amounts, violation of covenants, material adverse change, an event of default under any subordinated debt documents, incorrectness of representations and warranties in any material respect, bankruptcy, judgments in excess of a threshold amount, and violations of other agreements in excess of a threshold amount. If any event of default occurs SVB may declare due immediately all borrowings under the Credit Facilities and foreclose on the collateral. Furthermore, an event of default under the Credit Facilities would result in an increase in the interest rate on any amounts outstanding.

The balance under the Term Loan at December 31, 2011 was $5,250,000, of which $3,625,000 was classified as long-term and $1,625,000 was classified as short-term. No amounts were outstanding under the Line of Credit at December 31, 2011.

Note Payable to Hansen (the "Hansen Note")

In January 2010, we issued a promissory note to Hansen in the principal amount of $5.0 million, payable in 16 quarterly installments beginning in April 2010. The Hansen Note bore interest at a fixed rate of 8.5% and was secured by substantially all of our assets. The Hansen Note was subordinated to our primary bank credit facility. As part of our Second Loan Modification Agreement with SVB, we and Hansen entered into an Amendment to Secured Promissory Note and Payoff Letter (the "Payoff Letter").

Under the terms of the Payoff Letter, we and Hansen agreed upon a final payoff in the amount of approximately $3.0 million as payment in full for all principal and accrued interest under the Hansen Note, which represented a $190,000 discount from the then outstanding balance, which discount will be amortized into income over the remaining life of the Company's Development and Supply Agreement with Hansen. At December 31, 2011, there was approximately $132,000 remaining in deferred credits to be amortized. On May 23, 2011, we repaid the Hansen Note in full. Upon receipt of this final payment, all security interests in our assets held by Hansen as collateral for our obligations under the Hansen Note were terminated and released.

The following table presents a summary of debt outstanding as of December 31, 2010 and 2011:

	December 31,	
	2010	2011
Silicon Valley Bank Term Loan	$ —	$ 5,250,000
Silicon Valley Bank Line of Credit	2,500,000	—
Hansen Note	3,807,393	—
	$ 6,307,393	$ 5,250,000
Less: current portion	3,695,784	1,625,000
Total long-term debt	$2,611,609	$ 3,625,000

Maturities on long-term debt are as follows:

Year	Amount
2012	$1,625,000
2013	1,500,000
2014	1,500,000
2015	625,000
Total	$5,250,000

Costs associated with loans outstanding were as follows:

	Years Ended December 31,		
	2009	2010	2011
Interest expense	$ 439,233	$480,469	$377,096
Amortization of transaction costs	78,248	—	10,491
Total interest expense	$517,481	$480,469	$387,587

4. Accounts Receivable—Trade

Accounts receivable consist of the following:

	December 31,	
	2010	2011
Billed	$ 5,516,642	$ 4,349,750
Unbilled	2,164,491	1,619,844
Other	10,864	10,864
	$ 7,691,997	$ 5,980,458
Less: allowance for doubtful accounts	(22,372)	(22,372)
	$7,669,625	$5,958,086

Unbilled receivables result from contract retainages and revenues that have been earned in advance of billing and can be invoiced at contractually defined intervals, milestones, or at completion of the contract.

Unbilled amounts are expected to be billed in future periods and are classified as current assets in accordance with industry practice.

5. Property and Equipment

Property and equipment, net, consists of the following at:

	December 31,	
	2010	2011
Building	$ 69,556	$ 69,556
Equipment	6,256,811	6,853,589
Furniture and fixtures	621,776	622,944
Software	1,179,267	1,181,156
Leasehold improvements	3,191,597	3,193,613
	11,319,007	11,920,858
Less—accumulated depreciation	(8,114,337)	(9,104,184)
	$ 3,204,670	$ 2,816,674

Depreciation for the years ended December 31, 2009, 2010 and 2011 was approximately $1.2 million, $1.1 million and $1.0 million, respectively.

6. Intangible Assets

The following is a summary of intangible assets:

	December 31, 2010	December 31, 2011
Patent costs	$ 2,140,404	$ 2,034,573
Accumulated amortization	(1,475,986)	(1,495,010)
	$ 664,418	$ 539,563

Amortization for the years ended December 31, 2009, 2010 and 2011 was approximately $0.6 million, $0.3 million and $0.5 million, respectively. Estimated aggregate amortization for each of the next five years is as follows:

Year Ending December 31,	
2012	$ 218,749
2013	179,047
2014	129,354
2015	10,738
2016	1,675
	$539,563

7. Income Taxes

Deferred tax assets and liabilities consist of the following components:

	2010		2011	
	Current	Long-Term	Current	Long-Term
Bad debt and inventory reserve	$ 40,311		$ 74,126	
Depreciation and amortization		$ 842,966		$ 915,560
Net operating loss carryforwards		11,886,534		11,748,302
Research and development credits		386,161		386,161
Accrued liabilities	885,608		605,513	
Deferred compensation		65,861		85,837
Stock-based compensation		757,109		1,000,192
AMT credit		9,208		9,208
Total	925,919	13,947,839	679,639	14,145,260
Valuation allowance	(925,919)	(13,947,839)	(679,639)	(14,145,260)
Net deferred tax asset	$ —	$ —	$ —	$ —

The reconciliation of expected income tax benefit (expense) to actual income tax expense benefit (expense) was as follows:

	2009	2010	2011
Statutory federal rate	34.00%	34.00%	34.00%
State tax net of federal benefit	3.96%	3.96%	3.96%
Change in valuation allowance	(31.12%)	15.60%	2.79%
Incentive stock options	(4.85%)	(45.00%)	(35.85%)
Provision to return adjustments	(0.19%)	(1.48%)	(3.44%)
Other Permanent differences	(4.81%)	(7.08%)	(2.21%)
Income tax (expense)	(3.01%)	0.00%	(0.75%)

The income tax expense consists of the following for:

	2009	2010	2011
Current:			
Federal	$ —	$—	$10,307
State	—	—	—
Deferred Federal	600,000	—	—
Deferred State	—	—	—
Income tax expense	$600,000	$—	$10,307

The realization of our deferred income tax assets is dependent upon sufficient taxable income in future periods. In assessing whether deferred tax assets may be realized, we consider whether it is more likely than not that some portion, or all, of the deferred tax asset will be realized. We consider scheduled reversals of deferred tax liabilities, projected future taxable income and tax planning strategies that we can implement in making our assessment. We have net operating loss carryforwards at December 31, 2011 of approximately $30.9 million expiring at varying dates through 2025. We have research & development tax credit carryforwards at December 31, 2011 of approximately $0.4 million, which expire at varying dates through 2025.

We have not undertaken a formal section 382 study to determine the exact amount of net operating loss available to offset income. Our estimate of our available net operating losses that can be utilized in future years may change.

We are regularly examined by federal and various state tax authorities. The U.S. federal statute of limitations remains open for the year 2005 and onward. We currently have no federal income tax returns under examination. U.S. state jurisdictions have statutes of limitation generally ranging from three to seven years. We currently have no state income or franchise tax returns under examination. We currently do not file tax returns in any foreign tax jurisdiction.

We currently have no positions for which we expect that the amount of unrecognized tax benefit will increase or decrease significantly within twelve months of the reporting date. We have no tax interest or penalties reported in either our statement of operations or statement of financial position for any year reported herein. Management believes it is not more likely than not that the deferred tax assets will be realized at December 31, 2010 or December 31, 2011, therefore a valuation allowance was established against all deferred tax assets.

8. Stockholders' Equity

Series A Convertible Preferred Stock

In January 2010, we entered into a transaction with Carilion Clinic, or Carilion, in which Carilion agreed to exchange all of its Senior Convertible Promissory Notes in the principal amount of $5.0 million plus all accrued

but unpaid interest, totaling $1.2 million, for 1,321,514 shares of our newly designated Series A Convertible Preferred Stock. The Series A Convertible Preferred Stock is non-voting, carries a dividend of 6% payable in shares of common stock and maintains a liquidation preference up to $6.2 million. As of December 31, 2011, 155,941 shares of common stock were issuable to Carilion as dividends and have been recorded in the statement of stockholders' equity. These dividends are issuable on demand. Each share of Series A Convertible Preferred Stock may be converted into one share of our common stock at the option of the holder. We recorded the fair value of the Series A Convertible Preferred Stock, determined based upon the conversion value immediately prior to the exchange, the fair value of the new warrant issued, determined using the Black-Scholes valuation model, and the incremental fair value of the prior warrant due to the re-pricing and extension of maturity to stockholders' equity.

Carilion Warrants

In May 2008, we issued 10,000 warrants for the purchase of our Common Stock at an exercise price of $7.98 per share to Carilion Clinic ("Carilion"), in exchange for Carilion agreeing to subordinate their convertible debt to the Silicon Valley Bank debt facility, and to extend the payment of their convertible debt from December 31, 2009 to December 31, 2012. The warrants were valued using the Black-Scholes option pricing model with the following assumptions: risk-free rate of 3.81%, expected volatility of 63% and an expected life of 9.63 years, which equaled the contractual term. The aggregate fair value of the warrant was $58,194, and this amount was capitalized as a prepaid financing charge and was being amortized over the life of the debt. In connection with the conversion of the Carilion notes to Series A Convertible Preferred Stock in January 2010 described above, the strike price of these warrants was reduced to $2.50 per share, and an additional warrant to purchase 356,000 shares of our common stock at an exercise price of $2.50 per share was also issued to Carilion. We recorded a charge of $3,071 to other income and expense in 2010 for the difference between the fair value of the warrant immediately before modification and the fair value of the warrant immediately after modification.

Hansen Warrant

In January 2010, we issued 1,247,330 shares of common stock to Hansen, representing 9.9% of our common stock then outstanding. In addition, we issued to Hansen a warrant entitling Hansen to purchase, until January 12, 2013, a number of shares of our common stock as necessary for Hansen to maintain a 9.9% ownership interest in our common stock, at an exercise price of $0.01 per share. During 2010 and 2011, Hansen exercised warrants acquiring 68,832 and 41,538, respectively, shares of our common stock. Based upon our outstanding shares of common stock as of December 31, 2011, Hansen has the ability to exercise its warrant for an additional 10,806 shares. For the years ended December 31, 2010 and 2011, we recognized expense of $178,000 and $60,338, respectively, which is included in operating expenses associated with this warrant. We recognize expense based upon the fair market value of our stock at the date the shares are issuable to Hansen.

Stock Option Plans

In April 2003, we adopted the Luna Innovations Incorporated 2003 Stock Plan, or the 2003 Plan. Under the 2003 Plan, our Board of Directors was authorized to grant both incentive and non-statutory stock options to our employees, directors and consultants to purchase Class B shares of Common Stock. Options generally had a life of 10 years and exercise price equal to or greater than the fair market value of the Class B Common Stock as determined by the Board of Directors. On February 4, 2006, our Board of Directors increased the number of shares reserved under the 2003 Plan to 9,715,000. There were options outstanding under the 2003 Plan to purchase an aggregate of 1,346,238 shares as of December 31, 2011. Following the adoption of the 2006 Equity Incentive Plan in January 2006, no shares or options are available for future grant under the 2003 Plan, except to satisfy grants outstanding as of June 5, 2006.

In January 2006, we adopted our 2006 Equity Incentive Plan or the 2006 Plan. Under the 2006 Plan, our Board of Directors is authorized to grant both incentive and non-statutory stock options to purchase common stock and restricted stock awards to our employees, directors, and consultants. Stock option awards generally

have a life of 10 years and exercise prices equal to the closing price of our common stock on the date of the option grant. On January 1 of each year, the number of shares available for issuance increases by the lesser of (a) 10% of the outstanding shares of our common stock on the last day of the preceding fiscal year; (b) 1,695,690 shares; or (c) such other amount as our Board of Directors may determine. A total of 7,004,171 and 8,252,703 shares were available for future grant under the 2006 Plan as of December 31, 2010 and 2011, respectively.

Vesting for employees typically occurs over a five-year period.

Total non-cash stock option expense for the years ended December 31, 2009, 2010 and 2011 was $3.2 million, $3.4 million and $2.2 million, respectively.

Stock Option Exchange Offer

In September 2010, we initiated an offer to exchange certain outstanding "out-of-the-money" stock options held by eligible employees (which excluded executive officers and directors) for a lesser number of stock options having a lower exercise price. In accordance with the terms of the exchange offer, in October 2010 we completed the offer, under which eligible participants exchanged an aggregate of 616,531 stock options having exercise prices ranging from $3.16 to $8.20 per share for an aggregate of 571,580 new stock options with an exercise price of $2.46, which represented 125% of the average closing price of our common stock as reported on NASDAQ for the 60-day period ending on the expiration date of the exchange offer. All other terms of the options exchanged in the offer remain unchanged with respect to the replacement options granted. The difference between the fair value of the newly issued options and the fair value of the options exchanged was not material at the time of the exchange. As such, we recognized no expense as a result of this transaction.

The following table sets forth the activity of the options to purchase common stock under the 2003 Plan and the 2006 Plan:

	Options Outstanding				Options Exercisable		
	Number of Shares	Price per Share Range	Weighted Average Exercise Price	Aggregate Intrinsic Value (1)	Number of Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value (1)
Balance at January 1, 2009	4,800,446	0.35–8.20	2.53	$2,853,667	2,967,610	$ 1.28	$2,665,403
Forfeited	(733,519)	0.35–8.20	5.45				
Exercised	(144,717)	0.35	1.36				
Granted	805,150	2.11–8.04	6.14				
Balance at December 31, 2009	4,727,360	0.35–8.20	2.43	$ 3,545,705	2,987,955	$ 1.72	$ 2,734,841
Forfeited	(90,782)	0.35–6.00	4.45				
Exercised	(744,938)	0.35–2.11	0.96				
Granted	918,597	0.82–4.43	3.45				
Exchanged in Tender Offer	(93,798)						
Balance at December 31, 2010	4,716,439	0.35–7.08	2.35	$ 1,632,396	2,904,435	$ 2.20	$ 1,233,778
Forfeited	(514,883)	0.35–7.08	3.48				
Exercised	(208,117)	0.35–1.77	0.72				
Granted	647,600	1.18–2.17	1.83				
Balance at December 31, 2011	4,641,039	$ 0.35–6.74	2.23	$ 1,509,270	3,206,994	$ 2.23	$ 1,258,740

(1) The intrinsic value of an option represents the amount by which the market value of the stock exceeds the exercise price of the option of in-money options only. The prices represent the closing price of our Common Stock on the NASDAQ Global Market or NASDAQ Capital Market, as applicable, on the respective dates.

	Range of Exercise Prices	Options Outstanding	Weighted Average Remaining Life in Years	Weighted Average Exercise Price	Options Exercisable	Weighted Average Exercise Price of Options Exercisable
		Options Outstanding			Options Exercisable	
Year ended December 31, 2009	$ 0.35 – 8.20	4,727,360	6.80	$ 2.43	2,987,955	$ 1.72
Year ended December 31, 2010	$ 0.35 – 7.08	4,716,439	7.05	$ 2.35	2,904,435	$ 2.20
Year ended December 31, 2011	$ 0.35 – 6.74	4,641,039	6.60	$ 2.23	3,206,994	$ 2.23

The following table sets forth information regarding the total intrinsic value of options exercised, and the total fair value of options vesting:

	Total intrinsic value of options exercised	Total fair value of options vested
Year ended December 31, 2009	145,119	2,550,070
Year ended December 31, 2010	1,049,489	1,648,292
Year ended December 31, 2011	216,576	1,435,186

For the years ended December 31, 2009, 2010 and 2011, the weighted average grant date fair value of options granted was $0.74, $1.85 and $1.62, respectively. We estimate the fair value of options at the grant date using the Black-Scholes model.

We recognized $2.2 million in share-based payment expense which is recorded in selling, general and administrative expenses on the Statement of Operations for the year ended December 31, 2011, and we will recognize $2.5 million over the remaining requisite service period. For all options granted through December 31, 2011, the weighted average remaining service period is 2.1 years.

9. Commitments and Contingencies

Obligation under Operating Leases

We lease facilities in Blacksburg, Charlottesville and Roanoke, Virginia under operating leases that expire between September 2012 and December 2015. Certain of the leases are subject to fixed escalations and provide for possible termination prior to their expiration dates. We recognize rent expense on such leases on a straight-line basis over the lease term. Rent expense under these leases was approximately $1.2 million for each of the years ended December 31, 2009, 2010 and 2011 respectively.

We are obligated under operating leases covering certain equipment that expire at various dates during the next two years.

Minimum future rentals, as of December 31, 2011, under the aforementioned operating leases for each of the next five years are:

2012	1,288,862
2013	1,106,961
2014	1,080,585
2015	663,214
2016	—
	$ 4,139,622

Governor's Opportunity Fund

In March 2004, we received a $900,000 grant (the "Grant") from the City of Danville, Virginia (the "City") to be used for the expansion of economic and commercial growth within the City of Danville. Specifically, $450,000 of the grant was to be used to offset certain capital expenditures for leasehold improvements being made at our Danville facility. The remaining $450,000 was granted for the creation of new jobs upon satisfaction of the conditions described below.

The grant stipulated that we must make estimated capital expenditures of at least $6,409,000 and create 54 new full time jobs at our Danville facility, at an average wage of at least $39,000 plus benefits within 30 months of the award, and then maintain such employment levels for an additional 30 months.

In December 2008 we received a determination letter from the City of Danville indicating that we had met 100% of the conditions of the grant relating to job creation and 29% of the conditions of the grant relating to capital expenditures. As a result, we recognized $668,000 of the grant proceeds as other income for the year ended December 31, 2008 and correspondingly reduced the deferred liability of $900,000 on our balance sheet.

During 2009 we earned an additional approximately $35,000 under the grant. In January 2010, we agreed to pay back approximately $108,000 of the grant in quarterly installments over the next five years, ending in November 2014. At December 31, 2011 the remaining balance payable by us to the City of Danville under the grant was approximately $65,000.

Purchase Commitment

In August 2010, we executed a non-cancelable $1.8 million purchase order for multiple shipments of tunable lasers to be delivered over an 18-month period beginning in October 2010. At December 31, 2011, approximately $40,000 of this commitment remained. In September 2011 we executed a non-cancelable $1.2 million purchase order for multiple shipments of tunable lasers to be delivered over a 12-month period subsequent to the completion of the purchase order executed in August 2010, which is expected to be completed by the end of 2012.

Royalty Agreement

We have licensed certain third-party technologies from vendors for which we owe minimum royalties aggregating $3.1 million payable over the remaining patent terms of the underlying technology.

10. Employee Profit Sharing Plan

We maintain a salary reduction/profit-sharing plan under provisions of Section 401(k) of the Internal Revenue Code. The plan is offered to employees who have completed three months of service with us. We contribute 25% of the salary deferral elected by each employee up to a maximum deferral of 10% of annual salary.

We contributed approximately $300,000, $240,000 and $240,000 to the plan for the years ended December 31, 2009, 2010 and 2011 respectively.

11. Litigation and Other Contingencies

From time to time, we may become involved in litigation in relation to claims arising out of our operations in the normal course of business. While management currently believes the amount of ultimate liability, if any, with respect to these actions will not materially affect our financial position, results of operations or liquidity, the ultimate outcome of any litigation is uncertain.

A description of our litigation with Hansen that we settled in December 2009 is included in Note 1 above.

We have made, and will continue to make, efforts to comply with current and future environmental laws. We anticipate that we could incur additional capital and operating costs in the future to comply with existing environmental laws and new requirements arising from new or amended statutes and regulations. In addition, because the applicable regulatory agencies have not yet promulgated final standards for some existing environmental programs, we cannot at this time reasonably estimate the cost for compliance with these additional requirements. The amount of any such compliance costs could be material. We cannot predict the impact that future regulations will impose upon our business.

12. Relationship with Major Customers

During the years ended December 31, 2009, 2010 and 2011, approximately 76%, 65% and 64%, respectively, of our consolidated revenues were attributable to contracts with the U.S. government.

At December 31, 2009, 2010 and 2011, receivables with respect to contracts with the U.S. government represented 71%, 63% and 40% of total billed trade receivables, respectively.

13. Financial Information About Segments

Our operations are divided into two operating segments: Technology Development and Products and Licensing. The Technology Development segment provides applied research to customers in our areas of focus.

Our engineers and scientists collaborate with our network of government, academic and industry experts to identify technologies and ideas with promising market potential. We then compete to win fee-for-service contracts from government agencies and industrial customers who seek innovative solutions to practical problems that require new technology. The Technology Development segment derives its revenue primarily from services.

The Products and Licensing segment develops and sells products or licenses technologies based on commercially viable concepts developed by the Technology Development segment. The Products and Licensing segment derives its revenue from product sales, funded product development and technology licenses.

Our President and Chief Executive Officer and his direct reports collectively represent our chief operating decision makers, and they evaluate segment performance based primarily on revenue and operating income or loss.

Information about the results of operations for each segment is set forth in the table below. There were no significant inter-segment sales during the three years ended December 31, 2011. There was an insignificant amount of product sales made outside the United States during these three years.

	Year Ended December 31,		
	2009	2010	2011
Technology Development revenue	$ 25,198,038	$ 22,404,931	$ 22,417,902
Products and Licensing revenue	9,373,849	12,133,463	13,195,822
Total revenue	34,571,887	34,538,394	35,613,724
Technology Development operating loss	(2,852,208)	(2,257,509)	(1,595,443)
Products and Licensing operating income (loss)	(14,591,829)	208,880	362,349
Total operating loss	$ (17,444,037)	$ (2,048,629)	$ (1,233,094)
Depreciation, Technology Development	$ 938,809	$ 684,525	$ 619,035
Depreciation, Products and Licensing	349,243	370,706	370,808
Amortization, Technology Development	411,905	179,411	295,600
Amortization, Products and Licensing	153,232	97,160	177,067

Additional segment information is as follows:

	December 31, 2010	December 31, 2011
Total segment assets:		
Technology Development	$ 14,839,358	$ 14,427,172
Products and Licensing	8,036,303	8,492,249
Total	$22,875,661	$22,919,421
Property plant and equipment and intangible assets, Technology Development	$ 2,509,863	$ 2,112,663
Property plant and equipment and intangible assets, Products and Licensing	$ 1,359,225	$ 1,243,574

14. Quarterly Results (unaudited)

The following table sets forth our unaudited historical revenues, operating (loss) income and net (loss) income by quarter during 2010 and 2011:

	Quarter Ended							
(Dollars in thousands, except per share amounts)	Mar. 31, 2010	Jun. 30, 2010	Sep. 30, 2010	Dec. 31, 2010	Mar. 31, 2011	Jun. 30, 2011	Sep. 30, 2011	Dec. 31, 2011
Revenues:								
Technology	$ 5,811	$ 6,092	$ 5,027	$ 5,475	$ 5,622	$ 5,623	$ 6162	$ 5,011
Product and license	2,075	2,907	3,558	3,593	3,377	4,001	2,681	3,137
Total revenues	7,886	8,999	8,585	9,068	8,999	9,624	8843	8148
Gross Margin	2,834	3,306	3,438	3,366	3,340	3,661	3493	2736
Operating income (loss)	(1,043)	(421)	(253)	(332)	(898)	(210)	313	(433)
Net (loss) Income	(1,196)	$ (618)	$ (424)	$ (382)	(1,025)	(257)	243	(353)
Net (loss) attributable to common stockholders	$ (1,277)	$ (711)	$ (517)	$ (476)	(1,066)	(289)	222	(386)
Net (loss) Income per share:								
Basic	$ (0.10)	$ (0.05)	$ (0.04)	$ (0.04)	(0.08)	(0.02)	0.02	(0.03)
Diluted	$ (0.10)	$ (0.05)	$ (0.04)	$ (0.04)	(0.08)	(0.02)	0.01	(0.03)
Weighted average shares:								
Basic	12,497,502	12,946,802	13,188,913	13,360,809	13,484,645	13,636,993	13,669,724	13,794,361
Diluted	12,497,502	12,946,802	13,188,913	13,360,809	13,484,645	13,636,993	15,898,639	13,794,361

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE.

None.

ITEM 9A. CONTROLS AND PROCEDURES.

Evaluation of Disclosure Controls and Procedures

We maintain “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), which are controls and other procedures that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company’s management,

including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. In addition, the design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a control system, misstatements due to error or fraud may occur and not be detected.

Under the supervision and with the participation of our management, including our President and Chief Executive Officer and our Chief Financial Officer, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this report. Based on this evaluation, our President and Chief Executive Officer and our Chief Financial Officer have concluded that, as of December 31, 2011, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control over Financial Reporting

No change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the quarter ended December 31, 2011 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting is designed, under the supervision of our principal executive and principal financial officers, and effected by our board of directors, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America (GAAP). Our internal control over financial reporting includes those policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

There are inherent limitations in the effectiveness of any internal control over financial reporting, including the possibility of human error and the circumvention or overriding of controls. Accordingly, even effective internal control over financial reporting can provide only reasonable assurance with respect to financial statement preparation and may not prevent or detect all misstatements. Further, because of changes in conditions, effectiveness of internal control over financial reporting may vary over time. Our internal control system was designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP.

Under the supervision and with the participation of our management, including our President and Chief Executive Officer, and our Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2011. This evaluation was based on the framework in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Based on our evaluation under the framework in *Internal Control—Integrated Framework*, our President and Chief Executive officer, and our Chief Financial Officer concluded that our internal control over financial reporting was effective as of December 31, 2011 to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP.

This annual report does not include an attestation report of our independent registered public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by our independent registered public accounting firm pursuant to temporary rules of the SEC that permit the company to provide only management's report in this annual report.

ITEM 9B. OTHER INFORMATION.

Employment Agreements

We entered into new employment agreements, effective as of March 28, 2012, with each of our named executive officers, who are My E. Chung, Dale E. Messick, Scott A. Graeff and Mark Froggatt. Each of these employment agreements has an initial term through March 31, 2013 and automatically renews for additional one-year periods unless terminated by either party on 90-days prior notice.

Cash Bonuses

Under the terms of the employment agreements, each officer is eligible to participate in our senior management incentive plan for an annual discretionary cash bonus of at least 50% of his then current base salary, subject to the achievement of individual and corporate performance criteria to be determined by our board of directors or our compensation committee and set forth in the incentive plan.

Severance

The employment agreements provide that, in the event that an officer's employment is terminated by us "without cause" or by the officer for "good reason" (each as defined in his employment agreement), subject to the officer entering into and not revoking a release in a form acceptable to the Company, the officer will be entitled to receive:

- a severance payment equal to 9/12 times the sum of his then current annual salary plus annual target bonus (or 1 times this sum in the case of Mr. Chung) or 1 times such sum (or 1.5 times this sum in the case of Mr. Chung) if the termination occurs within 12 months following a "change in control" transaction (as defined in the employment agreements);
- if he timely elects and remains eligible for continued coverage under COBRA, the health insurance premiums that we were paying on behalf of the officer and his covered dependents prior to the date of termination for a period of 9 months (or 12 months in the case of Mr. Chung) or 12 months if the termination occurs within 12 months following a change in control transaction (or 18 months in the case of Mr. Chung);
- acceleration of vesting of unvested stock options equal to the number of shares that would have vested if employment had continued for 12 months following the termination (or, if the termination occurred following a change in control transaction, all outstanding unvested stock options held by the officer will vest); and
- a cash payment for any unvested company matching contributions in the officer's account under the Company's 401(k) plan and for any accrued but unpaid vacation.

Retention Payments

The employment agreements also provide for a retention payment equal to 0.5 times the sum of the officer's then current annual salary plus annual target bonus if our board of directors engages an investment bank or similar firm for purposes that include exploring a change in control transaction and no such transaction is consummated within 24 months. This retention payment would be payable in shares of our common stock if necessary to avoid a credit default.

Change in Control Payments

In addition to the severance and retention payments described above, in the event a change in control occurs due to a sale of the Company's assets or a merger of the Company or an acquisition of the Company via tender offer, the employment agreements also provide that the officer will receive a payment equal to 1 times the sum of his annual salary plus annual target bonus. If this change in control occurs within one year after the officer has received a retention payment (as described above), however, then this change in control payment shall be subject to partial reduction.

Other

In addition, we will continue to provide a temporary housing allowance to Mr. Chung for a period up to 24 months.

The foregoing description of the employment agreements is not complete and is qualified in its entirety by reference to the full employment agreements, which are filed as exhibits to this Annual Report on Form 10-K.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by Item 10 of Form 10-K will be included in our Proxy Statement for the 2012 Annual Meeting of Stockholders, which we refer to as the 2012 Proxy Statement, anticipated to be filed with the SEC within 120 days after December 31, 2011, and is incorporated into this report by reference.

ITEM 11. EXECUTIVE COMPENSATION.

The information required by Item 11 of Form 10-K is incorporated into this report by reference to the information to be provided in our 2012 Proxy Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Other than the information below relating to securities authorized for issuance under our equity compensation plans, the information required by Item 12 of Form 10-K is incorporated into this report by reference to the information to be provided in our 2012 Proxy Statement.

EQUITY COMPENSATION PLANS

The following table summarizes our equity compensation plans as of December 31, 2011:

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	4,641,039	$ 2.23	8,252,703
Equity compensation plans not approved by security holders	1,952,264	0.47	—
Total	6,593,303	$ 1.43	8,252,703

Our 2006 Equity Incentive Plan provides for annual increases in the number of shares available for issuance on the first day of each fiscal year equal to the least of: (i) 10% of the outstanding shares of our common stock on the last day of the immediately preceding fiscal year; (ii) 1,695,690 shares; or (iii) such other amount as our board of directors may determine.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by Item 13 of Form 10-K is incorporated into this report by reference to the information to be provided in our 2012 Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by Item 14 of Form 10-K is incorporated into this report by reference to the information to be provided in our 2012 Proxy Statement.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULE

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Financial Statements. See Index to Consolidated Financial Statements at Item 8 of this Report on Form 10-K.

(2) Schedules.

Schedule II

Luna Innovations Incorporated
Valuation and Qualifying Accounts

Column A	Column B Balance at beginning of Period	Column C Charged to costs and expenses	Column D Deductions	Column E Valuation against asset	Column F Balance at end of period
Year Ended December 31, 2011					
Reserves deducted from assets to which they apply:					
Allowances for doubtful Accounts	$ 22,372	$ —	$ —	$ —	$ 22,372
	$ 22,372	$ —	$ —	$ —	$ 22,372
Year Ended December 31, 2010					
Reserves deducted from assets to which they apply:					
Allowances for doubtful Accounts	$157,535	$ —	$(135,163)	$ —	$ 22,372
	$157,535	$ —	$(135,163)	$ —	$ 22,372
Year Ended December 31, 2009					
Reserves deducted from assets to which they apply:					
Allowances for doubtful Accounts	$ 22,372	$135,163	$ —	$ —	$157,535
	$ 22,372	$135,163	$ —	$ —	$157,535

All other schedules are omitted as the required information is inapplicable or the information is presented in the Consolidated Financial Statements and notes thereto in Item 8 of Part II of this Annual Report on Form 10-K.

(3) Exhibits. The exhibits filed as part of this report are listed under “Exhibits” at subsection (b) of this Item 15.

(b) Exhibits

EXHIBIT INDEX

Exhibit No.	Exhibit Document
2.1(1)	Findings of Fact, Conclusions of Law, and Order under 11 U.S.C. §§ 1129(a) and (b) and Fed. R. Bankr. P. 3020 Confirming First Amended Joint Plan of Reorganization of Luna Innovations Incorporated and Luna Innovations, Inc, debtors and debtors-in-possession, dated January 12, 2010 (Exhibit 2.1)
2.2(1)	First Amended Joint Plan of Reorganization of Luna Innovations Incorporated and Luna Technologies, Inc., dated December 18, 2009 (Exhibit 2.2)
2.3(1)	First Amended Disclosure Statement in support of First Amended Joint Plan of Reorganization of Luna Innovations Incorporated, et al., under Chapter 11 of the Bankruptcy Code, dated December 18, 2009 (Exhibit 2.3)
3.1(2)	Amended and Restated Certificate of Incorporation of the Registrant (Exhibit 3.2)
3.2(3)	Certificate of Designations of the Series A Convertible Preferred Stock (Exhibit 3.1)
3.3(4)	Amended and Restated Bylaws of the Registrant (Exhibit 3.4)
3.4(5)	Amendment to Amended and Restated Bylaws (Exhibit 3.1)
4.1(6)	Specimen Common Stock certificate of the Registrant (Exhibit 4.1)
4.2(4)	2003 Stock Plan (Exhibit 10.7)
4.3(7)	2006 Equity Incentive Plan (Exhibit 10.9)
4.4(4)	Form of Stock Option Agreement (Exhibit 4.7)
10.1(8)	Form of Indemnification Agreement for directors and executive officers (Exhibit 10.1)
10.2(9)	Commercial Lease, dated March 15, 2007, between Canvasback Real Estate & Investments LLC and Luna Innovations Incorporated (705 Dale Avenue, Charlottesville, Virginia) (Exhibit 10.1)
10.3(6)*	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 (Exhibit 10.22)
10.4(6)*	License Agreement No. DN-951, dated December 20, 2000, by and between NASA and Luna Technologies, Inc. (Exhibit 10.23)
10.5(6)*	Amended and Restated License Agreement, dated March 19, 2004, by and between Virginia Tech Intellectual Properties, Inc. and Luna Innovations Incorporated (Exhibit 10.26)
10.6(10)	Asset Transfer and License Agreement by and between Luna Innovations Incorporated and Coherent, Inc. (Exhibit 10.21)
10.7(11)*	Development and Supply Agreement, dated December 12, 2006, by and between Luna Innovations Incorporated and Intuitive Surgical, Inc. dated June 11, 2007 (Exhibit 10.1)
10.8(12)	Amendment to Commercial Lease, by and between Luna Innovations Incorporated and Canvasback Real Estate & Investments LLC dated March 18, 2008 (Exhibit 10.5)
10.9(13)	Confidential Settlement Agreement, dated as of December 11, 2009, by and between Luna Innovations, Inc. and Luna Technologies, Inc. and Hansen Medical, Inc. (Exhibit 10.26)
10.10(3)	Securities Purchase and Exchange Agreement, dated January 12, 2010, by and between Luna Innovations Incorporated and Carilion Clinic (Exhibit 10.1)

Exhibit No.	Exhibit Document
10.11(3)	Warrant No. 1 to Purchase Common Stock, dated January 13, 2010, issued to Carilion Clinic (Exhibit 10.2)
10.12(3)	Warrant No. 2 to Purchase Common Stock, dated January 13, 2010, issued to Carilion Clinic (Exhibit 10.3)
10.13(3)	Amended and Restated Investor Rights Agreement, dated January 13, 2010, by and among Luna Innovations Incorporated, Carilion Clinic, and certain stockholders of Luna Innovations Incorporated (Exhibit 10.4)
10.14(14)	Non-Employee Directors' Deferred Compensation Plan (Exhibit 10.37)
10.15(15)*	License Agreement, effective January 12, 2010, by and among Luna Innovations Incorporated, Luna Technologies, Inc. and Hansen Medical, Inc. (Exhibit 10.6)
10.16(15)*	Development and Supply Agreement, effective January 12, 2010, by and among Luna Innovations Incorporated, Luna Technologies, Inc. and Hansen Medical, Inc., as amended on February 17, 2010 and April 2, 2010 (Exhibit 10.7)
10.17(15)*	License Agreement, effective January 12, 2010, by and among Luna Innovations Incorporated, Luna Technologies, Inc. and Intuitive Surgical, Inc. (Exhibit 10.8)
10.18(15)*	Amendments to Development and Supply Agreement, effective January 12, 2010 and April 27, 2010, by and between Luna Innovations Incorporated and Intuitive Surgical, Inc. (Exhibit 10.9)
10.19(15)	Warrant to Purchase Common Stock of Luna Innovations Incorporated, dated January 12, 2010, issued to Hansen Medical, Inc. (Exhibit 10.12)
10.20(15)	Confidential Mutual Release, effective as of January 12, 2010, by and among Luna Innovations Incorporated, Luna Technologies, Inc. and Hansen Medical, Inc. (Exhibit 10.13)
10.21(15)	Industrial Lease Agreement, dated as of March 21, 2006, by and between Luna Innovations Incorporated and the Economic Development Authority of Montgomery County, Virginia, as amended by a First Amendment effective as of May 11, 2006, a Second Amendment effective as of July 15, 2009 and a Third Amendment effective as of March 23, 2010 (Exhibit 10.14)
10.22(15)	Lease for Riverside Center, dated December 30, 2005, by and between Carilion Medical Center and Luna Innovations Incorporated, as amended by an Amended Lease dated July 20, 2006, a Second Amendment dated on or about October 5, 2007 and a Third Amendment effective as of April 1, 2010 (Exhibit 10.15)
10.23(15)	Loan and Security Agreement, dated February 18, 2010, by and between Luna Innovations Incorporated, Luna Technologies, Inc. and Silicon Valley Bank (Exhibit 10.5)
10.24(16)	Third Amendment to Commercial Lease dated June 21, 2010, by and between Canvasback Real Estate & Investments, LLC, and Luna Innovations Incorporated (Exhibit 10.5)
10.25(17)	Separation and Consulting Agreement dated as of August 10, 2010, by and between Luna Innovations Incorporated and Kent A. Murphy, Ph.D. (Exhibit 10.2)
10.26(17)	General Release Agreement dated August 10, 2010, by and between Kent A. Murphy, Ph.D., and Luna Innovations Incorporated (Exhibit 10.3)
10.27(17)	Letter Agreement dated August 10, 2010, between Kent A. Murphy, Ph.D., and Luna Innovations Incorporated (Exhibit 10.4)
10.28(17)*	Amendment No.3 to the Development Supply Agreement, dated as of September 2, 2010, by and between Luna Innovations Incorporated and Intuitive Surgical, Inc. (Exhibit 10.5)
10.29(18)*	2011 Senior Management Incentive Compensation Plan (Exhibit 10.38)

Exhibit No.	Exhibit Document
10.30(19)	First Loan Modification Agreement, dated as of March 7, 2011, by and between Luna Innovations Incorporated and Silicon Valley Bank (Exhibit 10.1)
10.31(20)*	Amendment No. 4 to the Development and Supply Agreement, dated as of March 23, 2011, by and between Luna Innovations Incorporated and Intuitive Surgical, Inc. (Exhibit 10.2)
10.32(20)	Fourth Amendment to Industrial Lease Agreement, dated as of March 1, 2011, by and between The Economic Development Authority of Montgomery County and Luna Innovations Incorporated (Exhibit 10.3)
10.33(21)	Letter Agreement, dated as of May 18, 2011, by and between Luna Innovations Incorporated and Dr. Kent A. Murphy (Exhibit 10.1)
10.34(21)	First Amendment to Separation and Consulting Agreement, dated as of May 18, 2011, by and between Luna Innovations Incorporated and Dr. Kent A. Murphy (Exhibit 10.2)
10.35(21)	General Release Agreement, dated as of May 18, 2011, by and between Luna Innovations Incorporated and Dr. Kent A. Murphy (Exhibit 10.3)
10.36(22)	Second Loan Modification Agreement, dated as of May 18, 2011, by and between Luna Innovations Incorporated, Luna Technologies, Inc. and Silicon Valley Bank (Exhibit 10.1)
10.37(22)*	Amendment No. 3 to the Development and Supply Agreement, dated as of May 18, 2011, by and between Luna Innovations Incorporated, Luna Technologies, Inc. and Hansen Medical, Inc. (Exhibit 10.2)
10.38(22)	Amendment to Secured Promissory Note and Payoff Letter, dated as of May 18, 2011, by and between Luna Innovations Incorporated, Luna Technologies, Inc. and Hansen Medical, Inc. (Exhibit 10.3)
10.39	Fifth Amendment to Industrial Lease Agreement, dated as of November 1, 2012, by and between The Economic Development Authority of Montgomery County and Luna Innovations Incorporated
10.40	Employment Agreement dated March 28, 2012, by and between My E. Chung and Luna Innovations Incorporated
10.41	Employment Agreement dated March 28, 2012, by and between Dale E. Messick and Luna Innovations Incorporated
10.42	Employment Agreement dated March 28, 2012, by and between Scott A. Graeff and Luna Innovations Incorporated
10.43	Employment Agreement dated March 28, 2012, by and between Mark Froggatt, Ph.D, and Luna Innovations Incorporated
10.44	Employment Agreement dated March 28, 2012, by and between Talfourd H. Kemper, Jr., and Luna Innovations Incorporated
21.1	List of Subsidiaries
23.1	Consent of Grant Thornton LLP, Independent Registered Public Accounting Firm
24.1	Power of Attorney (see signature page)
31.1	Certification of the Principal Executive Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

Exhibit No.	Exhibit Document
31.2	Certification of the Principal Financial Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1**	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101***	The following materials from the Registrant's Annual Report on Form 10-K for the year ended December 31, 2011, are formatted in XBRL (eXtensible Business Reporting Language): (i) Consolidated Balance Sheets at December 31, 2010 and 2011, (ii) Consolidated Statements of Operations for the years ended December 31, 2009, 2010 and 2011, (iii) Consolidated Statements of Changes in Stockholder's Equity (Deficit) for the years ended December 31, 2009, 2010 and 2011 (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2009, 2010 and 2011, and (v) Notes to audited Consolidated Financial Statements.

(1) Incorporated by reference to the exhibit to the Registrant's Current Report on Form 8-K, Commission File No. 000-52008, filed on January 15, 2010 (reporting under Items 1.03, 5.02 and 9.01). The number given in parentheses indicates the corresponding exhibit number in such Form 8-K.

(2) Incorporated by reference to the exhibit to the Registrant's Current Report on Form 8-K, Commission File No. 000-52008, filed on June 8, 2006. The number given in parentheses indicates the corresponding exhibit number in such Form 8-K.

(3) Incorporated by reference to the exhibit to the Registrant's Current Report on Form 8-K, Commission File No. 000-52008, filed on January 15, 2010 (reporting under Items 1.01, 3.02, 3.03, 5.03 and 9.01). The number given in parentheses indicates the corresponding exhibit number in such Form 8-K.

(4) Incorporated by reference to the exhibit to the Registrant's Registration Statement on Form S-1, Commission File No. 333-131764, filed on February 10, 2006. The number given in parentheses indicates the corresponding exhibit number in such Form S-1.

(5) Incorporated by reference to the exhibit to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on May 10, 2010 (File No. 000-52008). The number in parentheses indicates the corresponding exhibit number in such Form 8-K.

(6) Incorporated by reference to the exhibit to Amendment No. 5 of the Registrant's Registration Statement on Form S-1, Commission File No. 333-131764, filed on April 19, 2006. The number given in parentheses indicates the corresponding exhibit number in such Form S-1.

(7) Incorporated by reference to the exhibit to Amendment No. 3 of the Registrant's Registration Statement on Form S-1, Commission File No. 333-131764, filed on April 28, 2006. The number given in parentheses indicates the corresponding exhibit number in such Form S-1.

(8) Incorporated by reference to the exhibit to the Registrant's Current Report on Form 8-K, Commission File No. 000-52008, filed on July 17, 2009 (reporting under Items 1.01, 5.02 and 9.01). The number given in parentheses indicates the corresponding exhibit number in such Form 8-K.

(9) Incorporated by reference to the exhibit to Registrant's Quarterly Report on Form 10-Q, Commission File No. 000-52008, filed on May 15, 2007. The number given in parentheses indicates the corresponding exhibit number in such Form 10-Q.

(10) Incorporated by reference to the exhibit to Amendment No. 1 to Registrant's Annual Report on Form 10-K, Commission File No. 000-52008, filed on April 6, 2007. The number given in parentheses indicates the corresponding exhibit number in such Form 10-K/A.

(11) Incorporated by reference to the exhibit to the Registrant's Current Report on Form 8-K, Commission File No. 000-52008, filed on June 14, 2007. The number given in parentheses indicates the corresponding exhibit number in such Form 8-K.

(12) Incorporated by reference to the exhibit to Registrant's Quarterly Report on Form 10-Q, Commission File No. 000-52008, filed on May 9, 2008. The number given in parentheses indicates the corresponding exhibit number in such Form 10-Q.
(13) Incorporated by reference to the exhibit to Registrant's Annual Report on Form 10-K, Commission File No. 000-52008, filed on March 26, 2010. The number given in parentheses indicates the corresponding exhibit number in such Form 10-K.
(14) Incorporated by reference to the exhibit to Registrant's Annual Report on Form 10-K, Commission File No. 000-52008, filed on March 16, 2009. The number given in parentheses indicates the corresponding exhibit number in such Form 10-K.
(15) Incorporated by reference to the exhibit to Registrant's Quarterly Report on Form 10-Q, Commission File No. 000-52008, filed on May 17, 2010. The number given in parentheses indicates the corresponding exhibit number in such Form 10-Q.
(16) Incorporated by reference to the exhibit to Registrant's Quarterly Report on Form 10-Q, Commission File No. 000-52008, filed on August 16, 2010. The number given in parentheses indicates the corresponding exhibit number in such Form 10-Q.
(17) Incorporated by reference to the exhibit to Registrant's Quarterly Report on Form 10-Q, Commission File No. 000-52008, filed on November 15, 2010. The number given in parentheses indicates the corresponding exhibit number in such Form 10-Q.
(18) Incorporated by reference to the exhibit to Registrant's Annual Report on Form 10-K, Commission File No. 000-52008, filed on March 31, 2011. The number given in parentheses indicates the corresponding exhibit number in such Form 10-K.
(19) Incorporated by reference to the exhibit to the Registrant's Current Report on Form 8-K, Commission File No. 000-52008, filed on March 9, 2011. The number given in parentheses indicates the corresponding exhibit number in such Form 8-K.
(20) Incorporated by reference to the exhibit to Registrant's Quarterly Report on Form 10-Q, Commission File No. 000-52008, filed on May 16, 2011. The number given in parentheses indicates the corresponding exhibit number in such Form 10-Q.
(21) Incorporated by reference to the exhibit to the Registrant's Current Report on Form 8-K, Commission File No. 000-52008, filed on May 23, 2011. The number given in parentheses indicates the corresponding exhibit number in such Form 8-K.
(22) Incorporated by reference to the exhibit to Registrant's Quarterly Report on Form 10-Q, Commission File No. 000-52008, filed on August 12, 2011. The number given in parentheses indicates the corresponding exhibit number in such Form 10-Q.
* Confidential treatment has been granted with respect to portions of this exhibit, indicated by asterisks, which have been filed separately with the Securities and Exchange Commission.
** These certifications are being furnished solely to accompany this annual report pursuant to 18 U.S.C. Section 1350, and are not being filed for purposes of Section 18 of the Securities Exchange Act of 1934 and are not to be incorporated by reference into any filing of the registrant, whether made before or after the date hereof, regardless of any general incorporation language in such filing.
*** Pursuant to Rule 406T of Regulation S-T, the Interactive Data Files on Exhibit 101 hereto are deemed not filed or part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act of 1933, as amended, are deemed not filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and otherwise are not subject to liability under those sections.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

LUNA INNOVATIONS INCORPORATED

By: /S/ DALE E. MESSICK
Dale E. Messick
Chief Financial Officer

March 29, 2012

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Talfourd H. Kemper, Jr. and Dale E. Messick, and each of them acting individually, as his true and lawful attorneys-in-fact and agents, with full power of each to act alone, with full powers of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, with full power of each to act alone, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully for all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or his or their substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/S/ MY E. CHUNG **My E. Chung**	President, Chief Executive Officer and Director (Principal Executive Officer)	March 29, 2012
/S/ DALE E. MESSICK **Dale E. Messick**	Chief Financial Officer (Principal Financial Officer and principal Accounting Officer)	March 29, 2012
/S/ MICHAEL W. WISE **Michael W. Wise**	Director	March 29, 2012
/S/ WARNER DALHOUSE **Warner Dalhouse**	Director	March 29, 2012
/S/ JOHN B. WILLIAMSON III **John B. Williamson III**	Director	March 29, 2012
Jonathan M. Cool	Director	March , 2012
/S/ EDWARD G. MURPHY **Edward G. Murphy, M.D.**	Director	March 29, 2012
Kent A. Murphy	Vice Chairman of the Board of Directors	March , 2012
/S/ RICHARD W. ROEDEL **Richard W. Roedel**	Chairman of the Board of Directors	March 29, 2012

Exhibit 10.39

FIFTH AMENDMENT TO INDUSTRIAL LEASE AGREEMENT

THIS FIFTH AMENDMENT TO INDUSTRIAL LEASE AGREEMENT (the "Amendment") is made and effective as of November 1, 2011, by and between The Economic Development Authority of Montgomery County, Virginia ("Landlord"), formerly known as The Industrial Development Authority of Montgomery County a public body corporate, having a principal place of business at 755 Roanoke Street, Suite 2 H Christiansburg, Virginia 24073, and Luna Innovations Incorporated ("Tenant"), a Virginia corporation having a principal place of business at 1 Riverside Circle, Suite 400, Roanoke, Virginia 24016.

1. Introduction. Landlord and Tenant previously entered into that certain Industrial Lease Agreement dated as of the 21st day of March, 2006, as amended by the First Amendment dated effective as of May 11, 2006, as amended by the Second Amendment (the "Second Amendment") dated effective as of July 15, 2009, as amended by Third Amendment (the "Third Amendment") dated effective March 23, 2010, and as amended by Forth Amendment (the "Fourth Amendment") dated effective as of March 1, 2011 (as amended, the "Lease"). Any capitalized terms used but not defined herein shall have the meanings given to them in the Lease. Section 1.2 of the Lease provides that the Term of the Lease shall expire on September 30, 2012, provided Tenant may renew the Lease for an additional five (5) year period in accordance with Section 2.1. Tenant notified Landlord that it was unwilling to renew the Term based on the existing terms and conditions of the Lease. Thereafter, Landlord contacted Tenant and the parties negotiated and finalized an agreement to extend the Term and modify the amounts paid by Tenant under the Lease, and the parties desire to enter into the Amendment to memorialize their understanding.

Now, therefore, in consideration of the rents, covenants and agreements set forth herein and in the Lease, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereby agree to the following terms.

2. Extension of the Term. The Term of the Lease is hereby extended and "September 30, 2012" in Section 1.2 of the Lease is hereby deleted and replaced with "November 30, 2014".

3. Deletion of Renewal Term. Sections 2.1.1 and 2.1.2 of the Lease are hereby deleted in their entirety.

4. Payment of Rent. Section 3.1.1 is hereby amended to provide that beginning December 1, 2011, and for each month thereafter through November 30, 2014, Tenant shall pay Base Rent for the Premises in the amount of Thirty Nine Thousand One Hundred Twenty Five and 00/100 Dollars ($39,125.00).

5. Deletion of Utility Fee and Common Area Maintenance Fee. As of December 1, 2011, the following provisions of the Lease shall be deemed deleted: (i) the next to last sentence

of Section 3.1.1, (ii) the remainder of Section 4 after the fourth sentence, (iii) all of Section 8.1.1, and (iv) all references to Utility Fee or Utilities Fee and Common Area Maintenance Fee in the Lease. Tenant shall remain responsible for the payment of the Utility Fee and Common Area Maintenance Fee prior to December 1, 2011, provided that after said date Tenant shall only be required to pay Base Rent for the remainder of the Term. Notwithstanding the foregoing, Tenant agrees that in the event Landlord notifies Tenant in writing that the rate charged by any party providing water, sewer, electric or gas has increased by more than twenty five percent (25%) above the rate charged to Landlord as of the date hereof, Landlord and Tenant shall discuss in good faith a reasonable amount to be paid by Tenant for such charges exceeding one hundred and twenty five percent (125%) of the applicable rate charged Landlord as of the date hereof.

6. Description of the Premises. Exhibit A attached to the Lease is replaced with Exhibit A attached hereto to clarify the square footage contained in the Premises.

7. Miscellaneous. This Amendment may be executed in any number of identical counterparts and, as so executed, shall constitute one agreement, binding on all the parties hereto, notwithstanding that all the parties are not signatories to the original or the same counterpart. Except as specifically amended herein, the Lease shall remain in full force and effect.

[Remainder of Page Intentionally Left Blank—Signature Page Follows]

In Witness Whereof, Landlord and Tenant have executed this Amendment as of the date set forth hereinabove.

THE ECONOMIC DEVELOPMENT INCORPORATED AUTHORITY OF MONTGOMERY COUNTY, VIRGINIA

By: /s/ Todd M. Murray
Name: Todd M. Murray
Title: Chair

LUNA INNOVATIONS

By: /s/ Scott A. Graeff
Name: Scott A. Graeff
Title: CCO and Treasurer

COMMONWEALTH OF VIRGINIA, at large,
COUNTY OF MONTGOMERY, to-wit:

I, the undersigned, a notary public in and for the jurisdiction aforesaid, do hereby certify that Todd M. Murray whose name as Chair of the Economic Development Authority of Montgomery County is signed to the foregoing Lease, has acknowledged the same before me in my jurisdiction aforesaid.

Given under my hand this 21st day of December, 2011.
My commission expires: April 30, 2014

Nancy E. Turner
Notary Public

COMMONWEALTH OF VIRGINIA, at large,
City OF ROANOKE, to-wit;

I, the undersigned, a notary public in and for the jurisdiction aforesaid, do hereby certify that Scott A. Graeff, whose name as Chief Commercialization Officer of Luna Innovations Incorporated is signed to the foregoing Lease, has acknowledged the same before me in my jurisdiction aforesaid.

Given under my hand this 29th day of November, 2011.
My commission expires:

Janice Rettinghaus
Notary Public

My commission expires: 31 March 2013
Notary registration #: 7286924

Exhibit A
Description of the Premises

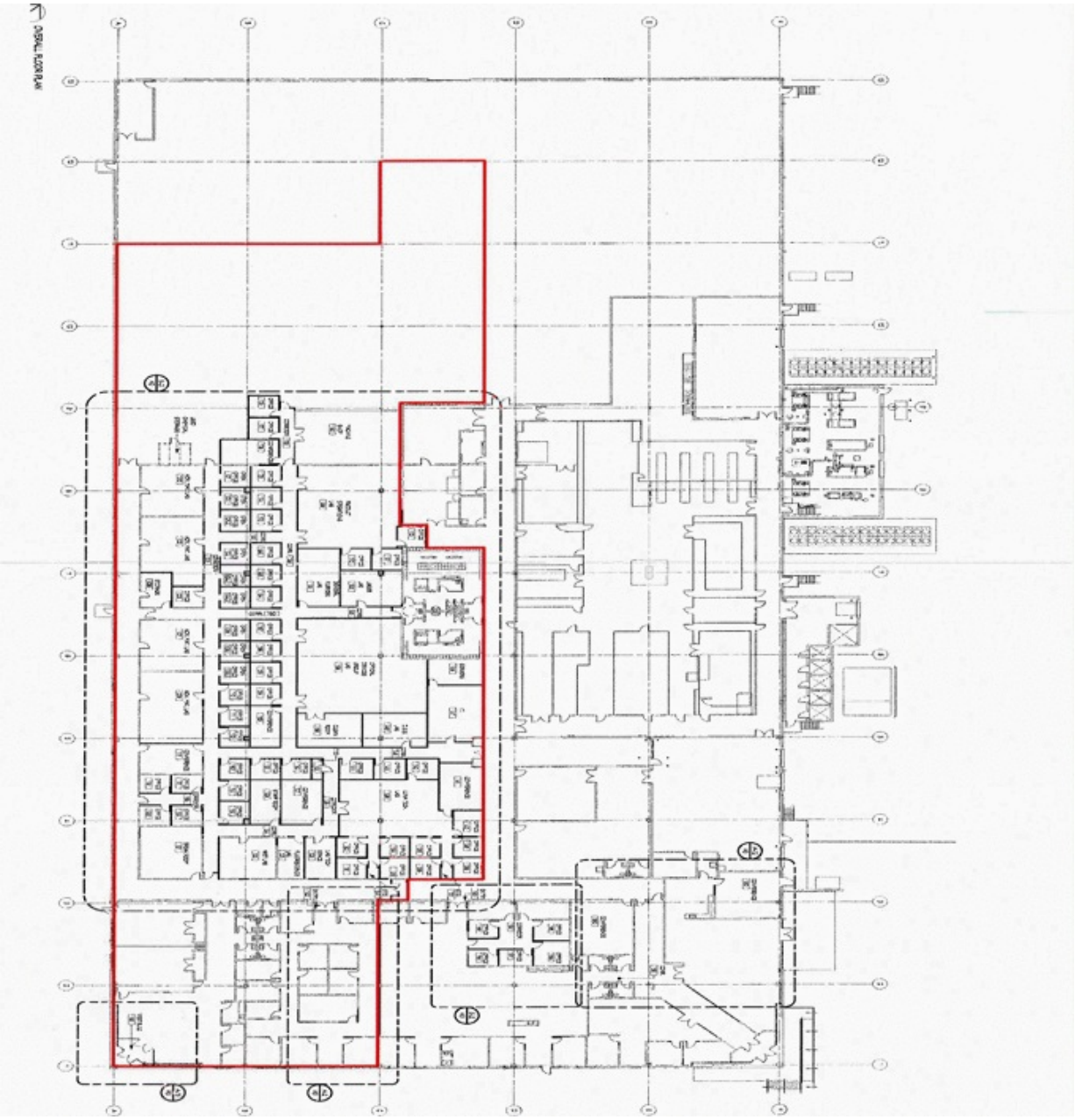

Exhibit 10.40

LUNA INNOVATIONS INCORPORATED

EMPLOYMENT AGREEMENT

This Employment Agreement (the "**Agreement**") is entered into as of March 28, 2012 by and between Luna Innovations Incorporated, a Delaware Corporation (the "**Company**"), and My E. Chung ("**Executive**").

1. Duties and Scope of Employment.

(a) Positions and Duties. During the Employment Term (as defined herein), Executive will serve as the Company's President and Chief Executive Officer. Executive will render such business and professional services in the performance of his duties, consistent with Executive's position within the Company, as shall reasonably be assigned to him by the Company's Board of Directors ("**Board**").

(b) Reporting. Executive shall report directly to the Board.

(c) Obligations. During the Employment Term, and excluding periods of vacation and sick leave to which Executive is entitled, Executive shall devote all business time and attention to the affairs of the Company necessary to discharge the responsibilities assigned hereunder, and shall use commercially reasonable efforts to perform faithfully and efficiently such responsibilities. Notwithstanding anything herein to the contrary, Executive may provide services as a volunteer, member, director or officer of charitable, educational or civic organizations or industry trade associations or groups, and may serve as trustee, director or advisor to any family companies or trusts, provided that such service does not materially interfere with the performance of Executive's duties to the Company as required under this Agreement.

2. Term. The period of Executive's employment under this Agreement is referred to herein as the " **Employment Term**." The Agreement shall have an initial term beginning on March 28, 2012 (the "**Effective Date**") through March 31, 2013 ("**Initial Term**"). At the end of the Initial Term and on each annual anniversary of such date thereafter, the Agreement automatically will renew for successive additional one (1) year terms, unless either party provides the other party with written notice of non-renewal at least ninety (90) days prior to the date of the automatic renewal.

3. At-Will Employment. The parties agree that Executive's employment with the Company will be "at-will" employment and may be terminated by either party at any time, effective immediately, upon written notice to the other party, with or without cause. However, as described in this Agreement, Executive may be entitled to severance benefits depending upon the circumstances of his termination of employment. Executive understands and agrees that neither his job performance nor promotions, commendations, bonuses or the like from the Company give rise to or in any way serve as the basis for modification, amendment, or extension, by implication or otherwise, of his employment with the Company.

4. Compensation.

(a) Base Salary. During the Employment Term, the Company will pay Executive as compensation for his services a base salary at the annualized rate of not less than $315,000, as adjusted from time to time as provided herein (the " **Base Salary**"). The Base Salary will be paid periodically in accordance with the Company's normal payroll practices and will be subject to standard federal, state and local withholding. Executive's performance will be reviewed at least annually to determine if an increase in compensation is appropriate, which increase shall be in the sole discretion of the Company.

(b) Bonus. As additional compensation for services hereunder, Executive shall be eligible under the Company's then current senior management incentive plan for an annual discretionary cash bonus of at least fifty per cent (50%) of Executive's then current Base Salary, to be determined by the Company's Board or Compensation Committee thereof and contingent upon the Company's and/or Executive's achievement of objectives set by the Company from time to time ("Target Bonus"). Executive shall also be eligible to receive equity bonuses at such times and in such amounts as determined by the Board. All bonuses shall be in the discretion of the Board.

5. Employee Benefits. During the Employment Term, Executive will be entitled to participate in the employee benefit plans currently and hereafter maintained by the Company of general applicability to other senior executives of the Company, as such plans and terms may exist from time to time, including, without limitation, group health insurance, 401(k), and equity incentive plans. The Company reserves the right to cancel or change the benefit plans and programs it offers to its employees at any time. The Company will provide Executive a housing allowance from the Effective Date in an amount not to exceed $1,500.00 per month for twenty-four (24) months.

6. Expenses. The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in the furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time. To the extent applicable, any reimbursement benefits shall comply with the requirements of Treasury Regulations Section 1.409A-3(i)(1)(iv).

7. Payment/Severance in Connection with a Change In Control .

(a) Payment Upon A Change In Control . If a Change in Control (as defined in Section 10(b)(ii), 10(b)(iv) or 10(b)(v) herein) occurs, Executive shall receive a cash payment in an amount equal to his then current Base Salary plus his then current Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), subject to the usual required withholding and subject to reduction, if any, provided for in Section 8(b).

(b) Termination Without Cause; Termination for Good Reason. If Executive's employment relationship with the Company is terminated within twelve months following a Change in Control (as defined in Section 10(b) herein), Executive may be entitled to payment of severance in accordance with this Section 7(b). In the event that within twelve months following a Change in Control (i) Executive terminates his employment with the Company for Good Reason (as defined herein) or (ii) Executive is terminated by the Company without Cause (as defined herein), Executive shall be entitled to receive the following severance benefits if Executive executes a general release, the standard form of which is attached hereto as Exhibit A, with such changes as the Company may reasonably require (the "**Release Agreement**"), within the applicable time period set forth therein, but in no event later than forty-five (45) days following the date of Executive's termination (such latest permitted date is the "**Release Agreement Deadline**"), and permits the Release Agreement to become effective in accordance with its terms:

(i) Base Salary; Target Bonus; Accrued Vacation. Executive shall receive severance pay in an amount equal to 1.5 times his Base Salary (at the rate in effect immediately before the date of termination but not giving effect to any reduction that would give Executive the right to resign for Good Reason) plus 1.5 times his then current annual Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), paid in cash and subject to the usual required withholding, plus an amount equal to all accrued and unpaid vacation or paid-time off outstanding on Executive's termination date, subject to the usual required withholding.

(ii) Acceleration of Vesting. As of the date of termination, all of Executive's unvested stock options shall vest. Executive shall also receive a cash payment equal to the value of any unvested 401(k) Company match amount.

(iii) COBRA Benefits. The Company shall pay the group health continuation coverage premiums for Executive and Executive's covered dependents under Title X of the Consolidated Budget Reconciliation Act of 1985, as amended (" **COBRA**"), for a period of not less than eighteen (18) months from the date of Executive's termination of employment to the extent Executive is eligible for and elects such continuation coverage under COBRA. Notwithstanding the above, the Company shall only be responsible for the premiums that would be paid by comparable active employees for the same type of coverage in which Executive participated at the time of his termination.

(iv) Notwithstanding any of the foregoing to the contrary, Executive shall not receive the severance pay, Target Bonus, or health care insurance reimbursement referenced above in this Section 7(b) unless and until the Release Agreement becomes effective and can no longer be revoked under its terms. Amounts otherwise payable prior to the Release Agreement's effective date shall accrue and become payable on the first regularly scheduled pay date following the effective date of the Release Agreement. Notwithstanding any provisions in this Agreement to the contrary, the Company's obligations and Executive's rights to severance benefits under this Section 7 shall cease and be rendered a nullity immediately should Executive violate any provision of Executive's Confidentiality Agreement with the Company dated April 15, 2011 (the "**Confidentiality Agreement**").

8. Retention Payment.

(a) In the event, if ever, on or after the Effective Date, the Company executes an engagement agreement with an investment banking firm or other business brokerage firm for the purposes that include exploring a transaction the consummation of which would constitute a Change In Control ("Engagement Date"), and, subject to the other provisions of this Section 8, if Executive is still employed with the Company on the date which is twenty-four (24) months from the Engagement Date, the Company shall pay Executive a retention payment in an amount equal to fifty percent (50%) of his then current Base Salary plus fifty percent (50%) of his then current Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), which payment shall be made on the next regular pay day following such date ("Retention Payment"). Notwithstanding the foregoing, no such retention payment shall be paid if Executive previously has received a payment under Section 7(a) within the above-referenced twenty-four (24) month period.

(b) Additionally, in the event a Change in Control occurs during the period beginning twenty-four (24) months following the Engagement Date and ending thirty-six (36) months following the Engagement Date (the "Reduction Period"), then any payment otherwise payable to Executive under Section 7(a) shall be reduced, pro rata, based on the number of days remaining in the Reduction Period. By way of example, if a Change in Control occurs ninety (90) days into the Reduction Period, the payment otherwise payable to Executive under Section 7(a) shall be reduced by 275/365, or seventy-five percent (75%).

(c) Notwithstanding anything in this Section 8 to the contrary, if the Board determines that, after giving effect to the Retention Payment and to any other retention payments to be made under any other employment agreements between the Company and other employees, a default could occur under any financing facility or loan between the Company and any Company lender, the Retention Payment shall be made in fully vested Company shares of common stock under the Company's 2006 Equity Incentive Plan.

9. Severance Not in Connection with a Change In Control. If Executive's employment relationship with the Company is terminated without Cause or by Executive for Good Reason and Executive is not entitled to payment of severance in accordance with Section 7(b), the provisions of this Section 9 will apply.

(a) Termination Without Cause; Termination for Good Reason. In the event (i) Executive terminates his employment with the Company for Good Reason (as defined herein) or (ii) Executive is terminated by the Company without Cause (as defined herein), Executive shall be entitled to receive the following severance benefits if Executive executes the Release Agreement within the applicable time period set forth therein, but in no event later than forty-five (45) days following the date of termination (such latest permitted date is the " **Release Agreement Deadline**"), and permits the Release Agreement to become effective in accordance with its terms:

(i) Base Salary; Target Bonus; Accrued Vacation. Executive shall receive severance pay in an amount equal to his then current Base Salary (at the rate in effect immediately before the date of termination but not giving effect to any reduction that would give Executive the right to resign for Good Reason) plus his then current annual Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), paid in accordance with the Company's normal payroll practices and subject to the usual required withholding, plus an amount equal to all accrued and unpaid vacation or paid-time off outstanding on Executive's termination date, subject to the usual required withholding. To the extent that all sums due pursuant to this Section 9(a)(i) have not been paid by the 15 th day of the third month of the calendar year following the calendar year during which the date of termination occurs, the remaining amount due will be paid on that date.

(ii) Acceleration of Vesting. As of the date of termination, Executive shall receive twelve (12) months of additional vesting of any unvested stock options in accordance with their applicable vesting schedules as if Executive had remained in service for an additional twelve (12) months as of the date of termination. Executive shall also receive a cash payment equal to the value of any unvested 401(k) Company match amount.

(iii) COBRA Benefits. The Company shall pay the group health continuation coverage premiums for Executive and Executive's covered dependents under **COBRA** for a period of not less than twelve (12) months from the date of Executive's termination of employment to the extent Executive is eligible for and elects such continuation coverage under COBRA. Notwithstanding the above, the Company shall only be responsible for the premiums that would be paid by comparable active employees for the same type of coverage in which Executive participated at the time of his termination.

(iv) Notwithstanding any of the foregoing to the contrary, Executive shall not receive the severance pay or health care insurance reimbursement referenced above unless and until the Release Agreement becomes effective and can no longer be revoked under its terms. Amounts otherwise payable prior to the Release Agreement's effective date shall accrue and become payable on the first regularly scheduled pay date following the effective date of the Release Agreement. Notwithstanding any provisions in this Agreement to the contrary, the Company's obligations and Executive's rights to severance benefits under this Section shall cease and be rendered a nullity immediately should Executive violate any provision of the Confidentiality Agreement.

(b) Voluntary Termination; Termination for Cause. If Executive's employment with the Company is terminated voluntarily by Executive without Good Reason or Executive is terminated for Cause by the Company, he will not receive severance pay, paid COBRA benefits, or any other similar compensation.

(c) Dissolution, Liquidation or Insolvency of the Company . Notwithstanding the above, in the event Executive's employment is terminated by the Company in connection with or as a result of the liquidation, dissolution, insolvency or other winding up of the affairs of the Company without the establishment of a successor entity to the Company, the Company shall have no obligation to provide severance or further financial consideration to Executive except for any reasonable expense reimbursements or base salary that Executive has accrued and earned at the time of such termination.

(d) Death or Disability. Executive's employment and this Agreement shall automatically terminate, and Executive will receive the severance pay, acceleration of vesting, benefits and other compensation set forth in Section 9(a) above (i) upon Executive's death or (ii) in the event of any Complete Disability, as defined in Section 10. If Executive is entitled to long-term disability insurance benefits under a long-term disability insurance plan for which the Company paid the insurance premiums, any amounts due pursuant to this Section 9(d) shall be reduced by the maximum amount of such benefits.

10. Definitions.

(a) Cause. For purposes of this Agreement, "**Cause**" is defined as follows:

(i) an act of embezzlement, theft, or fraud by Executive with respect to the Company or any of its affiliates;

(ii) Executive's conviction of, or plea of nolo contendere to, a felony or any other crime involving moral turpitude (excluding traffic offenses);

(iii) Executive's (A) repeated gross negligence or willful misconduct in the performance of his employment duties and responsibilities to the Company (other than as a result of a disability) or (B) refusal to comply with the directives of the Board, provided that such gross negligence, willful misconduct or refusal to comply with the directives of the Board shall only constitute Cause after Executive has received a written notice from the Company or the Board which specifically sets forth the factual basis for the Company's belief that Executive's actions or inactions constitute Cause and Executive has been provided with a reasonable opportunity of not less than thirty (30) days to cure, to the reasonable satisfaction of the Board, any alleged gross negligence, willful misconduct or refusal to comply with the directives of the Board; or

(v) Executive's material breach of this Agreement or the Confidentiality Agreement.

(b) Change in Control. For purposes of this Agreement, "**Change in Control**" is defined as follows:

(i) any "person" (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becomes the "beneficial owner" (as defined in Rule 13d-3 of the Exchange Act), directly or indirectly, of securities of the Company representing fifty percent (50%) or more of the total voting power represented by the Company's then outstanding voting securities; or

(ii) the consummation of the sale or disposition by the Company of all or substantially all of the Company's assets; or

(iii) a change in the composition of the Board occurring within a two-year period, as a result of which fewer than a majority of the directors are Incumbent Directors. "**Incumbent Directors**" means directors who either (A) are Directors as of the Effective Date, or (B) are elected, or nominated for election, to the Board with the affirmative votes of at least a majority of the Incumbent Directors at the time of such election or nomination, but will neither include an individual whose election or nomination is done by a competing proxy solicitation nor any existing Director who sponsors any such competing proxy solicitation; or

(iv) a tender offer recommended by the Board for the Company's outstanding shares of common stock after consummation of which the offeror owns at least ninety percent (90%) of the Company's outstanding common stock; or

(v) the consummation of a merger or consolidation of the Company with any other corporation, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or its parent) at least fifty percent (50%) of the total voting power represented by the voting securities of the Company or such surviving entity or its parent outstanding immediately after such merger or consolidation.

(c) Complete Disability. For purposes of this Agreement, Executive's "Complete Disability" means Executive is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than twelve (12) months or Executive is, by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than twelve (12) months, receiving income replacement benefits for a period of not less than three (3) months under an accident and health plan covering employees of the Company and any Related Entities.

(d) Good Reason. For purposes of this Agreement, "Good Reason" shall mean Executive's voluntary termination of his employment after the occurrence of any of the following without the express written consent of Executive:

(i) a non-voluntary material reduction in Executive's annualized Base Salary that is not part of a general reduction of salary or other concessionary arrangement affecting all employees of the Company or affecting all senior executive officers of the Company;

(ii) a requirement by the Company or the Board that Executive be relocated to a Company office more than fifty (50) miles from Roanoke, Virginia; or

(iii) any material breach by the Company of any of its obligations hereunder; provided, however that in order for Executive's termination of his employment to qualify as a voluntary termination for "Good Reason," (i) Executive must provide the Company with written notice within sixty (60) days of the event(s) that Executive believes constitutes "Good Reason" specifically identifying the acts or omissions constituting the grounds for Good Reason, (ii) the Company must have failed to cure such Good Reason acts or omissions within thirty (30) days following the date of such notice (the " **Cure Period**"), and (iii) Executive's voluntary termination occurs within thirty (30) days following the expiration of the Cure Period.

11. Confidentiality Agreement. Executive has entered into and agrees to continue to abide by the terms of the Confidentiality Agreement. To the extent the terms of this Agreement are inconsistent with the terms of the Confidentiality Agreement, the terms of this Agreement shall control. The terms and conditions of the Confidentiality Agreement are incorporated herein by reference.

12. Excise Tax Adjustment. Notwithstanding any of the foregoing to the contrary:

(a) in the event that the severance and other benefits provided for in this Agreement or otherwise payable to Executive other than the severance and other benefits provided for in Section 7(b), which are covered in Section 12(b) below, (i) constitute "parachute payments" within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the " **Code**") and (ii) but for this Section, would be subject to the excise tax imposed by Section 4999 of the Code ("Excise Tax"), then Executive's severance benefits under this Agreement shall be payable either (A) in full, or (B) as to such lesser amount which would result in no portion of such severance benefits being subject to excise tax under Section 4999 of the Code, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the excise tax imposed by Section 4999, results in the receipt by Executive on an after-tax basis, of the greatest amount of severance benefits under this Agreement,

notwithstanding that all or some portion of such severance benefits may be taxable under Section 4999 of the Code. Unless the Company and Executive otherwise agree in writing, any determination required under this Section shall be made in writing by the Company's independent public accountants (the "**Accountants**"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Section, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and Executive shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Section. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Section 12. Any reduction in payments and/or benefits required by this Section 12 shall occur in the following order: (1) reduction of cash payments; (2) reduction in vesting acceleration of equity awards; and (3) reduction of other benefits paid or provided to Executive. In the event that acceleration of vesting of equity awards is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant for Executive's equity awards. If two or more equity awards are granted on the same date, each award will be reduced on a pro-rata basis.

(b) in the event that the severance and other benefits provided for in Section 7(b) of this Agreement would be subject to the Excise Tax, then Executive shall be entitled to receive an additional payment (the "Gross-Up Payment") in an amount such that, after payment by Executive of all taxes (and any interest or penalties imposed with respect to such taxes), including without limitation any income taxes and Excise Taxes imposed upon the Gross-Up Payments, Executive will retain an amount of the Gross-Up Payment equal to the Excise Tax imposed upon the aggregate Parachute Value of all severance and other benefits provided for in Section 7(b). Notwithstanding the foregoing provisions of this Section 12(b), if it shall be determined that the aggregate Parachute Value of all severance and other benefits provided for in Section 7(b) is more than one-hundred percent (100%) but not more than one-hundred ten percent (110%) of the Safe Harbor Amount, then no Gross-Up Payment shall be made to Executive and the amounts payable under Section 7(b) shall be reduced so that the Parachute Value of all such severance and other benefits provided for in Section 7(b), in the aggregate, equals the Safe Harbor Amount. All determinations required to be made under this Section 12(b), including whether and when a Gross-Up Payment is required and the amount of such Gross-Up Payment and the assumptions to be utilized in arriving at such determination, shall be made by the Accountants. All fees and expenses of the Accountants shall be borne solely by the Company. Any Gross-Up Payment, as determined pursuant to this Section 12(b), shall be paid by the Company to Executive within five days of the receipt of the Accountants' determination. Any determination by the Accountants shall be binding upon the Company and Executive. If, after the receipt by Executive of a Gross-Up Payment, Executive becomes entitled to receive any refund with respect to the Excise Tax to which such Gross-Up Payment relates or with respect to such claim, Executive shall promptly pay to the Company the amount of such refund (together with any interest paid or credited thereon after taxes applicable thereto). The Company may, in its sole discretion, withhold and pay over to the Internal Revenue Service or any other applicable taxing authority, for the benefit of Executive, all or any portion of any Gross-Up Payment, and Executive hereby consents to such withholding. The following terms shall have the meanings below for purposes of this Section 12(b):

"Parachute Value" of a severance or other benefit shall mean the present value as of the date of a Change of Control for purposes of Section 280G of the Code of the portion of such severance or other benefit that constitutes a "parachute payment" under Section 280G(b)(2), as determined by the Accountants for purposes of determining whether and to what extent the Excise Tax will apply; and

The "Safe Harbor Amount" means 2.99 times Executive's "base amount," within the meaning of Section 280G(b)(3) of the Code.

13. Assignment. This Agreement will be binding upon and inure to the benefit of (a) the heirs, executors and legal representatives of Executive upon Executive's death and (b) any successor of the Company. Any such successor of the Company will be deemed substituted for the Company under the terms of this Agreement for all purposes and shall assume in writing and be bound by all of the Company's obligations under this Agreement. For this purpose, "successor" means any person, firm, corporation or other business entity which at any time, whether by purchase, merger or otherwise, directly or indirectly acquires all or substantially all of the assets or business of the Company. None of the rights of Executive to receive any form of compensation payable pursuant to this Agreement may be assigned or transferred except by will or the laws of descent and distribution. Any other attempted assignment, transfer, conveyance or other disposition of Executive's right to compensation or other benefits will be null and void.

14. Notices. All notices, requests, demands and other communications called for hereunder shall be in writing and shall be deemed given (i) on the date of delivery if delivered personally, (ii) one (1) day after being sent by a well established commercial overnight service, or (iii) four (4) days after being mailed by registered or certified mail, return receipt requested, prepaid and addressed to the parties or their successors at the following addresses, or at such other addresses as the parties may later designate in writing:

If to the Company:

Luna Innovations Incorporated
One Riverside Circle, Suite 400
Roanoke, Virginia 24016
Attn: General Counsel

If to Executive:

At the last residential address known by the Company.

15. Severability. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Agreement will continue in full force and effect without said provision.

16. Arbitration. To ensure the rapid and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action, in law or equity, arising from or relating to the enforcement, breach, performance, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, shall be resolved, to the fullest extent permitted by law, by final, binding and confidential arbitration in Roanoke, Virginia, conducted by the Judicial Arbitration and Mediation Services, Inc. ("**JAMS**") or its successor, under the then applicable rules of JAMS. Executive and the Company acknowledge that by agreeing to this arbitration procedure, each party waives the right to resolve any such dispute through a trial by jury or judge or administrative proceeding. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision including the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Notwithstanding the foregoing, Executive and the Company each have the right to resolve any issue or dispute arising under the Confidentiality Agreement by court action instead of arbitration.

17. Entire Agreement. This Agreement and the Confidentiality Agreement collectively represent the entire agreement and understanding between the parties as to the subject matter herein and therein and together supersede all prior or contemporaneous agreements whether written or oral. No waiver, alteration, amendment or modification of any of the provisions of this Agreement or of the Confidentiality Agreement will be binding unless it is in writing and is signed by the person or party to be charged. The Chairman of the Board is the only person with authority to act on behalf of the Company with respect to such matters under this Agreement.

18. Tax Matters.

(a) Withholding. All payments made pursuant to this Agreement will be subject to withholding of applicable taxes.

(b) Section 409A Compliance.

(i) Notwithstanding anything to the contrary herein, the following provisions apply to the extent severance benefits provided herein are subject to Section 409A of the Internal Revenue Code of 1986, as amended (the **"*Code*"**) and the regulations and other guidance thereunder and any state law of similar effect (collectively **"*Section 409A*"**). Severance benefits shall not commence until Executive has a "separation from service" for purposes of Section 409A. Solely for purposes of determining the timing of payment of amounts owed to Executive as a result of the termination of Executive's employment with the Company pursuant to Sections 7(b) or 9(a) of this Agreement, references to termination of Executive's employment shall mean Executive's "separation from service" (as such term is used for such purposes of Section 409A of the Code) with the Company and any Related Entities. Executive shall be deemed to have a separation from service on a date only if the Company and Executive reasonably anticipate that (a) no further services will be performed for the Company or any Related Entities after such date or (b) the level of bona fide services Executive will perform for the Company or any Related Entities after such date (whether as an employee or as an independent contractor) will permanently decrease to no more than twenty percent (20%) of the average level of bona fide services performed (whether as an employee or as an independent contractor) over the immediately preceding 36-month period (or the full period of services to the Company and any Related Entities if Executive has then been providing services to the Company or any Related Entities for less than 36 months). For periods during which Executive is on a paid Leave of Absence and has not otherwise terminated employment, Executive shall be treated as providing bona fide services at a level equal to the level of services that he would have been required to perform to receive the compensation paid with respect to such Leave of Absence. Also, periods during which Executive is on an unpaid Leave of Absence and has not otherwise terminated employment shall be disregarded (including for purposes of determining the 36-month, or shorter period). The term "Related Entity" means any entity which is aggregated with the Company or any other entity pursuant to Section 414(b) or 414(c) of the Code or would be so aggregated if the language "at least 50%" were used instead of "at least 80%" each place it appears in Section 1563(a)(1),(2) and (3) of the Code and Treasury Regulations Section 1.414(c)-2. Further, the term "Leave of Absence" means a military leave, sick leave or bona fide leave of absence of Executive which does not exceed six (6) months (or such longer period for which Executive retains such right to re-employment with the Company or Related Entity under an applicable statute or by contract), but only if there is a reasonable expectation that Executive will return to perform services for the Company or a Related Entity.

(ii) Each installment of severance benefits is a separate "payment" for purposes of Treas. Reg. Section 1.409A-2(b)(2)(i), and the severance benefits are intended to satisfy the exemptions from application of Section 409A provided under Treasury Regulations Sections 1.409A-1(b)(4) and 1.409A-1(b)(5). However, if such exemptions are not available and Executive is, upon separation from service, a "specified employee" for purposes of Section 409A, then, solely to the extent necessary to avoid adverse personal tax consequences under Section 409A, the timing of the severance benefits

payments shall be delayed until the earlier of (i) six (6) months and one day after Executive's separation from service, or (ii) Executive's death. Additionally, if the severance benefits are not covered by one or more exemptions from the application of Section 409A and the Release Agreement could become effective in the calendar year following the calendar year in which Executive separates from service, the Release Agreement will not be deemed effective any earlier than the Release Agreement Deadline.

(iii) The foregoing provisions are intended to comply with the requirements of Section 409A so that none of the severance payments and benefits to be provided hereunder shall be subject to the additional tax imposed under Section 409A, and any ambiguities herein shall be interpreted to so comply. The Company and Executive agree to work together in good faith to consider amendments to this Agreement and to take such reasonable actions which are necessary, appropriate or desirable to avoid imposition of any additional tax or income recognition prior to actual payment to Executive under Section 409A.

19. Governing Law. This Agreement will be governed by the laws of the Commonwealth of Virginia, without regard to its conflict of laws principles.

20. Acknowledgment. Executive acknowledges that he has had the opportunity to discuss this matter with and obtain advice from his private attorney, has had sufficient time to, and has carefully read and fully understands all the provisions of this Agreement, and is knowingly and voluntarily entering into this Agreement.

21. Resignation from the Board. Executive understands and agrees that if he is a member of the Board at the time his employment with the Company terminates, whether with or without cause and whether voluntary or involuntary, and as a further condition of his receipt of any severance benefits to which he otherwise might be entitled under this Agreement, he will submit his resignation as a member of the Board effective as of his last day of employment.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be executed as of the date first set forth above.

MY E. CHUNG

/s/ My E. Chung
Signature

My E. Chung
Print Name

LUNA INNOVATIONS INCORPORATED

By: /s/ Dale E. Messick
Signature

Dale E. Messick
Print Name

Chief Financial Officer
Print Title

[Signature Page to Employment Agreement]

RELEASE AGREEMENT

I understand that my position with Luna Innovations Incorporated (the "Company") terminated effective , 2012 (the "Separation Date"). The Company has agreed that if I choose to sign this Release Agreement, the Company will extend to me certain benefits (minus the standard withholdings and deductions, if applicable) pursuant to the terms of the Employment Agreement (the "Agreement") entered into as of March 28, 2012, between myself and the Company, and any agreements incorporated therein by reference. I understand that I am not entitled to such severance benefits unless I sign this Release Agreement.

In consideration for the severance benefits I am receiving under the Agreement, I hereby release the Company and its officers, directors, agents, attorneys, employees, shareholders, parents, subsidiaries, and affiliates from any and all claims, liabilities, demands, causes of action, attorneys' fees, damages, or obligations of every kind and nature, whether they are now known or unknown, arising at any time prior to the date I sign this Release Agreement. This general release includes, but is not limited to: all federal and state statutory and common law claims, claims related to my employment or the termination of my employment or related to breach of contract, tort, wrongful termination, discrimination, wages or benefits, or claims for any form of equity or compensation. Notwithstanding the release in the preceding sentence, I am not releasing any right of indemnification I may have for any liabilities arising from my actions within the course and scope of my employment with the Company or, if applicable, within the course and scope of my role as a member of the Board of Directors. Notwithstanding anything herein to the contrary, nothing in this Release Agreement shall release any claims that I may have against the Company and its officers, directors, agents, attorneys, employees, shareholders, parents, subsidiaries, and affiliates solely in connection with my purchase and ownership of shares of capital stock of the Company.

I UNDERSTAND THAT THIS AGREEMENT INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS. In giving this release, which includes claims which may be unknown to me at present, I hereby waive the benefit of any provision of Virginia law, and of any other jurisdiction, which is similar to Section 1542 of the California Civil Code, which reads as follows: **"A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the release, which if known by him must have materially affected his settlement with the debtor."**

If I am forty (40) years of age or older as of the Separation Date, I acknowledge that I am knowingly and voluntarily waiving and releasing any rights I may have under the federal Age Discrimination in Employment Act of 1967, as amended ("ADEA"). I also acknowledge that the consideration given for the waiver in the above paragraph is in addition to anything of value to which I was already entitled. I have been advised by this writing, as required by the ADEA that: (a) my waiver and release do not apply to any claims that may arise after my signing of this Release Agreement; (b) I should consult with an attorney prior to executing this Release Agreement; (c) I have twenty-one (21) days within which to consider this Release Agreement (although I may choose to voluntarily execute this Release Agreement earlier); (d) I have seven (7) days following the execution of this release to revoke the Release Agreement and that any such revocation must be in writing, addressed to the undersigned representative of the Company, and must be received by the Company within the seven (7) day revocation period; and (e) this Release Agreement will not be effective until the eighth day after this Release Agreement has been signed both by me and by the Company.

I represent that I understand all of the provisions herein, and that I am entering into this Release Agreement voluntarily. I further represent and acknowledge that in executing this Release Agreement I do not rely, and have not relied, upon any representation or statement made by the Company or by any of the Company's employees, officers, agents, members, directors or attorneys with regard to the subject matter, basis or effect of this Release Agreement or otherwise.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be executed as of the date first set forth above.

MY E. CHUNG

Signature

Print Name

LUNA INNOVATIONS INCORPORATED

By:
Signature

Print Name

Print Title

Exhibit 10.41

LUNA INNOVATIONS INCORPORATED

EMPLOYMENT AGREEMENT

This Employment Agreement (the "**Agreement**") is entered into as of March 28, 2012 by and between Luna Innovations Incorporated, a Delaware Corporation (the "**Company**"), and Dale E. Messick ("**Executive**").

1. Duties and Scope of Employment.

(a) Positions and Duties. During the Employment Term (as defined herein), Executive will serve as the Company's Chief Financial Officer. Executive will render such business and professional services in the performance of his duties, consistent with Executive's position within the Company, as shall reasonably be assigned to him by the Company's President and Chief Executive Officer ("President").

(b) Reporting. Executive shall report directly to the President.

(c) Obligations. During the Employment Term, and excluding periods of vacation and sick leave to which Executive is entitled, Executive shall devote all business time and attention to the affairs of the Company necessary to discharge the responsibilities assigned hereunder, and shall use commercially reasonable efforts to perform faithfully and efficiently such responsibilities. Notwithstanding anything herein to the contrary, Executive may provide services as a volunteer, member, director or officer of charitable, educational or civic organizations or industry trade associations or groups, and may serve as trustee, director or advisor to any family companies or trusts, provided that such service does not materially interfere with the performance of Executive's duties to the Company as required under this Agreement.

2. Term. The period of Executive's employment under this Agreement is referred to herein as the " **Employment Term**." The Agreement shall have an initial term beginning on March 28, 2012 (the "**Effective Date**") through March 31, 2013 ("**Initial Term**"). At the end of the Initial Term and on each annual anniversary of such date thereafter, the Agreement automatically will renew for successive additional one (1) year terms, unless either party provides the other party with written notice of non-renewal at least ninety (90) days prior to the date of the automatic renewal.

3. At-Will Employment. The parties agree that Executive's employment with the Company will be "at-will" employment and may be terminated by either party at any time, effective immediately, upon written notice to the other party, with or without cause. However, as described in this Agreement, Executive may be entitled to severance benefits depending upon the circumstances of his termination of employment. Executive understands and agrees that neither his job performance nor promotions, commendations, bonuses or the like from the Company give rise to or in any way serve as the basis for modification, amendment, or extension, by implication or otherwise, of his employment with the Company.

4. Compensation.

(a) Base Salary. During the Employment Term, the Company will pay Executive as compensation for his services a base salary at the annualized rate of not less than $220,000, as adjusted from time to time as provided herein (the " **Base Salary**"). The Base Salary will be paid periodically in accordance with the Company's normal payroll practices and will be subject to standard federal, state and local withholding. Executive's performance will be reviewed at least annually to determine if an increase in compensation is appropriate, which increase shall be in the sole discretion of the Company.

(b) Bonus. As additional compensation for services hereunder, Executive shall be eligible under the Company's then current senior management incentive plan for an annual discretionary cash bonus of at least fifty per cent (50%) of Executive's then current Base Salary, to be determined by the Company's Board or Compensation Committee thereof and contingent upon the Company's and/or Executive's achievement of objectives set by the Company from time to time ("Target Bonus"). Executive shall also be eligible to receive equity bonuses at such times and in such amounts as determined by the Board. All bonuses shall be in the discretion of the Board.

5. Employee Benefits. During the Employment Term, Executive will be entitled to participate in the employee benefit plans currently and hereafter maintained by the Company of general applicability to other senior executives of the Company, as such plans and terms may exist from time to time, including, without limitation, group health insurance, 401(k), and equity incentive plans. The Company reserves the right to cancel or change the benefit plans and programs it offers to its employees at any time.

6. Expenses. The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in the furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time. To the extent applicable, any reimbursement benefits shall comply with the requirements of Treasury Regulations Section 1.409A-3(i)(1)(iv).

7. Payment/Severance in Connection with a Change In Control .

(a) Payment Upon A Change In Control . If a Change in Control (as defined in Section 10(b)(ii), 10(b)(iv) or 10(b)(v) herein) occurs, Executive shall receive a cash payment in an amount equal to his then current Base Salary plus his then current Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), subject to the usual required withholding and subject to reduction, if any, provided for in Section 8(b).

(b) Termination Without Cause; Termination for Good Reason. If Executive's employment relationship with the Company is terminated within twelve months following a Change in Control (as defined in Section 10(b) herein), Executive may be entitled to payment of severance in accordance with this Section 7(b). In the event that within twelve months following a Change in Control (i) Executive terminates his employment with the Company for Good Reason (as defined herein) or (ii) Executive is terminated by the Company without Cause (as defined herein), Executive shall be entitled to receive the following severance benefits if Executive executes a general release, the standard form of which is attached hereto as Exhibit A, with such changes as the Company may reasonably require (the "**Release Agreement**"), within the applicable time period set forth therein, but in no event later than forty-five (45) days following the date of Executive's termination (such latest permitted date is the "**Release Agreement Deadline**"), and permits the Release Agreement to become effective in accordance with its terms:

(i) Base Salary; Target Bonus; Accrued Vacation. Executive shall receive severance pay in an amount equal to his Base Salary (at the rate in effect immediately before the date of termination but not giving effect to any reduction that would give Executive the right to resign for Good Reason) plus his then current annual Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), paid in cash and subject to the usual required withholding, plus an amount equal to all accrued and unpaid vacation or paid-time off outstanding on Executive's termination date, subject to the usual required withholding.

(ii) Acceleration of Vesting. As of the date of termination, all of Executive's unvested stock options shall vest. Executive shall also receive a cash payment equal to the value of any unvested 401(k) Company match amount.

(iii) COBRA Benefits. The Company shall pay the group health continuation coverage premiums for Executive and Executive's covered dependents under Title X of the Consolidated Budget Reconciliation Act of 1985, as amended (" **COBRA**"), for a period of not less than twelve (12) months from the date of Executive's termination of employment to the extent Executive is eligible for and elects such continuation coverage under COBRA. Notwithstanding the above, the Company shall only be responsible for the premiums that would be paid by comparable active employees for the same type of coverage in which Executive participated at the time of his termination.

(iv) Notwithstanding any of the foregoing to the contrary, Executive shall not receive the severance pay, Target Bonus, or health care insurance reimbursement referenced above in this Section 7(b) unless and until the Release Agreement becomes effective and can no longer be revoked under its terms. Amounts otherwise payable prior to the Release Agreement's effective date shall accrue and become payable on the first regularly scheduled pay date following the effective date of the Release Agreement. Notwithstanding any provisions in this Agreement to the contrary, the Company's obligations and Executive's rights to severance benefits under this Section 7 shall cease and be rendered a nullity immediately should Executive violate any provision of Executive's Confidentiality Agreement with the Company of even date herewith (the " **Confidentiality Agreement**").

8. Retention Payment.

(a) In the event, if ever, on or after the Effective Date, the Company executes an engagement agreement with an investment banking firm or other business brokerage firm for the purposes that include exploring a transaction the consummation of which would constitute a Change In Control ("Engagement Date"), and, subject to the other provisions of this Section 8, if Executive is still employed with the Company on the date which is twenty-four (24) months from the Engagement Date, the Company shall pay Executive a retention payment in an amount equal to fifty percent (50%) of his then current Base Salary plus fifty percent (50%) of his then current Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), which payment shall be made on the next regular pay day following such date ("Retention Payment"). Notwithstanding the foregoing, no such retention payment shall be paid if Executive previously has received a payment under Section 7(a) within the above-referenced twenty-four (24) month period.

(b) Additionally, in the event a Change in Control occurs during the period beginning twenty-four (24) months following the Engagement Date and ending thirty-six (36) months following the Engagement Date (the "Reduction Period"), then any payment otherwise payable to Executive under Section 7(a) shall be reduced, pro rata, based on the number of days remaining in the Reduction Period. By way of example, if a Change in Control occurs ninety (90) days into the Reduction Period, the payment otherwise payable to Executive under Section 7(a) shall be reduced by 275/365, or seventy-five percent (75%).

(c) Notwithstanding anything in this Section 8 to the contrary, if the Board determines that, after giving effect to the Retention Payment and to any other retention payments to be made under any other employment agreements between the Company and other employees, a default could occur under any financing facility or loan between the Company and any Company lender, the Retention Payment shall be made in fully vested Company shares of common stock under the Company's 2006 Equity Incentive Plan.

9. Severance Not in Connection with a Change In Control. If Executive's employment relationship with the Company is terminated without Cause or by Executive for Good Reason and Executive is not entitled to payment of severance in accordance with Section 7(b), the provisions of this Section 9 will apply.

(a) Termination Without Cause; Termination for Good Reason. In the event (i) Executive terminates his employment with the Company for Good Reason (as defined herein) or (ii) Executive is terminated by the Company without Cause (as defined herein), Executive shall be entitled to receive the following severance benefits if Executive executes the Release Agreement within the applicable time period set forth therein, but in no event later than forty-five (45) days following the date of termination (such latest permitted date is the " **Release Agreement Deadline**"), and permits the Release Agreement to become effective in accordance with its terms:

(i) Base Salary; Target Bonus; Accrued Vacation. Executive shall receive severance pay in an amount equal to nine-twelfths (9/12's) his then current Base Salary (at the rate in effect immediately before the date of termination but not giving effect to any reduction that would give Executive the right to resign for Good Reason) plus nine-twelfths (9/12's) his then current annual Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), paid in accordance with the Company's normal payroll practices and subject to the usual required withholding, plus an amount equal to all accrued and unpaid vacation or paid-time off outstanding on Executive's termination date, subject to the usual required withholding. To the extent that all sums due pursuant to this Section 9(a)(i) have not been paid by the 15 th day of the third month of the calendar year following the calendar year during which the date of termination occurs, the remaining amount due will be paid on that date.

(ii) Acceleration of Vesting. As of the date of termination, Executive shall receive twelve (12) months of additional vesting of any unvested stock options in accordance with their applicable vesting schedules as if Executive had remained in service for an additional twelve (12) months as of the date of termination. Executive shall also receive a cash payment equal to the value of any unvested 401(k) Company match amount.

(iii) COBRA Benefits. The Company shall pay the group health continuation coverage premiums for Executive and Executive's covered dependents under **COBRA** for a period of not less than nine (9) months from the date of Executive's termination of employment to the extent Executive is eligible for and elects such continuation coverage under COBRA. Notwithstanding the above, the Company shall only be responsible for the premiums that would be paid by comparable active employees for the same type of coverage in which Executive participated at the time of his termination.

(iv) Notwithstanding any of the foregoing to the contrary, Executive shall not receive the severance pay or health care insurance reimbursement referenced above unless and until the Release Agreement becomes effective and can no longer be revoked under its terms. Amounts otherwise payable prior to the Release Agreement's effective date shall accrue and become payable on the first regularly scheduled pay date following the effective date of the Release Agreement. Notwithstanding any provisions in this Agreement to the contrary, the Company's obligations and Executive's rights to severance benefits under this Section shall cease and be rendered a nullity immediately should Executive violate any provision of the Confidentiality Agreement.

(b) Voluntary Termination; Termination for Cause. If Executive's employment with the Company is terminated voluntarily by Executive without Good Reason or Executive is terminated for Cause by the Company, he will not receive severance pay, paid COBRA benefits, or any other similar compensation.

(c) Dissolution, Liquidation or Insolvency of the Company . Notwithstanding the above, in the event Executive's employment is terminated by the Company in connection with or as a result of the liquidation, dissolution, insolvency or other winding up of the affairs of the Company without the establishment of a successor entity to the Company, the Company shall have no obligation to provide severance or further financial consideration to Executive except for any reasonable expense reimbursements or base salary that Executive has accrued and earned at the time of such termination.

(d) Death or Disability. Executive's employment and this Agreement shall automatically terminate, and Executive will receive the severance pay, acceleration of vesting, benefits and other compensation set forth in Section 9(a) above (i) upon Executive's death or (ii) in the event of any Complete Disability, as defined in Section 10. If Executive is entitled to long-term disability insurance benefits under a long-term disability insurance plan for which the Company paid the insurance premiums, any amounts due pursuant to this Section 9(d) shall be reduced by the maximum amount of such benefits.

10. Definitions.

(a) Cause. For purposes of this Agreement, "**Cause**" is defined as follows:

(i) an act of embezzlement, theft, or fraud by Executive with respect to the Company or any of its affiliates;

(ii) Executive's conviction of, or plea of nolo contendere to, a felony or any other crime involving moral turpitude (excluding traffic offenses);

(iii) Executive's (A) repeated gross negligence or willful misconduct in the performance of his employment duties and responsibilities to the Company (other than as a result of a disability) or (B) refusal to comply with the directives of the Board, provided that such gross negligence, willful misconduct or refusal to comply with the directives of the Board shall only constitute Cause after Executive has received a written notice from the Company or the Board which specifically sets forth the factual basis for the Company's belief that Executive's actions or inactions constitute Cause and Executive has been provided with a reasonable opportunity of not less than thirty (30) days to cure, to the reasonable satisfaction of the Board, any alleged gross negligence, willful misconduct or refusal to comply with the directives of the Board; or

(iv) Executive's material breach of this Agreement or the Confidentiality Agreement.

(b) Change in Control. For purposes of this Agreement, "**Change in Control**" is defined as follows:

(i) any "person" (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becomes the "beneficial owner" (as defined in Rule 13d-3 of the Exchange Act), directly or indirectly, of securities of the Company representing fifty percent (50%) or more of the total voting power represented by the Company's then outstanding voting securities; or

(ii) the consummation of the sale or disposition by the Company of all or substantially all of the Company's assets; or

(iii) a change in the composition of the Board occurring within a two-year period, as a result of which fewer than a majority of the directors are Incumbent Directors. "**Incumbent Directors**" means directors who either (A) are Directors as of the Effective Date, or (B) are elected, or nominated for election, to the Board with the affirmative votes of at least a majority of the Incumbent Directors at the time of such election or nomination, but will neither include an individual whose election or nomination is done by a competing proxy solicitation nor any existing Director who sponsors any such competing proxy solicitation; or

(iv) a tender offer recommended by the Board for the Company's outstanding shares of common stock after consummation of which the offeror owns at least ninety percent (90%) of the Company's outstanding common stock; or

(v) the consummation of a merger or consolidation of the Company with any other corporation, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or its parent) at least fifty percent (50%) of the total voting power represented by the voting securities of the Company or such surviving entity or its parent outstanding immediately after such merger or consolidation.

(c) Complete Disability. For purposes of this Agreement, Executive's "Complete Disability" means Executive is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than twelve (12) months or Executive is, by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than twelve (12) months, receiving income replacement benefits for a period of not less than three (3) months under an accident and health plan covering employees of the Company and any Related Entities.

(d) Good Reason. For purposes of this Agreement, "Good Reason" shall mean Executive's voluntary termination of his employment after the occurrence of any of the following without the express written consent of Executive:

(i) a non-voluntary material reduction in Executive's annualized Base Salary that is not part of a general reduction of salary or other concessionary arrangement affecting all employees of the Company or affecting all senior executive officers of the Company;

(ii) a requirement by the Company or the Board that Executive be relocated to a Company office more than fifty (50) miles from Roanoke, Virginia; or

(iii) any material breach by the Company of any of its obligations hereunder; provided, however that in order for Executive's termination of his employment to qualify as a voluntary termination for "Good Reason," (i) Executive must provide the Company with written notice within sixty (60) days of the event(s) that Executive believes constitutes "Good Reason" specifically identifying the acts or omissions constituting the grounds for Good Reason, (ii) the Company must have failed to cure such Good Reason acts or omissions within thirty (30) days following the date of such notice (the " **Cure Period**"), and (iii) Executive's voluntary termination occurs within thirty (30) days following the expiration of the Cure Period.

11. Confidentiality Agreement. Executive has entered into and agrees to continue to abide by the terms of the Confidentiality Agreement. To the extent the terms of this Agreement are inconsistent with the terms of the Confidentiality Agreement, the terms of this Agreement shall control. The terms and conditions of the Confidentiality Agreement are incorporated herein by reference.

12. Excise Tax Adjustment. Notwithstanding any of the foregoing to the contrary:

(a) in the event that the severance and other benefits provided for in this Agreement or otherwise payable to Executive other than the severance and other benefits provided for in Section 7(b), which are covered in Section 12(b) below, (i) constitute "parachute payments" within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the " **Code**") and (ii) but for this Section, would be subject to the excise tax imposed by Section 4999 of the Code ("Excise Tax"), then Executive's severance benefits under this Agreement shall be payable either (A) in full, or (B) as to such lesser amount which would result in no portion of such severance benefits being subject to excise tax under Section 4999 of the Code, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the excise tax imposed by Section 4999, results in the receipt by Executive on an after-tax basis, of the greatest amount of severance benefits under this Agreement,

notwithstanding that all or some portion of such severance benefits may be taxable under Section 4999 of the Code. Unless the Company and Executive otherwise agree in writing, any determination required under this Section shall be made in writing by the Company's independent public accountants (the "**Accountants**"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Section, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and Executive shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Section. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Section 12. Any reduction in payments and/or benefits required by this Section 12 shall occur in the following order: (1) reduction of cash payments; (2) reduction in vesting acceleration of equity awards; and (3) reduction of other benefits paid or provided to Executive. In the event that acceleration of vesting of equity awards is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant for Executive's equity awards. If two or more equity awards are granted on the same date, each award will be reduced on a pro-rata basis.

(b) in the event that the severance and other benefits provided for in Section 7(b) of this Agreement would be subject to the Excise Tax, then Executive shall be entitled to receive an additional payment (the "Gross-Up Payment") in an amount such that, after payment by Executive of all taxes (and any interest or penalties imposed with respect to such taxes), including without limitation any income taxes and Excise Taxes imposed upon the Gross-Up Payments, Executive will retain an amount of the Gross-Up Payment equal to the Excise Tax imposed upon the aggregate Parachute Value of all severance and other benefits provided for in Section 7(b). Notwithstanding the foregoing provisions of this Section 12(b), if it shall be determined that the aggregate Parachute Value of all severance and other benefits provided for in Section 7(b) is more than one-hundred percent (100%) but not more than one-hundred ten percent (110%) of the Safe Harbor Amount, then no Gross-Up Payment shall be made to Executive and the amounts payable under Section 7(b) shall be reduced so that the Parachute Value of all such severance and other benefits provided for in Section 7(b), in the aggregate, equals the Safe Harbor Amount. All determinations required to be made under this Section 12(b), including whether and when a Gross-Up Payment is required and the amount of such Gross-Up Payment and the assumptions to be utilized in arriving at such determination, shall be made by the Accountants. All fees and expenses of the Accountants shall be borne solely by the Company. Any Gross-Up Payment, as determined pursuant to this Section 12(b), shall be paid by the Company to Executive within five days of the receipt of the Accountants' determination. Any determination by the Accountants shall be binding upon the Company and Executive. If, after the receipt by Executive of a Gross-Up Payment, Executive becomes entitled to receive any refund with respect to the Excise Tax to which such Gross-Up Payment relates or with respect to such claim, Executive shall promptly pay to the Company the amount of such refund (together with any interest paid or credited thereon after taxes applicable thereto). The Company may, in its sole discretion, withhold and pay over to the Internal Revenue Service or any other applicable taxing authority, for the benefit of Executive, all or any portion of any Gross-Up Payment, and Executive hereby consents to such withholding. The following terms shall have the meanings below for purposes of this Section 12(b):

"Parachute Value" of a severance or other benefit shall mean the present value as of the date of a Change of Control for purposes of Section 280G of the Code of the portion of such severance or other benefit that constitutes a "parachute payment" under Section 280G(b)(2), as determined by the Accountants for purposes of determining whether and to what extent the Excise Tax will apply; and

The "Safe Harbor Amount" means 2.99 times Executive's "base amount," within the meaning of Section 280G(b)(3) of the Code.

13. Assignment. This Agreement will be binding upon and inure to the benefit of (a) the heirs, executors and legal representatives of Executive upon Executive's death and (b) any successor of the Company. Any such successor of the Company will be deemed substituted for the Company under the terms of this Agreement for all purposes and shall assume in writing and be bound by all of the Company's obligations under this Agreement. For this purpose, "successor" means any person, firm, corporation or other business entity which at any time, whether by purchase, merger or otherwise, directly or indirectly acquires all or substantially all of the assets or business of the Company. None of the rights of Executive to receive any form of compensation payable pursuant to this Agreement may be assigned or transferred except by will or the laws of descent and distribution. Any other attempted assignment, transfer, conveyance or other disposition of Executive's right to compensation or other benefits will be null and void.

14. Notices. All notices, requests, demands and other communications called for hereunder shall be in writing and shall be deemed given (i) on the date of delivery if delivered personally, (ii) one (1) day after being sent by a well established commercial overnight service, or (iii) four (4) days after being mailed by registered or certified mail, return receipt requested, prepaid and addressed to the parties or their successors at the following addresses, or at such other addresses as the parties may later designate in writing:

If to the Company:

Luna Innovations Incorporated
One Riverside Circle, Suite 400
Roanoke, Virginia 24016
Attn: General Counsel

If to Executive:

At the last residential address known by the Company.

15. Severability. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Agreement will continue in full force and effect without said provision.

16. Arbitration. To ensure the rapid and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action, in law or equity, arising from or relating to the enforcement, breach, performance, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, shall be resolved, to the fullest extent permitted by law, by final, binding and confidential arbitration in Roanoke, Virginia, conducted by the Judicial Arbitration and Mediation Services, Inc. ("**JAMS**") or its successor, under the then applicable rules of JAMS. Executive and the Company acknowledge that by agreeing to this arbitration procedure, each party waives the right to resolve any such dispute through a trial by jury or judge or administrative proceeding. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision including the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Notwithstanding the foregoing, Executive and the Company each have the right to resolve any issue or dispute arising under the Confidentiality Agreement by court action instead of arbitration.

17. Entire Agreement. This Agreement and the Confidentiality Agreement collectively represent the entire agreement and understanding between the parties as to the subject matter herein and therein and together supersede all prior or contemporaneous agreements whether written or oral. No waiver, alteration, amendment or modification of any of the provisions of this Agreement or of the Confidentiality Agreement will be binding unless it is in writing and is signed by the person or party to be charged. The Chairman of the Board is the only person with authority to act on behalf of the Company with respect to such matters under this Agreement.

18. Tax Matters.

(a) Withholding. All payments made pursuant to this Agreement will be subject to withholding of applicable taxes.

(b) Section 409A Compliance.

(i) Notwithstanding anything to the contrary herein, the following provisions apply to the extent severance benefits provided herein are subject to Section 409A of the Internal Revenue Code of 1986, as amended (the **"*Code*"**) and the regulations and other guidance thereunder and any state law of similar effect (collectively **"*Section 409A*"**). Severance benefits shall not commence until Executive has a "separation from service" for purposes of Section 409A. Solely for purposes of determining the timing of payment of amounts owed to Executive as a result of the termination of Executive's employment with the Company pursuant to Sections 7(b) or 9(a) of this Agreement, references to termination of Executive's employment shall mean Executive's "separation from service" (as such term is used for such purposes of Section 409A of the Code) with the Company and any Related Entities. Executive shall be deemed to have a separation from service on a date only if the Company and Executive reasonably anticipate that (a) no further services will be performed for the Company or any Related Entities after such date or (b) the level of bona fide services Executive will perform for the Company or any Related Entities after such date (whether as an employee or as an independent contractor) will permanently decrease to no more than twenty percent (20%) of the average level of bona fide services performed (whether as an employee or as an independent contractor) over the immediately preceding 36-month period (or the full period of services to the Company and any Related Entities if Executive has then been providing services to the Company or any Related Entities for less than 36 months). For periods during which Executive is on a paid Leave of Absence and has not otherwise terminated employment, Executive shall be treated as providing bona fide services at a level equal to the level of services that he would have been required to perform to receive the compensation paid with respect to such Leave of Absence. Also, periods during which Executive is on an unpaid Leave of Absence and has not otherwise terminated employment shall be disregarded (including for purposes of determining the 36-month, or shorter period). The term "Related Entity" means any entity which is aggregated with the Company or any other entity pursuant to Section 414(b) or 414(c) of the Code or would be so aggregated if the language "at least 50%" were used instead of "at least 80%" each place it appears in Section 1563(a)(1),(2) and (3) of the Code and Treasury Regulations Section 1.414(c)-2. Further, the term "Leave of Absence" means a military leave, sick leave or bona fide leave of absence of Executive which does not exceed six (6) months (or such longer period for which Executive retains such right to re-employment with the Company or Related Entity under an applicable statute or by contract), but only if there is a reasonable expectation that Executive will return to perform services for the Company or a Related Entity.

(ii) Each installment of severance benefits is a separate "payment" for purposes of Treas. Reg. Section 1.409A-2(b)(2)(i), and the severance benefits are intended to satisfy the exemptions from application of Section 409A provided under Treasury Regulations Sections 1.409A-1(b)(4) and 1.409A-1(b)(5). However, if such exemptions are not available and Executive is, upon separation from service, a "specified employee" for purposes of Section 409A, then, solely to the extent necessary to

avoid adverse personal tax consequences under Section 409A, the timing of the severance benefits payments shall be delayed until the earlier of (i) six (6) months and one day after Executive's separation from service, or (ii) Executive's death. Additionally, if the severance benefits are not covered by one or more exemptions from the application of Section 409A and the Release Agreement could become effective in the calendar year following the calendar year in which Executive separates from service, the Release Agreement will not be deemed effective any earlier than the Release Agreement Deadline.

(iii) The foregoing provisions are intended to comply with the requirements of Section 409A so that none of the severance payments and benefits to be provided hereunder shall be subject to the additional tax imposed under Section 409A, and any ambiguities herein shall be interpreted to so comply. The Company and Executive agree to work together in good faith to consider amendments to this Agreement and to take such reasonable actions which are necessary, appropriate or desirable to avoid imposition of any additional tax or income recognition prior to actual payment to Executive under Section 409A.

19. Governing Law. This Agreement will be governed by the laws of the Commonwealth of Virginia, without regard to its conflict of laws principles.

20. Acknowledgment. Executive acknowledges that he has had the opportunity to discuss this matter with and obtain advice from his private attorney, has had sufficient time to, and has carefully read and fully understands all the provisions of this Agreement, and is knowingly and voluntarily entering into this Agreement.

21. Resignation from the Board. Executive understands and agrees that if he is a member of the Board at the time his employment with the Company terminates, whether with or without cause and whether voluntary or involuntary, and as a further condition of his receipt of any severance benefits to which he otherwise might be entitled under this Agreement, he will submit his resignation as a member of the Board effective as of his last day of employment.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be executed as of the date first set forth above.

DALE E. MESSICK

/s/ Dale E. Messick
Signature

Dale E. Messick
Print Name

LUNA INNOVATIONS INCORPORATED

By: /s/ My E. Chung
Signature

My E. Chung
Print Name

President and Chief Executive Officer
Print Title

[Signature Page to Employment Agreement]

RELEASE AGREEMENT

I understand that my position with Luna Innovations Incorporated (the "Company") terminated effective , 2012 (the "Separation Date"). The Company has agreed that if I choose to sign this Release Agreement, the Company will extend to me certain benefits (minus the standard withholdings and deductions, if applicable) pursuant to the terms of the Employment Agreement (the "Agreement") entered into as of March 28, 2012, between myself and the Company, and any agreements incorporated therein by reference. I understand that I am not entitled to such severance benefits unless I sign this Release Agreement.

In consideration for the severance benefits I am receiving under the Agreement, I hereby release the Company and its officers, directors, agents, attorneys, employees, shareholders, parents, subsidiaries, and affiliates from any and all claims, liabilities, demands, causes of action, attorneys' fees, damages, or obligations of every kind and nature, whether they are now known or unknown, arising at any time prior to the date I sign this Release Agreement. This general release includes, but is not limited to: all federal and state statutory and common law claims, claims related to my employment or the termination of my employment or related to breach of contract, tort, wrongful termination, discrimination, wages or benefits, or claims for any form of equity or compensation. Notwithstanding the release in the preceding sentence, I am not releasing any right of indemnification I may have for any liabilities arising from my actions within the course and scope of my employment with the Company or, if applicable, within the course and scope of my role as a member of the Board of Directors. Notwithstanding anything herein to the contrary, nothing in this Release Agreement shall release any claims that I may have against the Company and its officers, directors, agents, attorneys, employees, shareholders, parents, subsidiaries, and affiliates solely in connection with my purchase and ownership of shares of capital stock of the Company.

I UNDERSTAND THAT THIS AGREEMENT INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS. In giving this release, which includes claims which may be unknown to me at present, I hereby waive the benefit of any provision of Virginia law, and of any other jurisdiction, which is similar to Section 1542 of the California Civil Code, which reads as follows: **"A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the release, which if known by him must have materially affected his settlement with the debtor."**

If I am forty (40) years of age or older as of the Separation Date, I acknowledge that I am knowingly and voluntarily waiving and releasing any rights I may have under the federal Age Discrimination in Employment Act of 1967, as amended ("ADEA"). I also acknowledge that the consideration given for the waiver in the above paragraph is in addition to anything of value to which I was already entitled. I have been advised by this writing, as required by the ADEA that: (a) my waiver and release do not apply to any claims that may arise after my signing of this Release Agreement; (b) I should consult with an attorney prior to executing this Release Agreement; (c) I have twenty-one (21) days within which to consider this Release Agreement (although I may choose to voluntarily execute this Release Agreement earlier); (d) I have seven (7) days following the execution of this release to revoke the Release Agreement and that any such revocation must be in writing, addressed to the undersigned representative of the Company, and must be received by the Company within the seven (7) day revocation period; and (e) this Release Agreement will not be effective until the eighth day after this Release Agreement has been signed both by me and by the Company.

I represent that I understand all of the provisions herein, and that I am entering into this Release Agreement voluntarily. I further represent and acknowledge that in executing this Release Agreement I do not rely, and have not relied, upon any representation or statement made by the Company or by any of the Company's employees, officers, agents, members, directors or attorneys with regard to the subject matter, basis or effect of this Release Agreement or otherwise.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be executed as of the date first set forth above.

DALE E. MESSICK

_____
Signature

_____
Print Name

LUNA INNOVATIONS INCORPORATED

By: _____
Signature

_____
Print Name

_____
Print Title

Exhibit 10.42

LUNA INNOVATIONS INCORPORATED

EMPLOYMENT AGREEMENT

This Employment Agreement (the "**Agreement**") is entered into as of March 28, 2012 by and between Luna Innovations Incorporated, a Delaware Corporation (the "**Company**"), and Scott A. Graeff ("**Executive**").

1. Duties and Scope of Employment.

(a) Positions and Duties. During the Employment Term (as defined herein), Executive will serve as the Company's Chief Commercialization Officer. Executive will render such business and professional services in the performance of his duties, consistent with Executive's position within the Company, as shall reasonably be assigned to him by the Company's President and Chief Executive Officer ("President").

(b) Reporting. Executive shall report directly to the President.

(c) Obligations. During the Employment Term, and excluding periods of vacation and sick leave to which Executive is entitled, Executive shall devote all business time and attention to the affairs of the Company necessary to discharge the responsibilities assigned hereunder, and shall use commercially reasonable efforts to perform faithfully and efficiently such responsibilities. Notwithstanding anything herein to the contrary, Executive may provide services as a volunteer, member, director or officer of charitable, educational or civic organizations or industry trade associations or groups, and may serve as trustee, director or advisor to any family companies or trusts, provided that such service does not materially interfere with the performance of Executive's duties to the Company as required under this Agreement.

2. Term. The period of Executive's employment under this Agreement is referred to herein as the " **Employment Term**." The Agreement shall have an initial term beginning on March 28, 2012 (the "**Effective Date**") through March 31, 2013 ("**Initial Term**"). At the end of the Initial Term and on each annual anniversary of such date thereafter, the Agreement automatically will renew for successive additional one (1) year terms, unless either party provides the other party with written notice of non-renewal at least ninety (90) days prior to the date of the automatic renewal.

3. At-Will Employment. The parties agree that Executive's employment with the Company will be "at-will" employment and may be terminated by either party at any time, effective immediately, upon written notice to the other party, with or without cause. However, as described in this Agreement, Executive may be entitled to severance benefits depending upon the circumstances of his termination of employment. Executive understands and agrees that neither his job performance nor promotions, commendations, bonuses or the like from the Company give rise to or in any way serve as the basis for modification, amendment, or extension, by implication or otherwise, of his employment with the Company.

4. Compensation.

(a) Base Salary. During the Employment Term, the Company will pay Executive as compensation for his services a base salary at the annualized rate of not less than $210,200, as adjusted from time to time as provided herein (the " **Base Salary**"). The Base Salary will be paid periodically in accordance with the Company's normal payroll practices and will be subject to standard federal, state and local withholding. Executive's performance will be reviewed at least annually to determine if an increase in compensation is appropriate, which increase shall be in the sole discretion of the Company.

(b) Bonus. As additional compensation for services hereunder, Executive shall be eligible under the Company's then current senior management incentive plan for an annual discretionary cash bonus of at least fifty per cent (50%) of Executive's then current Base Salary, to be determined by the Company's Board or Compensation Committee thereof and contingent upon the Company's and/or Executive's achievement of objectives set by the Company from time to time ("Target Bonus"). Executive shall also be eligible to receive equity bonuses at such times and in such amounts as determined by the Board. All bonuses shall be in the discretion of the Board.

5. Employee Benefits. During the Employment Term, Executive will be entitled to participate in the employee benefit plans currently and hereafter maintained by the Company of general applicability to other senior executives of the Company, as such plans and terms may exist from time to time, including, without limitation, group health insurance, 401(k), and equity incentive plans. The Company reserves the right to cancel or change the benefit plans and programs it offers to its employees at any time.

6. Expenses. The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in the furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time. To the extent applicable, any reimbursement benefits shall comply with the requirements of Treasury Regulations Section 1.409A-3(i)(1)(iv).

7. Payment/Severance in Connection with a Change In Control .

(a) Payment Upon A Change In Control . If a Change in Control (as defined in Section 10(b)(ii), 10(b)(iv) or 10(b)(v) herein) occurs, Executive shall receive a cash payment in an amount equal to his then current Base Salary plus his then current Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), subject to the usual required withholding and subject to reduction, if any, provided for in Section 8(b).

(b) Termination Without Cause; Termination for Good Reason. If Executive's employment relationship with the Company is terminated within twelve months following a Change in Control (as defined in Section 10(b) herein), Executive may be entitled to payment of severance in accordance with this Section 7(b). In the event that within twelve months following a Change in Control (i) Executive terminates his employment with the Company for Good Reason (as defined herein) or (ii) Executive is terminated by the Company without Cause (as defined herein), Executive shall be entitled to receive the following severance benefits if Executive executes a general release, the standard form of which is attached hereto as Exhibit A, with such changes as the Company may reasonably require (the "**Release Agreement**"), within the applicable time period set forth therein, but in no event later than forty-five (45) days following the date of Executive's termination (such latest permitted date is the "**Release Agreement Deadline**"), and permits the Release Agreement to become effective in accordance with its terms:

(i) Base Salary; Target Bonus; Accrued Vacation. Executive shall receive severance pay in an amount equal to his Base Salary (at the rate in effect immediately before the date of termination but not giving effect to any reduction that would give Executive the right to resign for Good Reason) plus his then current annual Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), paid in cash and subject to the usual required withholding, plus an amount equal to all accrued and unpaid vacation or paid-time off outstanding on Executive's termination date, subject to the usual required withholding.

(ii) Acceleration of Vesting. As of the date of termination, all of Executive's unvested stock options shall vest. Executive shall also receive a cash payment equal to the value of any unvested 401(k) Company match amount.

(iii) COBRA Benefits. The Company shall pay the group health continuation coverage premiums for Executive and Executive's covered dependents under Title X of the Consolidated Budget Reconciliation Act of 1985, as amended (" **COBRA**"), for a period of not less than twelve (12) months from the date of Executive's termination of employment to the extent Executive is eligible for and elects such continuation coverage under COBRA. Notwithstanding the above, the Company shall only be responsible for the premiums that would be paid by comparable active employees for the same type of coverage in which Executive participated at the time of his termination.

(iv) Notwithstanding any of the foregoing to the contrary, Executive shall not receive the severance pay, Target Bonus, or health care insurance reimbursement referenced above in this Section 7(b) unless and until the Release Agreement becomes effective and can no longer be revoked under its terms. Amounts otherwise payable prior to the Release Agreement's effective date shall accrue and become payable on the first regularly scheduled pay date following the effective date of the Release Agreement. Notwithstanding any provisions in this Agreement to the contrary, the Company's obligations and Executive's rights to severance benefits under this Section 7 shall cease and be rendered a nullity immediately should Executive violate any provision of Executive's Confidentiality Agreement with the Company of even date herewith (the " **Confidentiality Agreement**").

8. Retention Payment.

(a) In the event, if ever, on or after the Effective Date, the Company executes an engagement agreement with an investment banking firm or other business brokerage firm for the purposes that include exploring a transaction the consummation of which would constitute a Change In Control ("Engagement Date"), and, subject to the other provisions of this Section 8, if Executive is still employed with the Company on the date which is twenty-four (24) months from the Engagement Date, the Company shall pay Executive a retention payment in an amount equal to fifty percent (50%) of his then current Base Salary plus fifty percent (50%) of his then current Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), which payment shall be made on the next regular pay day following such date ("Retention Payment"). Notwithstanding the foregoing, no such retention payment shall be paid if Executive previously has received a payment under Section 7(a) within the above-referenced twenty-four (24) month period.

(b) Additionally, in the event a Change in Control occurs during the period beginning twenty-four (24) months following the Engagement Date and ending thirty-six (36) months following the Engagement Date (the "Reduction Period"), then any payment otherwise payable to Executive under Section 7(a) shall be reduced, pro rata, based on the number of days remaining in the Reduction Period. By way of example, if a Change in Control occurs ninety (90) days into the Reduction Period, the payment otherwise payable to Executive under Section 7(a) shall be reduced by 275/365, or seventy-five percent (75%).

(c) Notwithstanding anything in this Section 8 to the contrary, if the Board determines that, after giving effect to the Retention Payment and to any other retention payments to be made under any other employment agreements between the Company and other employees, a default could occur under any financing facility or loan between the Company and any Company lender, the Retention Payment shall be made in fully vested Company shares of common stock under the Company's 2006 Equity Incentive Plan.

9. Severance Not in Connection with a Change In Control. If Executive's employment relationship with the Company is terminated without Cause or by Executive for Good Reason and Executive is not entitled to payment of severance in accordance with Section 7(b), the provisions of this Section 9 will apply.

(a) Termination Without Cause; Termination for Good Reason. In the event (i) Executive terminates his employment with the Company for Good Reason (as defined herein) or (ii) Executive is terminated by the Company without Cause (as defined herein), Executive shall be entitled to receive the following severance benefits if Executive executes the Release Agreement within the applicable time period set forth therein, but in no event later than forty-five (45) days following the date of termination (such latest permitted date is the " **Release Agreement Deadline**"), and permits the Release Agreement to become effective in accordance with its terms:

(i) Base Salary; Target Bonus; Accrued Vacation. Executive shall receive severance pay in an amount equal to nine-twelfths (9/12's) his then current Base Salary (at the rate in effect immediately before the date of termination but not giving effect to any reduction that would give Executive the right to resign for Good Reason) plus nine-twelfths (9/12's) his then current annual Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), paid in accordance with the Company's normal payroll practices and subject to the usual required withholding, plus an amount equal to all accrued and unpaid vacation or paid-time off outstanding on Executive's termination date, subject to the usual required withholding. To the extent that all sums due pursuant to this Section 9(a)(i) have not been paid by the 15 th day of the third month of the calendar year following the calendar year during which the date of termination occurs, the remaining amount due will be paid on that date.

(ii) Acceleration of Vesting. As of the date of termination, Executive shall receive twelve (12) months of additional vesting of any unvested stock options in accordance with their applicable vesting schedules as if Executive had remained in service for an additional twelve (12) months as of the date of termination. Executive shall also receive a cash payment equal to the value of any unvested 401(k) Company match amount.

(iii) COBRA Benefits. The Company shall pay the group health continuation coverage premiums for Executive and Executive's covered dependents under **COBRA** for a period of not less than nine (9) months from the date of Executive's termination of employment to the extent Executive is eligible for and elects such continuation coverage under COBRA. Notwithstanding the above, the Company shall only be responsible for the premiums that would be paid by comparable active employees for the same type of coverage in which Executive participated at the time of his termination.

(iv) Notwithstanding any of the foregoing to the contrary, Executive shall not receive the severance pay or health care insurance reimbursement referenced above unless and until the Release Agreement becomes effective and can no longer be revoked under its terms. Amounts otherwise payable prior to the Release Agreement's effective date shall accrue and become payable on the first regularly scheduled pay date following the effective date of the Release Agreement. Notwithstanding any provisions in this Agreement to the contrary, the Company's obligations and Executive's rights to severance benefits under this Section shall cease and be rendered a nullity immediately should Executive violate any provision of the Confidentiality Agreement.

(b) Voluntary Termination; Termination for Cause. If Executive's employment with the Company is terminated voluntarily by Executive without Good Reason or Executive is terminated for Cause by the Company, he will not receive severance pay, paid COBRA benefits, or any other similar compensation.

(c) Dissolution, Liquidation or Insolvency of the Company . Notwithstanding the above, in the event Executive's employment is terminated by the Company in connection with or as a result of the liquidation, dissolution, insolvency or other winding up of the affairs of the Company without the establishment of a successor entity to the Company, the Company shall have no obligation to provide severance or further financial consideration to Executive except for any reasonable expense reimbursements or base salary that Executive has accrued and earned at the time of such termination.

(d) Death or Disability. Executive's employment and this Agreement shall automatically terminate, and Executive will receive the severance pay, acceleration of vesting, benefits and other compensation set forth in Section 9(a) above (i) upon Executive's death or (ii) in the event of any Complete Disability, as defined in Section 10. If Executive is entitled to long-term disability insurance benefits under a long-term disability insurance plan for which the Company paid the insurance premiums, any amounts due pursuant to this Section 9(d) shall be reduced by the maximum amount of such benefits.

10. Definitions.

(a) Cause. For purposes of this Agreement, "**Cause**" is defined as follows:

(i) an act of embezzlement, theft, or fraud by Executive with respect to the Company or any of its affiliates;

(ii) Executive's conviction of, or plea of nolo contendere to, a felony or any other crime involving moral turpitude (excluding traffic offenses);

(iii) Executive's (A) repeated gross negligence or willful misconduct in the performance of his employment duties and responsibilities to the Company (other than as a result of a disability) or (B) refusal to comply with the directives of the Board, provided that such gross negligence, willful misconduct or refusal to comply with the directives of the Board shall only constitute Cause after Executive has received a written notice from the Company or the Board which specifically sets forth the factual basis for the Company's belief that Executive's actions or inactions constitute Cause and Executive has been provided with a reasonable opportunity of not less than thirty (30) days to cure, to the reasonable satisfaction of the Board, any alleged gross negligence, willful misconduct or refusal to comply with the directives of the Board; or

(iv) Executive's material breach of this Agreement or the Confidentiality Agreement.

(b) Change in Control. For purposes of this Agreement, "**Change in Control**" is defined as follows:

(i) any "person" (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becomes the "beneficial owner" (as defined in Rule 13d-3 of the Exchange Act), directly or indirectly, of securities of the Company representing fifty percent (50%) or more of the total voting power represented by the Company's then outstanding voting securities; or

(ii) the consummation of the sale or disposition by the Company of all or substantially all of the Company's assets; or

(iii) a change in the composition of the Board occurring within a two-year period, as a result of which fewer than a majority of the directors are Incumbent Directors. "**Incumbent Directors**" means directors who either (A) are Directors as of the Effective Date, or (B) are elected, or nominated for election, to the Board with the affirmative votes of at least a majority of the Incumbent Directors at the time of such election or nomination, but will neither include an individual whose election or nomination is done by a competing proxy solicitation nor any existing Director who sponsors any such competing proxy solicitation; or

(iv) a tender offer recommended by the Board for the Company's outstanding shares of common stock after consummation of which the offeror owns at least ninety percent (90%) of the Company's outstanding common stock; or

(v) the consummation of a merger or consolidation of the Company with any other corporation, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or its parent) at least fifty percent (50%) of the total voting power represented by the voting securities of the Company or such surviving entity or its parent outstanding immediately after such merger or consolidation.

(c) Complete Disability. For purposes of this Agreement, Executive's "Complete Disability" means Executive is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than twelve (12) months or Executive is, by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than twelve (12) months, receiving income replacement benefits for a period of not less than three (3) months under an accident and health plan covering employees of the Company and any Related Entities.

(d) Good Reason. For purposes of this Agreement, "Good Reason" shall mean Executive's voluntary termination of his employment after the occurrence of any of the following without the express written consent of Executive:

(i) a non-voluntary material reduction in Executive's annualized Base Salary that is not part of a general reduction of salary or other concessionary arrangement affecting all employees of the Company or affecting all senior executive officers of the Company;

(ii) a requirement by the Company or the Board that Executive be relocated to a Company office more than fifty (50) miles from Roanoke, Virginia; or

(iii) any material breach by the Company of any of its obligations hereunder; provided, however that in order for Executive's termination of his employment to qualify as a voluntary termination for "Good Reason," (i) Executive must provide the Company with written notice within sixty (60) days of the event(s) that Executive believes constitutes "Good Reason" specifically identifying the acts or omissions constituting the grounds for Good Reason, (ii) the Company must have failed to cure such Good Reason acts or omissions within thirty (30) days following the date of such notice (the " **Cure Period**"), and (iii) Executive's voluntary termination occurs within thirty (30) days following the expiration of the Cure Period.

11. Confidentiality Agreement. Executive has entered into and agrees to continue to abide by the terms of the Confidentiality Agreement. To the extent the terms of this Agreement are inconsistent with the terms of the Confidentiality Agreement, the terms of this Agreement shall control. The terms and conditions of the Confidentiality Agreement are incorporated herein by reference.

12. Excise Tax Adjustment. Notwithstanding any of the foregoing to the contrary:

(a) in the event that the severance and other benefits provided for in this Agreement or otherwise payable to Executive other than the severance and other benefits provided for in Section 7(b), which are covered in Section 12(b) below, (i) constitute "parachute payments" within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the " **Code**") and (ii) but for this Section, would be subject to the excise tax imposed by Section 4999 of the Code ("Excise Tax"), then Executive's severance benefits under this Agreement shall be payable either (A) in full, or (B) as to such lesser amount which would result in no portion of such severance benefits being subject to excise tax under Section 4999 of the Code, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the excise tax imposed by Section 4999, results in the receipt by Executive on an after-tax basis, of the greatest amount of severance benefits under this Agreement,

notwithstanding that all or some portion of such severance benefits may be taxable under Section 4999 of the Code. Unless the Company and Executive otherwise agree in writing, any determination required under this Section shall be made in writing by the Company's independent public accountants (the "**Accountants**"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Section, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and Executive shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Section. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Section 12. Any reduction in payments and/or benefits required by this Section 12 shall occur in the following order: (1) reduction of cash payments; (2) reduction in vesting acceleration of equity awards; and (3) reduction of other benefits paid or provided to Executive. In the event that acceleration of vesting of equity awards is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant for Executive's equity awards. If two or more equity awards are granted on the same date, each award will be reduced on a pro-rata basis.

(b) in the event that the severance and other benefits provided for in Section 7(b) of this Agreement would be subject to the Excise Tax, then Executive shall be entitled to receive an additional payment (the "Gross-Up Payment") in an amount such that, after payment by Executive of all taxes (and any interest or penalties imposed with respect to such taxes), including without limitation any income taxes and Excise Taxes imposed upon the Gross-Up Payments, Executive will retain an amount of the Gross-Up Payment equal to the Excise Tax imposed upon the aggregate Parachute Value of all severance and other benefits provided for in Section 7(b). Notwithstanding the foregoing provisions of this Section 12(b), if it shall be determined that the aggregate Parachute Value of all severance and other benefits provided for in Section 7(b) is more than one-hundred percent (100%) but not more than one-hundred ten percent (110%) of the Safe Harbor Amount, then no Gross-Up Payment shall be made to Executive and the amounts payable under Section 7(b) shall be reduced so that the Parachute Value of all such severance and other benefits provided for in Section 7(b), in the aggregate, equals the Safe Harbor Amount. All determinations required to be made under this Section 12(b), including whether and when a Gross-Up Payment is required and the amount of such Gross-Up Payment and the assumptions to be utilized in arriving at such determination, shall be made by the Accountants. All fees and expenses of the Accountants shall be borne solely by the Company. Any Gross-Up Payment, as determined pursuant to this Section 12(b), shall be paid by the Company to Executive within five days of the receipt of the Accountants' determination. Any determination by the Accountants shall be binding upon the Company and Executive. If, after the receipt by Executive of a Gross-Up Payment, Executive becomes entitled to receive any refund with respect to the Excise Tax to which such Gross-Up Payment relates or with respect to such claim, Executive shall promptly pay to the Company the amount of such refund (together with any interest paid or credited thereon after taxes applicable thereto). The Company may, in its sole discretion, withhold and pay over to the Internal Revenue Service or any other applicable taxing authority, for the benefit of Executive, all or any portion of any Gross-Up Payment, and Executive hereby consents to such withholding. The following terms shall have the meanings below for purposes of this Section 12(b):

"Parachute Value" of a severance or other benefit shall mean the present value as of the date of a Change of Control for purposes of Section 280G of the Code of the portion of such severance or other benefit that constitutes a "parachute payment" under Section 280G(b)(2), as determined by the Accountants for purposes of determining whether and to what extent the Excise Tax will apply; and

The "Safe Harbor Amount" means 2.99 times Executive's "base amount," within the meaning of Section 280G(b)(3) of the Code.

13. Assignment. This Agreement will be binding upon and inure to the benefit of (a) the heirs, executors and legal representatives of Executive upon Executive's death and (b) any successor of the Company. Any such successor of the Company will be deemed substituted for the Company under the terms of this Agreement for all purposes and shall assume in writing and be bound by all of the Company's obligations under this Agreement. For this purpose, "successor" means any person, firm, corporation or other business entity which at any time, whether by purchase, merger or otherwise, directly or indirectly acquires all or substantially all of the assets or business of the Company. None of the rights of Executive to receive any form of compensation payable pursuant to this Agreement may be assigned or transferred except by will or the laws of descent and distribution. Any other attempted assignment, transfer, conveyance or other disposition of Executive's right to compensation or other benefits will be null and void.

14. Notices. All notices, requests, demands and other communications called for hereunder shall be in writing and shall be deemed given (i) on the date of delivery if delivered personally, (ii) one (1) day after being sent by a well established commercial overnight service, or (iii) four (4) days after being mailed by registered or certified mail, return receipt requested, prepaid and addressed to the parties or their successors at the following addresses, or at such other addresses as the parties may later designate in writing:

If to the Company:

Luna Innovations Incorporated
One Riverside Circle, Suite 400
Roanoke, Virginia 24016
Attn: General Counsel

If to Executive:

At the last residential address known by the Company.

15. Severability. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Agreement will continue in full force and effect without said provision.

16. Arbitration. To ensure the rapid and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action, in law or equity, arising from or relating to the enforcement, breach, performance, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, shall be resolved, to the fullest extent permitted by law, by final, binding and confidential arbitration in Roanoke, Virginia, conducted by the Judicial Arbitration and Mediation Services, Inc. ("**JAMS**") or its successor, under the then applicable rules of JAMS. Executive and the Company acknowledge that by agreeing to this arbitration procedure, each party waives the right to resolve any such dispute through a trial by jury or judge or administrative proceeding. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision including the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Notwithstanding the foregoing, Executive and the Company each have the right to resolve any issue or dispute arising under the Confidentiality Agreement by court action instead of arbitration.

17. Entire Agreement. This Agreement and the Confidentiality Agreement collectively represent the entire agreement and understanding between the parties as to the subject matter herein and therein and together supersede all prior or contemporaneous agreements whether written or oral. No waiver, alteration, amendment or modification of any of the provisions of this Agreement or of the Confidentiality Agreement will be binding unless it is in writing and is signed by the person or party to be charged. The Chairman of the Board is the only person with authority to act on behalf of the Company with respect to such matters under this Agreement.

18. Tax Matters.

(a) Withholding. All payments made pursuant to this Agreement will be subject to withholding of applicable taxes.

(b) Section 409A Compliance.

(i) Notwithstanding anything to the contrary herein, the following provisions apply to the extent severance benefits provided herein are subject to Section 409A of the Internal Revenue Code of 1986, as amended (the **"*Code*"**) and the regulations and other guidance thereunder and any state law of similar effect (collectively **"*Section 409A*"**). Severance benefits shall not commence until Executive has a "separation from service" for purposes of Section 409A. Solely for purposes of determining the timing of payment of amounts owed to Executive as a result of the termination of Executive's employment with the Company pursuant to Sections 7(b) or 9(a) of this Agreement, references to termination of Executive's employment shall mean Executive's "separation from service" (as such term is used for such purposes of Section 409A of the Code) with the Company and any Related Entities. Executive shall be deemed to have a separation from service on a date only if the Company and Executive reasonably anticipate that (a) no further services will be performed for the Company or any Related Entities after such date or (b) the level of bona fide services Executive will perform for the Company or any Related Entities after such date (whether as an employee or as an independent contractor) will permanently decrease to no more than twenty percent (20%) of the average level of bona fide services performed (whether as an employee or as an independent contractor) over the immediately preceding 36-month period (or the full period of services to the Company and any Related Entities if Executive has then been providing services to the Company or any Related Entities for less than 36 months). For periods during which Executive is on a paid Leave of Absence and has not otherwise terminated employment, Executive shall be treated as providing bona fide services at a level equal to the level of services that he would have been required to perform to receive the compensation paid with respect to such Leave of Absence. Also, periods during which Executive is on an unpaid Leave of Absence and has not otherwise terminated employment shall be disregarded (including for purposes of determining the 36-month, or shorter period). The term "Related Entity" means any entity which is aggregated with the Company or any other entity pursuant to Section 414(b) or 414(c) of the Code or would be so aggregated if the language "at least 50%" were used instead of "at least 80%" each place it appears in Section 1563(a)(1),(2) and (3) of the Code and Treasury Regulations Section 1.414(c)-2. Further, the term "Leave of Absence" means a military leave, sick leave or bona fide leave of absence of Executive which does not exceed six (6) months (or such longer period for which Executive retains such right to re-employment with the Company or Related Entity under an applicable statute or by contract), but only if there is a reasonable expectation that Executive will return to perform services for the Company or a Related Entity.

(ii) Each installment of severance benefits is a separate "payment" for purposes of Treas. Reg. Section 1.409A-2(b)(2)(i), and the severance benefits are intended to satisfy the exemptions from application of Section 409A provided under Treasury Regulations Sections 1.409A-1(b)(4) and 1.409A-1(b)(5). However, if such exemptions are not available and Executive is, upon separation from service, a "specified employee" for purposes of Section 409A, then, solely to the extent necessary to

avoid adverse personal tax consequences under Section 409A, the timing of the severance benefits payments shall be delayed until the earlier of (i) six (6) months and one day after Executive's separation from service, or (ii) Executive's death. Additionally, if the severance benefits are not covered by one or more exemptions from the application of Section 409A and the Release Agreement could become effective in the calendar year following the calendar year in which Executive separates from service, the Release Agreement will not be deemed effective any earlier than the Release Agreement Deadline.

(iii) The foregoing provisions are intended to comply with the requirements of Section 409A so that none of the severance payments and benefits to be provided hereunder shall be subject to the additional tax imposed under Section 409A, and any ambiguities herein shall be interpreted to so comply. The Company and Executive agree to work together in good faith to consider amendments to this Agreement and to take such reasonable actions which are necessary, appropriate or desirable to avoid imposition of any additional tax or income recognition prior to actual payment to Executive under Section 409A.

19. Governing Law. This Agreement will be governed by the laws of the Commonwealth of Virginia, without regard to its conflict of laws principles.

20. Acknowledgment. Executive acknowledges that he has had the opportunity to discuss this matter with and obtain advice from his private attorney, has had sufficient time to, and has carefully read and fully understands all the provisions of this Agreement, and is knowingly and voluntarily entering into this Agreement.

21. Resignation from the Board. Executive understands and agrees that if he is a member of the Board at the time his employment with the Company terminates, whether with or without cause and whether voluntary or involuntary, and as a further condition of his receipt of any severance benefits to which he otherwise might be entitled under this Agreement, he will submit his resignation as a member of the Board effective as of his last day of employment.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be executed as of the date first set forth above.

SCOTT A. GRAEFF

/s/ Scott A. Graeff
Signature

Scott A. Graeff
Print Name

LUNA INNOVATIONS INCORPORATED

By: /s/ My E. Chung
Signature

My E. Chung
Print Name

President and Chief Executive Officer
Print Title

[Signature Page to Employment Agreement]

RELEASE AGREEMENT

I understand that my position with Luna Innovations Incorporated (the "Company") terminated effective , 2012 (the "Separation Date"). The Company has agreed that if I choose to sign this Release Agreement, the Company will extend to me certain benefits (minus the standard withholdings and deductions, if applicable) pursuant to the terms of the Employment Agreement (the "Agreement") entered into as of March 28, 2012, between myself and the Company, and any agreements incorporated therein by reference. I understand that I am not entitled to such severance benefits unless I sign this Release Agreement.

In consideration for the severance benefits I am receiving under the Agreement, I hereby release the Company and its officers, directors, agents, attorneys, employees, shareholders, parents, subsidiaries, and affiliates from any and all claims, liabilities, demands, causes of action, attorneys' fees, damages, or obligations of every kind and nature, whether they are now known or unknown, arising at any time prior to the date I sign this Release Agreement. This general release includes, but is not limited to: all federal and state statutory and common law claims, claims related to my employment or the termination of my employment or related to breach of contract, tort, wrongful termination, discrimination, wages or benefits, or claims for any form of equity or compensation. Notwithstanding the release in the preceding sentence, I am not releasing any right of indemnification I may have for any liabilities arising from my actions within the course and scope of my employment with the Company or, if applicable, within the course and scope of my role as a member of the Board of Directors. Notwithstanding anything herein to the contrary, nothing in this Release Agreement shall release any claims that I may have against the Company and its officers, directors, agents, attorneys, employees, shareholders, parents, subsidiaries, and affiliates solely in connection with my purchase and ownership of shares of capital stock of the Company.

I UNDERSTAND THAT THIS AGREEMENT INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS. In giving this release, which includes claims which may be unknown to me at present, I hereby waive the benefit of any provision of Virginia law, and of any other jurisdiction, which is similar to Section 1542 of the California Civil Code, which reads as follows: **"A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the release, which if known by him must have materially affected his settlement with the debtor."**

If I am forty (40) years of age or older as of the Separation Date, I acknowledge that I am knowingly and voluntarily waiving and releasing any rights I may have under the federal Age Discrimination in Employment Act of 1967, as amended ("ADEA"). I also acknowledge that the consideration given for the waiver in the above paragraph is in addition to anything of value to which I was already entitled. I have been advised by this writing, as required by the ADEA that: (a) my waiver and release do not apply to any claims that may arise after my signing of this Release Agreement; (b) I should consult with an attorney prior to executing this Release Agreement; (c) I have twenty-one (21) days within which to consider this Release Agreement (although I may choose to voluntarily execute this Release Agreement earlier); (d) I have seven (7) days following the execution of this release to revoke the Release Agreement and that any such revocation must be in writing, addressed to the undersigned representative of the Company, and must be received by the Company within the seven (7) day revocation period; and (e) this Release Agreement will not be effective until the eighth day after this Release Agreement has been signed both by me and by the Company.

I represent that I understand all of the provisions herein, and that I am entering into this Release Agreement voluntarily. I further represent and acknowledge that in executing this Release Agreement I do not rely, and have not relied, upon any representation or statement made by the Company or by any of the Company's employees, officers, agents, members, directors or attorneys with regard to the subject matter, basis or effect of this Release Agreement or otherwise.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be executed as of the date first set forth above.

SCOTT A. GRAEFF

_____
Signature

_____
Print Name

LUNA INNOVATIONS INCORPORATED

By: _____
Signature

_____
Print Name

_____
Print Title

Exhibit 10.43

LUNA INNOVATIONS INCORPORATED

EMPLOYMENT AGREEMENT

This Employment Agreement (the "**Agreement**") is entered into as of March 28, 2012 by and between Luna Innovations Incorporated, a Delaware Corporation (the "**Company**"), and Mark E. Froggatt, Ph.D. ("**Executive**").

1. Duties and Scope of Employment.

(a) Positions and Duties. During the Employment Term (as defined herein), Executive will serve as the Company's Chief Technology Officer. Executive will render such business and professional services in the performance of his duties, consistent with Executive's position within the Company, as shall reasonably be assigned to him by the Company's President and Chief Executive Officer ("President").

(b) Reporting. Executive shall report directly to the President.

(c) Obligations. During the Employment Term, and excluding periods of vacation and sick leave to which Executive is entitled, Executive shall devote all business time and attention to the affairs of the Company necessary to discharge the responsibilities assigned hereunder, and shall use commercially reasonable efforts to perform faithfully and efficiently such responsibilities. Notwithstanding anything herein to the contrary, Executive may provide services as a volunteer, member, director or officer of charitable, educational or civic organizations or industry trade associations or groups, and may serve as trustee, director or advisor to any family companies or trusts, provided that such service does not materially interfere with the performance of Executive's duties to the Company as required under this Agreement.

2. Term. The period of Executive's employment under this Agreement is referred to herein as the " **Employment Term**." The Agreement shall have an initial term beginning on March 28, 2012 (the "**Effective Date**") through March 31, 2013 ("**Initial Term**"). At the end of the Initial Term and on each annual anniversary of such date thereafter, the Agreement automatically will renew for successive additional one (1) year terms, unless either party provides the other party with written notice of non-renewal at least ninety (90) days prior to the date of the automatic renewal.

3. At-Will Employment. The parties agree that Executive's employment with the Company will be "at-will" employment and may be terminated by either party at any time, effective immediately, upon written notice to the other party, with or without cause. However, as described in this Agreement, Executive may be entitled to severance benefits depending upon the circumstances of his termination of employment. Executive understands and agrees that neither his job performance nor promotions, commendations, bonuses or the like from the Company give rise to or in any way serve as the basis for modification, amendment, or extension, by implication or otherwise, of his employment with the Company.

4. Compensation.

(a) Base Salary. During the Employment Term, the Company will pay Executive as compensation for his services a base salary at the annualized rate of not less than $216,300, as adjusted from time to time as provided herein (the " **Base Salary**"). The Base Salary will be paid periodically in accordance with the Company's normal payroll practices and will be subject to standard federal, state and local withholding. Executive's performance will be reviewed at least annually to determine if an increase in compensation is appropriate, which increase shall be in the sole discretion of the Company.

(b) Bonus. As additional compensation for services hereunder, Executive shall be eligible under the Company's then current senior management incentive plan for an annual discretionary cash bonus of at least fifty per cent (50%) of Executive's then current Base Salary, to be determined by the Company's Board or Compensation Committee thereof and contingent upon the Company's and/or Executive's achievement of objectives set by the Company from time to time ("Target Bonus"). Executive shall also be eligible to receive equity bonuses at such times and in such amounts as determined by the Board. All bonuses shall be in the discretion of the Board.

5. Employee Benefits. During the Employment Term, Executive will be entitled to participate in the employee benefit plans currently and hereafter maintained by the Company of general applicability to other senior executives of the Company, as such plans and terms may exist from time to time, including, without limitation, group health insurance, 401(k), and equity incentive plans. The Company reserves the right to cancel or change the benefit plans and programs it offers to its employees at any time.

6. Expenses. The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in the furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time. To the extent applicable, any reimbursement benefits shall comply with the requirements of Treasury Regulations Section 1.409A-3(i)(1)(iv).

7. Payment/Severance in Connection with a Change In Control .

(a) Payment Upon A Change In Control . If a Change in Control (as defined in Section 10(b)(ii), 10(b)(iv) or 10(b)(v) herein) occurs, Executive shall receive a cash payment in an amount equal to his then current Base Salary plus his then current Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), subject to the usual required withholding and subject to reduction, if any, provided for in Section 8(b).

(b) Termination Without Cause; Termination for Good Reason. If Executive's employment relationship with the Company is terminated within twelve months following a Change in Control (as defined in Section 10(b) herein), Executive may be entitled to payment of severance in accordance with this Section 7(b). In the event that within twelve months following a Change in Control (i) Executive terminates his employment with the Company for Good Reason (as defined herein) or (ii) Executive is terminated by the Company without Cause (as defined herein), Executive shall be entitled to receive the following severance benefits if Executive executes a general release, the standard form of which is attached hereto as Exhibit A, with such changes as the Company may reasonably require (the "**Release Agreement**"), within the applicable time period set forth therein, but in no event later than forty-five (45) days following the date of Executive's termination (such latest permitted date is the "**Release Agreement Deadline**"), and permits the Release Agreement to become effective in accordance with its terms:

(i) Base Salary; Target Bonus; Accrued Vacation. Executive shall receive severance pay in an amount equal to his Base Salary (at the rate in effect immediately before the date of termination but not giving effect to any reduction that would give Executive the right to resign for Good Reason) plus his then current annual Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), paid in cash and subject to the usual required withholding, plus an amount equal to all accrued and unpaid vacation or paid-time off outstanding on Executive's termination date, subject to the usual required withholding.

(ii) Acceleration of Vesting. As of the date of termination, all of Executive's unvested stock options shall vest. Executive shall also receive a cash payment equal to the value of any unvested 401(k) Company match amount.

(iii) COBRA Benefits. The Company shall pay the group health continuation coverage premiums for Executive and Executive's covered dependents under Title X of the Consolidated Budget Reconciliation Act of 1985, as amended (" **COBRA**"), for a period of not less than twelve (12) months from the date of Executive's termination of employment to the extent Executive is eligible for and elects such continuation coverage under COBRA. Notwithstanding the above, the Company shall only be responsible for the premiums that would be paid by comparable active employees for the same type of coverage in which Executive participated at the time of his termination.

(iv) Notwithstanding any of the foregoing to the contrary, Executive shall not receive the severance pay, Target Bonus, or health care insurance reimbursement referenced above in this Section 7(b) unless and until the Release Agreement becomes effective and can no longer be revoked under its terms. Amounts otherwise payable prior to the Release Agreement's effective date shall accrue and become payable on the first regularly scheduled pay date following the effective date of the Release Agreement. Notwithstanding any provisions in this Agreement to the contrary, the Company's obligations and Executive's rights to severance benefits under this Section 7 shall cease and be rendered a nullity immediately should Executive violate any provision of Executive's Confidentiality Agreement with the Company of even date herewith (the " **Confidentiality Agreement**").

8. Retention Payment.

(a) In the event, if ever, on or after the Effective Date, the Company executes an engagement agreement with an investment banking firm or other business brokerage firm for the purposes that include exploring a transaction the consummation of which would constitute a Change In Control ("Engagement Date"), and, subject to the other provisions of this Section 8, if Executive is still employed with the Company on the date which is twenty-four (24) months from the Engagement Date, the Company shall pay Executive a retention payment in an amount equal to fifty percent (50%) of his then current Base Salary plus fifty percent (50%) of his then current Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), which payment shall be made on the next regular pay day following such date ("Retention Payment"). Notwithstanding the foregoing, no such retention payment shall be paid if Executive previously has received a payment under Section 7(a) within the above-referenced twenty-four (24) month period.

(b) Additionally, in the event a Change in Control occurs during the period beginning twenty-four (24) months following the Engagement Date and ending thirty-six (36) months following the Engagement Date (the "Reduction Period"), then any payment otherwise payable to Executive under Section 7(a) shall be reduced, pro rata, based on the number of days remaining in the Reduction Period. By way of example, if a Change in Control occurs ninety (90) days into the Reduction Period, the payment otherwise payable to Executive under Section 7(a) shall be reduced by 275/365, or seventy-five percent (75%).

(c) Notwithstanding anything in this Section 8 to the contrary, if the Board determines that, after giving effect to the Retention Payment and to any other retention payments to be made under any other employment agreements between the Company and other employees, a default could occur under any financing facility or loan between the Company and any Company lender, the Retention Payment shall be made in fully vested Company shares of common stock under the Company's 2006 Equity Incentive Plan.

9. Severance Not in Connection with a Change In Control. If Executive's employment relationship with the Company is terminated without Cause or by Executive for Good Reason and Executive is not entitled to payment of severance in accordance with Section 7(b), the provisions of this Section 9 will apply.

(a) Termination Without Cause; Termination for Good Reason. In the event (i) Executive terminates his employment with the Company for Good Reason (as defined herein) or (ii) Executive is terminated by the Company without Cause (as defined herein), Executive shall be entitled to receive the following severance benefits if Executive executes the Release Agreement within the applicable time period set forth therein, but in no event later than forty-five (45) days following the date of termination (such latest permitted date is the " **Release Agreement Deadline**"), and permits the Release Agreement to become effective in accordance with its terms:

(i) Base Salary; Target Bonus; Accrued Vacation. Executive shall receive severance pay in an amount equal to nine-twelfths (9/12's) his then current Base Salary (at the rate in effect immediately before the date of termination but not giving effect to any reduction that would give Executive the right to resign for Good Reason) plus nine-twelfths (9/12's) his then current annual Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), paid in accordance with the Company's normal payroll practices and subject to the usual required withholding, plus an amount equal to all accrued and unpaid vacation or paid-time off outstanding on Executive's termination date, subject to the usual required withholding. To the extent that all sums due pursuant to this Section 9(a)(i) have not been paid by the 15 th day of the third month of the calendar year following the calendar year during which the date of termination occurs, the remaining amount due will be paid on that date.

(ii) Acceleration of Vesting. As of the date of termination, Executive shall receive twelve (12) months of additional vesting of any unvested stock options in accordance with their applicable vesting schedules as if Executive had remained in service for an additional twelve (12) months as of the date of termination. Executive shall also receive a cash payment equal to the value of any unvested 401(k) Company match amount.

(iii) COBRA Benefits. The Company shall pay the group health continuation coverage premiums for Executive and Executive's covered dependents under **COBRA** for a period of not less than nine (9) months from the date of Executive's termination of employment to the extent Executive is eligible for and elects such continuation coverage under COBRA. Notwithstanding the above, the Company shall only be responsible for the premiums that would be paid by comparable active employees for the same type of coverage in which Executive participated at the time of his termination.

(iv) Notwithstanding any of the foregoing to the contrary, Executive shall not receive the severance pay or health care insurance reimbursement referenced above unless and until the Release Agreement becomes effective and can no longer be revoked under its terms. Amounts otherwise payable prior to the Release Agreement's effective date shall accrue and become payable on the first regularly scheduled pay date following the effective date of the Release Agreement. Notwithstanding any provisions in this Agreement to the contrary, the Company's obligations and Executive's rights to severance benefits under this Section shall cease and be rendered a nullity immediately should Executive violate any provision of the Confidentiality Agreement.

(b) Voluntary Termination; Termination for Cause. If Executive's employment with the Company is terminated voluntarily by Executive without Good Reason or Executive is terminated for Cause by the Company, he will not receive severance pay, paid COBRA benefits, or any other similar compensation.

(c) Dissolution, Liquidation or Insolvency of the Company . Notwithstanding the above, in the event Executive's employment is terminated by the Company in connection with or as a result of the liquidation, dissolution, insolvency or other winding up of the affairs of the Company without the

establishment of a successor entity to the Company, the Company shall have no obligation to provide severance or further financial consideration to Executive except for any reasonable expense reimbursements or base salary that Executive has accrued and earned at the time of such termination.

(d) Death or Disability. Executive's employment and this Agreement shall automatically terminate, and Executive will receive the severance pay, acceleration of vesting, benefits and other compensation set forth in Section 9(a) above (i) upon Executive's death or (ii) in the event of any Complete Disability, as defined in Section 10. If Executive is entitled to long-term disability insurance benefits under a long-term disability insurance plan for which the Company paid the insurance premiums, any amounts due pursuant to this Section 9(d) shall be reduced by the maximum amount of such benefits.

10. Definitions.

(a) Cause. For purposes of this Agreement, "**Cause**" is defined as follows:

(i) an act of embezzlement, theft, or fraud by Executive with respect to the Company or any of its affiliates;

(ii) Executive's conviction of, or plea of nolo contendere to, a felony or any other crime involving moral turpitude (excluding traffic offenses);

(iii) Executive's (A) repeated gross negligence or willful misconduct in the performance of his employment duties and responsibilities to the Company (other than as a result of a disability) or (B) refusal to comply with the directives of the Board, provided that such gross negligence, willful misconduct or refusal to comply with the directives of the Board shall only constitute Cause after Executive has received a written notice from the Company or the Board which specifically sets forth the factual basis for the Company's belief that Executive's actions or inactions constitute Cause and Executive has been provided with a reasonable opportunity of not less than thirty (30) days to cure, to the reasonable satisfaction of the Board, any alleged gross negligence, willful misconduct or refusal to comply with the directives of the Board; or

(iv) Executive's material breach of this Agreement or the Confidentiality Agreement.

(b) Change in Control. For purposes of this Agreement, "**Change in Control**" is defined as follows:

(i) any "person" (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becomes the "beneficial owner" (as defined in Rule 13d-3 of the Exchange Act), directly or indirectly, of securities of the Company representing fifty percent (50%) or more of the total voting power represented by the Company's then outstanding voting securities; or

(ii) the consummation of the sale or disposition by the Company of all or substantially all of the Company's assets; or

(iii) a change in the composition of the Board occurring within a two-year period, as a result of which fewer than a majority of the directors are Incumbent Directors. "**Incumbent Directors**" means directors who either (A) are Directors as of the Effective Date, or (B) are elected, or nominated for election, to the Board with the affirmative votes of at least a majority of the Incumbent Directors at the time of such election or nomination, but will neither include an individual whose election or nomination is done by a competing proxy solicitation nor any existing Director who sponsors any such competing proxy solicitation; or

(iv) a tender offer recommended by the Board for the Company's outstanding shares of common stock after consummation of which the offeror owns at least ninety percent (90%) of the Company's outstanding common stock; or

(v) the consummation of a merger or consolidation of the Company with any other corporation, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or its parent) at least fifty percent (50%) of the total voting power represented by the voting securities of the Company or such surviving entity or its parent outstanding immediately after such merger or consolidation.

(c) Complete Disability. For purposes of this Agreement, Executive's "Complete Disability" means Executive is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than twelve (12) months or Executive is, by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than twelve (12) months, receiving income replacement benefits for a period of not less than three (3) months under an accident and health plan covering employees of the Company and any Related Entities.

(d) Good Reason. For purposes of this Agreement, "Good Reason" shall mean Executive's voluntary termination of his employment after the occurrence of any of the following without the express written consent of Executive:

(i) a non-voluntary material reduction in Executive's annualized Base Salary that is not part of a general reduction of salary or other concessionary arrangement affecting all employees of the Company or affecting all senior executive officers of the Company;

(ii) a requirement by the Company or the Board that Executive be relocated to a Company office more than fifty (50) miles from Roanoke, Virginia; or

(iii) any material breach by the Company of any of its obligations hereunder; provided, however that in order for Executive's termination of his employment to qualify as a voluntary termination for "Good Reason," (i) Executive must provide the Company with written notice within sixty (60) days of the event(s) that Executive believes constitutes "Good Reason" specifically identifying the acts or omissions constituting the grounds for Good Reason, (ii) the Company must have failed to cure such Good Reason acts or omissions within thirty (30) days following the date of such notice (the " **Cure Period**"), and (iii) Executive's voluntary termination occurs within thirty (30) days following the expiration of the Cure Period.

11. Confidentiality Agreement. Executive has entered into and agrees to continue to abide by the terms of the Confidentiality Agreement. To the extent the terms of this Agreement are inconsistent with the terms of the Confidentiality Agreement, the terms of this Agreement shall control. The terms and conditions of the Confidentiality Agreement are incorporated herein by reference.

12. Excise Tax Adjustment. Notwithstanding any of the foregoing to the contrary:

(a) in the event that the severance and other benefits provided for in this Agreement or otherwise payable to Executive other than the severance and other benefits provided for in Section 7(b), which are covered in Section 12(b) below, (i) constitute "parachute payments" within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the " **Code**") and (ii) but for this Section, would be subject to the excise tax imposed by Section 4999 of the Code ("Excise Tax"), then Executive's severance benefits under this Agreement shall be payable either (A) in full, or (B) as to such lesser amount which would result in no portion of such severance benefits being subject to excise tax under Section 4999 of the Code, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the excise tax imposed by Section 4999, results in the receipt by Executive on an after-tax basis, of the greatest amount of severance benefits under this Agreement,

notwithstanding that all or some portion of such severance benefits may be taxable under Section 4999 of the Code. Unless the Company and Executive otherwise agree in writing, any determination required under this Section shall be made in writing by the Company's independent public accountants (the "**Accountants**"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Section, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and Executive shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Section. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Section 12. Any reduction in payments and/or benefits required by this Section 12 shall occur in the following order: (1) reduction of cash payments; (2) reduction in vesting acceleration of equity awards; and (3) reduction of other benefits paid or provided to Executive. In the event that acceleration of vesting of equity awards is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant for Executive's equity awards. If two or more equity awards are granted on the same date, each award will be reduced on a pro-rata basis.

(b) in the event that the severance and other benefits provided for in Section 7(b) of this Agreement would be subject to the Excise Tax, then Executive shall be entitled to receive an additional payment (the "Gross-Up Payment") in an amount such that, after payment by Executive of all taxes (and any interest or penalties imposed with respect to such taxes), including without limitation any income taxes and Excise Taxes imposed upon the Gross-Up Payments, Executive will retain an amount of the Gross-Up Payment equal to the Excise Tax imposed upon the aggregate Parachute Value of all severance and other benefits provided for in Section 7(b). Notwithstanding the foregoing provisions of this Section 12(b), if it shall be determined that the aggregate Parachute Value of all severance and other benefits provided for in Section 7(b) is more than one-hundred percent (100%) but not more than one-hundred ten percent (110%) of the Safe Harbor Amount, then no Gross-Up Payment shall be made to Executive and the amounts payable under Section 7(b) shall be reduced so that the Parachute Value of all such severance and other benefits provided for in Section 7(b), in the aggregate, equals the Safe Harbor Amount. All determinations required to be made under this Section 12(b), including whether and when a Gross-Up Payment is required and the amount of such Gross-Up Payment and the assumptions to be utilized in arriving at such determination, shall be made by the Accountants. All fees and expenses of the Accountants shall be borne solely by the Company. Any Gross-Up Payment, as determined pursuant to this Section 12(b), shall be paid by the Company to Executive within five days of the receipt of the Accountants' determination. Any determination by the Accountants shall be binding upon the Company and Executive. If, after the receipt by Executive of a Gross-Up Payment, Executive becomes entitled to receive any refund with respect to the Excise Tax to which such Gross-Up Payment relates or with respect to such claim, Executive shall promptly pay to the Company the amount of such refund (together with any interest paid or credited thereon after taxes applicable thereto). The Company may, in its sole discretion, withhold and pay over to the Internal Revenue Service or any other applicable taxing authority, for the benefit of Executive, all or any portion of any Gross-Up Payment, and Executive hereby consents to such withholding. The following terms shall have the meanings below for purposes of this Section 12(b):

"Parachute Value" of a severance or other benefit shall mean the present value as of the date of a Change of Control for purposes of Section 280G of the Code of the portion of such severance or other benefit that constitutes a "parachute payment" under Section 280G(b)(2), as determined by the Accountants for purposes of determining whether and to what extent the Excise Tax will apply; and

The "Safe Harbor Amount" means 2.99 times Executive's "base amount," within the meaning of Section 280G(b)(3) of the Code.

13. Assignment. This Agreement will be binding upon and inure to the benefit of (a) the heirs, executors and legal representatives of Executive upon Executive's death and (b) any successor of the Company. Any such successor of the Company will be deemed substituted for the Company under the terms of this Agreement for all purposes and shall assume in writing and be bound by all of the Company's obligations under this Agreement. For this purpose, "successor" means any person, firm, corporation or other business entity which at any time, whether by purchase, merger or otherwise, directly or indirectly acquires all or substantially all of the assets or business of the Company. None of the rights of Executive to receive any form of compensation payable pursuant to this Agreement may be assigned or transferred except by will or the laws of descent and distribution. Any other attempted assignment, transfer, conveyance or other disposition of Executive's right to compensation or other benefits will be null and void.

14. Notices. All notices, requests, demands and other communications called for hereunder shall be in writing and shall be deemed given (i) on the date of delivery if delivered personally, (ii) one (1) day after being sent by a well established commercial overnight service, or (iii) four (4) days after being mailed by registered or certified mail, return receipt requested, prepaid and addressed to the parties or their successors at the following addresses, or at such other addresses as the parties may later designate in writing:

If to the Company:

Luna Innovations Incorporated
One Riverside Circle, Suite 400
Roanoke, Virginia 24016
Attn: General Counsel

If to Executive:

At the last residential address known by the Company.

15. Severability. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Agreement will continue in full force and effect without said provision.

16. Arbitration. To ensure the rapid and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action, in law or equity, arising from or relating to the enforcement, breach, performance, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, shall be resolved, to the fullest extent permitted by law, by final, binding and confidential arbitration in Roanoke, Virginia, conducted by the Judicial Arbitration and Mediation Services, Inc. ("**JAMS**") or its successor, under the then applicable rules of JAMS. Executive and the Company acknowledge that by agreeing to this arbitration procedure, each party waives the right to resolve any such dispute through a trial by jury or judge or administrative proceeding. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision including the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Notwithstanding the foregoing, Executive and the Company each have the right to resolve any issue or dispute arising under the Confidentiality Agreement by court action instead of arbitration.

17. Entire Agreement. This Agreement and the Confidentiality Agreement collectively represent the entire agreement and understanding between the parties as to the subject matter herein and therein and together supersede all prior or contemporaneous agreements whether written or oral. No waiver, alteration, amendment or modification of any of the provisions of this Agreement or of the Confidentiality Agreement will be binding unless it is in writing and is signed by the person or party to be charged. The Chairman of the Board is the only person with authority to act on behalf of the Company with respect to such matters under this Agreement.

18. Tax Matters.

(a) Withholding. All payments made pursuant to this Agreement will be subject to withholding of applicable taxes.

(b) Section 409A Compliance.

(i) Notwithstanding anything to the contrary herein, the following provisions apply to the extent severance benefits provided herein are subject to Section 409A of the Internal Revenue Code of 1986, as amended (the **"*Code*"**) and the regulations and other guidance thereunder and any state law of similar effect (collectively **"*Section 409A*"**). Severance benefits shall not commence until Executive has a "separation from service" for purposes of Section 409A. Solely for purposes of determining the timing of payment of amounts owed to Executive as a result of the termination of Executive's employment with the Company pursuant to Sections 7(b) or 9(a) of this Agreement, references to termination of Executive's employment shall mean Executive's "separation from service" (as such term is used for such purposes of Section 409A of the Code) with the Company and any Related Entities. Executive shall be deemed to have a separation from service on a date only if the Company and Executive reasonably anticipate that (a) no further services will be performed for the Company or any Related Entities after such date or (b) the level of bona fide services Executive will perform for the Company or any Related Entities after such date (whether as an employee or as an independent contractor) will permanently decrease to no more than twenty percent (20%) of the average level of bona fide services performed (whether as an employee or as an independent contractor) over the immediately preceding 36-month period (or the full period of services to the Company and any Related Entities if Executive has then been providing services to the Company or any Related Entities for less than 36 months). For periods during which Executive is on a paid Leave of Absence and has not otherwise terminated employment, Executive shall be treated as providing bona fide services at a level equal to the level of services that he would have been required to perform to receive the compensation paid with respect to such Leave of Absence. Also, periods during which Executive is on an unpaid Leave of Absence and has not otherwise terminated employment shall be disregarded (including for purposes of determining the 36-month, or shorter period). The term "Related Entity" means any entity which is aggregated with the Company or any other entity pursuant to Section 414(b) or 414(c) of the Code or would be so aggregated if the language "at least 50%" were used instead of "at least 80%" each place it appears in Section 1563(a)(1),(2) and (3) of the Code and Treasury Regulations Section 1.414(c)-2. Further, the term "Leave of Absence" means a military leave, sick leave or bona fide leave of absence of Executive which does not exceed six (6) months (or such longer period for which Executive retains such right to re-employment with the Company or Related Entity under an applicable statute or by contract), but only if there is a reasonable expectation that Executive will return to perform services for the Company or a Related Entity.

(ii) Each installment of severance benefits is a separate "payment" for purposes of Treas. Reg. Section 1.409A-2(b)(2)(i), and the severance benefits are intended to satisfy the exemptions from application of Section 409A provided under Treasury Regulations Sections 1.409A-1(b)(4) and 1.409A-1(b)(5). However, if such exemptions are not available and Executive is, upon separation from service, a "specified employee" for purposes of Section 409A, then, solely to the extent necessary to

avoid adverse personal tax consequences under Section 409A, the timing of the severance benefits payments shall be delayed until the earlier of (i) six (6) months and one day after Executive's separation from service, or (ii) Executive's death. Additionally, if the severance benefits are not covered by one or more exemptions from the application of Section 409A and the Release Agreement could become effective in the calendar year following the calendar year in which Executive separates from service, the Release Agreement will not be deemed effective any earlier than the Release Agreement Deadline.

(iii) The foregoing provisions are intended to comply with the requirements of Section 409A so that none of the severance payments and benefits to be provided hereunder shall be subject to the additional tax imposed under Section 409A, and any ambiguities herein shall be interpreted to so comply. The Company and Executive agree to work together in good faith to consider amendments to this Agreement and to take such reasonable actions which are necessary, appropriate or desirable to avoid imposition of any additional tax or income recognition prior to actual payment to Executive under Section 409A.

19. Governing Law. This Agreement will be governed by the laws of the Commonwealth of Virginia, without regard to its conflict of laws principles.

20. Acknowledgment. Executive acknowledges that he has had the opportunity to discuss this matter with and obtain advice from his private attorney, has had sufficient time to, and has carefully read and fully understands all the provisions of this Agreement, and is knowingly and voluntarily entering into this Agreement.

21. Resignation from the Board. Executive understands and agrees that if he is a member of the Board at the time his employment with the Company terminates, whether with or without cause and whether voluntary or involuntary, and as a further condition of his receipt of any severance benefits to which he otherwise might be entitled under this Agreement, he will submit his resignation as a member of the Board effective as of his last day of employment.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be executed as of the date first set forth above.

MARK E. FROGGATT, Ph.D.

/s/ Mark E. Froggatt, Ph.D.
Signature

Mark E. Froggatt, Ph.D.
Print Name

LUNA INNOVATIONS INCORPORATED

By: /s/ My E. Chung
Signature

My E. Chung
Print Name

President and Chief Executive Officer
Print Title

[Signature Page to Employment Agreement]

RELEASE AGREEMENT

I understand that my position with Luna Innovations Incorporated (the "Company") terminated effective , 2012 (the "Separation Date"). The Company has agreed that if I choose to sign this Release Agreement, the Company will extend to me certain benefits (minus the standard withholdings and deductions, if applicable) pursuant to the terms of the Employment Agreement (the "Agreement") entered into as of March 28, 2012, between myself and the Company, and any agreements incorporated therein by reference. I understand that I am not entitled to such severance benefits unless I sign this Release Agreement.

In consideration for the severance benefits I am receiving under the Agreement, I hereby release the Company and its officers, directors, agents, attorneys, employees, shareholders, parents, subsidiaries, and affiliates from any and all claims, liabilities, demands, causes of action, attorneys' fees, damages, or obligations of every kind and nature, whether they are now known or unknown, arising at any time prior to the date I sign this Release Agreement. This general release includes, but is not limited to: all federal and state statutory and common law claims, claims related to my employment or the termination of my employment or related to breach of contract, tort, wrongful termination, discrimination, wages or benefits, or claims for any form of equity or compensation. Notwithstanding the release in the preceding sentence, I am not releasing any right of indemnification I may have for any liabilities arising from my actions within the course and scope of my employment with the Company or, if applicable, within the course and scope of my role as a member of the Board of Directors. Notwithstanding anything herein to the contrary, nothing in this Release Agreement shall release any claims that I may have against the Company and its officers, directors, agents, attorneys, employees, shareholders, parents, subsidiaries, and affiliates solely in connection with my purchase and ownership of shares of capital stock of the Company.

I UNDERSTAND THAT THIS AGREEMENT INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS. In giving this release, which includes claims which may be unknown to me at present, I hereby waive the benefit of any provision of Virginia law, and of any other jurisdiction, which is similar to Section 1542 of the California Civil Code, which reads as follows: **"A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the release, which if known by him must have materially affected his settlement with the debtor."**

If I am forty (40) years of age or older as of the Separation Date, I acknowledge that I am knowingly and voluntarily waiving and releasing any rights I may have under the federal Age Discrimination in Employment Act of 1967, as amended ("ADEA"). I also acknowledge that the consideration given for the waiver in the above paragraph is in addition to anything of value to which I was already entitled. I have been advised by this writing, as required by the ADEA that: (a) my waiver and release do not apply to any claims that may arise after my signing of this Release Agreement; (b) I should consult with an attorney prior to executing this Release Agreement; (c) I have twenty-one (21) days within which to consider this Release Agreement (although I may choose to voluntarily execute this Release Agreement earlier); (d) I have seven (7) days following the execution of this release to revoke the Release Agreement and that any such revocation must be in writing, addressed to the undersigned representative of the Company, and must be received by the Company within the seven (7) day revocation period; and (e) this Release Agreement will not be effective until the eighth day after this Release Agreement has been signed both by me and by the Company.

I represent that I understand all of the provisions herein, and that I am entering into this Release Agreement voluntarily. I further represent and acknowledge that in executing this Release Agreement I do not rely, and have not relied, upon any representation or statement made by the Company or by any of the Company's employees, officers, agents, members, directors or attorneys with regard to the subject matter, basis or effect of this Release Agreement or otherwise.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be executed as of the date first set forth above.

MARK E. FROGGATT, Ph.D.

_____
Signature

_____
Print Name

LUNA INNOVATIONS INCORPORATED

By: _____
Signature

_____
Print Name

_____
Print Title

Exhibit 10.44

LUNA INNOVATIONS INCORPORATED

EMPLOYMENT AGREEMENT

This Employment Agreement (the "**Agreement**") is entered into as of March 28, 2012 by and between Luna Innovations Incorporated, a Delaware Corporation (the "**Company**"), and Talfourd H. Kemper, Jr. ("**Executive**").

1. Duties and Scope of Employment.

(a) Positions and Duties. During the Employment Term (as defined herein), Executive will serve as the Company's Vice President and General Counsel. Executive will render such business and professional services in the performance of his duties, consistent with Executive's position within the Company, as shall reasonably be assigned to him by the Company's President and Chief Executive Officer ("President").

(b) Reporting. Executive shall report directly to the President.

(c) Obligations. During the Employment Term, and excluding periods of vacation and sick leave to which Executive is entitled, Executive shall devote all business time and attention to the affairs of the Company necessary to discharge the responsibilities assigned hereunder, and shall use commercially reasonable efforts to perform faithfully and efficiently such responsibilities. Notwithstanding anything herein to the contrary, Executive may provide services as a volunteer, member, director or officer of charitable, educational or civic organizations or industry trade associations or groups, and may serve as trustee, director or advisor to any family companies or trusts, provided that such service does not materially interfere with the performance of Executive's duties to the Company as required under this Agreement.

2. Term. The period of Executive's employment under this Agreement is referred to herein as the " **Employment Term**." The Agreement shall have an initial term beginning on March 28, 2012 (the "**Effective Date**") through March 31, 2013 ("**Initial Term**"). At the end of the Initial Term and on each annual anniversary of such date thereafter, the Agreement automatically will renew for successive additional one (1) year terms, unless either party provides the other party with written notice of non-renewal at least ninety (90) days prior to the date of the automatic renewal.

3. At-Will Employment. The parties agree that Executive's employment with the Company will be "at-will" employment and may be terminated by either party at any time, effective immediately, upon written notice to the other party, with or without cause. However, as described in this Agreement, Executive may be entitled to severance benefits depending upon the circumstances of his termination of employment. Executive understands and agrees that neither his job performance nor promotions, commendations, bonuses or the like from the Company give rise to or in any way serve as the basis for modification, amendment, or extension, by implication or otherwise, of his employment with the Company.

4. Compensation.

(a) Base Salary. During the Employment Term, the Company will pay Executive as compensation for his services a base salary at the annualized rate of not less than $190,750, as adjusted from time to time as provided herein (the " **Base Salary**"). The Base Salary will be paid periodically in accordance with the Company's normal payroll practices and will be subject to standard federal, state and local withholding. Executive's performance will be reviewed at least annually to determine if an increase in compensation is appropriate, which increase shall be in the sole discretion of the Company.

(b) Bonus. As additional compensation for services hereunder, Executive shall be eligible under the Company's then current senior management incentive plan for an annual discretionary cash bonus of at least fifty per cent (50%) of Executive's then current Base Salary, to be determined by the Company's Board or Compensation Committee thereof and contingent upon the Company's and/or Executive's achievement of objectives set by the Company from time to time ("Target Bonus"). Executive shall also be eligible to receive equity bonuses at such times and in such amounts as determined by the Board. All bonuses shall be in the discretion of the Board.

5. Employee Benefits. During the Employment Term, Executive will be entitled to participate in the employee benefit plans currently and hereafter maintained by the Company of general applicability to other senior executives of the Company, as such plans and terms may exist from time to time, including, without limitation, group health insurance, 401(k), and equity incentive plans. The Company reserves the right to cancel or change the benefit plans and programs it offers to its employees at any time.

6. Expenses. The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in the furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time. To the extent applicable, any reimbursement benefits shall comply with the requirements of Treasury Regulations Section 1.409A-3(i)(1)(iv).

7. Payment/Severance in Connection with a Change In Control .

(a) Payment Upon A Change In Control . If a Change in Control (as defined in Section 10(b)(ii), 10(b)(iv) or 10(b)(v) herein) occurs, Executive shall receive a cash payment in an amount equal to his then current Base Salary plus his then current Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), subject to the usual required withholding and subject to reduction, if any, provided for in Section 8(b).

(b) Termination Without Cause; Termination for Good Reason. If Executive's employment relationship with the Company is terminated within twelve months following a Change in Control (as defined in Section 10(b) herein), Executive may be entitled to payment of severance in accordance with this Section 7(b). In the event that within twelve months following a Change in Control (i) Executive terminates his employment with the Company for Good Reason (as defined herein) or (ii) Executive is terminated by the Company without Cause (as defined herein), Executive shall be entitled to receive the following severance benefits if Executive executes a general release, the standard form of which is attached hereto as Exhibit A, with such changes as the Company may reasonably require (the "**Release Agreement**"), within the applicable time period set forth therein, but in no event later than forty-five (45) days following the date of Executive's termination (such latest permitted date is the "**Release Agreement Deadline**"), and permits the Release Agreement to become effective in accordance with its terms:

(i) Base Salary; Target Bonus; Accrued Vacation. Executive shall receive severance pay in an amount equal to his Base Salary (at the rate in effect immediately before the date of termination but not giving effect to any reduction that would give Executive the right to resign for Good Reason) plus his then current annual Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), paid in cash and subject to the usual required withholding, plus an amount equal to all accrued and unpaid vacation or paid-time off outstanding on Executive's termination date, subject to the usual required withholding.

(ii) Acceleration of Vesting. As of the date of termination, all of Executive's unvested stock options shall vest. Executive shall also receive a cash payment equal to the value of any unvested 401(k) Company match amount.

(iii) COBRA Benefits. The Company shall pay the group health continuation coverage premiums for Executive and Executive's covered dependents under Title X of the Consolidated Budget Reconciliation Act of 1985, as amended (" **COBRA**"), for a period of not less than twelve (12) months from the date of Executive's termination of employment to the extent Executive is eligible for and elects such continuation coverage under COBRA. Notwithstanding the above, the Company shall only be responsible for the premiums that would be paid by comparable active employees for the same type of coverage in which Executive participated at the time of his termination.

(iv) Notwithstanding any of the foregoing to the contrary, Executive shall not receive the severance pay, Target Bonus, or health care insurance reimbursement referenced above in this Section 7(b) unless and until the Release Agreement becomes effective and can no longer be revoked under its terms. Amounts otherwise payable prior to the Release Agreement's effective date shall accrue and become payable on the first regularly scheduled pay date following the effective date of the Release Agreement. Notwithstanding any provisions in this Agreement to the contrary, the Company's obligations and Executive's rights to severance benefits under this Section 7 shall cease and be rendered a nullity immediately should Executive violate any provision of Executive's Confidentiality Agreement with the Company of even date herewith (the " **Confidentiality Agreement**").

8. Retention Payment.

(a) In the event, if ever, on or after the Effective Date, the Company executes an engagement agreement with an investment banking firm or other business brokerage firm for the purposes that include exploring a transaction the consummation of which would constitute a Change In Control ("Engagement Date"), and, subject to the other provisions of this Section 8, if Executive is still employed with the Company on the date which is twenty-four (24) months from the Engagement Date, the Company shall pay Executive a retention payment in an amount equal to fifty percent (50%) of his then current Base Salary plus fifty percent (50%) of his then current Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), which payment shall be made on the next regular pay day following such date ("Retention Payment"). Notwithstanding the foregoing, no such retention payment shall be paid if Executive previously has received a payment under Section 7(a) within the above-referenced twenty-four (24) month period.

(b) Additionally, in the event a Change in Control occurs during the period beginning twenty-four (24) months following the Engagement Date and ending thirty-six (36) months following the Engagement Date (the "Reduction Period"), then any payment otherwise payable to Executive under Section 7(a) shall be reduced, pro rata, based on the number of days remaining in the Reduction Period. By way of example, if a Change in Control occurs ninety (90) days into the Reduction Period, the payment otherwise payable to Executive under Section 7(a) shall be reduced by 275/365, or seventy-five percent (75%).

(c) Notwithstanding anything in this Section 8 to the contrary, if the Board determines that, after giving effect to the Retention Payment and to any other retention payments to be made under any other employment agreements between the Company and other employees, a default could occur under any financing facility or loan between the Company and any Company lender, the Retention Payment shall be made in fully vested Company shares of common stock under the Company's 2006 Equity Incentive Plan.

9. Severance Not in Connection with a Change In Control. If Executive's employment relationship with the Company is terminated without Cause or by Executive for Good Reason and Executive is not entitled to payment of severance in accordance with Section 7(b), the provisions of this Section 9 will apply.

(a) Termination Without Cause; Termination for Good Reason. In the event (i) Executive terminates his employment with the Company for Good Reason (as defined herein) or (ii) Executive is terminated by the Company without Cause (as defined herein), Executive shall be entitled to receive the following severance benefits if Executive executes the Release Agreement within the applicable time period set forth therein, but in no event later than forty-five (45) days following the date of termination (such latest permitted date is the " **Release Agreement Deadline**"), and permits the Release Agreement to become effective in accordance with its terms:

(i) Base Salary; Target Bonus; Accrued Vacation. Executive shall receive severance pay in an amount equal to nine-twelfths (9/12's) his then current Base Salary (at the rate in effect immediately before the date of termination but not giving effect to any reduction that would give Executive the right to resign for Good Reason) plus nine-twelfths (9/12's) his then current annual Target Bonus (calculated assuming that Executive and the Company had achieved all objectives set by the Company with respect thereto), paid in accordance with the Company's normal payroll practices and subject to the usual required withholding, plus an amount equal to all accrued and unpaid vacation or paid-time off outstanding on Executive's termination date, subject to the usual required withholding. To the extent that all sums due pursuant to this Section 9(a)(i) have not been paid by the 15 th day of the third month of the calendar year following the calendar year during which the date of termination occurs, the remaining amount due will be paid on that date.

(ii) Acceleration of Vesting. As of the date of termination, Executive shall receive twelve (12) months of additional vesting of any unvested stock options in accordance with their applicable vesting schedules as if Executive had remained in service for an additional twelve (12) months as of the date of termination. Executive shall also receive a cash payment equal to the value of any unvested 401(k) Company match amount.

(iii) COBRA Benefits. The Company shall pay the group health continuation coverage premiums for Executive and Executive's covered dependents under **COBRA** for a period of not less than nine (9) months from the date of Executive's termination of employment to the extent Executive is eligible for and elects such continuation coverage under COBRA. Notwithstanding the above, the Company shall only be responsible for the premiums that would be paid by comparable active employees for the same type of coverage in which Executive participated at the time of his termination.

(iv) Notwithstanding any of the foregoing to the contrary, Executive shall not receive the severance pay or health care insurance reimbursement referenced above unless and until the Release Agreement becomes effective and can no longer be revoked under its terms. Amounts otherwise payable prior to the Release Agreement's effective date shall accrue and become payable on the first regularly scheduled pay date following the effective date of the Release Agreement. Notwithstanding any provisions in this Agreement to the contrary, the Company's obligations and Executive's rights to severance benefits under this Section shall cease and be rendered a nullity immediately should Executive violate any provision of the Confidentiality Agreement.

(b) Voluntary Termination; Termination for Cause. If Executive's employment with the Company is terminated voluntarily by Executive without Good Reason or Executive is terminated for Cause by the Company, he will not receive severance pay, paid COBRA benefits, or any other similar compensation.

(c) Dissolution, Liquidation or Insolvency of the Company . Notwithstanding the above, in the event Executive's employment is terminated by the Company in connection with or as a result of the liquidation, dissolution, insolvency or other winding up of the affairs of the Company without the

establishment of a successor entity to the Company, the Company shall have no obligation to provide severance or further financial consideration to Executive except for any reasonable expense reimbursements or base salary that Executive has accrued and earned at the time of such termination.

(d) Death or Disability. Executive's employment and this Agreement shall automatically terminate, and Executive will receive the severance pay, acceleration of vesting, benefits and other compensation set forth in Section 9(a) above (i) upon Executive's death or (ii) in the event of any Complete Disability, as defined in Section 10. If Executive is entitled to long-term disability insurance benefits under a long-term disability insurance plan for which the Company paid the insurance premiums, any amounts due pursuant to this Section 9(d) shall be reduced by the maximum amount of such benefits.

10. Definitions.

(a) Cause. For purposes of this Agreement, "**Cause**" is defined as follows:

(i) an act of embezzlement, theft, or fraud by Executive with respect to the Company or any of its affiliates;

(ii) Executive's conviction of, or plea of nolo contendere to, a felony or any other crime involving moral turpitude (excluding traffic offenses);

(iii) Executive's (A) repeated gross negligence or willful misconduct in the performance of his employment duties and responsibilities to the Company (other than as a result of a disability) or (B) refusal to comply with the directives of the Board, provided that such gross negligence, willful misconduct or refusal to comply with the directives of the Board shall only constitute Cause after Executive has received a written notice from the Company or the Board which specifically sets forth the factual basis for the Company's belief that Executive's actions or inactions constitute Cause and Executive has been provided with a reasonable opportunity of not less than thirty (30) days to cure, to the reasonable satisfaction of the Board, any alleged gross negligence, willful misconduct or refusal to comply with the directives of the Board; or

(iv) Executive's material breach of this Agreement or the Confidentiality Agreement.

(b) Change in Control. For purposes of this Agreement, "**Change in Control**" is defined as follows:

(i) any "person" (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becomes the "beneficial owner" (as defined in Rule 13d-3 of the Exchange Act), directly or indirectly, of securities of the Company representing fifty percent (50%) or more of the total voting power represented by the Company's then outstanding voting securities; or

(ii) the consummation of the sale or disposition by the Company of all or substantially all of the Company's assets; or

(iii) a change in the composition of the Board occurring within a two-year period, as a result of which fewer than a majority of the directors are Incumbent Directors. "**Incumbent Directors**" means directors who either (A) are Directors as of the Effective Date, or (B) are elected, or nominated for election, to the Board with the affirmative votes of at least a majority of the Incumbent Directors at the time of such election or nomination, but will neither include an individual whose election or nomination is done by a competing proxy solicitation nor any existing Director who sponsors any such competing proxy solicitation; or

(iv) a tender offer recommended by the Board for the Company's outstanding shares of common stock after consummation of which the offeror owns at least ninety percent (90%) of the Company's outstanding common stock; or

(v) the consummation of a merger or consolidation of the Company with any other corporation, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or its parent) at least fifty percent (50%) of the total voting power represented by the voting securities of the Company or such surviving entity or its parent outstanding immediately after such merger or consolidation.

(c) Complete Disability. For purposes of this Agreement, Executive's "Complete Disability" means Executive is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than twelve (12) months or Executive is, by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than twelve (12) months, receiving income replacement benefits for a period of not less than three (3) months under an accident and health plan covering employees of the Company and any Related Entities.

(d) Good Reason. For purposes of this Agreement, "Good Reason" shall mean Executive's voluntary termination of his employment after the occurrence of any of the following without the express written consent of Executive:

(i) a non-voluntary material reduction in Executive's annualized Base Salary that is not part of a general reduction of salary or other concessionary arrangement affecting all employees of the Company or affecting all senior executive officers of the Company;

(ii) a requirement by the Company or the Board that Executive be relocated to a Company office more than fifty (50) miles from Roanoke, Virginia; or

(iii) any material breach by the Company of any of its obligations hereunder; provided, however that in order for Executive's termination of his employment to qualify as a voluntary termination for "Good Reason," (i) Executive must provide the Company with written notice within sixty (60) days of the event(s) that Executive believes constitutes "Good Reason" specifically identifying the acts or omissions constituting the grounds for Good Reason, (ii) the Company must have failed to cure such Good Reason acts or omissions within thirty (30) days following the date of such notice (the " **Cure Period**"), and (iii) Executive's voluntary termination occurs within thirty (30) days following the expiration of the Cure Period.

11. Confidentiality Agreement. Executive has entered into and agrees to continue to abide by the terms of the Confidentiality Agreement. To the extent the terms of this Agreement are inconsistent with the terms of the Confidentiality Agreement, the terms of this Agreement shall control. The terms and conditions of the Confidentiality Agreement are incorporated herein by reference.

12. Excise Tax Adjustment. Notwithstanding any of the foregoing to the contrary:

(a) in the event that the severance and other benefits provided for in this Agreement or otherwise payable to Executive other than the severance and other benefits provided for in Section 7(b), which are covered in Section 12(b) below, (i) constitute "parachute payments" within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the " **Code**") and (ii) but for this Section, would be subject to the excise tax imposed by Section 4999 of the Code ("Excise Tax"), then Executive's severance benefits under this Agreement shall be payable either (A) in full, or (B) as to such lesser amount which would result in no portion of such severance benefits being subject to excise tax under Section 4999 of the Code, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the excise tax imposed by Section 4999, results in the receipt by Executive on an after-tax basis, of the greatest amount of severance benefits under this Agreement,

notwithstanding that all or some portion of such severance benefits may be taxable under Section 4999 of the Code. Unless the Company and Executive otherwise agree in writing, any determination required under this Section shall be made in writing by the Company's independent public accountants (the "**Accountants**"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Section, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and Executive shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Section. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Section 12. Any reduction in payments and/or benefits required by this Section 12 shall occur in the following order: (1) reduction of cash payments; (2) reduction in vesting acceleration of equity awards; and (3) reduction of other benefits paid or provided to Executive. In the event that acceleration of vesting of equity awards is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant for Executive's equity awards. If two or more equity awards are granted on the same date, each award will be reduced on a pro-rata basis.

(b) in the event that the severance and other benefits provided for in Section 7(b) of this Agreement would be subject to the Excise Tax, then Executive shall be entitled to receive an additional payment (the "Gross-Up Payment") in an amount such that, after payment by Executive of all taxes (and any interest or penalties imposed with respect to such taxes), including without limitation any income taxes and Excise Taxes imposed upon the Gross-Up Payments, Executive will retain an amount of the Gross-Up Payment equal to the Excise Tax imposed upon the aggregate Parachute Value of all severance and other benefits provided for in Section 7(b). Notwithstanding the foregoing provisions of this Section 12(b), if it shall be determined that the aggregate Parachute Value of all severance and other benefits provided for in Section 7(b) is more than one-hundred percent (100%) but not more than one-hundred ten percent (110%) of the Safe Harbor Amount, then no Gross-Up Payment shall be made to Executive and the amounts payable under Section 7(b) shall be reduced so that the Parachute Value of all such severance and other benefits provided for in Section 7(b), in the aggregate, equals the Safe Harbor Amount. All determinations required to be made under this Section 12(b), including whether and when a Gross-Up Payment is required and the amount of such Gross-Up Payment and the assumptions to be utilized in arriving at such determination, shall be made by the Accountants. All fees and expenses of the Accountants shall be borne solely by the Company. Any Gross-Up Payment, as determined pursuant to this Section 12(b), shall be paid by the Company to Executive within five days of the receipt of the Accountants' determination. Any determination by the Accountants shall be binding upon the Company and Executive. If, after the receipt by Executive of a Gross-Up Payment, Executive becomes entitled to receive any refund with respect to the Excise Tax to which such Gross-Up Payment relates or with respect to such claim, Executive shall promptly pay to the Company the amount of such refund (together with any interest paid or credited thereon after taxes applicable thereto). The Company may, in its sole discretion, withhold and pay over to the Internal Revenue Service or any other applicable taxing authority, for the benefit of Executive, all or any portion of any Gross-Up Payment, and Executive hereby consents to such withholding. The following terms shall have the meanings below for purposes of this Section 12(b):

"Parachute Value" of a severance or other benefit shall mean the present value as of the date of a Change of Control for purposes of Section 280G of the Code of the portion of such severance or other benefit that constitutes a "parachute payment" under Section 280G(b)(2), as determined by the Accountants for purposes of determining whether and to what extent the Excise Tax will apply; and

The "Safe Harbor Amount" means 2.99 times Executive's "base amount," within the meaning of Section 280G(b)(3) of the Code.

13. Assignment. This Agreement will be binding upon and inure to the benefit of (a) the heirs, executors and legal representatives of Executive upon Executive's death and (b) any successor of the Company. Any such successor of the Company will be deemed substituted for the Company under the terms of this Agreement for all purposes and shall assume in writing and be bound by all of the Company's obligations under this Agreement. For this purpose, "successor" means any person, firm, corporation or other business entity which at any time, whether by purchase, merger or otherwise, directly or indirectly acquires all or substantially all of the assets or business of the Company. None of the rights of Executive to receive any form of compensation payable pursuant to this Agreement may be assigned or transferred except by will or the laws of descent and distribution. Any other attempted assignment, transfer, conveyance or other disposition of Executive's right to compensation or other benefits will be null and void.

14. Notices. All notices, requests, demands and other communications called for hereunder shall be in writing and shall be deemed given (i) on the date of delivery if delivered personally, (ii) one (1) day after being sent by a well established commercial overnight service, or (iii) four (4) days after being mailed by registered or certified mail, return receipt requested, prepaid and addressed to the parties or their successors at the following addresses, or at such other addresses as the parties may later designate in writing:

If to the Company:

Luna Innovations Incorporated
One Riverside Circle, Suite 400
Roanoke, Virginia 24016
Attn: General Counsel

If to Executive:

At the last residential address known by the Company.

15. Severability. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Agreement will continue in full force and effect without said provision.

16. Arbitration. To ensure the rapid and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action, in law or equity, arising from or relating to the enforcement, breach, performance, or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, shall be resolved, to the fullest extent permitted by law, by final, binding and confidential arbitration in Roanoke, Virginia, conducted by the Judicial Arbitration and Mediation Services, Inc. ("**JAMS**") or its successor, under the then applicable rules of JAMS. Executive and the Company acknowledge that by agreeing to this arbitration procedure, each party waives the right to resolve any such dispute through a trial by jury or judge or administrative proceeding. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision including the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Notwithstanding the foregoing, Executive and the Company each have the right to resolve any issue or dispute arising under the Confidentiality Agreement by court action instead of arbitration.

17. Entire Agreement. This Agreement and the Confidentiality Agreement collectively represent the entire agreement and understanding between the parties as to the subject matter herein and therein and together supersede all prior or contemporaneous agreements whether written or oral. No waiver, alteration, amendment or modification of any of the provisions of this Agreement or of the Confidentiality Agreement will be binding unless it is in writing and is signed by the person or party to be charged. The Chairman of the Board is the only person with authority to act on behalf of the Company with respect to such matters under this Agreement.

18. Tax Matters.

(a) Withholding. All payments made pursuant to this Agreement will be subject to withholding of applicable taxes.

(b) Section 409A Compliance.

(i) Notwithstanding anything to the contrary herein, the following provisions apply to the extent severance benefits provided herein are subject to Section 409A of the Internal Revenue Code of 1986, as amended (the **"*Code*"**) and the regulations and other guidance thereunder and any state law of similar effect (collectively **"*Section 409A*"**). Severance benefits shall not commence until Executive has a "separation from service" for purposes of Section 409A. Solely for purposes of determining the timing of payment of amounts owed to Executive as a result of the termination of Executive's employment with the Company pursuant to Sections 7(b) or 9(a) of this Agreement, references to termination of Executive's employment shall mean Executive's "separation from service" (as such term is used for such purposes of Section 409A of the Code) with the Company and any Related Entities. Executive shall be deemed to have a separation from service on a date only if the Company and Executive reasonably anticipate that (a) no further services will be performed for the Company or any Related Entities after such date or (b) the level of bona fide services Executive will perform for the Company or any Related Entities after such date (whether as an employee or as an independent contractor) will permanently decrease to no more than twenty percent (20%) of the average level of bona fide services performed (whether as an employee or as an independent contractor) over the immediately preceding 36-month period (or the full period of services to the Company and any Related Entities if Executive has then been providing services to the Company or any Related Entities for less than 36 months). For periods during which Executive is on a paid Leave of Absence and has not otherwise terminated employment, Executive shall be treated as providing bona fide services at a level equal to the level of services that he would have been required to perform to receive the compensation paid with respect to such Leave of Absence. Also, periods during which Executive is on an unpaid Leave of Absence and has not otherwise terminated employment shall be disregarded (including for purposes of determining the 36-month, or shorter period). The term "Related Entity" means any entity which is aggregated with the Company or any other entity pursuant to Section 414(b) or 414(c) of the Code or would be so aggregated if the language "at least 50%" were used instead of "at least 80%" each place it appears in Section 1563(a)(1),(2) and (3) of the Code and Treasury Regulations Section 1.414(c)-2. Further, the term "Leave of Absence" means a military leave, sick leave or bona fide leave of absence of Executive which does not exceed six (6) months (or such longer period for which Executive retains such right to re-employment with the Company or Related Entity under an applicable statute or by contract), but only if there is a reasonable expectation that Executive will return to perform services for the Company or a Related Entity.

(ii) Each installment of severance benefits is a separate "payment" for purposes of Treas. Reg. Section 1.409A-2(b)(2)(i), and the severance benefits are intended to satisfy the exemptions from application of Section 409A provided under Treasury Regulations Sections 1.409A-1(b)(4) and 1.409A-1(b)(5). However, if such exemptions are not available and Executive is, upon separation from service, a "specified employee" for purposes of Section 409A, then, solely to the extent necessary to

avoid adverse personal tax consequences under Section 409A, the timing of the severance benefits payments shall be delayed until the earlier of (i) six (6) months and one day after Executive's separation from service, or (ii) Executive's death. Additionally, if the severance benefits are not covered by one or more exemptions from the application of Section 409A and the Release Agreement could become effective in the calendar year following the calendar year in which Executive separates from service, the Release Agreement will not be deemed effective any earlier than the Release Agreement Deadline.

(iii) The foregoing provisions are intended to comply with the requirements of Section 409A so that none of the severance payments and benefits to be provided hereunder shall be subject to the additional tax imposed under Section 409A, and any ambiguities herein shall be interpreted to so comply. The Company and Executive agree to work together in good faith to consider amendments to this Agreement and to take such reasonable actions which are necessary, appropriate or desirable to avoid imposition of any additional tax or income recognition prior to actual payment to Executive under Section 409A.

19. Governing Law. This Agreement will be governed by the laws of the Commonwealth of Virginia, without regard to its conflict of laws principles.

20. Acknowledgment. Executive acknowledges that he has had the opportunity to discuss this matter with and obtain advice from his private attorney, has had sufficient time to, and has carefully read and fully understands all the provisions of this Agreement, and is knowingly and voluntarily entering into this Agreement.

21. Resignation from the Board. Executive understands and agrees that if he is a member of the Board at the time his employment with the Company terminates, whether with or without cause and whether voluntary or involuntary, and as a further condition of his receipt of any severance benefits to which he otherwise might be entitled under this Agreement, he will submit his resignation as a member of the Board effective as of his last day of employment.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be executed as of the date first set forth above.

TALFOURD H. KEMPER, JR.

/s/ Talfourd H. Kemper, Jr.
Signature

Talfourd H. Kemper, Jr.
Print Name

LUNA INNOVATIONS INCORPORATED

By: /s/ My E. Chung
Signature

My E. Chung
Print Name

President and Chief Executive Officer
Print Title

[Signature Page to Employment Agreement]

RELEASE AGREEMENT

I understand that my position with Luna Innovations Incorporated (the "Company") terminated effective , 2012 (the "Separation Date"). The Company has agreed that if I choose to sign this Release Agreement, the Company will extend to me certain benefits (minus the standard withholdings and deductions, if applicable) pursuant to the terms of the Employment Agreement (the "Agreement") entered into as of March 28, 2012, between myself and the Company, and any agreements incorporated therein by reference. I understand that I am not entitled to such severance benefits unless I sign this Release Agreement.

In consideration for the severance benefits I am receiving under the Agreement, I hereby release the Company and its officers, directors, agents, attorneys, employees, shareholders, parents, subsidiaries, and affiliates from any and all claims, liabilities, demands, causes of action, attorneys' fees, damages, or obligations of every kind and nature, whether they are now known or unknown, arising at any time prior to the date I sign this Release Agreement. This general release includes, but is not limited to: all federal and state statutory and common law claims, claims related to my employment or the termination of my employment or related to breach of contract, tort, wrongful termination, discrimination, wages or benefits, or claims for any form of equity or compensation. Notwithstanding the release in the preceding sentence, I am not releasing any right of indemnification I may have for any liabilities arising from my actions within the course and scope of my employment with the Company or, if applicable, within the course and scope of my role as a member of the Board of Directors. Notwithstanding anything herein to the contrary, nothing in this Release Agreement shall release any claims that I may have against the Company and its officers, directors, agents, attorneys, employees, shareholders, parents, subsidiaries, and affiliates solely in connection with my purchase and ownership of shares of capital stock of the Company.

I UNDERSTAND THAT THIS AGREEMENT INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS. In giving this release, which includes claims which may be unknown to me at present, I hereby waive the benefit of any provision of Virginia law, and of any other jurisdiction, which is similar to Section 1542 of the California Civil Code, which reads as follows: **"A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the release, which if known by him must have materially affected his settlement with the debtor."**

If I am forty (40) years of age or older as of the Separation Date, I acknowledge that I am knowingly and voluntarily waiving and releasing any rights I may have under the federal Age Discrimination in Employment Act of 1967, as amended ("ADEA"). I also acknowledge that the consideration given for the waiver in the above paragraph is in addition to anything of value to which I was already entitled. I have been advised by this writing, as required by the ADEA that: (a) my waiver and release do not apply to any claims that may arise after my signing of this Release Agreement; (b) I should consult with an attorney prior to executing this Release Agreement; (c) I have twenty-one (21) days within which to consider this Release Agreement (although I may choose to voluntarily execute this Release Agreement earlier); (d) I have seven (7) days following the execution of this release to revoke the Release Agreement and that any such revocation must be in writing, addressed to the undersigned representative of the Company, and must be received by the Company within the seven (7) day revocation period; and (e) this Release Agreement will not be effective until the eighth day after this Release Agreement has been signed both by me and by the Company.

I represent that I understand all of the provisions herein, and that I am entering into this Release Agreement voluntarily. I further represent and acknowledge that in executing this Release Agreement I do not rely, and have not relied, upon any representation or statement made by the Company or by any of the Company's employees, officers, agents, members, directors or attorneys with regard to the subject matter, basis or effect of this Release Agreement or otherwise.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned parties have caused this Agreement to be executed as of the date first set forth above.

TALFOURD H. KEMPER, JR.

_____
Signature

_____
Print Name

LUNA INNOVATIONS INCORPORATED

By: _____
Signature

_____
Print Name

_____
Print Title

Exhibit 21.1

SUBSIDIARIES

Luna Technologies, Inc.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our report dated March 29, 2012, with respect to the consolidated financial statements and schedule included in the Annual Report of Luna Innovations Incorporated on Form 10-K for the year ended December 31, 2011. We hereby consent to the incorporation by reference of said report in the Registration Statements of Luna Innovations Incorporated on Form S-8 (File No. 333-138745, effective November 16, 2006).

/s/ GRANT THORNTON LLP

McLean, VA
March 29, 2012

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, My E. Chung, certify that:

1. I have reviewed this annual report on Form 10-K of Luna Innovations Incorporated;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c. evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d. disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a. all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b. any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 29, 2012

/s/ MY E. CHUNG

My E. Chung
President and Chief Executive Officer
(principal executive officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Dale E. Messick, certify that:

1. I have reviewed this annual report on Form 10-K of Luna Innovations Incorporated;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c. evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d. disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a. all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b. any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 29, 2012

/s/ DALE E. MESSICK

Dale E. Messick
Chief Financial Officer
(principal financial officer)

Exhibit 32.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the annual report of Luna Innovations Incorporated (the "Company") on Form 10-K for the year ended December 31, 2011 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, My E. Chung, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

This certification accompanies this Report to which it relates, shall not be deemed "filed" with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Report), irrespective of any general incorporation language contained in such filing.

/s/ MY E. CHUNG

My E. Chung
President and Chief Executive Officer
(principal executive officer)

March 29, 2012

Exhibit 32.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the annual report of Luna Innovations Incorporated (the "Company") on Form 10-K for the year ended December 31, 2011 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Dale E. Messick, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

This certification accompanies this Report to which it relates, shall not be deemed "filed" with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Report), irrespective of any general incorporation language contained in such filing.

/s/ DALE E. MESSICK

Dale E. Messick
Chief Financial Officer
(principal financial officer)

March 29, 2012